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# Fireplace Products International, Ltd.

Project # 23-153

Model: CI2700-1

AKA: HI500-1

Type: Catalytic Fireplace Insert Heater

July 5, 2023

**Revised:** October 20, 2023

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**ASTM E2780 Standard Test Method for  
Determining Particulate Matter Emissions  
from Wood Heaters  
EPA Test Method 28R for Certification  
and Auditing of Wood Heaters**

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## Revision Summary

Date: July 5, 2023 – Original Issue

Date: October 20, 2023 – Updated analytical balance calibration sheet in Appendix C, see page 339 of Non-CBI report.

## Contents

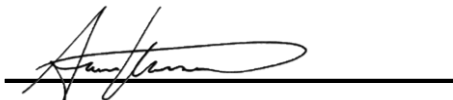
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## Affidavit

PFS-TECO was contracted by Fireplace Products International (FPI) to provide testing services for the CI2700-1 Catalytic Wood-Fired Room Heater per EPA Method 28R, *Certification and Auditing of Wood Heaters*. All testing and associated procedures were conducted at PFS-TECO's Portland Laboratory beginning on 6/19/2023 and ending on 6/23/2023. PFS-TECO's Portland Laboratory is located at 11785 SE Highway 212 – Suite 305, Clackamas, Oregon 97015. Testing procedures followed EPA Method 28R and ASTM E2780, *Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters*. Particulate sampling was performed per ASTM E2515, *Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel*.

PFS-TECO is accredited by the U.S. Environmental Protection Agency for the certification and auditing of wood heaters pursuant to subpart AAA of 40 CFR Part 60, New Source Performance Standards for Residential Wood Heaters and subpart QQQQ of 40 CFR Part 60, Standards of Performance for New Hydronic Heaters and Forced Air Furnaces, Methods 28R, 28WHH, 28 WHH-PTS, and all methods listed in Sections 60.534 and 60.5476. PFS-TECO holds EPA Accreditation Certificate Numbers 4 and 4M (mobile). PFS-TECO is accredited by IAS to ISO 17020:2012 "Criteria for Bodies Performing Inspections", and ISO 17025:2017 "Requirements for Testing Laboratories." PFS-TECO is also accredited by Standards Council of Canada to ISO 17065:2012 "Requirements for Bodies Operating Product Certification Systems."

The following people were associated with the testing, analysis and report writing associated with this project.



Aaron Kravitz, Testing Supervisor



## Introduction

FPI contracted with PFS-TECO to perform EPA certification testing on the CI2700-1 Wood-Fired Room Heater. All testing was performed at PFS-TECO's Portland Laboratory. All testing was performed by Aaron Kravitz.

## Notes

- Prior to start of testing, 50 hours of conditioning was performed by the manufacturer at a medium burn setting in accordance with ASTM E2780.
- Prior to start of testing, the dilution tunnel was cleaned with a steel brush.
- A separate, independent, third filter train was utilized to determine 1<sup>st</sup> hour emissions for all test runs.
- A total of 5 test runs were completed. One test run in each of the 4 specified burn rate categories, as well as a fan confirmation test performed at a category 2 burn rate. All runs have been found to be appropriate, no anomalies occurred. See the Run Narrative section for further detail on each run.

## Wood Heater Identification and Testing

- Appliance Tested: **CI2700-1**
- Serial Number: **PFS Tracking Number 150**
- Manufacturer: **FPI**
- Catalyst: **Yes**
- Heat exchange blower: **Optional**
- Type: **Wood Stove**
- Style: **Insert**
- Date Received: **Thursday, June 08, 2023**
- Testing Period – Start: **Monday, June 19, 2023**  
Finish: **Friday, June 23, 2023**
- Test Location: **PFS TECO**  
**11785 SE Hwy 212**  
**Clackamas, OR 97015**
- Elevation: **~131 Feet above sea level**
- Test Technician(s): **Aaron Kravitz**
- Observers: **None**

## Test Procedures and Equipment

All Sampling and analytical procedures were performed by Aaron Kravitz. All procedures used are directly from ASTM E2780 and ASTM E2515. See the list below for equipment used. See Appendix C submitted with this report for calibration data.

### Equipment List:

Equipment ID#	Equipment Description
50	Digiweigh DWP12i Platform Scale
53	APEX XC-60-ED Digital Emissions Sampling Box A
54	APEX XC-60-ED Digital Emissions Sampling Box B
203	APEX XC-50-DIR Digital Emissions Sampling Box C
55	Apex Ambient Air Sample Box
57	California Analytical ZRE CO2/CO/O2 IR ANALYZER
94	Moisture meter calibration block
95	Anemometer
97	10 lb audit weight
107	Sartorius Analytical Balance
109A/B	Troemner 100mg/200mg Audit Weights
111	Microtector
115	Delmhorst Wood Moisture Meter
189	Mettler 3'x3' floor scale w/digital weight indicator
202	Digital Barometer
207	Dewalt Tape Measure
208	Digital Calipers
215	Temperature Logger
CC121798	Gas Analyzer Calibration Span Gas
CC139173	Gas Analyzer Calibration Mid Gas

## Results

A total of 5 test runs were performed on the CI2700-1. Run #5, a fan confirmation test, was not used in any weighted average results calculations. The weighted average emissions rate for the 4 run test series was measured to be **1.1 g/hr** with a Higher Heating Value efficiency of **77%**. The average CO emission rate for the 4 tests was **0.5 g/min**. The FPI CI2700-1 Wood-Fired Room Heater meets the 2020 cribwood PM emission standard of  $\leq 2.0$  g/hr per CFR 40 part 60, §60.532 (b).

Detailed individual run data can be found in Appendix A submitted with this report.

### Summary Table

	Cat. 2 $\leq 1.00$ kg/hr.	Cat. 2 0.80 - 1.25 kg/hr.	Cat. 3 1.25 - 1.90 kg/hr.	Cat. 4 Max Burn Rate	Fan Confirmation (Cat. 2)*
Date	6/19/2023	6/21/2023	6/20/2023	6/21/2023	6/22/2023
Run Number	1	3	2	4	5
Emission Rate (g/hr)	1.04	0.82	1.35	1.12	0.79
Burn Rate (kg/hr)	0.97	1.22	1.61	1.96	1.04
Heat Output (Btu/hr)	14,291	17,576	22,102	27,168	14,766
Overall Efficiency (% HHV)	79%	77%	74%	74%	77%
CO Emissions (g/MJ Output)	2.98	0.81	1.84	0.92	2.24
CO Emissions (g/kg Dry Fuel)	46.40	12.40	26.86	13.50	33.95
CO Emissions (g/min)	0.75	0.25	0.71	0.44	0.58
Emissions – 1 <sup>st</sup> hr (g/hr)	4.80	3.10	3.18	2.48	2.45
<b>Weighted particulate emission average of 4 test runs: 1.1 grams per hour.</b>					
<b>Weighted average HHV efficiency of 4 test runs: 77%.</b>					
<b>Average CO Emissions Rate: 0.5 g/min</b>					

\*Fan Confirmation test not included in weighted average calculations.

## Test Run Narrative

### *Run 1*

Run 1 was performed on 6/19/2023 as a category 2 test, per EPA Method 28R. The total test time was 318 minutes. The particulate emissions rate for the test was 1.04 g/hr, the burn rate was 0.97 kg/hr with an HHV efficiency of 78.7%. All test results were appropriate and valid. There were no anomalies and all test criteria were met. This test meets the burn rate requirements described in EPA Method 28 Section 8.1.1.3.2 as a category 2 test with a burn rate of 1.00 kg/hr or less for wood stoves that cannot be operated at burn rates less than 0.8 kg/hr. This test was performed with the air control set to its lowest setting, it is not possible to operate the stove at a lower air setting. Therefore, this test will be used in lieu of a category 1 test.

### *Run 2*

Run 2 was performed on 6/20/2023 as an attempted category 4 test, per EPA Method 28R. The total test time was 197 minutes. The particulate emissions rate for the test was 1.35 g/hr, the burn rate was 1.61 kg/hr with an HHV efficiency of 73.9%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

### *Run 3*

Run 3 was performed on 6/21/2023 as a category 2 test, per EPA Method 28R. The total test time was 252 minutes. The particulate emissions rate for the test was 0.82 g/hr, the burn rate was 1.22 kg/hr with an HHV efficiency of 77.1%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

### *Run 4*

Run 4 was performed on 6/22/2023 as a category 4 test, per EPA Method 28R. The total test time was 157 minutes. The particulate emissions rate for the test was 1.12 g/hr, the burn rate was 1.96 kg/hr with an HHV efficiency of 74.4%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

### *Run 5*

Run 5 was performed on 6/23/2023 as a category 2 fan confirmation test, per EPA Method 28R. The total test time was 288 minutes. The particulate emissions rate for the test was 0.79 g/hr with a burn rate of 1.04 kg/hr. All test results were appropriate and valid. There were no anomalies and all test criteria were met. Since the particulate emissions rate is within 1.0 g/hr of the other category 2 test (run 3, 0.82 g/hr) the blower is determined not to have a significant impact on emissions performance and may therefore be approved as an optional accessory. This test run is not included in the weighted average calculations presented in the results summary.

## Test Conditions Summary

Testing conditions for all runs fell within allowable specifications of the ASTM 2780 and ASTM E2515. A summary of facility conditions, fuel burned, and run times is listed below.

Run	Ambient (°F)		Relative Humidity (%)		Average Barometric Pressure (In. Hg.)	Preburn Fuel Weight (lbs)	Test Fuel Weight (lbs)	Test Fuel Moisture (%DB)	Test Run Time (Min)
	Pre	Post	Pre	Post					
1	64	65.5	47.3	44.2	29.82	12.3	13.54	20.0	318
2	67	69.5	36.9	31.8	30.05	11.89	13.89	20.3	197
3	71	72.7	35.5	28.7	30.02	12.68	13.50	20.3	252
4	73	73.1	41.5	36.7	29.89	12.04	13.56	20.4	157
5	73	75.5	34.1	42.1	29.82	11.95	13.25	21.8	288

## Appliance Operation and Test Settings

The appliance was operated according to procedures as described in the Operations Manual, found in Appendix B submitted with this report. Detailed run information can be found in Appendix A submitted with this report.

### Settings & Run Notes

	Pre-Burn Air Setting	Test Run Air and Fan Settings
<b>Run 1</b>	Air control fully closed	Air control fully closed, fan on low
<b>Run 2</b>	Air control fully open	Air control fully open, fan on high
<b>Run 3</b>	Air control open 1/8"	Air control open 1/8", fan on low
<b>Run 4</b>	Air control fully open	Air control fully open, fan on high
<b>Run 5</b>	Air control open 1/8"	Air control open 1/8", fan off (fan confirmation)

## Appliance Description

**Model(s):** CI2700-1

**Appliance Type:** Catalytic Wood-Fired Fireplace Insert

**Additional Models:** HI500-1

**Additional Model Discussion:** The additional model HI500-1's only distinction from the CI2700-1 is that it features a decorative cast iron faceplate in place of the CI2700-1's low profile sheet steel faceplate. All components that may affect emissions performance as specified by 40 CFR § 60.533(k) are identical across the two models.

**Usable Firebox Volume:** 1.83 ft<sup>3</sup>

**Air Introduction System:** Primary combustion air enters the appliance through the air control opening located on the bottom front of the stove. Air is routed up the sides of the firebox, then down into the combustion chamber in front of the door glass. Secondary air brought in through a fixed opening on the bottom rear of the appliance and is routed up the back of the firebox and feed into a secondary air tube. Dimensions on all these features can be found in Appendix D.

**Baffles:** Combustion air is routed to the front of the stove with a steel baffle that sits on top of the secondary air tubes, then back and through the catalytic combustor.

**Catalytic Combustor:** A 18" x 3", 3.5" thick ceramic catalyst is located in the flue gas path just prior to the flue collar. A bypass door located in the baffle is actuated via a handle located on the left side of the appliance. When the handle is pulled forward, the bypass plate opens allowing flue gasses to exit the firebox directly into the flue. When pushed back, all flue gasses are routed through the catalyst.

**Refractory Insulation:** The firebox is lined with 1.25" thick high-density firebrick.

**Flue Outlet:** 6-inch exhaust outlet located on the top of the appliance.

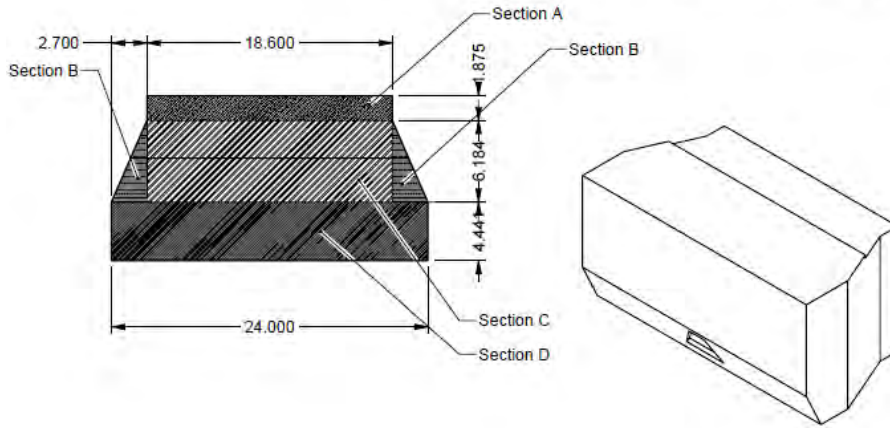
**Fan:** An optional variable speed convection fan is mounted to the rear of the appliance.

Appliance design drawings can be found in Appendix D submitted with the CBI copy of this report.

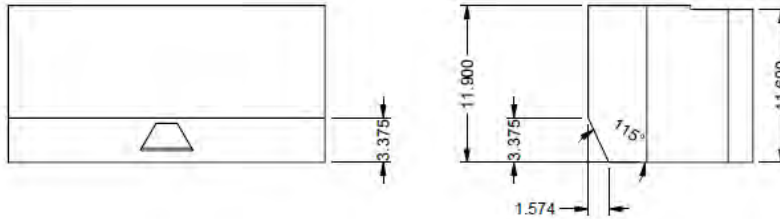


# Firebox Volume Dimension

CI2700/HI500 Firebox Volume



Section A:  $18.6 \times 11.6 \times 1.875 = 404.6$   
 Section B:  $2.7 \times 11.6 \times 6.184 = 193.68$   
 Section C:  $18.6 \times ((11.9+11.6)/2) \times 6.184 = 1,351.51$   
 Section D:  $(24 \times 11.9 \times 4.44) - (24 \times 3.375 \times 1.574)/2 = 1,204.6$   
 Total Volume = A + B + C + D  
 Total Volume =  $404.6 + 193.68 + 1,351.51 + 1,204.6 = 3,154.4 \text{ in}^3$   
 Total Volume =  $3,154.4 \text{ in}^3 = 1.83 \text{ ft}^3$



Appliance Front



Appliance Left



### Appliance Right



### Appliance Rear





## Test Fuel Properties

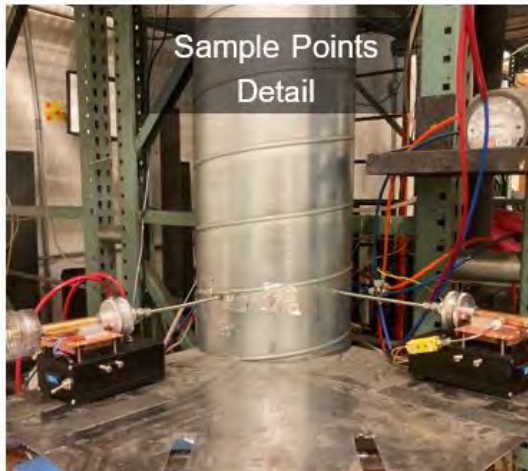
Test fuel used was Douglas Fir dimensional lumber, air-dried to the specified moisture content range. A typical fuel load is pictured below:

Typical Fuel Load



## Sampling Locations and Descriptions

Sample ports are located 16.5 feet downstream from any disturbances and 3.5 feet upstream from any disturbances. Flow rate traverse data was collected 8 feet downstream from any disturbances and 4 feet upstream from any disturbances. (See below).



## Sampling Methods

ASTM E2515 was used in collecting particulate samples. The dilution tunnel is 12 inches in diameter. All sampling conditions per ASTM E2515 were followed. No alternate procedures were used.

## Analytical Methods Description

All sample recovery and analysis procedures followed ASTM E2515 procedures. At the end of each test run, filters, O-Rings and probes were removed from their housings dessicated for a minimum of 24 hours, and then weighed at 6 hour intervals to a constant weight per ASTM E2515-11 Section 10. .

## Calibration, Quality Control and Assurances

Calibration procedures and results were conducted per EPA Method 28R and ASTM E2515-11. Test method quality control procedures (leak checks, volume meter checks, stratification checks, proportionality results) followed the procedures outlined.

## Appliance Sealing and Storage

Upon completion of testing, the appliance was secured with metal strapping and the seal below was applied, the appliance was then returned to the manufacturer's location at: 6988 Venture St, Delta, BC V4G 1H4, Canada, for archival.

### Sealing Label

**ATTENTION:**

THIS SEAL IS NOT TO BE BROKEN WITHOUT PRIOR AUTHORIZATION FROM THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY.

THIS APPLIANCE HAS BEEN SEALED INACCORDANCE WITH REQUIREMNTS OF 40CFR PART 60 SUBPART AAA §60.535 (a)(2)(vii)

REPORT # \_\_\_\_\_ DATE SEALED \_\_\_\_\_  
MANUFACTURER \_\_\_\_\_ MODEL # \_\_\_\_\_



### Sealed Unit



## List of Appendices

The following appendices have been submitted electronically in conjunction with this report:

Appendix A – Test Run Data, Technician Notes, and Sample Analysis

Appendix B – Labels and Manuals

Appendix C – Equipment Calibration Records

Appendix D – Design Drawings (CBI Report Only)

Appendix E – Manufacturer QAP (CBI Report Only)



# EPA Method 28R Weighted Average Emissions

Client: FPI  
 Stove Model: CI2700I-1  
 Test Dates: 6/19/23 - 6/23/23  
 Job Number: 23-153

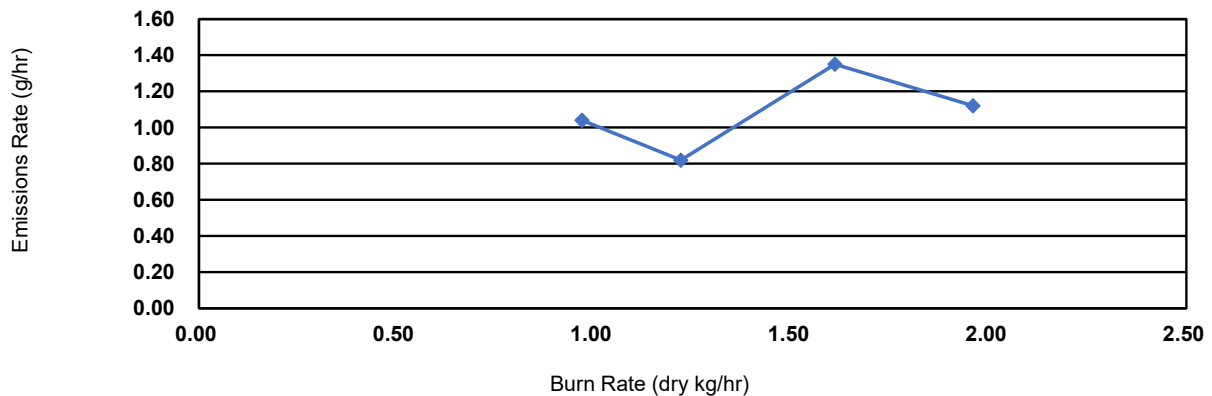
Signature/Date:  7/3/23

<b>Weighted Average Particulate Emissions (g/hr):</b>	<b>1.1</b>
<b>Weighted Average HHV Efficiency (%):</b>	<b>76.6%</b>
<b>Weighted Average LHV Efficiency (%):</b>	<b>82.8%</b>
<b>Average CO Emissions (g/min):</b>	<b>0.5</b>

### Individual Run Summaries

<p>Run Number: 1</p> <p>Burn Rate (dry kg/hr): 0.97</p> <p>Emissions Rate (g/hr): 1.04</p> <p>HHV Efficiency (%): 78.7%</p> <p>LHV Efficiency (%): 85.0%</p> <p>Weighting Percentage (%): 35.86%</p>	<p>Run Number: 3</p> <p>Burn Rate (dry kg/hr): 1.22</p> <p>Emissions Rate (g/hr): 0.82</p> <p>HHV Efficiency (%): 77.1%</p> <p>LHV Efficiency (%): 83.4%</p> <p>Weighting Percentage (%): 29.27%</p>
<p>Run Number: 2</p> <p>Burn Rate (dry kg/hr): 1.61</p> <p>Emissions Rate (g/hr): 1.35</p> <p>HHV Efficiency (%): 73.9%</p> <p>LHV Efficiency (%): 79.8%</p> <p>Weighting Percentage (%): 22.36%</p>	<p>Run Number: 4</p> <p>Burn Rate (dry kg/hr): 1.96</p> <p>Emissions Rate (g/hr): 1.12</p> <p>HHV Efficiency (%): 74.4%</p> <p>LHV Efficiency (%): 80.4%</p> <p>Weighting Percentage (%): 12.51%</p>

**Emission Rate vs Burn Rate Plot**



**WOOD STOVE TEST DATA PACKET**  
**ASTM E2780/E2515**



**Run 1 Data Summary**

Client: FPI  
Model: C12700-1  
Job #: 23-153  
Tracking #: 150  
Test Date: 6/19/2023

  
\_\_\_\_\_  
Technician Signature

7/3/2023  
\_\_\_\_\_  
Date

## TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI

Model: CI2700-1

Run #: 1

Job #: 23-153

Tracking #: 150

Technician: AK

Date: 6/19/2023

<b>Burn Rate (kg/hr):</b>	<b>0.97</b>
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft <sup>3</sup> )	148.265	49.017	46.746	9.515
Average Gas Velocity in Dilution Tunnel (ft/sec)	7.1			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	19266.8			
Average Gas Meter Temperature (°F)	65.1	91.2	89.8	75.3
Total Sample Volume (dscf)	152.096	47.515	45.010	9.235
Average Tunnel Temperature (°F)	80.0			
Total Time of Test (min)	318			
Total Particulate Catch (mg)	0.0	2.5	2.5	2.3
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000526	0.0000555	0.0002491
Total PM Emissions (g)	0.00	5.37	5.67	4.80
Particulate Emission Rate (g/hr)	0.00	1.01	1.07	4.80
Emissions Factor (g/kg)	-	1.04	1.10	-
Difference from Average Total Particulate Emissions (g)	-	0.15	0.15	-
Difference from Average Total Particulate Emissions (%)	-	2.7%	2.7%	-
Difference from Average Emissions Factor (g/kg)	-	0.03	0.03	-

<b>Final Average Results</b>	
Total Particulate Emissions (g)	5.52
Particulate Emission Rate (g/hr)	1.04
Emissions Factor (g/kg)	1.07
HHV Efficiency (%)	78.7%
LHV Efficiency (%)	85.0%
CO Emissions (g/min)	0.75

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	74.1	OK
Face Velocity	< 30 ft/min	8.7	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min:60.6/Max:67.1	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	98.8	OK

## B415.1 Efficiency Results

**Manufacturer:** FPI  
**Model:** CI2700-1  
**Date:** 06/19/23  
**Run:** 1  
**Control #:** 23-153  
**Test Duration:** 318  
**Output Category:** 2

### Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
<b>Overall Efficiency</b>	78.7%	85.0%
<b>Combustion Efficiency</b>	96.8%	96.8%
<b>Heat Transfer Efficiency</b>	81.3%	87.9%

<b>Output Rate (kJ/h)</b>	15,065	14,291	<b>(Btu/h)</b>
<b>Burn Rate (kg/h)</b>	0.97	2.13	<b>(lb/h)</b>
<b>Input (kJ/h)</b>	19,151	18,167	<b>(Btu/h)</b>

<b>Test Load Weight (dry kg)</b>	5.12	11.29	<b>dry lb</b>
<b>MC wet (%)</b>	16.66		
<b>MC dry (%)</b>	19.99		
<b>Particulate (g )</b>	5.52		
<b>CO (g)</b>	238		
<b>Test Duration (h)</b>	5.30		

Emissions	Particulate	CO
<b>g/MJ Output</b>	0.07	2.98
<b>g/kg Dry Fuel</b>	1.08	46.40
<b>g/h</b>	1.04	44.86
<b>g/min</b>	0.02	0.75
<b>lb/MM Btu Output</b>	0.16	6.92

<b>Air/Fuel Ratio (A/F)</b>	11.48
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VERSION:

2.4

4/15/2010

# WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	10.00	20.3		2x4	15.00	20.0
2x4	10.00	19.1		2x4	15.00	22.5
2x4	10.00	19.1				
2x4	10.00	19.6				
2x4	10.00	21.6				
2x4	15.00	20.1				
2x4	15.00	19.5				
2x4	15.00	19.8				
Total Fuel Weight (lbs):		12.3		Average Moisture (%DB):		20.2

Firebox Volume (ft<sup>3</sup>): 1.83  
 Total 2x4 Crib Weight, with spacers (lbs): 4.81  
 Total 4x4 Crib Weight, with spacers (lbs): 8.73  
 Total Wet Fuel Weight, with spacers (lbs): 13.54

**Coal Bed Range (20-25%):**  
 Min (lbs): 2.71  
 Max (lbs): 3.39

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	15.00	1.74	20.0	20.4	19.6	1.45
2x4	20.00	2.20	19.7	19.4	19.2	1.84
4x4	15.00	3.44	19.8	19.1	20.8	2.87
4x4	20.00	4.87	21.1	20.4	20.4	4.04
Total Dry Weight, no spacers (lbs):						10.20
Total Dry Weight, with spacers (lbs):						11.37

Spacer Moisture Readings (%DB)						
9.7	9.2					
9.3	7.5					
9.7	10.2					
13.5	11.8					
11.9	10.6					
13.9	7.4					

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft <sup>3</sup> , DB)	28.8	OK
Loading Density	6.3 - 7.7 (lbs/ft <sup>3</sup> , WB)	7.40	OK
2x4 Fuel Mix	35 - 65 % of total weight	36%	OK

# DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: **FPI**  
 Model: **CI2700-1**  
 Run #: **1**  
 Test Start Time: **13:28**

Job #: **23-153**  
 Tracking #: **150**  
 Technician: **AK**  
 Date: **6/19/2023**

Total Sampling Time (min): **318**  
 Recording Interval (min): **1**

Meter Box  $\gamma$  Factor: **1.010** (A)  
 Meter Box  $\gamma$  Factor: **1.001** (B)  
 Meter Box  $\gamma$  Factor: **0.985** (C)  
 Meter Box  $\gamma$  Factor: **1.024** (Ambient)

Induced Draft Check (in. H<sub>2</sub>O): **0**  
 Smoke Capture Check (%): **100%**  
 Date Flue Pipe Last Cleaned: **6/16/2023**

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.81	29.83	29.82
Relative Humidity (%)	47.3	44.2	
Room Air Velocity (ft/min)	0	0.0	
Scale Audit (lbs)	10.0	10.0	
Ambient Sample Volume:	148.265 ft <sup>3</sup>		

	Pre-Test		Post-Test	
	cfm	@ in Hg	cfm	@ in Hg
Leak Checks Pitot	0		0	
A	0.000	-5	0.000	-5
B	0.000	-5	0.000	-5
C	0.000	-5	0.000	-5
Ambient	0.000	-12	0.000	-13

## DILUTION TUNNEL FLOW

### Traverse Data

Point	dP (in H <sub>2</sub> O)	Temp (°F)
1	0.006	91
2	0.012	91
3	0.014	91
4	0.014	90
5	0.012	90
6	0.008	90
7	0.008	90
8	0.010	90
9	0.014	89
10	0.014	89
11	0.012	89
12	0.008	88
Center	0.016	88

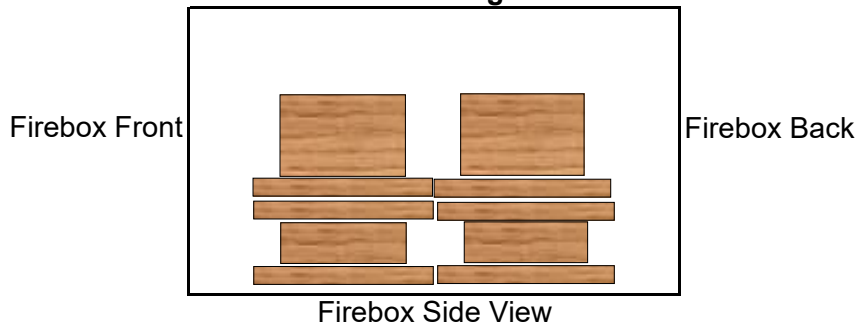
Dilution Tunnel H<sub>2</sub>O: **2.00** percent  
 Tunnel Diameter: **12** inches  
 Pitot Tube Cp: **0.99** [unitless]  
 Dilution Tunnel MW(dry): **29.00** lb/lb-mole  
 Dilution Tunnel MW(wet): **28.78** lb/lb-mole  
 Tunnel Area: **0.7854** ft<sup>2</sup>

$V_{strav}$ : **7.05** ft/sec  
 $V_{scent}$ : **8.56** ft/sec  
 $F_p$ : **0.823** [ratio]  
 Initial Tunnel Flow: **311.3** scf/min

Static Pressure: **-0.080** in. H<sub>2</sub>O

## TEST FUEL PROPERTIES

### Fuel Load Configuration



### Actual Fuel Used Properties

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	20.0

# WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Recording Interval (min): 1  
 Run Time (min): 82

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
0	6.06	-0.089	563	509	524	1008	386	597.8	505	66	
1	5.95	-0.086	561	511	526	1007	387	598.7	454	67	
2	5.86	-0.083	565	513	525	996	388	597.5	429	66	
3	5.78	-0.081	566	517	519	982	387	594.1	411	67	
4	5.70	-0.077	568	519	513	972	386	591.7	401	67	
5	5.61	-0.079	569	521	507	964	384	589.0	390	66	
6	5.52	-0.077	566	522	502	956	382	585.5	384	67	
7	5.45	-0.077	569	522	497	947	380	583.0	379	67	
8	5.38	-0.077	569	522	492	939	378	580.0	374	67	
9	5.31	-0.077	570	522	488	931	376	577.4	371	67	
10	5.24	-0.076	571	522	484	923	374	574.9	369	67	
11	5.16	-0.076	571	521	481	916	372	572.0	366	67	
12	5.09	-0.075	568	519	478	908	371	568.8	364	67	
13	5.01	-0.075	568	518	475	902	369	566.5	362	67	
14	4.94	-0.075	566	519	474	895	367	564.2	358	67	
15	4.88	-0.075	566	517	472	888	366	561.7	355	67	
16	4.83	-0.072	563	515	471	880	365	558.8	351	66	
17	4.78	-0.072	562	514	471	871	363	556.3	349	66	
18	4.73	-0.072	560	512	470	861	362	553.0	346	66	
19	4.69	-0.072	559	511	470	849	361	550.0	342	66	
20	4.64	-0.071	556	513	470	836	360	546.9	340	66	
21	4.59	-0.069	555	512	471	823	359	543.9	338	66	
22	4.55	-0.069	552	512	472	811	358	540.9	337	66	
23	4.51	-0.069	550	510	474	799	357	538.0	334	66	
24	4.46	-0.069	548	510	476	788	356	535.7	333	66	
25	4.42	-0.069	546	509	479	778	356	533.7	331	66	
26	4.38	-0.069	544	507	482	769	355	531.6	330	66	
27	4.33	-0.068	541	507	484	760	355	529.4	327	66	
28	4.27	-0.068	541	506	485	752	354	527.7	325	66	
29	4.24	-0.066	539	506	485	746	354	525.8	322	66	
30	4.18	-0.067	538	505	486	739	353	523.9	322	66	
31	4.14	-0.066	536	504	486	733	353	522.3	319	65	
32	4.11	-0.066	533	503	487	727	353	520.4	317	65	
33	4.06	-0.065	532	501	488	720	353	518.9	316	65	
34	4.03	-0.064	530	499	489	714	353	516.9	312	65	
35	4.00	-0.064	530	499	490	708	353	515.8	310	64	
36	3.96	-0.064	527	498	489	702	353	513.5	307	64	
37	3.93	-0.064	524	496	487	696	352	511.2	306	64	
38	3.90	-0.065	523	495	485	689	352	508.8	303	63	
39	3.87	-0.063	519	494	482	683	352	506.0	302	63	
40	3.84	-0.063	518	492	480	677	352	503.6	300	63	
41	3.81	-0.062	516	491	477	671	351	501.3	298	62	
42	3.80	-0.060	516	487	475	665	351	498.9	298	63	
43	3.79	-0.060	516	486	473	659	351	497.1	296	63	
44	3.77	-0.061	513	485	471	655	351	494.8	293	63	

## WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Recording Interval (min): 1  
 Run Time (min): 82

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
45	3.75	-0.061	510	483	469	649	350	492.3	293	64	
46	3.73	-0.060	509	481	466	645	350	490.2	292	64	
47	3.70	-0.058	508	480	462	640	350	488.1	291	64	
48	3.68	-0.059	506	479	459	636	351	486.1	288	64	
49	3.66	-0.060	503	476	456	632	351	483.4	288	64	
50	3.63	-0.058	502	476	451	627	351	481.4	287	64	
51	3.62	-0.059	499	474	447	623	351	478.9	284	64	
52	3.60	-0.057	497	473	444	619	352	476.8	283	65	
53	3.58	-0.056	496	471	440	615	352	474.7	282	65	
54	3.56	-0.056	494	470	436	611	352	472.6	279	65	
55	3.54	-0.056	492	468	433	608	353	470.5	279	65	
56	3.53	-0.056	488	466	430	605	353	468.2	278	65	
57	3.51	-0.055	487	464	427	601	354	466.6	276	65	
58	3.49	-0.055	485	463	424	598	354	464.7	276	65	
59	3.48	-0.056	484	461	422	595	354	463.0	275	65	
60	3.46	-0.056	482	459	419	592	354	461.2	273	65	



## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 1Technician: AKDate: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.016	1.25	71	0.8		13.55		85	328	70	64
1	0.130	0.130	0.017	1.85	71	0.9	-	13.51	-0.04	89	353	71	63
2	0.270	0.140	0.017	1.89	71	0.8	-	13.37	-0.14	86	357	71	63
3	0.404	0.134	0.017	1.91	71	0.8	-	13.21	-0.16	85	384	71	63
4	0.548	0.144	0.017	1.95	71	0.8	-	13.05	-0.16	86	416	71	63
5	0.685	0.137	0.017	1.97	71	0.9	-	12.88	-0.17	86	438	71	63
6	0.825	0.140	0.017	1.99	71	0.9	-	12.75	-0.13	83	387	71	64
7	0.969	0.144	0.017	2.01	71	0.8	-	12.65	-0.10	82	360	71	64
8	1.107	0.138	0.017	2.03	72	0.8	-	12.56	-0.09	81	347	71	64
9	1.252	0.145	0.017	2.03	72	0.8	-	12.43	-0.13	81	340	71	63
10	1.394	0.142	0.017	2.06	72	0.9	95	12.32	-0.11	81	336	71	63
11	1.538	0.144	0.017	2.06	72	0.9	-	12.21	-0.11	81	337	71	63
12	1.680	0.142	0.017	2.08	72	0.9	-	12.09	-0.12	81	336	71	63
13	1.823	0.143	0.017	2.09	72	0.9	-	11.97	-0.12	81	337	71	63
14	1.970	0.147	0.017	2.10	72	0.8	-	11.83	-0.14	80	339	71	64
15	2.112	0.142	0.017	2.11	72	0.9	-	11.69	-0.14	80	342	71	63
16	2.258	0.146	0.017	2.11	73	0.8	-	11.57	-0.12	80	343	71	63
17	2.400	0.142	0.017	2.11	73	0.9	-	11.44	-0.13	81	343	71	63
18	2.549	0.149	0.017	2.13	73	0.9	-	11.30	-0.14	81	345	71	63
19	2.692	0.143	0.017	2.13	74	0.9	-	11.16	-0.14	81	347	71	63
20	2.839	0.147	0.017	2.14	74	0.9	96	11.03	-0.13	81	348	71	63
21	2.983	0.144	0.017	2.15	74	0.9	-	10.90	-0.13	82	349	72	62
22	3.128	0.145	0.017	2.15	75	0.9	-	10.76	-0.14	82	351	72	62
23	3.276	0.148	0.017	2.16	75	0.9	-	10.62	-0.14	82	351	72	62
24	3.421	0.145	0.017	2.17	75	0.9	-	10.48	-0.14	82	350	72	62
25	3.570	0.149	0.017	2.17	75	0.9	-	10.34	-0.14	82	353	72	62
26	3.714	0.144	0.017	2.17	76	0.9	-	10.20	-0.14	82	354	72	62
27	3.864	0.150	0.017	2.19	76	0.9	-	10.06	-0.14	82	354	72	62
28	4.008	0.144	0.017	2.17	76	0.9	-	9.92	-0.14	82	355	72	62
29	4.158	0.150	0.017	2.18	77	0.9	-	9.78	-0.14	82	356	72	62
30	4.302	0.144	0.017	2.19	77	0.9	97	9.64	-0.14	82	357	72	62
31	4.453	0.151	0.017	2.19	77	0.9	-	9.50	-0.14	82	355	72	62

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.598	0.145	0.017	2.20	77	0.9	-	9.38	-0.12	82	353	72	62
33	4.749	0.151	0.017	2.20	78	0.9	-	9.28	-0.10	81	351	72	62
34	4.895	0.146	0.017	2.20	78	0.9	-	9.18	-0.10	81	351	72	63
35	5.047	0.152	0.017	2.22	78	0.9	-	9.07	-0.11	82	353	72	62
36	5.193	0.146	0.017	2.22	79	0.9	-	8.95	-0.12	82	354	72	62
37	5.345	0.152	0.017	2.22	79	0.9	-	8.83	-0.12	82	355	72	62
38	5.491	0.146	0.017	2.23	79	0.9	-	8.68	-0.15	82	356	72	62
39	5.643	0.152	0.017	2.23	79	0.9	-	8.57	-0.11	82	355	72	62
40	5.790	0.147	0.017	2.23	80	0.9	98	8.46	-0.11	82	351	72	62
41	5.941	0.151	0.017	2.24	80	0.9	-	8.34	-0.12	82	350	72	62
42	6.088	0.147	0.017	2.24	80	0.9	-	8.22	-0.12	81	349	72	62
43	6.240	0.152	0.017	2.24	80	0.9	-	8.10	-0.12	81	349	72	62
44	6.388	0.148	0.018	2.24	81	0.9	-	7.98	-0.12	81	350	72	62
45	6.540	0.152	0.017	2.25	81	0.9	-	7.86	-0.12	81	349	72	62
46	6.688	0.148	0.017	2.24	81	0.9	-	7.76	-0.10	81	348	72	62
47	6.840	0.152	0.017	2.26	82	0.9	-	7.63	-0.13	81	347	72	62
48	6.989	0.149	0.017	2.25	82	0.9	-	7.52	-0.11	81	345	72	62
49	7.141	0.152	0.017	2.26	82	0.9	-	7.42	-0.10	81	345	72	61
50	7.290	0.149	0.018	2.26	82	0.9	97	7.31	-0.11	80	345	72	61
51	7.443	0.153	0.017	2.27	83	0.9	-	7.22	-0.09	80	345	72	61
52	7.591	0.148	0.017	2.27	83	0.9	-	7.12	-0.10	80	344	72	61
53	7.744	0.153	0.017	2.27	83	0.9	-	7.03	-0.09	80	343	72	61
54	7.892	0.148	0.017	2.28	83	0.9	-	6.92	-0.11	81	343	71	61
55	8.046	0.154	0.017	2.27	84	0.9	-	6.83	-0.09	81	341	71	61
56	8.194	0.148	0.017	2.26	84	0.9	-	6.73	-0.10	81	341	71	61
57	8.348	0.154	0.017	2.28	84	0.9	-	6.63	-0.10	81	341	71	61
58	8.496	0.148	0.017	2.28	84	0.9	-	6.53	-0.10	81	341	71	61
59	8.651	0.155	0.017	2.28	84	0.9	-	6.44	-0.09	81	341	71	61
60	8.799	0.148	0.017	2.27	85	0.9	97	6.35	-0.09	81	341	71	61
61	8.954	0.155	0.017	2.29	85	0.9	-	6.26	-0.09	81	339	71	61
62	9.103	0.149	0.017	2.29	85	0.9	-	6.18	-0.08	81	339	71	61
63	9.259	0.156	0.017	2.29	85	0.9	-	6.09	-0.09	81	339	71	61

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 1Technician: AKDate: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	9.408	0.149	0.018	2.28	85	0.9	-	6.00	-0.09	81	339	71	61
65	9.562	0.154	0.017	2.29	85	0.9	-	5.92	-0.08	81	337	71	61
66	9.712	0.150	0.017	2.29	86	0.9	-	5.85	-0.07	81	335	71	61
67	9.866	0.154	0.017	2.30	86	1.0	-	5.76	-0.09	81	333	71	61
68	10.016	0.150	0.017	2.29	86	0.9	-	5.69	-0.07	80	333	71	61
69	10.169	0.153	0.017	2.29	86	0.9	-	5.61	-0.08	80	332	71	61
70	10.320	0.151	0.017	2.30	86	0.9	99	5.53	-0.08	80	331	71	61
71	10.473	0.153	0.017	2.30	86	0.9	-	5.46	-0.07	80	331	71	61
72	10.625	0.152	0.017	2.29	86	0.9	-	5.39	-0.07	80	331	71	61
73	10.778	0.153	0.017	2.29	87	0.9	-	5.32	-0.07	80	329	71	61
74	10.931	0.153	0.017	2.30	87	0.9	-	5.25	-0.07	80	327	71	61
75	11.083	0.152	0.017	2.30	87	0.9	-	5.18	-0.07	80	328	71	61
76	11.237	0.154	0.017	2.30	87	0.9	-	5.12	-0.06	80	326	71	62
77	11.388	0.151	0.017	2.30	87	0.9	-	5.07	-0.05	81	326	70	62
78	11.542	0.154	0.016	2.31	87	0.9	-	5.01	-0.06	82	326	71	62
79	11.692	0.150	0.016	2.29	87	0.9	-	4.95	-0.06	82	325	71	63
80	11.848	0.156	0.017	2.30	87	0.9	99	4.88	-0.07	82	326	71	63
81	11.997	0.149	0.017	2.30	87	0.9	-	4.82	-0.06	82	324	71	63
82	12.154	0.157	0.017	2.31	87	0.9	-	4.76	-0.06	82	323	71	63
83	12.304	0.150	0.016	2.31	88	0.9	-	4.70	-0.06	82	324	71	64
84	12.460	0.156	0.016	2.31	88	0.9	-	4.64	-0.06	82	324	71	64
85	12.611	0.151	0.016	2.31	88	1.0	-	4.57	-0.07	82	323	71	64
86	12.765	0.154	0.016	2.31	88	0.9	-	4.51	-0.06	82	322	71	64
87	12.916	0.151	0.016	2.31	88	0.9	-	4.45	-0.06	82	323	72	64
88	13.071	0.155	0.016	2.32	88	0.9	-	4.40	-0.05	82	323	72	64
89	13.223	0.152	0.016	2.30	88	0.9	-	4.33	-0.07	82	323	72	64
90	13.377	0.154	0.016	2.31	89	0.9	100	4.27	-0.06	82	322	72	64
91	13.532	0.155	0.016	2.32	89	0.9	-	4.21	-0.06	82	322	72	64
92	13.684	0.152	0.017	2.32	89	1.0	-	4.15	-0.06	82	322	72	65
93	13.839	0.155	0.016	2.32	89	0.9	-	4.10	-0.05	82	319	72	65
94	13.989	0.150	0.016	2.31	89	0.9	-	4.05	-0.05	82	318	72	65
95	14.146	0.157	0.016	2.32	89	0.9	-	3.99	-0.06	82	317	72	65

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	14.296	0.150	0.016	2.32	89	0.9	-	3.94	-0.05	82	316	73	65
97	14.454	0.158	0.016	2.31	90	0.9	-	3.88	-0.06	82	315	73	65
98	14.605	0.151	0.016	2.33	90	1.0	-	3.83	-0.05	82	315	73	65
99	14.761	0.156	0.016	2.32	90	0.9	-	3.78	-0.05	82	312	73	65
100	14.912	0.151	0.016	2.33	90	0.9	102	3.73	-0.05	82	312	73	65
101	15.068	0.156	0.017	2.33	90	0.9	-	3.68	-0.05	82	311	73	66
102	15.220	0.152	0.016	2.33	90	0.9	-	3.63	-0.05	83	312	73	66
103	15.375	0.155	0.016	2.33	90	1.0	-	3.58	-0.05	82	310	73	66
104	15.530	0.155	0.016	2.33	90	0.9	-	3.53	-0.05	83	310	73	66
105	15.683	0.153	0.017	2.34	91	0.9	-	3.47	-0.06	83	310	73	66
106	15.839	0.156	0.016	2.34	91	0.9	-	3.43	-0.04	82	307	73	66
107	15.990	0.151	0.016	2.34	91	0.9	-	3.39	-0.04	82	306	73	66
108	16.147	0.157	0.016	2.33	91	0.9	-	3.34	-0.05	82	304	73	66
109	16.299	0.152	0.016	2.33	91	0.9	-	3.30	-0.04	82	303	73	66
110	16.456	0.157	0.016	2.33	91	0.9	103	3.25	-0.05	82	302	73	66
111	16.609	0.153	0.016	2.34	91	0.9	-	3.21	-0.04	82	301	73	66
112	16.764	0.155	0.016	2.32	91	0.9	-	3.18	-0.03	82	298	73	66
113	16.917	0.153	0.016	2.33	91	0.9	-	3.13	-0.05	82	298	73	66
114	17.072	0.155	0.016	2.34	92	0.9	-	3.09	-0.04	82	297	74	66
115	17.228	0.156	0.016	2.33	92	0.9	-	3.04	-0.05	83	296	74	66
116	17.381	0.153	0.017	2.33	92	0.9	-	3.01	-0.03	83	295	74	66
117	17.538	0.157	0.017	2.35	92	0.9	-	2.97	-0.04	83	292	74	66
118	17.689	0.151	0.016	2.33	92	0.9	-	2.94	-0.03	82	291	74	66
119	17.847	0.158	0.016	2.33	92	0.9	-	2.91	-0.03	82	291	74	66
120	17.999	0.152	0.017	2.34	92	0.9	101	2.88	-0.03	82	289	74	66
121	18.157	0.158	0.016	2.33	92	1.0	-	2.86	-0.02	82	287	74	67
122	18.309	0.152	0.016	2.34	92	0.9	-	2.83	-0.03	82	285	74	66
123	18.465	0.156	0.016	2.34	92	0.9	-	2.81	-0.02	82	283	74	66
124	18.619	0.154	0.016	2.33	92	0.9	-	2.79	-0.02	82	281	74	66
125	18.775	0.156	0.016	2.34	93	0.9	-	2.76	-0.03	82	280	74	66
126	18.931	0.156	0.016	2.34	93	0.9	-	2.74	-0.02	82	278	74	66
127	19.084	0.153	0.016	2.35	93	0.9	-	2.72	-0.02	82	275	74	66

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 1Technician: AKDate: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	19.241	0.157	0.016	2.34	93	0.9	-	2.70	-0.02	82	273	74	66
129	19.392	0.151	0.016	2.34	93	0.9	-	2.68	-0.02	82	272	74	67
130	19.551	0.159	0.016	2.34	93	0.9	101	2.66	-0.02	82	270	74	67
131	19.704	0.153	0.016	2.34	93	0.9	-	2.65	-0.01	82	269	74	67
132	19.861	0.157	0.016	2.34	93	0.9	-	2.63	-0.02	82	267	74	67
133	20.014	0.153	0.017	2.35	93	1.0	-	2.61	-0.02	82	265	74	66
134	20.170	0.156	0.016	2.34	93	0.9	-	2.59	-0.02	82	264	74	67
135	20.327	0.157	0.017	2.35	93	0.9	-	2.58	-0.01	81	262	74	67
136	20.481	0.154	0.016	2.35	94	0.9	-	2.55	-0.03	81	262	74	67
137	20.637	0.156	0.016	2.35	94	0.9	-	2.54	-0.01	81	260	74	67
138	20.789	0.152	0.016	2.34	94	0.9	-	2.52	-0.02	81	259	74	67
139	20.949	0.160	0.016	2.34	94	1.0	-	2.51	-0.01	81	257	74	67
140	21.102	0.153	0.016	2.35	94	0.9	102	2.48	-0.03	81	257	74	67
141	21.259	0.157	0.016	2.35	94	1.0	-	2.47	-0.01	81	256	74	67
142	21.413	0.154	0.016	2.35	94	0.9	-	2.45	-0.02	81	255	74	67
143	21.569	0.156	0.016	2.34	94	0.9	-	2.44	-0.01	81	254	74	67
144	21.726	0.157	0.017	2.36	94	0.9	-	2.42	-0.02	81	253	74	67
145	21.880	0.154	0.016	2.36	94	0.9	-	2.40	-0.02	81	252	74	67
146	22.037	0.157	0.017	2.36	94	0.9	-	2.39	-0.01	81	252	74	67
147	22.189	0.152	0.016	2.36	94	0.9	-	2.37	-0.02	81	250	74	67
148	22.349	0.160	0.017	2.36	94	0.9	-	2.36	-0.01	81	249	74	67
149	22.503	0.154	0.016	2.36	94	1.0	-	2.34	-0.02	81	248	74	67
150	22.660	0.157	0.016	2.36	95	1.0	103	2.32	-0.02	81	246	74	67
151	22.814	0.154	0.016	2.36	95	0.9	-	2.31	-0.01	81	246	74	67
152	22.971	0.157	0.016	2.35	95	1.0	-	2.29	-0.02	81	245	74	67
153	23.129	0.158	0.017	2.36	95	0.9	-	2.27	-0.02	81	245	74	67
154	23.282	0.153	0.016	2.36	95	0.9	-	2.26	-0.01	81	245	74	67
155	23.440	0.158	0.016	2.36	95	0.9	-	2.25	-0.01	81	243	74	67
156	23.594	0.154	0.016	2.36	95	0.9	-	2.23	-0.02	81	242	74	67
157	23.753	0.159	0.017	2.37	95	1.0	-	2.22	-0.01	80	241	74	67
158	23.906	0.153	0.016	2.37	95	1.0	-	2.20	-0.02	80	239	74	67
159	24.063	0.157	0.016	2.36	95	0.9	-	2.19	-0.01	80	238	74	67

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	24.220	0.157	0.017	2.36	95	0.9	101	2.17	-0.02	81	238	74	67
161	24.375	0.155	0.017	2.36	95	0.9	-	2.16	-0.01	80	238	74	67
162	24.533	0.158	0.016	2.37	95	1.0	-	2.14	-0.02	80	237	74	67
163	24.685	0.152	0.017	2.37	95	0.9	-	2.13	-0.01	80	237	74	67
164	24.845	0.160	0.017	2.36	95	0.9	-	2.11	-0.02	80	237	74	67
165	24.999	0.154	0.017	2.36	95	0.9	-	2.09	-0.02	80	238	74	67
166	25.157	0.158	0.017	2.37	95	0.9	-	2.08	-0.01	80	237	74	67
167	25.311	0.154	0.017	2.36	95	0.9	-	2.06	-0.02	80	235	74	67
168	25.468	0.157	0.017	2.36	95	1.0	-	2.04	-0.02	80	234	74	67
169	25.626	0.158	0.017	2.37	96	0.9	-	2.03	-0.01	80	233	74	67
170	25.780	0.154	0.017	2.37	96	0.9	100	2.01	-0.02	80	233	74	67
171	25.938	0.158	0.017	2.36	96	1.0	-	1.99	-0.02	80	232	74	67
172	26.092	0.154	0.017	2.36	96	1.0	-	1.98	-0.01	80	231	74	67
173	26.252	0.160	0.017	2.37	96	1.0	-	1.97	-0.01	80	230	74	67
174	26.405	0.153	0.017	2.37	96	0.9	-	1.96	-0.01	80	230	74	67
175	26.562	0.157	0.016	2.37	96	0.9	-	1.94	-0.02	80	229	74	67
176	26.720	0.158	0.017	2.37	96	0.9	-	1.92	-0.02	80	227	74	67
177	26.876	0.156	0.017	2.37	96	0.9	-	1.91	-0.01	80	227	74	67
178	27.033	0.157	0.016	2.36	96	1.0	-	1.89	-0.02	80	227	74	67
179	27.186	0.153	0.017	2.36	96	1.0	-	1.88	-0.01	80	227	74	67
180	27.347	0.161	0.016	2.37	96	1.0	101	1.86	-0.02	80	226	74	67
181	27.501	0.154	0.017	2.37	96	0.9	-	1.85	-0.01	80	225	74	67
182	27.659	0.158	0.017	2.39	96	0.9	-	1.84	-0.01	80	225	74	67
183	27.814	0.155	0.017	2.37	96	0.9	-	1.82	-0.02	80	223	74	67
184	27.971	0.157	0.017	2.38	96	0.9	-	1.80	-0.02	80	223	74	67
185	28.130	0.159	0.016	2.38	96	0.9	-	1.79	-0.01	80	222	74	67
186	28.283	0.153	0.016	2.37	96	0.9	-	1.77	-0.02	80	222	74	67
187	28.443	0.160	0.017	2.36	96	0.9	-	1.76	-0.01	79	221	74	67
188	28.597	0.154	0.017	2.37	96	0.9	-	1.73	-0.03	79	221	74	67
189	28.755	0.158	0.017	2.38	96	0.9	-	1.73	0.00	79	221	74	67
190	28.910	0.155	0.017	2.37	97	0.9	101	1.71	-0.02	79	221	74	66
191	29.067	0.157	0.017	2.37	96	0.9	-	1.69	-0.02	79	221	74	66

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 1Technician: AKDate: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
192	29.226	0.159	0.017	2.37	96	0.9	-	1.68	-0.01	79	220	74	66
193	29.378	0.152	0.017	2.38	97	0.9	-	1.66	-0.02	79	219	74	67
194	29.538	0.160	0.017	2.37	97	0.9	-	1.66	0.00	79	219	74	67
195	29.693	0.155	0.016	2.37	97	0.9	-	1.64	-0.02	79	220	74	67
196	29.852	0.159	0.017	2.38	97	0.9	-	1.63	-0.01	79	219	74	67
197	30.006	0.154	0.017	2.38	97	0.9	-	1.61	-0.02	79	219	74	67
198	30.163	0.157	0.016	2.37	97	1.0	-	1.60	-0.01	79	219	74	67
199	30.322	0.159	0.017	2.37	97	1.0	-	1.59	-0.01	79	219	74	67
200	30.476	0.154	0.016	2.38	97	1.0	101	1.58	-0.01	79	219	74	67
201	30.635	0.159	0.016	2.38	97	0.9	-	1.55	-0.03	79	218	74	67
202	30.789	0.154	0.017	2.37	97	1.0	-	1.55	0.00	79	217	74	67
203	30.949	0.160	0.017	2.39	97	1.0	-	1.53	-0.02	80	216	74	67
204	31.103	0.154	0.016	2.38	97	1.0	-	1.52	-0.01	80	217	74	67
205	31.260	0.157	0.017	2.38	97	1.0	-	1.50	-0.02	79	217	74	67
206	31.419	0.159	0.017	2.38	97	0.9	-	1.49	-0.01	80	216	74	67
207	31.574	0.155	0.017	2.38	97	0.9	-	1.48	-0.01	79	217	74	67
208	31.733	0.159	0.016	2.38	97	1.0	-	1.46	-0.02	80	217	74	67
209	31.887	0.154	0.016	2.37	97	0.9	-	1.45	-0.01	79	216	74	67
210	32.047	0.160	0.017	2.37	97	1.0	101	1.44	-0.01	79	216	74	67
211	32.201	0.154	0.017	2.38	97	0.9	-	1.43	-0.01	79	216	74	67
212	32.359	0.158	0.016	2.37	97	0.9	-	1.41	-0.02	79	216	74	67
213	32.518	0.159	0.016	2.38	97	1.0	-	1.40	-0.01	80	216	74	67
214	32.673	0.155	0.016	2.39	97	0.9	-	1.39	-0.01	79	215	74	67
215	32.832	0.159	0.017	2.39	97	0.9	-	1.37	-0.02	79	215	74	67
216	32.986	0.154	0.017	2.38	97	1.0	-	1.35	-0.02	79	216	74	67
217	33.146	0.160	0.016	2.37	97	0.9	-	1.34	-0.01	79	216	74	67
218	33.300	0.154	0.017	2.38	97	0.9	-	1.33	-0.01	79	215	74	67
219	33.458	0.158	0.017	2.38	97	1.0	-	1.31	-0.02	79	214	74	67
220	33.617	0.159	0.017	2.38	97	0.9	100	1.30	-0.01	79	214	74	67
221	33.773	0.156	0.016	2.38	97	0.9	-	1.28	-0.02	79	214	74	67
222	33.931	0.158	0.017	2.39	97	1.0	-	1.27	-0.01	79	214	74	67
223	34.086	0.155	0.017	2.38	97	1.0	-	1.26	-0.01	79	214	74	67

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
224	34.246	0.160	0.017	2.38	97	1.0	-	1.24	-0.02	79	213	74	67
225	34.400	0.154	0.017	2.39	97	0.9	-	1.22	-0.02	79	213	74	67
226	34.558	0.158	0.016	2.38	97	0.9	-	1.21	-0.01	79	213	74	67
227	34.717	0.159	0.017	2.39	97	1.0	-	1.20	-0.01	79	212	74	67
228	34.872	0.155	0.016	2.38	97	0.9	-	1.19	-0.01	79	212	74	67
229	35.031	0.159	0.016	2.37	97	1.0	-	1.16	-0.03	79	212	74	67
230	35.185	0.154	0.017	2.38	97	1.0	100	1.15	-0.01	79	212	74	67
231	35.346	0.161	0.017	2.39	97	0.9	-	1.14	-0.01	79	212	74	67
232	35.500	0.154	0.016	2.39	97	0.9	-	1.13	-0.01	79	211	74	67
233	35.658	0.158	0.016	2.38	97	0.9	-	1.11	-0.02	79	211	74	67
234	35.817	0.159	0.017	2.39	97	1.0	-	1.10	-0.01	79	211	74	66
235	35.972	0.155	0.017	2.39	97	1.0	-	1.08	-0.02	79	210	74	67
236	36.131	0.159	0.017	2.39	97	1.0	-	1.07	-0.01	79	210	73	66
237	36.282	0.151	0.017	2.39	97	0.9	-	1.05	-0.02	79	211	73	66
238	36.441	0.159	0.017	2.38	98	0.9	-	1.03	-0.02	78	211	73	66
239	36.600	0.159	0.017	2.38	98	1.0	-	1.02	-0.01	79	211	73	66
240	36.758	0.158	0.017	2.38	97	1.0	100	1.01	-0.01	78	211	73	66
241	36.917	0.159	0.017	2.39	98	1.0	-	0.99	-0.02	78	210	73	66
242	37.072	0.155	0.016	2.39	98	1.0	-	0.97	-0.02	78	210	74	66
243	37.231	0.159	0.016	2.38	98	0.9	-	0.96	-0.01	78	210	74	66
244	37.385	0.154	0.017	2.38	98	0.9	-	0.94	-0.02	78	210	74	66
245	37.546	0.161	0.017	2.39	98	1.0	-	0.94	0.00	78	209	73	66
246	37.700	0.154	0.017	2.39	98	0.9	-	0.92	-0.02	78	209	73	66
247	37.858	0.158	0.016	2.39	98	1.0	-	0.91	-0.01	78	208	73	66
248	38.017	0.159	0.017	2.38	98	1.0	-	0.89	-0.02	78	209	73	66
249	38.171	0.154	0.016	2.39	98	1.0	-	0.88	-0.01	78	209	73	66
250	38.331	0.160	0.017	2.37	98	1.0	100	0.87	-0.01	78	208	73	66
251	38.486	0.155	0.016	2.39	98	0.9	-	0.85	-0.02	78	209	73	66
252	38.646	0.160	0.016	2.39	98	0.9	-	0.84	-0.01	78	209	73	66
253	38.800	0.154	0.017	2.38	98	1.0	-	0.82	-0.02	78	209	73	66
254	38.958	0.158	0.017	2.39	98	0.9	-	0.81	-0.01	78	209	73	66
255	39.117	0.159	0.017	2.38	98	0.9	-	0.79	-0.02	78	209	73	66



## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
256	39.271	0.154	0.016	2.38	98	1.0	-	0.78	-0.01	78	209	73	66
257	39.430	0.159	0.016	2.38	98	0.9	-	0.77	-0.01	78	209	73	66
258	39.586	0.156	0.017	2.39	98	1.0	-	0.76	-0.01	78	208	73	66
259	39.745	0.159	0.017	2.39	98	0.9	-	0.74	-0.02	78	208	73	66
260	39.900	0.155	0.017	2.39	98	1.0	99	0.73	-0.01	78	208	73	66
261	40.058	0.158	0.017	2.38	98	1.0	-	0.72	-0.01	78	207	73	66
262	40.217	0.159	0.016	2.39	98	0.9	-	0.70	-0.02	78	207	73	66
263	40.371	0.154	0.017	2.39	98	0.9	-	0.69	-0.01	78	207	73	66
264	40.531	0.160	0.016	2.39	98	1.0	-	0.67	-0.02	78	207	73	66
265	40.686	0.155	0.017	2.39	98	0.9	-	0.65	-0.02	78	207	73	66
266	40.845	0.159	0.017	2.40	98	0.9	-	0.64	-0.01	78	207	73	66
267	41.000	0.155	0.017	2.39	98	1.0	-	0.63	-0.01	77	207	73	66
268	41.158	0.158	0.017	2.39	98	0.9	-	0.62	-0.01	77	205	73	66
269	41.317	0.159	0.017	2.38	98	1.0	-	0.60	-0.02	77	205	73	66
270	41.471	0.154	0.017	2.38	98	0.9	100	0.59	-0.01	77	204	73	66
271	41.631	0.160	0.017	2.37	98	0.9	-	0.58	-0.01	77	204	73	66
272	41.786	0.155	0.016	2.39	98	1.0	-	0.56	-0.02	77	205	73	66
273	41.945	0.159	0.017	2.39	98	1.0	-	0.55	-0.01	77	203	73	66
274	42.100	0.155	0.017	2.38	98	0.9	-	0.53	-0.02	77	203	73	66
275	42.258	0.158	0.017	2.39	98	1.0	-	0.52	-0.01	77	203	73	66
276	42.418	0.160	0.017	2.39	98	1.0	-	0.51	-0.01	77	203	73	66
277	42.571	0.153	0.017	2.39	98	0.9	-	0.50	-0.01	77	204	73	66
278	42.731	0.160	0.017	2.38	98	1.0	-	0.48	-0.02	77	204	73	66
279	42.886	0.155	0.017	2.38	98	1.0	-	0.47	-0.01	77	204	73	66
280	43.045	0.159	0.017	2.39	98	1.0	100	0.46	-0.01	77	203	73	66
281	43.200	0.155	0.017	2.39	98	0.9	-	0.45	-0.01	77	202	73	66
282	43.359	0.159	0.016	2.39	98	0.9	-	0.44	-0.01	77	202	73	66
283	43.518	0.159	0.017	2.38	98	1.0	-	0.42	-0.02	77	203	73	66
284	43.671	0.153	0.017	2.39	98	0.9	-	0.41	-0.01	77	203	73	66
285	43.832	0.161	0.017	2.38	98	1.0	-	0.40	-0.01	77	203	73	66
286	43.987	0.155	0.016	2.39	98	0.9	-	0.38	-0.02	77	202	73	66
287	44.145	0.158	0.017	2.39	98	0.9	-	0.37	-0.01	77	202	73	66

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 1Technician: AKDate: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
288	44.301	0.156	0.017	2.38	98	1.0	-	0.36	-0.01	77	202	73	66
289	44.459	0.158	0.017	2.38	98	1.0	-	0.35	-0.01	77	202	73	66
290	44.618	0.159	0.017	2.38	98	0.9	100	0.34	-0.01	77	201	73	66
291	44.772	0.154	0.017	2.39	98	0.9	-	0.32	-0.02	77	201	73	66
292	44.933	0.161	0.017	2.38	98	1.0	-	0.31	-0.01	77	200	73	66
293	45.088	0.155	0.017	2.38	98	1.0	-	0.30	-0.01	77	199	73	66
294	45.245	0.157	0.016	2.38	98	0.9	-	0.29	-0.01	77	199	73	66
295	45.402	0.157	0.017	2.38	98	0.9	-	0.28	-0.01	77	199	73	66
296	45.559	0.157	0.016	2.39	98	0.9	-	0.26	-0.02	77	200	73	66
297	45.718	0.159	0.017	2.39	98	0.9	-	0.26	0.00	77	199	73	66
298	45.872	0.154	0.017	2.38	98	0.9	-	0.24	-0.02	77	198	73	66
299	46.033	0.161	0.017	2.37	98	1.0	-	0.23	-0.01	77	198	73	66
300	46.188	0.155	0.017	2.39	98	1.0	99	0.22	-0.01	77	199	73	66
301	46.346	0.158	0.017	2.39	98	0.9	-	0.21	-0.01	77	198	73	66
302	46.502	0.156	0.017	2.39	98	1.0	-	0.20	-0.01	77	197	72	66
303	46.659	0.157	0.017	2.38	98	0.9	-	0.18	-0.02	77	197	72	66
304	46.818	0.159	0.017	2.39	97	0.9	-	0.17	-0.01	77	197	72	66
305	46.971	0.153	0.017	2.37	97	0.9	-	0.16	-0.01	77	197	72	66
306	47.133	0.162	0.017	2.38	97	0.9	-	0.15	-0.01	77	197	72	66
307	47.288	0.155	0.017	2.38	97	1.0	-	0.14	-0.01	77	197	72	66
308	47.445	0.157	0.017	2.39	97	0.9	-	0.12	-0.02	77	198	72	66
309	47.603	0.158	0.017	2.38	97	0.9	-	0.11	-0.01	77	198	72	66
310	47.759	0.156	0.017	2.38	97	1.0	99	0.10	-0.01	77	197	72	66
311	47.918	0.159	0.017	2.38	97	0.9	-	0.09	-0.01	77	197	72	66
312	48.071	0.153	0.017	2.38	97	0.9	-	0.08	-0.01	77	197	72	66
313	48.233	0.162	0.017	2.38	97	0.9	-	0.06	-0.02	77	197	72	66
314	48.387	0.154	0.016	2.38	97	1.0	-	0.06	0.00	77	197	72	66
315	48.545	0.158	0.016	2.38	97	0.9	-	0.05	-0.01	77	196	72	66
316	48.702	0.157	0.017	2.38	97	1.0	-	0.03	-0.02	76	196	72	66
317	48.859	0.157	0.016	2.38	97	0.9	-	0.02	-0.01	76	196	72	66
318	49.017	0.158	0.016	2.39	97	1.0	101	0.00	-0.02	76	196	72	66
Avg/Tot	49.017	0.154	0.017	2.32	91.2	0.9	100			80.0	264.2	72.7	65.1

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
0	0.000		1.51	71	1.9		69	-0.066	5.22	0.040
1	0.133	0.133	2.06	70	1.5	-	70	-0.068	3.50	0.032
2	0.276	0.143	2.05	70	1.5	-	70	-0.074	5.34	0.055
3	0.415	0.139	2.06	70	1.9	-	70	-0.081	11.32	0.137
4	0.556	0.141	2.06	70	1.5	-	70	-0.086	12.96	0.169
5	0.697	0.141	2.06	70	1.4	-	70	-0.087	12.95	0.204
6	0.837	0.140	2.06	71	1.8	-	70	-0.074	13.64	0.760
7	0.980	0.143	2.06	71	2.0	-	70	-0.073	13.03	0.120
8	1.117	0.137	2.06	71	1.8	-	70	-0.073	12.83	0.100
9	1.261	0.144	2.07	71	2.0	-	70	-0.074	12.85	0.091
10	1.401	0.140	2.07	71	1.5	99	70	-0.074	13.23	0.116
11	1.541	0.140	2.07	71	1.7	-	70	-0.072	13.06	0.161
12	1.684	0.143	2.07	71	1.9	-	70	-0.075	13.18	0.169
13	1.824	0.140	2.07	72	2.0	-	70	-0.073	13.87	0.449
14	1.968	0.144	2.08	72	1.6	-	70	-0.074	13.99	0.868
15	2.107	0.139	2.07	73	1.6	-	70	-0.077	13.80	1.291
16	2.252	0.145	2.08	73	1.7	-	70	-0.077	13.98	1.397
17	2.392	0.140	2.08	73	1.5	-	70	-0.076	13.70	1.303
18	2.533	0.141	2.07	73	1.9	-	70	-0.077	13.79	1.348
19	2.676	0.143	2.08	73	1.5	-	70	-0.076	13.74	1.406
20	2.818	0.142	2.09	73	1.6	99	70	-0.077	13.68	1.594
21	2.962	0.144	2.09	73	1.6	-	70	-0.077	13.56	1.703
22	3.101	0.139	2.08	74	1.5	-	70	-0.077	13.57	1.728
23	3.246	0.145	2.09	74	1.5	-	70	-0.077	13.50	1.842
24	3.387	0.141	2.09	74	1.5	-	70	-0.074	13.68	1.911
25	3.530	0.143	2.09	74	1.6	-	70	-0.077	13.48	2.191
26	3.672	0.142	2.09	75	1.5	-	70	-0.077	13.45	2.337
27	3.814	0.142	2.09	75	1.8	-	70	-0.077	13.58	2.341
28	3.960	0.146	2.10	75	1.6	-	70	-0.077	13.60	2.519
29	4.100	0.140	2.10	76	1.9	-	70	-0.078	13.58	2.838
30	4.245	0.145	2.09	76	1.6	99	71	-0.076	13.51	3.010
31	4.387	0.142	2.10	76	1.9	-	71	-0.076	13.52	3.175

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
32	4.532	0.145	2.10	77	1.7	-	70	-0.075	12.33	3.327
33	4.674	0.142	2.10	77	2.0	-	70	-0.076	12.94	1.861
34	4.818	0.144	2.10	77	2.0	-	71	-0.075	13.09	1.368
35	4.961	0.143	2.10	78	1.5	-	71	-0.076	13.20	1.352
36	5.104	0.143	2.11	78	1.9	-	71	-0.077	14.12	0.645
37	5.250	0.146	2.11	78	1.5	-	71	-0.079	14.14	1.706
38	5.392	0.142	2.11	78	1.9	-	71	-0.078	13.74	2.510
39	5.538	0.146	2.11	79	2.0	-	71	-0.076	13.49	3.105
40	5.679	0.141	2.11	79	1.8	99	71	-0.074	13.76	1.800
41	5.826	0.147	2.12	79	1.8	-	71	-0.072	14.40	1.059
42	5.969	0.143	2.12	80	1.5	-	71	-0.074	14.47	1.726
43	6.115	0.146	2.12	80	1.9	-	71	-0.076	14.33	2.118
44	6.258	0.143	2.12	80	1.5	-	71	-0.074	14.22	2.203
45	6.403	0.145	2.13	80	1.9	-	71	-0.073	14.13	2.188
46	6.547	0.144	2.12	81	1.6	-	71	-0.074	14.29	1.865
47	6.691	0.144	2.12	81	1.5	-	71	-0.075	14.32	1.466
48	6.838	0.147	2.13	81	1.5	-	71	-0.072	14.32	1.221
49	6.981	0.143	2.13	81	1.5	-	71	-0.072	14.52	0.976
50	7.128	0.147	2.13	82	1.5	98	70	-0.074	14.53	0.572
51	7.271	0.143	2.13	82	1.7	-	70	-0.071	14.25	0.927
52	7.418	0.147	2.12	82	1.5	-	71	-0.072	14.36	0.680
53	7.561	0.143	2.13	82	1.5	-	70	-0.074	14.50	0.703
54	7.708	0.147	2.13	83	1.8	-	70	-0.073	14.27	0.432
55	7.852	0.144	2.14	83	2.0	-	70	-0.071	14.36	0.377
56	7.999	0.147	2.14	83	1.7	-	70	-0.073	14.26	0.380
57	8.144	0.145	2.14	83	1.5	-	70	-0.075	14.39	0.385
58	8.289	0.145	2.14	83	1.7	-	70	-0.071	14.51	0.380
59	8.435	0.146	2.14	84	1.5	-	70	-0.072	14.56	0.431
60	8.579	0.144	2.13	84	1.4	98	70	-0.074	14.38	0.493
61	8.726	0.147	2.14	84	1.6	-	70	-0.073	14.32	0.342
62	8.870	0.144	2.14	84	2.0	-	70	-0.075	14.31	0.310
63	9.018	0.148	2.15	84	2.0	-	70	-0.073	14.30	0.253

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
64	9.162	0.144	2.14	85	1.5	-	70	-0.074	14.16	0.206
65	9.310	0.148	2.14	85	1.5	-	70	-0.072	14.00	0.167
66	9.453	0.143	2.14	85	1.5	-	70	-0.073	13.97	0.175
67	9.600	0.147	2.14	85	1.9	-	70	-0.072	13.89	0.143
68	9.743	0.143	2.13	85	1.9	-	70	-0.072	13.75	0.130
69	9.892	0.149	2.14	85	2.0	-	70	-0.069	13.71	0.114
70	10.035	0.143	2.14	85	1.6	99	70	-0.070	13.33	0.107
71	10.184	0.149	2.14	86	1.6	-	70	-0.069	13.59	0.127
72	10.329	0.145	2.14	86	1.6	-	70	-0.069	13.48	0.144
73	10.475	0.146	2.14	86	1.6	-	70	-0.070	13.37	0.167
74	10.621	0.146	2.14	86	1.8	-	70	-0.071	13.47	0.185
75	10.767	0.146	2.14	86	1.7	-	70	-0.071	13.52	0.180
76	10.913	0.146	2.15	87	2.0	-	70	-0.069	13.53	0.162
77	11.057	0.144	2.14	87	1.5	-	70	-0.068	13.47	0.174
78	11.205	0.148	2.15	87	1.5	-	70	-0.068	13.64	0.156
79	11.350	0.145	2.15	87	1.6	-	70	-0.068	13.51	0.154
80	11.498	0.148	2.14	87	1.4	99	70	-0.069	13.40	0.135
81	11.643	0.145	2.15	87	1.8	-	70	-0.069	13.36	0.110
82	11.792	0.149	2.15	87	1.7	-	70	-0.068	13.27	0.092
83	11.936	0.144	2.14	88	1.5	-	70	-0.067	13.28	0.086
84	12.085	0.149	2.15	88	1.5	-	70	-0.067	13.27	0.080
85	12.228	0.143	2.15	88	1.5	-	71	-0.068	13.31	0.096
86	12.377	0.149	2.15	88	1.6	-	71	-0.067	13.26	0.108
87	12.520	0.143	2.14	88	1.7	-	71	-0.066	13.39	0.102
88	12.669	0.149	2.15	88	1.7	-	71	-0.067	13.39	0.114
89	12.814	0.145	2.15	88	2.0	-	71	-0.067	13.50	0.106
90	12.962	0.148	2.15	88	2.0	101	71	-0.065	13.67	0.114
91	13.108	0.146	2.14	88	1.8	-	71	-0.067	13.47	0.118
92	13.256	0.148	2.16	88	1.8	-	71	-0.067	13.30	0.117
93	13.402	0.146	2.16	88	1.8	-	71	-0.064	13.01	0.191
94	13.549	0.147	2.15	89	1.7	-	71	-0.067	12.92	0.196
95	13.695	0.146	2.16	89	1.5	-	72	-0.065	12.73	0.208

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
96	13.842	0.147	2.15	89	1.7	-	72	-0.066	12.62	0.196
97	13.988	0.146	2.15	89	1.9	-	72	-0.065	12.62	0.166
98	14.134	0.146	2.15	89	1.6	-	72	-0.066	12.66	0.167
99	14.281	0.147	2.15	89	1.5	-	72	-0.064	12.78	0.180
100	14.427	0.146	2.15	89	1.5	102	72	-0.065	12.79	0.094
101	14.576	0.149	2.15	89	1.6	-	72	-0.064	12.71	0.077
102	14.721	0.145	2.16	89	1.7	-	72	-0.063	12.52	0.076
103	14.870	0.149	2.15	90	1.9	-	72	-0.067	12.56	0.078
104	15.015	0.145	2.16	90	2.0	-	72	-0.064	12.58	0.082
105	15.165	0.150	2.16	90	2.0	-	72	-0.064	12.68	0.036
106	15.310	0.145	2.16	90	1.8	-	72	-0.063	12.58	0.030
107	15.458	0.148	2.15	90	1.6	-	72	-0.063	12.31	0.029
108	15.603	0.145	2.15	90	1.5	-	72	-0.066	12.13	0.030
109	15.753	0.150	2.16	90	2.0	-	72	-0.064	11.88	0.025
110	15.897	0.144	2.16	90	1.8	102	72	-0.064	11.85	0.022
111	16.047	0.150	2.15	90	1.6	-	73	-0.063	11.71	0.022
112	16.191	0.144	2.16	90	2.0	-	73	-0.061	11.73	0.022
113	16.340	0.149	2.15	91	1.5	-	73	-0.060	11.79	0.023
114	16.485	0.145	2.15	91	1.8	-	73	-0.062	11.73	0.023
115	16.634	0.149	2.16	91	1.6	-	73	-0.060	11.79	0.023
116	16.780	0.146	2.16	91	2.0	-	73	-0.060	11.58	0.023
117	16.929	0.149	2.16	91	1.5	-	73	-0.063	11.41	0.025
118	17.074	0.145	2.16	91	1.5	-	73	-0.059	11.09	0.019
119	17.224	0.150	2.16	91	1.5	-	73	-0.061	10.90	0.025
120	17.370	0.146	2.17	91	1.6	101	73	-0.058	10.61	0.021
121	17.519	0.149	2.16	91	2.0	-	73	-0.061	10.49	0.027
122	17.665	0.146	2.16	91	1.5	-	73	-0.061	10.11	0.026
123	17.813	0.148	2.16	91	2.0	-	73	-0.060	9.94	0.025
124	17.960	0.147	2.16	91	1.6	-	73	-0.057	9.60	0.023
125	18.108	0.148	2.16	91	1.5	-	73	-0.057	9.46	0.020
126	18.255	0.147	2.16	91	1.7	-	73	-0.057	9.41	0.018
127	18.403	0.148	2.16	92	1.9	-	73	-0.057	9.44	0.017

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
128	18.550	0.147	2.16	92	1.9	-	73	-0.056	9.41	0.024
129	18.697	0.147	2.16	92	1.5	-	73	-0.054	9.46	0.023
130	18.845	0.148	2.16	92	1.5	101	73	-0.058	9.53	0.022
131	18.991	0.146	2.16	92	2.0	-	73	-0.053	9.31	0.019
132	19.140	0.149	2.16	92	1.9	-	73	-0.055	9.28	0.021
133	19.286	0.146	2.16	92	1.5	-	73	-0.052	9.38	0.022
134	19.435	0.149	2.16	92	2.0	-	73	-0.054	9.32	0.019
135	19.582	0.147	2.16	92	1.9	-	73	-0.054	9.25	0.031
136	19.731	0.149	2.16	92	2.0	-	73	-0.057	9.38	0.024
137	19.877	0.146	2.16	92	1.5	-	73	-0.050	9.25	0.023
138	20.026	0.149	2.17	92	1.9	-	73	-0.055	9.23	0.022
139	20.172	0.146	2.16	92	1.7	-	73	-0.053	9.24	0.026
140	20.322	0.150	2.16	92	2.0	102	73	-0.054	9.24	0.020
141	20.468	0.146	2.17	92	2.0	-	73	-0.052	9.30	0.026
142	20.618	0.150	2.16	92	1.6	-	73	-0.055	9.28	0.031
143	20.764	0.146	2.17	93	1.5	-	73	-0.052	9.24	0.024
144	20.914	0.150	2.16	93	1.6	-	73	-0.052	9.21	0.026
145	21.060	0.146	2.17	93	1.8	-	73	-0.051	9.18	0.021
146	21.210	0.150	2.17	93	2.0	-	73	-0.053	9.15	0.023
147	21.355	0.145	2.17	93	1.5	-	73	-0.049	9.15	0.020
148	21.505	0.150	2.17	93	1.6	-	73	-0.050	9.09	0.024
149	21.651	0.146	2.16	93	1.6	-	73	-0.052	9.05	0.025
150	21.801	0.150	2.17	93	1.8	102	73	-0.053	9.02	0.023
151	21.947	0.146	2.17	93	1.6	-	73	-0.051	8.97	0.026
152	22.097	0.150	2.17	93	1.5	-	73	-0.049	9.01	0.022
153	22.243	0.146	2.17	93	1.9	-	73	-0.050	9.06	0.020
154	22.393	0.150	2.17	93	1.9	-	73	-0.050	9.00	0.022
155	22.539	0.146	2.17	93	1.9	-	73	-0.048	9.03	0.025
156	22.689	0.150	2.17	93	2.0	-	73	-0.051	8.99	0.023
157	22.835	0.146	2.17	93	1.8	-	73	-0.049	8.91	0.027
158	22.986	0.151	2.17	93	2.0	-	73	-0.050	8.85	0.023
159	23.131	0.145	2.17	93	2.0	-	73	-0.049	8.93	0.024

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
160	23.281	0.150	2.17	93	1.5	101	73	-0.048	8.99	0.020
161	23.427	0.146	2.17	93	1.5	-	73	-0.045	9.10	0.028
162	23.577	0.150	2.17	93	2.0	-	73	-0.048	9.00	0.026
163	23.723	0.146	2.16	94	1.5	-	73	-0.048	9.02	0.026
164	23.873	0.150	2.17	94	1.8	-	73	-0.049	9.09	0.030
165	24.019	0.146	2.17	94	1.6	-	73	-0.046	9.16	0.023
166	24.169	0.150	2.17	94	1.7	-	73	-0.047	9.60	0.016
167	24.315	0.146	2.17	94	1.9	-	73	-0.046	9.21	0.017
168	24.466	0.151	2.17	94	2.0	-	73	-0.045	9.04	0.015
169	24.612	0.146	2.17	94	1.8	-	73	-0.047	8.99	0.015
170	24.762	0.150	2.17	94	1.5	99	73	-0.045	8.74	0.014
171	24.908	0.146	2.17	94	1.6	-	73	-0.049	8.75	0.015
172	25.058	0.150	2.18	94	2.0	-	73	-0.045	8.79	0.014
173	25.205	0.147	2.18	94	1.7	-	73	-0.044	8.82	0.015
174	25.354	0.149	2.17	94	2.0	-	73	-0.045	8.77	0.016
175	25.501	0.147	2.17	94	1.6	-	73	-0.046	8.75	0.016
176	25.651	0.150	2.17	94	2.0	-	73	-0.044	8.82	0.014
177	25.798	0.147	2.17	94	2.0	-	73	-0.045	8.75	0.014
178	25.948	0.150	2.17	94	1.5	-	73	-0.047	8.79	0.014
179	26.095	0.147	2.17	94	2.0	-	73	-0.049	8.87	0.018
180	26.244	0.149	2.18	94	1.7	101	73	-0.044	8.85	0.015
181	26.391	0.147	2.17	94	1.9	-	73	-0.048	8.91	0.016
182	26.541	0.150	2.18	94	1.5	-	73	-0.041	8.87	0.015
183	26.688	0.147	2.18	94	1.8	-	73	-0.044	8.94	0.015
184	26.838	0.150	2.17	94	2.0	-	73	-0.049	8.91	0.014
185	26.985	0.147	2.17	94	2.0	-	73	-0.044	8.99	0.017
186	27.135	0.150	2.17	94	1.7	-	73	-0.043	8.97	0.024
187	27.282	0.147	2.17	94	1.8	-	73	-0.044	9.01	0.019
188	27.431	0.149	2.17	94	1.6	-	73	-0.045	8.91	0.020
189	27.578	0.147	2.17	94	1.8	-	73	-0.044	8.93	0.016
190	27.727	0.149	2.17	95	2.0	101	73	-0.045	8.95	0.018
191	27.875	0.148	2.17	95	1.5	-	73	-0.043	8.86	0.015



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
192	28.024	0.149	2.17	95	1.9	-	73	-0.045	8.92	0.017
193	28.171	0.147	2.17	95	1.6	-	73	-0.044	8.91	0.018
194	28.320	0.149	2.17	95	1.5	-	73	-0.043	9.02	0.018
195	28.468	0.148	2.16	95	1.5	-	73	-0.045	8.98	0.019
196	28.617	0.149	2.17	95	1.6	-	73	-0.041	8.95	0.018
197	28.765	0.148	2.17	95	1.5	-	73	-0.044	8.91	0.020
198	28.913	0.148	2.17	95	1.5	-	73	-0.042	9.02	0.016
199	29.062	0.149	2.17	95	2.0	-	73	-0.045	9.05	0.016
200	29.210	0.148	2.17	95	1.5	100	73	-0.044	8.96	0.021
201	29.358	0.148	2.18	95	2.0	-	73	-0.040	8.89	0.017
202	29.507	0.149	2.17	95	1.7	-	73	-0.042	8.94	0.015
203	29.655	0.148	2.17	95	1.5	-	73	-0.041	8.93	0.020
204	29.804	0.149	2.17	95	1.9	-	73	-0.044	8.93	0.020
205	29.952	0.148	2.17	95	1.5	-	73	-0.044	8.92	0.020
206	30.101	0.149	2.18	95	1.7	-	73	-0.044	8.87	0.019
207	30.249	0.148	2.17	95	2.0	-	73	-0.042	8.97	0.016
208	30.397	0.148	2.17	95	1.9	-	73	-0.044	8.97	0.019
209	30.546	0.149	2.17	95	1.9	-	73	-0.046	8.85	0.021
210	30.694	0.148	2.18	95	1.5	100	73	-0.042	8.78	0.020
211	30.843	0.149	2.18	95	1.8	-	73	-0.042	8.88	0.018
212	30.991	0.148	2.18	95	2.0	-	73	-0.044	8.89	0.020
213	31.140	0.149	2.17	95	1.7	-	73	-0.046	8.91	0.022
214	31.288	0.148	2.18	95	1.5	-	73	-0.045	8.98	0.017
215	31.437	0.149	2.18	95	1.5	-	73	-0.044	9.06	0.019
216	31.585	0.148	2.17	95	1.4	-	73	-0.044	9.17	0.014
217	31.734	0.149	2.17	95	1.5	-	73	-0.040	8.95	0.015
218	31.882	0.148	2.17	95	1.8	-	73	-0.042	8.98	0.015
219	32.031	0.149	2.18	95	1.5	-	73	-0.039	8.99	0.021
220	32.180	0.149	2.18	95	1.8	99	73	-0.043	9.09	0.018
221	32.329	0.149	2.18	95	1.7	-	73	-0.044	9.03	0.024
222	32.477	0.148	2.17	95	1.5	-	72	-0.042	8.92	0.014
223	32.626	0.149	2.18	95	1.6	-	72	-0.045	9.04	0.016

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
224	32.774	0.148	2.18	95	1.6	-	72	-0.044	9.16	0.014
225	32.923	0.149	2.18	95	2.0	-	72	-0.042	9.17	0.018
226	33.071	0.148	2.17	95	1.6	-	72	-0.042	9.06	0.013
227	33.221	0.150	2.18	95	1.8	-	72	-0.043	9.15	0.012
228	33.369	0.148	2.18	95	1.9	-	72	-0.044	9.09	0.016
229	33.518	0.149	2.18	95	1.5	-	72	-0.041	9.05	0.019
230	33.666	0.148	2.18	95	1.7	99	72	-0.042	9.05	0.014
231	33.815	0.149	2.18	95	1.7	-	72	-0.045	8.96	0.019
232	33.963	0.148	2.18	95	1.5	-	72	-0.042	9.02	0.014
233	34.112	0.149	2.18	95	1.8	-	72	-0.043	9.20	0.020
234	34.261	0.149	2.18	95	1.4	-	72	-0.042	9.06	0.019
235	34.410	0.149	2.18	95	1.6	-	72	-0.043	8.99	0.018
236	34.558	0.148	2.18	95	2.0	-	72	-0.044	9.03	0.020
237	34.704	0.146	2.17	95	1.5	-	72	-0.040	8.74	0.023
238	34.849	0.145	2.18	95	1.6	-	72	-0.044	8.74	0.017
239	35.004	0.155	2.18	95	2.0	-	72	-0.043	8.63	0.016
240	35.152	0.148	2.18	95	1.9	99	72	-0.044	8.57	0.018
241	35.302	0.150	2.18	95	1.8	-	72	-0.044	8.70	0.016
242	35.449	0.147	2.18	95	2.0	-	72	-0.042	8.67	0.018
243	35.599	0.150	2.18	95	1.6	-	72	-0.042	8.69	0.013
244	35.747	0.148	2.18	95	1.9	-	72	-0.040	8.63	0.017
245	35.896	0.149	2.18	95	1.4	-	72	-0.041	8.60	0.015
246	36.044	0.148	2.18	95	1.6	-	72	-0.041	8.53	0.019
247	36.193	0.149	2.18	95	1.5	-	72	-0.043	8.60	0.020
248	36.341	0.148	2.18	95	2.0	-	72	-0.044	8.54	0.019
249	36.491	0.150	2.18	95	1.9	-	72	-0.044	8.62	0.026
250	36.639	0.148	2.18	96	2.0	99	72	-0.044	8.76	0.022
251	36.788	0.149	2.18	96	1.6	-	72	-0.040	8.79	0.023
252	36.936	0.148	2.18	95	1.7	-	72	-0.044	8.69	0.018
253	37.085	0.149	2.18	96	2.0	-	72	-0.041	8.69	0.022
254	37.233	0.148	2.18	95	1.9	-	72	-0.041	8.65	0.020
255	37.382	0.149	2.18	95	1.4	-	72	-0.042	8.66	0.017

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
256	37.530	0.148	2.18	95	1.5	-	72	-0.045	8.65	0.020
257	37.680	0.150	2.18	96	1.5	-	72	-0.044	8.66	0.022
258	37.827	0.147	2.18	96	1.5	-	72	-0.045	8.64	0.016
259	37.977	0.150	2.18	95	1.5	-	72	-0.044	8.54	0.020
260	38.125	0.148	2.18	96	1.5	99	72	-0.042	8.54	0.016
261	38.274	0.149	2.18	96	1.5	-	72	-0.041	8.54	0.021
262	38.422	0.148	2.18	96	2.0	-	72	-0.042	8.42	0.022
263	38.572	0.150	2.18	96	2.0	-	72	-0.045	8.41	0.017
264	38.720	0.148	2.18	96	1.4	-	72	-0.044	8.37	0.010
265	38.869	0.149	2.18	96	1.6	-	72	-0.041	8.41	0.017
266	39.017	0.148	2.18	96	1.7	-	72	-0.043	8.90	0.016
267	39.166	0.149	2.18	96	2.0	-	72	-0.043	8.69	0.015
268	39.314	0.148	2.17	96	2.0	-	72	-0.043	8.38	0.016
269	39.464	0.150	2.18	96	1.8	-	72	-0.043	8.28	0.011
270	39.612	0.148	2.18	96	1.6	99	71	-0.041	8.24	0.011
271	39.761	0.149	2.18	96	1.7	-	72	-0.045	8.15	0.014
272	39.909	0.148	2.18	96	2.0	-	71	-0.040	8.16	0.013
273	40.059	0.150	2.18	96	1.6	-	71	-0.042	8.17	0.017
274	40.206	0.147	2.18	95	1.6	-	71	-0.044	8.16	0.016
275	40.356	0.150	2.18	96	1.6	-	71	-0.041	8.16	0.017
276	40.504	0.148	2.18	95	2.0	-	71	-0.042	8.14	0.018
277	40.653	0.149	2.18	95	1.5	-	71	-0.042	8.14	0.017
278	40.801	0.148	2.18	96	1.4	-	71	-0.040	8.13	0.018
279	40.951	0.150	2.18	95	1.5	-	71	-0.040	8.04	0.014
280	41.098	0.147	2.17	95	1.8	99	71	-0.041	8.15	0.018
281	41.248	0.150	2.17	95	1.5	-	71	-0.043	8.13	0.019
282	41.395	0.147	2.18	95	1.9	-	71	-0.042	8.11	0.014
283	41.545	0.150	2.18	95	1.9	-	71	-0.041	8.14	0.020
284	41.693	0.148	2.17	95	1.5	-	71	-0.043	8.08	0.016
285	41.842	0.149	2.17	95	2.0	-	71	-0.045	8.08	0.017
286	41.990	0.148	2.18	95	1.7	-	71	-0.040	8.06	0.010
287	42.140	0.150	2.17	95	1.6	-	71	-0.041	8.09	0.018

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
288	42.287	0.147	2.17	95	1.6	-	71	-0.042	8.09	0.018
289	42.437	0.150	2.17	95	1.7	-	71	-0.043	8.12	0.015
290	42.584	0.147	2.17	95	1.5	99	71	-0.040	8.34	0.010
291	42.734	0.150	2.18	95	1.6	-	71	-0.039	8.27	0.009
292	42.882	0.148	2.17	95	1.5	-	71	-0.043	8.03	0.009
293	43.031	0.149	2.17	95	1.9	-	71	-0.041	8.05	0.010
294	43.179	0.148	2.17	95	1.9	-	71	-0.042	8.02	0.006
295	43.329	0.150	2.17	95	2.0	-	71	-0.040	8.03	0.014
296	43.476	0.147	2.17	95	1.6	-	71	-0.041	8.01	0.012
297	43.626	0.150	2.17	95	1.7	-	71	-0.041	8.06	0.017
298	43.773	0.147	2.17	95	1.5	-	71	-0.040	8.02	0.011
299	43.923	0.150	2.17	95	2.0	-	71	-0.039	8.09	0.014
300	44.071	0.148	2.17	95	1.5	99	71	-0.041	8.14	0.015
301	44.220	0.149	2.17	95	1.5	-	71	-0.042	8.16	0.017
302	44.368	0.148	2.17	95	1.8	-	71	-0.042	7.78	0.010
303	44.518	0.150	2.18	95	1.7	-	71	-0.039	7.30	0.014
304	44.665	0.147	2.17	95	1.9	-	71	-0.039	7.49	0.016
305	44.815	0.150	2.18	95	1.8	-	71	-0.040	7.53	0.018
306	44.963	0.148	2.17	95	1.5	-	71	-0.041	7.57	0.020
307	45.112	0.149	2.18	95	1.5	-	71	-0.042	7.61	0.017
308	45.260	0.148	2.18	95	1.7	-	71	-0.041	7.64	0.017
309	45.410	0.150	2.18	95	1.5	-	71	-0.044	7.68	0.016
310	45.557	0.147	2.17	95	1.4	99	71	-0.039	7.64	0.020
311	45.707	0.150	2.18	95	2.0	-	71	-0.042	7.70	0.017
312	45.854	0.147	2.17	95	1.8	-	71	-0.040	7.68	0.020
313	46.004	0.150	2.18	95	2.0	-	71	-0.041	7.70	0.017
314	46.151	0.147	2.18	95	2.0	-	71	-0.041	7.59	0.022
315	46.301	0.150	2.18	95	1.5	-	71	-0.040	7.56	0.014
316	46.449	0.148	2.18	95	1.7	-	71	-0.042	7.60	0.020
317	46.599	0.150	2.18	95	1.9	-	71	-0.041	7.70	0.022
318	46.746	0.147	2.18	95	1.6	100	71	-0.039	7.61	0.019
Avg/Tot	46.746	0.147	2.15	89.8	1.7	100	71.6	-0.055	10.38	0.270

**BOX B TEST DATA - ASTM E2780 / ASTM E2515**

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Particulate Sampling Data								Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)

## BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Particulate Sampling Data							
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.000		0.71	71	1.7		68
1	0.153	0.153	1.05	70	1.7	-	68
2	0.305	0.152	1.05	70	1.7	-	68
3	0.457	0.152	1.05	70	1.6	-	68
4	0.609	0.152	1.06	70	1.6	-	68
5	0.761	0.152	1.06	70	1.6	-	68
6	0.914	0.153	1.07	71	1.9	-	69
7	1.068	0.154	1.07	71	1.8	-	69
8	1.221	0.153	1.08	71	1.8	-	69
9	1.375	0.154	1.08	71	1.8	-	68
10	1.529	0.154	1.08	71	1.8	98	68
11	1.685	0.156	1.08	71	1.7	-	68
12	1.841	0.156	1.09	71	1.9	-	68
13	1.997	0.156	1.10	72	1.9	-	68
14	2.153	0.156	1.11	72	1.8	-	69
15	2.309	0.156	1.11	73	1.9	-	69
16	2.466	0.157	1.11	74	1.8	-	69
17	2.621	0.155	1.11	74	1.7	-	69
18	2.777	0.156	1.10	74	1.8	-	69
19	2.934	0.157	1.10	73	1.7	-	68
20	3.091	0.157	1.11	74	1.8	98	68
21	3.249	0.158	1.12	74	1.8	-	68
22	3.406	0.157	1.12	74	1.7	-	68
23	3.562	0.156	1.11	74	1.7	-	68
24	3.719	0.157	1.11	74	1.9	-	68
25	3.877	0.158	1.12	74	1.8	-	68
26	4.036	0.159	1.12	74	1.7	-	68
27	4.194	0.158	1.13	75	1.8	-	68
28	4.351	0.157	1.12	75	1.7	-	68
29	4.510	0.159	1.12	75	1.8	-	68
30	4.669	0.159	1.13	75	1.7	99	68
31	4.828	0.159	1.14	75	1.9	-	68

## BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Particulate Sampling Data							
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	4.987	0.159	1.14	76	1.8	-	68
33	5.146	0.159	1.13	76	1.8	-	68
34	5.306	0.160	1.14	77	1.8	-	69
35	5.466	0.160	1.15	77	1.9	-	68
36	5.625	0.159	1.14	77	1.8	-	68
37	5.786	0.161	1.14	77	1.9	-	68
38	5.946	0.160	1.15	77	1.9	-	68
39	6.107	0.161	1.15	77	1.9	-	68
40	6.267	0.160	1.14	77	1.8	100	68
41	6.429	0.162	1.16	78	1.7	-	69
42	6.590	0.161	1.16	78	1.7	-	68
43	6.751	0.161	1.15	78	1.9	-	68
44	6.913	0.162	1.16	79	1.7	-	68
45	7.074	0.161	1.16	78	1.9	-	68
46	7.236	0.162	1.16	79	1.9	-	68
47	7.398	0.162	1.16	78	1.8	-	68
48	7.559	0.161	1.16	79	1.9	-	68
49	7.722	0.163	1.16	79	1.9	-	68
50	7.885	0.163	1.17	79	1.9	99	68
51	8.046	0.161	1.16	79	1.9	-	68
52	8.210	0.164	1.17	79	1.8	-	68
53	8.372	0.162	1.17	80	1.7	-	68
54	8.535	0.163	1.17	80	1.9	-	68
55	8.699	0.164	1.17	80	1.8	-	68
56	8.861	0.162	1.16	80	1.8	-	68
57	9.025	0.164	1.18	81	1.7	-	68
58	9.187	0.162	1.17	80	1.9	-	68
59	9.352	0.165	1.17	81	1.8	-	68
60	9.515	0.163	1.18	81	1.7	100	68
Avg/Tot	9.515	0.159	1.12	75.3	1.8	99	68.1

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Stove ΔT: 99

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	432	424	365	523	361	421.1	694.4
1	426	419	361	516	362	416.6	631.9
2	421	414	370	517	364	417.1	699.6
3	414	410	377	518	366	416.8	907.0
4	409	407	382	525	368	418.1	1107.3
5	404	402	387	547	370	422.1	1108.7
6	399	398	391	570	373	426.1	1040.5
7	394	396	395	586	375	429.1	1024.4
8	390	393	399	598	377	431.5	1014.8
9	386	391	403	609	379	433.7	1008.0
10	383	388	407	619	381	435.5	1011.3
11	379	386	411	629	383	437.4	1017.4
12	376	383	416	637	384	439.2	1022.0
13	374	382	419	647	385	441.4	1040.9
14	371	380	423	658	387	443.9	1057.5
15	370	378	428	670	388	446.5	1061.5
16	368	378	432	683	388	449.9	1057.9
17	367	378	437	694	389	452.9	1054.2
18	365	378	442	704	389	455.7	1055.2
19	364	377	447	713	389	457.8	1062.5
20	363	376	451	720	389	459.8	1063.9
21	363	377	456	729	389	462.7	1058.9
22	362	376	460	736	389	464.7	1057.6
23	362	376	464	743	388	466.7	1056.4
24	362	378	468	749	388	468.9	1056.7
25	362	379	472	754	388	471.0	1056.2
26	361	380	477	760	388	473.0	1054.1
27	362	382	480	765	387	475.1	1052.5
28	362	383	484	770	387	477.1	1051.8
29	362	383	487	774	386	478.6	1051.6
30	364	385	485	767	385	477.1	1049.2
31	364	386	473	763	383	473.9	1046.6
32	365	385	463	763	381	471.2	1096.4
33	365	384	454	767	378	469.4	1124.5
34	363	385	446	772	375	468.0	1130.2
35	362	385	440	778	372	467.4	1131.6
36	364	385	437	783	369	467.5	1097.1
37	364	385	436	786	365	467.5	1071.4
38	366	386	436	787	362	467.5	1058.6
39	367	387	434	788	359	467.0	1038.6
40	368	387	431	788	356	466.1	1021.5
41	369	388	433	785	354	465.8	1040.3
42	369	388	437	785	351	465.9	1046.8
43	371	390	442	783	349	466.7	1047.2
44	371	391	447	782	346	467.3	1048.0
45	371	391	452	780	344	467.7	1045.2
46	373	392	457	779	342	468.4	1046.6
47	374	392	461	777	339	468.8	1046.4



# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Stove ΔT: 99

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	374	393	465	775	337	468.9	1048.6
49	375	394	469	773	335	469.0	1054.3
50	376	394	471	772	334	469.1	1051.1
51	377	395	474	769	332	469.3	1056.5
52	378	395	475	768	330	469.2	1053.8
53	380	396	476	766	329	469.2	1054.4
54	379	397	476	765	327	468.6	1048.1
55	380	397	476	764	326	468.6	1040.1
56	381	397	476	763	324	468.2	1040.5
57	384	397	476	762	323	468.2	1037.4
58	384	399	475	762	322	468.3	1032.4
59	386	399	475	762	320	468.4	1028.3
60	387	399	474	762	319	468.4	1024.6
61	386	400	473	763	318	467.9	1022.2
62	389	400	472	762	317	467.9	1019.7
63	390	400	471	762	316	467.9	1020.1
64	390	401	471	760	314	467.3	1011.2
65	391	401	470	758	313	466.6	1008.7
66	392	401	470	754	313	465.7	1008.6
67	393	401	469	750	312	465.1	1008.1
68	393	402	469	747	311	464.4	1004.0
69	394	404	469	742	310	463.7	999.3
70	395	403	469	739	309	462.8	995.3
71	394	404	468	735	309	462.0	992.5
72	396	404	468	730	308	461.3	993.3
73	396	404	468	726	308	460.4	994.0
74	396	405	468	722	307	459.6	993.5
75	397	406	469	718	307	459.2	991.9
76	398	407	469	715	306	459.0	989.3
77	399	407	470	712	306	458.6	985.7
78	399	407	472	709	305	458.4	983.1
79	400	408	473	706	305	458.5	980.7
80	400	409	474	704	305	458.1	978.2
81	401	409	475	702	304	458.2	976.8
82	401	410	476	700	304	458.1	976.6
83	402	411	479	698	304	458.7	976.8
84	402	412	480	697	304	458.8	976.5
85	403	412	481	696	303	459.0	976.3
86	403	413	481	694	303	458.8	975.3
87	404	414	482	693	303	458.9	976.8
88	406	415	482	692	303	459.5	979.3
89	406	415	482	692	303	459.5	981.5
90	407	415	483	692	303	459.9	984.7
91	408	416	484	692	303	460.3	985.1
92	407	416	484	692	303	460.4	981.2
93	409	417	484	691	303	460.8	979.0
94	411	417	485	689	303	460.8	974.9
95	411	418	484	687	303	460.6	968.5

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Stove ΔT: 99

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	412	418	484	685	303	460.3	965.6
97	411	419	484	683	303	459.8	964.2
98	413	419	483	681	303	459.8	962.0
99	412	420	484	679	303	459.4	960.5
100	413	420	484	677	303	459.3	958.9
101	413	421	483	676	303	459.1	953.8
102	415	421	483	675	303	459.4	947.4
103	416	422	482	673	303	459.2	941.3
104	416	422	482	671	303	458.9	936.5
105	416	421	480	670	304	458.2	928.6
106	417	423	479	669	304	458.3	915.3
107	418	423	477	667	304	457.7	907.4
108	419	425	475	665	304	457.5	901.7
109	420	425	473	663	304	457.0	896.6
110	420	426	471	661	304	456.3	890.1
111	423	426	469	658	305	456.0	884.5
112	423	427	468	656	305	455.6	881.0
113	422	427	465	654	305	454.6	879.3
114	425	428	462	652	305	454.3	878.6
115	423	428	461	650	305	453.6	877.3
116	423	429	461	648	305	453.3	874.8
117	424	428	458	646	305	452.2	872.7
118	425	429	454	644	306	451.5	870.5
119	426	429	451	640	306	450.5	866.6
120	426	428	448	637	306	448.9	861.2
121	427	428	445	633	306	447.8	855.1
122	426	428	442	628	306	446.1	850.3
123	426	428	440	624	307	444.8	845.2
124	425	427	437	619	307	443.1	837.8
125	426	427	435	614	307	441.7	828.5
126	425	426	433	609	307	439.9	820.1
127	424	426	430	604	307	438.4	813.5
128	424	426	428	599	308	437.0	808.1
129	423	425	426	595	308	435.3	803.5
130	423	424	424	590	308	433.9	799.1
131	423	424	422	586	308	432.4	795.0
132	422	423	420	581	308	431.0	791.4
133	421	423	419	577	308	429.5	787.9
134	421	422	417	573	309	428.3	784.8
135	421	422	415	570	309	427.2	781.9
136	420	421	414	566	309	425.8	779.1
137	420	420	412	563	309	424.7	776.5
138	419	420	410	559	309	423.5	773.9
139	419	420	409	556	309	422.5	771.7
140	418	419	407	553	310	421.3	769.6
141	417	417	405	550	310	419.8	767.6
142	417	417	404	548	310	419.1	766.1
143	415	417	402	545	310	417.7	765.0

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Stove ΔT: 99

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	416	416	401	542	310	416.9	763.8
145	415	415	399	540	310	415.7	762.7
146	415	414	398	538	310	414.8	761.1
147	413	414	396	536	310	413.6	758.9
148	413	413	394	533	310	412.6	756.7
149	412	412	393	531	310	411.6	754.4
150	412	412	391	529	310	410.6	752.5
151	411	411	389	527	310	409.6	750.6
152	410	410	387	525	310	408.4	748.7
153	410	409	386	523	310	407.4	746.6
154	409	409	384	521	310	406.5	744.6
155	408	408	382	519	310	405.4	742.8
156	408	407	381	517	310	404.5	741.1
157	407	406	379	515	310	403.4	739.4
158	405	406	377	513	310	402.2	737.6
159	406	405	376	512	310	401.5	736.0
160	405	403	375	510	309	400.5	734.4
161	405	403	373	508	309	399.7	733.2
162	405	402	372	507	309	398.9	733.5
163	404	401	371	506	309	398.1	734.9
164	404	400	369	505	309	397.3	735.8
165	404	399	368	503	309	396.6	735.4
166	404	397	367	501	308	395.5	728.8
167	405	397	366	499	308	394.9	719.2
168	404	395	365	496	308	393.8	711.1
169	404	394	364	494	308	392.8	705.3
170	403	394	363	491	308	391.6	701.1
171	404	393	362	488	308	390.8	697.8
172	403	392	361	486	308	389.8	695.4
173	403	391	360	483	308	388.9	693.7
174	403	390	359	481	308	388.0	693.0
175	402	388	358	478	308	386.9	692.7
176	402	387	357	477	308	386.1	692.2
177	401	387	355	475	308	385.2	691.3
178	400	386	354	473	308	384.3	690.4
179	400	385	353	471	308	383.5	689.3
180	400	384	352	469	309	382.8	688.6
181	400	384	351	468	309	382.3	687.8
182	399	383	350	467	309	381.6	687.1
183	399	382	349	465	309	380.9	686.5
184	399	381	348	464	309	380.3	685.9
185	398	380	347	463	310	379.4	685.4
186	397	380	346	462	310	378.9	685.0
187	396	379	345	461	310	378.0	684.6
188	394	376	345	460	310	377.0	684.2
189	394	376	344	459	310	376.5	683.6
190	395	375	343	458	310	376.1	682.8
191	395	374	342	457	310	375.6	682.2

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Stove ΔT: 99

Temperature Data (*F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
192	394	373	341	456	310	374.9	682.0
193	395	373	340	455	310	374.7	681.3
194	394	372	339	455	310	374.1	680.5
195	394	372	338	454	310	373.6	679.7
196	392	371	337	453	310	372.8	679.2
197	393	371	336	453	310	372.4	678.7
198	393	370	336	452	310	372.1	678.5
199	393	369	335	451	310	371.6	678.3
200	391	369	334	451	310	370.8	678.0
201	392	368	333	450	310	370.7	677.8
202	391	368	332	450	310	370.2	677.6
203	391	367	331	449	310	369.8	677.4
204	391	366	331	449	310	369.3	677.2
205	391	366	330	448	310	368.8	677.0
206	391	365	329	448	310	368.4	677.2
207	390	364	328	448	310	367.8	677.5
208	388	364	327	447	310	367.2	678.0
209	388	363	327	447	310	366.8	678.0
210	388	362	326	446	309	366.2	678.0
211	386	361	325	446	309	365.6	678.0
212	387	361	324	446	309	365.5	678.1
213	386	360	324	446	309	365.0	677.9
214	387	360	323	445	309	364.7	677.4
215	386	359	322	445	309	364.2	677.0
216	386	358	322	445	309	363.8	676.1
217	385	357	321	445	308	363.4	675.1
218	385	357	321	444	308	363.0	674.0
219	384	356	320	444	308	362.5	672.8
220	384	356	320	443	308	362.1	672.1
221	384	355	320	443	308	361.8	671.5
222	383	354	320	442	307	361.2	671.0
223	383	354	319	442	307	360.9	670.6
224	382	353	319	441	307	360.5	669.0
225	382	353	319	441	307	360.2	667.7
226	381	353	318	440	307	359.7	667.3
227	379	353	318	439	307	359.2	667.2
228	379	352	318	439	307	358.7	666.9
229	377	352	317	438	307	358.3	666.9
230	378	352	317	438	306	358.2	667.3
231	376	352	317	438	306	357.7	668.3
232	375	352	316	438	306	357.4	669.6
233	374	351	316	438	306	357.0	671.2
234	376	351	315	437	306	357.0	672.6
235	375	351	315	437	306	356.8	673.3
236	372	350	314	437	306	356.1	673.8
237	373	350	314	437	306	356.1	674.5
238	371	350	313	437	306	355.4	674.7
239	371	350	312	437	306	355.2	674.4

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

**Stove ΔT:** 99

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
240	368	349	311	437	306	354.4	674.2
241	368	349	311	437	306	354.1	673.7
242	369	349	310	437	306	354.1	673.1
243	368	349	309	437	306	353.6	672.9
244	366	349	308	436	306	353.0	672.7
245	365	348	307	436	306	352.4	672.6
246	364	348	307	436	305	352.0	672.8
247	362	348	306	436	305	351.3	673.8
248	362	347	305	436	305	351.0	674.9
249	361	347	304	436	305	350.6	676.3
250	359	347	303	435	305	350.0	676.7
251	359	347	303	435	305	349.5	676.9
252	358	347	302	435	304	349.3	677.8
253	358	346	301	435	304	349.0	678.1
254	356	346	301	435	304	348.5	677.5
255	355	346	301	435	304	348.2	676.6
256	354	346	300	435	304	347.9	676.9
257	354	346	300	435	303	347.6	677.4
258	352	347	300	435	303	347.2	676.7
259	351	347	299	435	303	346.9	675.4
260	350	346	299	435	303	346.4	673.8
261	350	347	298	434	303	346.2	672.5
262	348	346	298	434	302	345.5	672.2
263	347	347	297	433	302	345.0	672.0
264	346	347	296	433	302	344.8	671.8
265	345	347	296	433	302	344.3	671.6
266	344	347	297	432	302	344.3	669.2
267	343	347	297	431	301	343.8	664.7
268	343	347	298	430	301	343.7	660.0
269	342	347	299	429	301	343.3	656.1
270	341	347	299	428	301	343.0	653.4
271	341	347	299	427	301	342.7	652.1
272	340	346	299	425	301	342.3	651.8
273	340	346	299	424	301	341.9	652.4
274	339	345	298	424	301	341.4	652.8
275	340	345	298	423	301	341.2	652.9
276	338	344	298	422	301	340.6	652.8
277	338	344	297	421	301	340.1	652.4
278	337	344	297	421	301	339.8	652.1
279	337	343	296	420	301	339.5	651.9
280	336	343	296	419	301	339.2	651.8
281	337	342	296	419	301	338.8	651.7
282	335	341	295	418	302	338.2	651.4
283	335	340	295	418	302	337.9	651.1
284	334	341	295	417	302	337.6	650.6
285	334	340	294	417	302	337.3	650.3
286	333	339	294	416	302	336.9	649.9
287	333	339	293	416	302	336.6	649.3

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

Stove ΔT: 99

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
288	332	338	293	415	302	336.1	648.8
289	333	338	292	415	302	336.0	648.4
290	332	337	293	414	302	335.7	646.7
291	332	338	293	414	302	335.7	642.2
292	331	337	293	413	302	335.2	638.0
293	330	337	293	412	302	335.0	635.7
294	330	337	293	411	302	334.5	635.3
295	329	337	292	410	303	334.1	635.7
296	328	338	292	409	303	333.9	636.5
297	328	338	291	408	303	333.6	637.3
298	328	337	291	408	303	333.1	637.9
299	328	337	290	407	303	332.9	638.2
300	326	336	290	407	303	332.3	638.5
301	326	336	289	406	303	331.9	638.6
302	326	334	288	406	303	331.4	638.0
303	326	334	287	405	303	330.9	636.4
304	324	334	286	404	303	330.2	634.9
305	324	333	285	403	303	329.4	635.5
306	324	332	284	403	303	329.0	637.6
307	323	331	283	402	303	328.2	639.6
308	322	330	282	402	303	327.7	640.9
309	321	330	281	402	302	327.1	641.8
310	321	329	280	402	302	326.6	641.9
311	321	328	279	401	302	326.2	641.6
312	319	327	278	401	302	325.4	641.0
313	318	327	277	401	302	324.9	640.1
314	318	326	276	400	301	324.3	639.2
315	318	326	275	400	301	323.9	638.2
316	317	325	274	400	301	323.5	637.3
317	317	325	273	400	300	322.9	637.2
318	316	324	272	399	300	322.3	637.3
Average	381.7	381.1	381.1	555.2	317.2	403.3	806.7

## LAB SAMPLE DATA - ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 1

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/19/2023

		Sample ID	Tare, mg	Final, mg	Catch, mg
<b>Filters</b>	<b>A</b>	G00570	242.6	243.4	0.8
	<b>B</b>	G00571	242.2	243.5	1.3
	<b>C - 1st Hour</b>	G00572	241.9	243.0	1.1
	<b>Amb</b>	G00573	241.8	241.8	0.0
<b>Probes</b>	<b>A</b>	18A	117499.2	117499.2	0.0
	<b>B</b>	18B	117331.2	117331.2	0.0
	<b>C - 1st Hour</b>	18C	114334.8	114334.8	0.0
<b>O-rings</b>	<b>A</b>	18A	3602.6	3604.3	1.7
	<b>B</b>	18B	3545.8	3547.0	1.2
	<b>C - 1st Hour</b>	18C	3528.1	3529.3	1.2

**Placed in Dessicator on:**

<b>Filters</b>	<b>A</b>	243.2	243.4		
	<b>B</b>	243.6	243.5		
	<b>C - 1st Hour</b>	242.9	243.0		
	<b>Amb</b>	241.8	241.8		
<b>Probes</b>	<b>A</b>	117499.2	117499.2		
	<b>B</b>	117331.3	117331.2		
	<b>C - 1st Hour</b>	114334.7	114334.8		
<b>O-Rings</b>	<b>A</b>	3604.3	3604.3		
	<b>B</b>	3547.2	3547.0		
	<b>C - 1st Hour</b>	3529.5	3529.3		

<b>Train A Aggregate, mg:</b>	<b>2.5</b>
<b>Train B Aggregate, mg:</b>	<b>2.5</b>
<b>Train C Aggregate, mg:</b>	<b>2.3</b>
<b>Ambient, mg:</b>	<b>0.0</b>

# ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 23-153 Tracking #: 150  
 Model: CI2700-1 Run Number: 1 Test Date: 6/19/23

## Wood Heater Run Notes

### Test Control Settings

Primary Air Setting(s): Fully Closed  
 Targeted Burn Category: I

### Preburn Notes

Time	Notes
82:00	End PB

### Test Notes

Test Burn Start Time: 13:28 Test Fuel Loaded by: 30 seconds  
 Door Closed: 35 seconds Air Control Set at: 300 seconds  
 Other Loading Notes: Fan on low @ 30 min

Time	Notes
	<i>-None-</i>

Test Burn End Time: 18:46


### Flue Gas Concentration Measurement

**Calibration Gas Values:** Span Gas CO<sub>2</sub> (%): 17.01 CO (%): 4.306  
 Mid Gas CO<sub>2</sub> (%): 10.09 CO (%): 2.53

### Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	12:08	12:09	12:10	6/20 10:33	6/20 10/34	6/20 10:36
CO <sub>2</sub>	0.00	17.01	10.14	0.02	16.89	9.98
CO	0.000	4.308	2.549	0.015	4.266	2.463

**Flue Gas Probe Leak Check:** Initial: No Leakage Final: No Leakage

Technician Signature: 

Date: 6/26/23



# ASTM E2780 Wood Heater Run Sheets

Client: FPI  
Model: C12700-1

Job Number: 23-153  
Run Number: 1

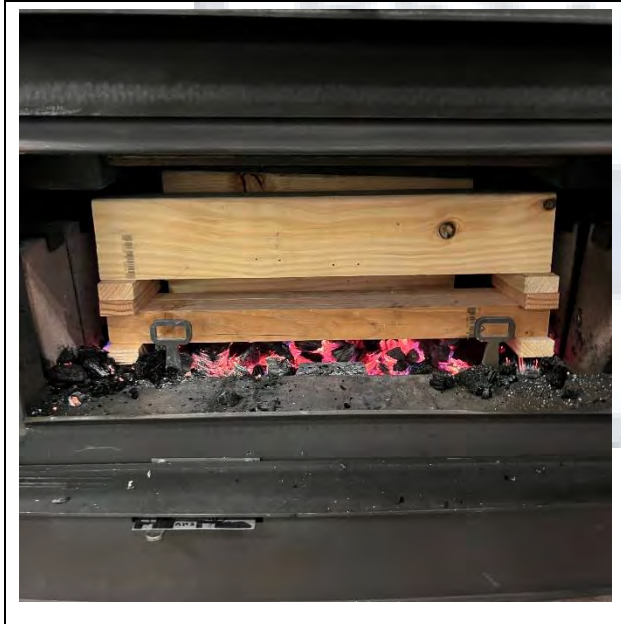
Tracking #: 150  
Test Date: 6/19/23



Test Fuel Side View




Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: 

Date: 6/26/23

**WOOD STOVE TEST DATA PACKET  
ASTM E2780/E2515**



**Run 2 Data Summary**

Client: FPI  
Model: C12700-1  
Job #: 23-153  
Tracking #: 150  
Test Date: 6/20/2023

  
\_\_\_\_\_  
Technician Signature

7/3/2023  
\_\_\_\_\_  
Date

## TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI

Model: CI2700-1

Run #: 2

Job #: 23-153

Tracking #: 150

Technician: AK

Date: 6/20/2023

<b>Burn Rate (kg/hr):</b>	<b>1.61</b>
---------------------------	-------------

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft <sup>3</sup> )	32.687	30.451	28.860	9.603
Average Gas Velocity in Dilution Tunnel (ft/sec)	7.1			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	18871.9			
Average Gas Meter Temperature (°F)	67.8	91.3	90.1	79.2
Total Sample Volume (dscf)	33.610	29.735	27.980	9.323
Average Tunnel Temperature (°F)	96.0			
Total Time of Test (min)	197			
Total Particulate Catch (mg)	0.1	2.1	2.2	1.6
Particulate Concentration, dry-standard (g/dscf)	0.0000030	0.0000706	0.0000786	0.0001716
Total PM Emissions (g)	0.18	4.19	4.69	3.18
Particulate Emission Rate (g/hr)	0.06	1.28	1.43	3.18
Emissions Factor (g/kg)	-	0.79	0.89	-
Difference from Average Total Particulate Emissions (g)	-	0.25	0.25	-
Difference from Average Total Particulate Emissions (%)	-	5.6%	5.6%	-
Difference from Average Emissions Factor (g/kg)	-	0.05	0.05	-

<b>Final Average Results</b>	
Total Particulate Emissions (g)	4.44
Particulate Emission Rate (g/hr)	1.35
Emissions Factor (g/kg)	0.84
HHV Efficiency (%)	73.9%
LHV Efficiency (%)	79.8%
CO Emissions (g/min)	0.71

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	80.7	OK
Face Velocity	< 30 ft/min	8.7	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:67/Max:69.6	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	116.7	OK

## B415.1 Efficiency Results

**Manufacturer:** FPI  
**Model:** CI2700-1  
**Date:** 06/20/23  
**Run:** 2  
**Control #:** 23-153  
**Test Duration:** 197  
**Output Category:** 3

### Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
<b>Overall Efficiency</b>	73.9%	79.8%
<b>Combustion Efficiency</b>	98.3%	98.3%
<b>Heat Transfer Efficiency</b>	75.1%	81.2%

<b>Output Rate (kJ/h)</b>	23,300	22,102	<b>(Btu/h)</b>
<b>Burn Rate (kg/h)</b>	1.59	3.51	<b>(lb/h)</b>
<b>Input (kJ/h)</b>	31,542	29,921	<b>(Btu/h)</b>

<b>Test Load Weight (dry kg)</b>	5.23	11.52	<b>dry lb</b>
<b>MC wet (%)</b>	16.87		
<b>MC dry (%)</b>	20.29		
<b>Particulate (g )</b>	4.44		
<b>CO (g)</b>	140		
<b>Test Duration (h)</b>	3.28		

Emissions	Particulate	CO
<b>g/MJ Output</b>	0.06	1.84
<b>g/kg Dry Fuel</b>	0.85	26.86
<b>g/h</b>	1.35	42.76
<b>g/min</b>	0.02	0.71
<b>lb/MM Btu Output</b>	0.13	4.27

<b>Air/Fuel Ratio (A/F)</b>	14.18
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VERSION:

2.4

4/15/2010

# WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	10.00	24.5		2x4	15.00	19.9
2x4	10.00	19.6		2x4	15.00	19.9
2x4	10.00	20.9				
2x4	10.00	19.1				
2x4	10.00	20.6				
2x4	15.00	24.2				
2x4	15.00	23.7				
2x4	15.00	19.1				
Total Fuel Weight (lbs):		11.89	Average Moisture (%DB):		21.2	

Firebox Volume (ft<sup>3</sup>): 1.83  
 Total 2x4 Crib Weight, with spacers (lbs): 5.11  
 Total 4x4 Crib Weight, with spacers (lbs): 8.78  
 Total Wet Fuel Weight, with spacers (lbs): 13.89

**Coal Bed Range (20-25%):**  
 Min (lbs): 2.78  
 Max (lbs): 3.47

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	15.00	1.57	21.7	20.4	19.8	1.30
2x4	20.00	2.18	19.1	19.0	20.0	1.83
4x4	15.00	3.32	19.7	19.2	19.2	2.78
4x4	20.00	5.02	23.4	22.3	19.7	4.12
Total Dry Weight, no spacers (lbs):						10.03
Total Dry Weight, with spacers (lbs):						11.67

Spacer Moisture Readings (%DB)						
11.0	11.5					
9.7	10.1					
13.5	10.7					
8.6	8.5					
8.1	7.9					
9.5	9.3					

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft <sup>3</sup> , DB)	28.3	OK
Loading Density	6.3 - 7.7 (lbs/ft <sup>3</sup> , WB)	7.59	OK
2x4 Fuel Mix	35 - 65 % of total weight	37%	OK

# DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: <b>FPI</b>	Job #: <b>23-153</b>
Model: <b>CI2700-1</b>	Tracking #: <b>150</b>
Run #: <b>2</b>	Technician: <b>AK</b>
Test Start Time: <b>11:58</b>	Date: <b>6/20/2023</b>

Total Sampling Time (min): **197**  
 Recording Interval (min): **1**

Meter Box  $\gamma$  Factor: **1.010** (A)  
 Meter Box  $\gamma$  Factor: **1.001** (B)  
 Meter Box  $\gamma$  Factor: **0.985** (C)  
 Meter Box  $\gamma$  Factor: **1.024** (Ambient)

Induced Draft Check (in. H<sub>2</sub>O): **0**  
 Smoke Capture Check (%): **100%**  
 Date Flue Pipe Last Cleaned: **6/16/2023**

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.04	30.05	30.05
Relative Humidity (%)	36.9	31.8	
Room Air Velocity (ft/min)	0	0.0	
Scale Audit (lbs)	10.0	10.0	
Ambient Sample Volume:	32.687		ft <sup>3</sup>

	Pre-Test		Post-Test	
	cfm	@ in Hg	cfm	@ in Hg
<b>Leak Checks</b>				
Pitot	0		0	
A	0.000	-5	0.000	-5
B	0.000	-5	0.000	-5
C	0.001	-5	0.001	-5
Ambient	0.000	-12	0.000	-12

## DILUTION TUNNEL FLOW

### Traverse Data

Point	dP (in H <sub>2</sub> O)	Temp (°F)
1	0.008	100
2	0.012	100
3	0.014	100
4	0.016	100
5	0.012	99
6	0.010	99
7	0.008	99
8	0.010	98
9	0.014	98
10	0.014	98
11	0.014	98
12	0.008	98
Center	0.017	98

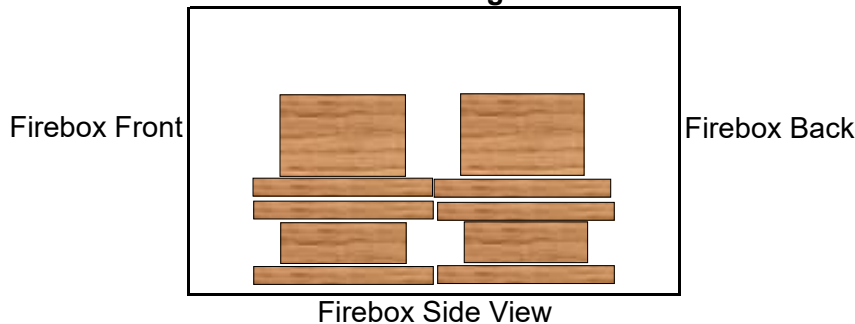
Dilution Tunnel H<sub>2</sub>O: **2.00** percent  
 Tunnel Diameter: **12** inches  
 Pitot Tube Cp: **0.99** [unitless]  
 Dilution Tunnel MW(dry): **29.00** lb/lb-mole  
 Dilution Tunnel MW(wet): **28.78** lb/lb-mole  
 Tunnel Area: **0.7854** ft<sup>2</sup>

$V_{strav}$ : **7.30** ft/sec  
 $V_{scent}$ : **8.87** ft/sec  
 $F_p$ : **0.823** [ratio]  
 Initial Tunnel Flow: **319.7** scf/min

Static Pressure: **-0.080** in. H<sub>2</sub>O

## TEST FUEL PROPERTIES

### Fuel Load Configuration



### Actual Fuel Used Properties

Fuel Type:	<b>D. Fir</b>
HHV (kJ/kg)	<b>19,810</b>
%C	<b>48.73</b>
%H	<b>6.87</b>
%O	<b>43.9</b>
%Ash	<b>0.5</b>
MC (%DB)	<b>20.3</b>

# WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Recording Interval (min): 1  
 Run Time (min): 107

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
0	14.00	-0.083	531	561	551	778	400	564.1	488	68	
1	13.89	-0.085	524	554	526	755	399	551.6	457	68	
2	13.75	-0.088	525	549	502	742	397	542.9	453	68	
3	13.63	-0.086	524	542	483	738	394	536.3	456	68	
4	13.50	-0.089	519	536	468	738	391	530.5	460	68	
5	13.36	-0.088	520	530	451	741	388	526.1	464	68	
6	13.23	-0.089	520	525	437	743	385	522.0	466	68	
7	13.09	-0.090	520	519	424	749	382	518.7	467	68	
8	12.95	-0.089	516	513	412	754	379	514.7	470	68	
9	12.79	-0.089	511	508	401	761	376	511.3	474	68	
10	12.65	-0.090	511	503	391	765	373	508.9	475	68	
11	12.49	-0.090	510	498	382	771	371	506.4	477	68	
12	12.33	-0.091	509	494	374	774	368	503.7	479	68	
13	12.17	-0.090	505	489	366	776	366	500.4	483	68	
14	12.00	-0.091	505	485	360	777	364	498.1	484	68	
15	11.83	-0.091	506	480	353	778	362	495.9	485	68	
16	11.65	-0.093	504	476	348	780	360	493.7	486	68	
17	11.47	-0.092	501	473	343	786	359	492.2	487	68	
18	11.29	-0.094	500	470	338	792	357	491.4	488	68	
19	11.10	-0.092	500	466	334	798	356	490.8	488	68	
20	10.92	-0.091	499	463	331	801	354	489.5	488	68	
21	10.73	-0.090	499	461	327	805	353	489.0	488	68	
22	10.56	-0.092	495	458	325	806	352	487.1	486	68	
23	10.38	-0.088	497	456	322	808	350	486.7	484	68	
24	10.21	-0.089	496	454	320	809	349	485.7	483	68	
25	10.03	-0.091	493	452	318	810	349	484.4	483	68	
26	9.86	-0.091	493	451	317	811	347	483.8	482	68	
27	9.68	-0.090	494	450	316	811	347	483.4	483	68	
28	9.50	-0.089	498	448	316	813	346	484.4	482	68	
29	9.32	-0.092	500	448	317	817	345	485.2	483	68	
30	9.15	-0.091	501	447	317	819	344	485.5	484	68	
31	8.96	-0.088	500	446	317	822	343	485.8	483	68	
32	8.78	-0.090	501	447	319	824	342	486.3	483	68	
33	8.60	-0.091	508	446	320	826	341	488.0	484	68	
34	8.41	-0.090	510	447	322	827	340	489.1	484	69	
35	8.23	-0.089	511	447	323	830	339	489.9	483	69	
36	8.04	-0.090	517	447	325	831	338	491.6	482	69	
37	7.87	-0.087	516	448	327	832	337	492.0	481	69	
38	7.72	-0.088	519	449	329	834	336	493.5	480	69	
39	7.54	-0.087	522	450	332	837	336	495.2	479	69	
40	7.37	-0.087	527	450	335	837	335	496.8	478	69	
41	7.19	-0.087	530	452	337	840	334	498.5	477	69	
42	7.03	-0.088	527	453	340	842	333	499.0	478	69	
43	6.87	-0.087	532	455	342	844	333	501.2	477	69	
44	6.73	-0.087	536	456	344	847	332	502.9	475	69	



# WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Recording Interval (min): 1  
 Run Time (min): 107

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
45	6.58	-0.088	535	457	346	847	332	503.5	472	69	
46	6.44	-0.089	538	459	348	848	331	504.7	470	69	
47	6.31	-0.086	537	460	350	848	330	505.2	469	69	
48	6.18	-0.088	537	462	353	847	330	505.8	468	69	
49	6.06	-0.086	535	464	356	841	329	505.1	466	69	
50	5.93	-0.087	535	466	360	841	329	506.2	464	68	
51	5.82	-0.086	537	468	363	840	329	507.3	462	68	
52	5.71	-0.085	537	470	366	838	328	507.8	460	68	
53	5.59	-0.086	536	472	369	837	328	508.4	458	68	
54	5.49	-0.083	536	474	372	837	328	509.3	458	68	
55	5.39	-0.085	539	476	374	837	328	510.9	457	68	
56	5.30	-0.086	537	479	377	838	328	511.5	458	68	
57	5.20	-0.085	535	482	379	837	328	512.2	458	68	
58	5.10	-0.084	537	485	381	837	328	513.5	457	68	
59	5.01	-0.084	540	488	384	835	328	514.8	456	68	
60	4.92	-0.085	539	491	386	833	328	515.3	454	68	
61	4.84	-0.087	538	496	388	830	328	516.0	452	67	
62	4.76	-0.086	539	501	389	826	328	516.7	452	67	
63	4.67	-0.083	536	507	390	820	329	516.3	450	67	
64	4.60	-0.084	533	512	391	814	329	516.0	446	67	
65	4.53	-0.083	535	518	393	807	330	516.4	444	67	
66	4.47	-0.081	533	523	395	800	330	516.0	441	67	
67	4.38	-0.083	529	526	397	788	331	514.2	440	67	
68	4.32	-0.083	530	529	401	779	332	513.9	438	67	
69	4.26	-0.082	528	532	404	769	332	513.0	436	67	
70	4.19	-0.079	528	535	407	759	334	512.5	435	67	
71	4.14	-0.080	525	537	408	749	335	510.7	432	67	
72	4.08	-0.080	526	541	407	737	336	509.3	427	67	
73	4.03	-0.078	524	543	407	726	337	507.2	421	67	
74	3.98	-0.079	521	545	407	714	338	504.8	417	67	
75	3.93	-0.077	524	547	408	703	339	503.9	413	67	
76	3.89	-0.076	528	548	408	692	339	503.0	410	67	
77	0.02	-0.078	526	549	425	698	344	508.2	410	67	
78	0.02	-0.078	525	550	447	696	349	513.4	412	68	
79	0.02	-0.080	525	552	462	693	354	517.2	414	68	
80	0.02	-0.080	524	553	474	689	359	519.9	415	68	
81	0.02	-0.080	523	554	484	687	364	522.5	415	68	
82	0.02	-0.078	525	554	493	685	369	525.2	415	67	
83	0.02	-0.080	524	553	500	683	375	527.0	414	67	
84	0.02	-0.080	525	554	506	681	380	529.1	413	67	
85	0.02	-0.079	523	555	511	680	385	530.7	413	67	
86	0.02	-0.078	524	555	515	679	390	532.7	413	67	
87	0.02	-0.079	527	555	520	677	395	534.6	413	67	
88	0.02	-0.079	525	555	524	676	400	535.9	412	67	
89	0.02	-0.079	525	555	527	675	404	537.1	411	67	

## WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Recording Interval (min): 1  
 Run Time (min): 107

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
90	0.02	-0.079	526	554	530	675	408	538.7	409	67	
91	0.02	-0.080	526	555	534	674	413	540.1	409	67	
92	0.02	-0.079	526	555	536	674	416	541.3	408	67	
93	3.48	-0.076	523	555	523	660	415	535.1	403	67	
94	3.43	-0.075	522	556	510	652	414	530.7	399	67	
95	3.42	-0.076	528	557	496	645	412	527.5	396	67	
96	3.39	-0.075	526	557	486	639	410	523.5	394	67	
97	3.35	-0.074	523	557	479	633	407	519.8	393	67	
98	3.32	-0.074	527	556	472	627	405	517.4	391	68	
99	3.30	-0.074	526	556	467	622	402	514.4	390	68	
100	3.25	-0.074	528	555	462	615	400	512.1	390	67	
101	3.21	-0.073	518	554	455	609	398	506.6	387	67	
102	3.17	-0.073	516	552	448	605	396	503.6	386	67	
103	3.15	-0.071	520	552	443	601	394	502.1	383	67	
104	3.12	-0.073	515	551	437	596	393	498.4	383	67	
105	3.09	-0.073	519	550	430	590	392	496.1	381	67	
106	3.06	-0.075	513	548	423	585	390	491.8	380	67	
107	3.03	-0.073	509	546	416	579	389	488.0	379	67	

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 2Technician: AKDate: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.015	1.24	75	0.8		13.86		99	408	72	67
1	0.135	0.135	0.016	1.97	75	0.8	-	13.80	-0.06	101	408	74	67
2	0.276	0.141	0.016	2.01	75	0.9	-	13.65	-0.15	97	398	74	67
3	0.418	0.142	0.016	2.03	75	0.8	-	13.49	-0.16	98	413	75	67
4	0.560	0.142	0.016	2.05	75	0.8	-	13.31	-0.18	98	434	75	67
5	0.705	0.145	0.016	2.07	75	0.8	-	13.12	-0.19	99	454	76	67
6	0.845	0.140	0.016	2.09	75	0.9	-	12.91	-0.21	99	472	76	67
7	0.993	0.148	0.016	2.11	75	0.9	-	12.68	-0.23	100	485	76	67
8	1.136	0.143	0.016	2.13	75	0.8	-	12.48	-0.20	102	494	77	67
9	1.283	0.147	0.016	2.14	75	0.9	-	12.27	-0.21	102	498	77	67
10	1.427	0.144	0.015	2.15	75	0.9	100	12.06	-0.21	103	502	77	67
11	1.572	0.145	0.016	2.16	75	0.9	-	11.84	-0.22	103	504	77	67
12	1.720	0.148	0.017	2.17	76	0.9	-	11.63	-0.21	103	507	78	67
13	1.865	0.145	0.017	2.17	76	0.9	-	11.42	-0.21	103	510	78	67
14	2.015	0.150	0.017	2.19	76	0.9	-	11.20	-0.22	103	512	78	67
15	2.160	0.145	0.016	2.19	76	0.9	-	11.01	-0.19	102	514	78	67
16	2.309	0.149	0.017	2.21	76	0.9	-	10.82	-0.19	102	508	78	67
17	2.454	0.145	0.016	2.20	76	0.9	-	10.61	-0.21	102	506	78	67
18	2.605	0.151	0.017	2.22	77	0.9	-	10.44	-0.17	103	504	79	67
19	2.749	0.144	0.016	2.23	77	0.9	-	10.25	-0.19	104	503	79	67
20	2.901	0.152	0.016	2.22	77	0.9	101	10.06	-0.19	104	502	79	67
21	3.045	0.144	0.016	2.23	78	0.9	-	9.89	-0.17	103	500	79	67
22	3.198	0.153	0.016	2.24	78	0.9	-	9.70	-0.19	103	500	79	67
23	3.343	0.145	0.016	2.25	78	0.9	-	9.52	-0.18	102	498	79	67
24	3.496	0.153	0.016	2.24	78	0.9	-	9.34	-0.18	102	497	79	67
25	3.642	0.146	0.016	2.25	79	0.9	-	9.16	-0.18	102	496	79	67
26	3.795	0.153	0.016	2.26	79	0.9	-	8.98	-0.18	102	498	80	67
27	3.941	0.146	0.015	2.26	79	0.9	-	8.79	-0.19	103	497	80	67
28	4.094	0.153	0.016	2.26	80	0.9	-	8.62	-0.17	103	496	80	67
29	4.241	0.147	0.016	2.25	80	0.9	-	8.45	-0.17	104	496	80	67
30	4.394	0.153	0.016	2.27	80	0.9	101	8.28	-0.17	104	495	80	68
31	4.541	0.147	0.017	2.28	80	0.9	-	8.10	-0.18	103	496	80	67

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 2Technician: AKDate: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.695	0.154	0.016	2.27	81	0.9	-	7.92	-0.18	103	496	80	67
33	4.842	0.147	0.016	2.28	81	0.9	-	7.75	-0.17	103	496	80	67
34	4.996	0.154	0.016	2.28	81	0.9	-	7.58	-0.17	103	497	80	67
35	5.143	0.147	0.016	2.28	82	0.9	-	7.40	-0.18	103	498	80	68
36	5.298	0.155	0.015	2.29	82	0.9	-	7.21	-0.19	103	499	80	68
37	5.446	0.148	0.016	2.30	82	0.9	-	7.04	-0.17	103	499	80	68
38	5.601	0.155	0.016	2.30	83	0.9	-	6.87	-0.17	103	500	80	68
39	5.749	0.148	0.016	2.30	83	0.9	-	6.70	-0.17	104	498	81	67
40	5.904	0.155	0.016	2.30	83	0.9	101	6.56	-0.14	104	494	81	67
41	6.053	0.149	0.017	2.30	83	0.9	-	6.44	-0.12	103	489	81	68
42	6.207	0.154	0.016	2.31	84	0.9	-	6.33	-0.11	103	482	81	68
43	6.357	0.150	0.016	2.31	84	0.9	-	6.23	-0.10	102	475	81	68
44	6.511	0.154	0.017	2.31	84	0.9	-	6.13	-0.10	101	469	80	68
45	6.661	0.150	0.017	2.32	85	0.9	-	6.04	-0.09	101	462	80	68
46	6.814	0.153	0.017	2.32	85	0.9	-	5.97	-0.07	100	457	80	68
47	6.966	0.152	0.016	2.32	85	0.9	-	5.89	-0.08	100	452	81	68
48	7.119	0.153	0.017	2.32	86	0.9	-	5.82	-0.07	100	449	81	68
49	7.272	0.153	0.017	2.33	86	0.9	-	5.75	-0.07	101	444	81	68
50	7.425	0.153	0.017	2.34	86	0.9	100	5.69	-0.06	101	440	81	68
51	7.580	0.155	0.017	2.35	86	0.9	-	5.63	-0.06	101	437	81	68
52	7.732	0.152	0.017	2.34	87	0.9	-	5.57	-0.06	100	433	81	68
53	7.887	0.155	0.016	2.34	87	0.9	-	5.50	-0.07	100	432	81	68
54	8.037	0.150	0.017	2.33	87	0.9	-	5.44	-0.06	99	429	81	68
55	8.193	0.156	0.017	2.34	87	0.9	-	5.38	-0.06	99	426	80	68
56	8.343	0.150	0.016	2.35	88	0.9	-	5.31	-0.07	99	424	80	68
57	8.501	0.158	0.017	2.34	88	0.9	-	5.25	-0.06	98	421	80	68
58	8.652	0.151	0.017	2.35	88	0.9	-	5.19	-0.06	98	420	80	68
59	8.809	0.157	0.016	2.35	88	0.9	-	5.12	-0.07	98	417	80	68
60	8.960	0.151	0.016	2.34	89	0.9	100	5.07	-0.05	98	415	80	68
61	9.115	0.155	0.016	2.36	89	0.9	-	5.01	-0.06	99	414	81	68
62	9.268	0.153	0.016	2.35	89	0.9	-	4.97	-0.04	99	413	81	68
63	9.423	0.155	0.016	2.37	89	0.9	-	4.91	-0.06	98	412	80	68

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: C12700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	9.579	0.156	0.016	2.36	89	0.9	-	4.85	-0.06	98	411	80	68
65	9.732	0.153	0.017	2.38	90	0.9	-	4.80	-0.05	97	410	80	68
66	9.888	0.156	0.016	2.36	90	0.9	-	4.75	-0.05	97	410	80	68
67	10.039	0.151	0.016	2.36	90	0.9	-	4.69	-0.06	97	408	80	68
68	10.198	0.159	0.016	2.37	90	0.9	-	4.64	-0.05	97	407	80	68
69	10.350	0.152	0.016	2.37	90	0.9	-	4.59	-0.05	97	406	80	68
70	10.508	0.158	0.017	2.37	91	0.9	100	4.53	-0.06	96	406	80	68
71	10.660	0.152	0.016	2.37	91	0.9	-	4.48	-0.05	97	405	80	68
72	10.816	0.156	0.016	2.37	91	0.9	-	4.43	-0.05	98	403	80	68
73	10.972	0.156	0.016	2.36	91	0.9	-	4.38	-0.05	98	402	80	68
74	11.126	0.154	0.016	2.38	91	1.0	-	4.33	-0.05	98	401	80	68
75	11.284	0.158	0.016	2.38	91	0.9	-	4.27	-0.06	97	400	80	68
76	11.435	0.151	0.016	2.38	92	0.9	-	4.22	-0.05	97	400	80	68
77	11.593	0.158	0.017	2.38	92	0.9	-	4.16	-0.06	96	398	80	68
78	11.747	0.154	0.017	2.38	92	0.9	-	4.11	-0.05	96	399	80	68
79	11.905	0.158	0.016	2.37	92	0.9	-	4.05	-0.06	96	397	80	68
80	12.058	0.153	0.016	2.39	92	0.9	100	3.99	-0.06	95	396	80	68
81	12.214	0.156	0.017	2.38	93	0.9	-	3.94	-0.05	95	396	80	68
82	12.371	0.157	0.016	2.38	93	0.9	-	3.87	-0.07	96	394	80	68
83	12.526	0.155	0.016	2.38	93	0.9	-	3.82	-0.05	96	394	80	68
84	12.683	0.157	0.017	2.39	93	0.9	-	3.76	-0.06	97	394	80	68
85	12.836	0.153	0.016	2.38	93	0.9	-	3.71	-0.05	97	393	80	68
86	12.995	0.159	0.016	2.39	93	0.9	-	3.64	-0.07	96	393	80	68
87	13.148	0.153	0.017	2.39	93	0.9	-	3.57	-0.07	96	393	80	68
88	13.307	0.159	0.017	2.40	93	0.9	-	3.51	-0.06	96	393	80	68
89	13.461	0.154	0.017	2.40	94	0.9	-	3.44	-0.07	95	393	80	68
90	13.617	0.156	0.017	2.39	94	0.9	100	3.37	-0.07	95	392	80	68
91	13.775	0.158	0.016	2.39	94	0.9	-	3.29	-0.08	97	408	80	68
92	13.929	0.154	0.016	2.40	94	0.9	-	3.20	-0.09	96	399	80	68
93	14.088	0.159	0.017	2.40	94	0.9	-	3.12	-0.08	97	399	80	68
94	14.240	0.152	0.017	2.39	94	0.9	-	3.04	-0.08	97	402	80	68
95	14.401	0.161	0.016	2.40	94	0.9	-	2.96	-0.08	96	403	80	68

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: C12700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	14.554	0.153	0.016	2.40	95	0.9	-	2.87	-0.09	97	402	80	68
97	14.712	0.158	0.017	2.39	95	0.9	-	2.80	-0.07	96	403	80	68
98	14.869	0.157	0.017	2.39	95	0.9	-	2.73	-0.07	96	402	80	68
99	15.024	0.155	0.017	2.39	95	0.9	-	2.65	-0.08	95	401	80	68
100	15.182	0.158	0.017	2.39	95	0.9	99	2.60	-0.05	95	399	80	68
101	15.335	0.153	0.017	2.39	95	0.9	-	2.53	-0.07	95	396	80	67
102	15.495	0.160	0.017	2.38	95	0.9	-	2.48	-0.05	95	394	80	68
103	15.649	0.154	0.016	2.39	95	0.9	-	2.42	-0.06	95	392	80	68
104	15.807	0.158	0.016	2.40	95	0.9	-	2.38	-0.04	95	388	80	68
105	15.962	0.155	0.016	2.39	96	0.9	-	2.33	-0.05	96	387	80	68
106	16.120	0.158	0.016	2.40	96	0.9	-	2.29	-0.04	96	384	80	68
107	16.279	0.159	0.017	2.40	96	0.9	-	2.26	-0.03	95	382	80	68
108	16.431	0.152	0.016	2.40	96	0.9	-	2.23	-0.03	95	381	80	67
109	16.591	0.160	0.016	2.40	96	0.9	-	2.19	-0.04	95	380	80	67
110	16.745	0.154	0.016	2.39	96	0.9	100	2.16	-0.03	94	377	79	68
111	16.905	0.160	0.016	2.41	96	0.9	-	2.13	-0.03	94	375	79	68
112	17.059	0.154	0.016	2.40	96	0.9	-	2.10	-0.03	94	373	79	67
113	17.217	0.158	0.016	2.40	96	0.9	-	2.07	-0.03	94	372	79	68
114	17.375	0.158	0.017	2.39	96	0.9	-	2.04	-0.03	93	371	79	68
115	17.529	0.154	0.017	2.40	96	0.9	-	2.01	-0.03	94	369	79	67
116	17.688	0.159	0.016	2.39	96	0.9	-	1.98	-0.03	95	367	79	68
117	17.843	0.155	0.017	2.40	97	0.9	-	1.95	-0.03	95	366	80	67
118	18.003	0.160	0.017	2.41	97	0.9	-	1.92	-0.03	94	365	79	67
119	18.157	0.154	0.017	2.40	97	0.9	-	1.91	-0.01	94	365	79	67
120	18.314	0.157	0.017	2.41	97	0.9	100	1.87	-0.04	94	364	79	67
121	18.473	0.159	0.017	2.40	97	0.9	-	1.85	-0.02	93	364	79	68
122	18.627	0.154	0.016	2.42	97	0.9	-	1.82	-0.03	93	362	79	68
123	18.786	0.159	0.017	2.40	97	0.9	-	1.79	-0.03	93	361	79	68
124	18.941	0.155	0.016	2.41	97	0.9	-	1.77	-0.02	93	360	79	67
125	19.102	0.161	0.017	2.41	97	0.9	-	1.73	-0.04	93	359	79	67
126	19.256	0.154	0.017	2.41	97	0.9	-	1.71	-0.02	92	358	79	67
127	19.413	0.157	0.017	2.40	97	0.9	-	1.68	-0.03	93	357	79	67

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 2Technician: AKDate: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	19.572	0.159	0.017	2.40	97	1.0	-	1.66	-0.02	94	357	79	67
129	19.727	0.155	0.016	2.41	97	0.9	-	1.64	-0.02	94	357	79	67
130	19.886	0.159	0.016	2.41	97	1.0	100	1.61	-0.03	93	355	79	67
131	20.042	0.156	0.017	2.41	97	0.9	-	1.59	-0.02	93	354	79	67
132	20.202	0.160	0.017	2.41	97	0.9	-	1.56	-0.03	93	354	79	68
133	20.356	0.154	0.017	2.41	97	1.0	-	1.53	-0.03	92	353	79	68
134	20.515	0.159	0.017	2.41	97	0.9	-	1.51	-0.02	92	352	79	68
135	20.674	0.159	0.017	2.41	97	0.9	-	1.49	-0.02	92	351	79	68
136	20.828	0.154	0.017	2.40	98	0.9	-	1.46	-0.03	92	350	79	68
137	20.988	0.160	0.016	2.41	98	0.9	-	1.45	-0.01	92	350	79	68
138	21.143	0.155	0.017	2.42	98	0.9	-	1.41	-0.04	92	349	79	68
139	21.302	0.159	0.016	2.42	98	0.9	-	1.39	-0.02	93	348	79	68
140	21.458	0.156	0.017	2.40	98	1.0	100	1.37	-0.02	93	347	79	67
141	21.616	0.158	0.017	2.42	98	0.9	-	1.35	-0.02	93	347	79	68
142	21.776	0.160	0.017	2.41	98	0.9	-	1.32	-0.03	92	346	79	67
143	21.929	0.153	0.017	2.41	98	0.9	-	1.31	-0.01	92	346	79	67
144	22.090	0.161	0.016	2.41	98	0.9	-	1.29	-0.02	92	345	79	67
145	22.245	0.155	0.017	2.41	98	0.9	-	1.26	-0.03	91	344	79	67
146	22.403	0.158	0.017	2.41	98	0.9	-	1.23	-0.03	91	344	79	67
147	22.560	0.157	0.017	2.40	98	0.9	-	1.21	-0.02	91	343	79	67
148	22.718	0.158	0.016	2.41	98	0.9	-	1.19	-0.02	91	343	79	67
149	22.877	0.159	0.017	2.41	98	0.9	-	1.17	-0.02	91	342	79	67
150	23.031	0.154	0.017	2.40	98	0.9	98	1.13	-0.04	91	342	78	67
151	23.193	0.162	0.017	2.41	98	0.9	-	1.12	-0.01	92	343	78	67
152	23.348	0.155	0.016	2.41	98	0.9	-	1.10	-0.02	92	342	79	67
153	23.506	0.158	0.016	2.40	98	0.9	-	1.07	-0.03	93	342	79	67
154	23.664	0.158	0.016	2.41	98	0.9	-	1.04	-0.03	92	342	79	67
155	23.820	0.156	0.017	2.41	98	0.9	-	1.01	-0.03	92	341	79	68
156	23.979	0.159	0.016	2.41	98	0.9	-	0.99	-0.02	92	340	79	68
157	24.133	0.154	0.017	2.42	98	1.0	-	0.97	-0.02	91	340	79	68
158	24.295	0.162	0.017	2.41	98	1.0	-	0.95	-0.02	91	339	78	68
159	24.449	0.154	0.016	2.41	98	0.9	-	0.92	-0.03	91	338	78	68

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	24.608	0.159	0.016	2.41	98	0.9	100	0.88	-0.04	91	339	78	68
161	24.767	0.159	0.016	2.42	98	1.0	-	0.86	-0.02	91	337	78	68
162	24.923	0.156	0.016	2.43	98	0.9	-	0.84	-0.02	91	337	78	69
163	25.082	0.159	0.016	2.42	98	0.9	-	0.81	-0.03	91	338	78	69
164	25.238	0.156	0.016	2.42	98	0.9	-	0.79	-0.02	92	337	79	69
165	25.398	0.160	0.016	2.42	98	0.9	-	0.76	-0.03	92	337	79	68
166	25.553	0.155	0.017	2.41	98	0.9	-	0.74	-0.02	92	336	79	69
167	25.712	0.159	0.016	2.41	98	0.9	-	0.71	-0.03	92	337	79	69
168	25.871	0.159	0.016	2.42	98	0.9	-	0.68	-0.03	92	337	79	69
169	26.025	0.154	0.016	2.42	98	1.0	-	0.66	-0.02	92	338	79	69
170	26.186	0.161	0.016	2.42	98	0.9	101	0.63	-0.03	91	338	79	69
171	26.342	0.156	0.016	2.42	99	1.0	-	0.60	-0.03	92	338	79	69
172	26.500	0.158	0.016	2.41	99	0.9	-	0.58	-0.02	92	338	79	69
173	26.657	0.157	0.016	2.41	99	0.9	-	0.55	-0.03	91	338	79	69
174	26.816	0.159	0.015	2.41	99	0.9	-	0.52	-0.03	91	339	79	69
175	26.975	0.159	0.016	2.42	99	1.0	-	0.50	-0.02	91	337	79	69
176	27.129	0.154	0.016	2.42	99	0.9	-	0.47	-0.03	91	336	79	69
177	27.291	0.162	0.016	2.42	99	0.9	-	0.45	-0.02	91	335	79	69
178	27.446	0.155	0.016	2.42	99	0.9	-	0.43	-0.02	91	335	79	69
179	27.605	0.159	0.016	2.41	99	0.9	-	0.40	-0.03	91	334	79	69
180	27.765	0.160	0.016	2.43	99	0.9	101	0.38	-0.02	91	334	79	69
181	27.921	0.156	0.015	2.43	99	0.9	-	0.35	-0.03	91	333	80	69
182	28.080	0.159	0.016	2.41	99	0.9	-	0.33	-0.02	91	334	80	69
183	28.237	0.157	0.016	2.43	99	0.9	-	0.31	-0.02	91	334	80	69
184	28.397	0.160	0.017	2.43	99	1.0	-	0.29	-0.02	91	334	80	69
185	28.553	0.156	0.016	2.43	100	1.0	-	0.26	-0.03	92	334	80	69
186	28.712	0.159	0.016	2.43	100	0.9	-	0.24	-0.02	92	334	80	69
187	28.872	0.160	0.017	2.43	100	1.0	-	0.21	-0.03	92	335	80	70
188	29.026	0.154	0.016	2.42	100	0.9	-	0.19	-0.02	92	335	80	69
189	29.188	0.162	0.016	2.43	100	0.9	-	0.17	-0.02	92	334	80	70
190	29.344	0.156	0.016	2.43	100	0.9	101	0.15	-0.02	92	335	80	70
191	29.502	0.158	0.016	2.43	100	0.9	-	0.13	-0.02	92	336	80	70



## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI Job #: 23-153  
 Model: CI2700-1 Tracking #: 150  
 Run #: 2 Technician: AK  
 Date: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
192	29.662	0.160	0.016	2.42	100	0.9	-	0.11	-0.02	92	336	80	70
193	29.819	0.157	0.017	2.42	100	0.9	-	0.09	-0.02	92	336	80	70
194	29.978	0.159	0.016	2.42	100	0.9	-	0.06	-0.03	92	335	80	70
195	30.135	0.157	0.016	2.42	100	0.9	-	0.04	-0.02	91	335	80	70
196	30.295	0.160	0.016	2.43	100	0.9	-	0.02	-0.02	91	336	80	70
197	30.451	0.156	0.016	2.42	100	0.9	100	0.00	-0.02	92	336	80	70
Avg/Tot	30.451	0.155	0.016	2.35	91.3	0.9	100			96.0	398.1	79.3	67.8

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
0	0.000		1.45	74	1.6		72	-0.075	5.57	0.019
1	0.136	0.136	2.10	74	1.7	-	75	-0.077	3.24	0.010
2	0.276	0.140	2.10	74	1.6	-	75	-0.079	8.36	0.012
3	0.420	0.144	2.10	74	1.9	-	76	-0.083	10.83	0.053
4	0.560	0.140	2.10	74	1.6	-	76	-0.086	12.43	0.065
5	0.705	0.145	2.10	74	1.5	-	76	-0.089	13.69	0.152
6	0.846	0.141	2.09	74	1.9	-	76	-0.093	15.15	0.680
7	0.986	0.140	2.09	74	1.6	-	77	-0.092	15.43	1.113
8	1.130	0.144	2.10	74	2.0	-	77	-0.092	15.49	1.149
9	1.271	0.141	2.09	74	1.6	-	78	-0.094	15.25	0.698
10	1.415	0.144	2.10	74	1.5	104	78	-0.092	15.11	0.627
11	1.554	0.139	2.09	75	1.7	-	78	-0.091	14.71	0.777
12	1.699	0.145	2.10	75	2.0	-	78	-0.092	15.01	0.820
13	1.840	0.141	2.09	75	1.6	-	78	-0.093	14.83	0.663
14	1.983	0.143	2.09	75	1.5	-	79	-0.095	14.82	0.734
15	2.125	0.142	2.09	75	1.5	-	79	-0.095	14.46	0.584
16	2.266	0.141	2.10	76	2.0	-	79	-0.093	14.52	0.459
17	2.411	0.145	2.10	76	2.0	-	79	-0.092	14.73	0.448
18	2.551	0.140	2.10	76	2.0	-	79	-0.090	13.92	0.513
19	2.696	0.145	2.10	76	1.5	-	80	-0.091	13.99	0.426
20	2.837	0.141	2.11	77	1.5	103	80	-0.091	14.03	0.384
21	2.982	0.145	2.10	77	2.0	-	80	-0.092	13.24	0.481
22	3.124	0.142	2.10	77	1.6	-	80	-0.094	13.86	0.390
23	3.265	0.141	2.10	78	1.6	-	80	-0.093	13.34	0.461
24	3.410	0.145	2.11	78	1.5	-	80	-0.093	13.60	0.470
25	3.552	0.142	2.11	78	1.6	-	80	-0.090	13.41	0.487
26	3.698	0.146	2.11	78	1.5	-	80	-0.093	13.82	0.558
27	3.838	0.140	2.11	79	1.9	-	80	-0.091	13.50	0.628
28	3.984	0.146	2.11	79	1.9	-	80	-0.092	13.95	0.635
29	4.126	0.142	2.12	79	1.9	-	80	-0.092	13.60	0.723
30	4.271	0.145	2.11	80	1.5	102	80	-0.091	13.67	0.713
31	4.414	0.143	2.12	80	1.5	-	80	-0.090	13.78	0.656

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 2Technician: AKDate: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
32	4.557	0.143	2.11	80	1.6	-	80	-0.092	13.89	0.730
33	4.702	0.145	2.12	81	2.0	-	80	-0.090	13.89	0.715
34	4.845	0.143	2.13	81	1.6	-	80	-0.092	14.01	0.811
35	4.991	0.146	2.12	81	1.6	-	80	-0.091	14.21	0.911
36	5.133	0.142	2.12	81	1.6	-	80	-0.092	14.35	1.005
37	5.279	0.146	2.12	82	1.9	-	80	-0.093	14.36	1.131
38	5.421	0.142	2.12	82	1.6	-	80	-0.090	14.47	1.236
39	5.567	0.146	2.12	82	1.8	-	81	-0.091	13.27	1.147
40	5.711	0.144	2.12	83	1.9	102	81	-0.090	12.53	0.720
41	5.857	0.146	2.12	83	1.8	-	81	-0.089	11.67	0.222
42	6.001	0.144	2.13	83	1.5	-	81	-0.088	10.73	0.021
43	6.145	0.144	2.13	83	1.6	-	81	-0.087	9.86	0.013
44	6.290	0.145	2.13	84	1.9	-	81	-0.088	9.43	0.013
45	6.434	0.144	2.13	84	1.7	-	81	-0.084	8.87	0.015
46	6.582	0.148	2.14	84	1.7	-	81	-0.086	8.41	0.013
47	6.725	0.143	2.14	85	1.7	-	81	-0.085	8.00	0.014
48	6.873	0.148	2.14	85	1.7	-	81	-0.086	7.63	0.016
49	7.016	0.143	2.14	85	1.5	-	81	-0.084	7.34	0.013
50	7.164	0.148	2.14	85	2.0	100	81	-0.084	7.24	0.014
51	7.306	0.142	2.14	86	1.6	-	81	-0.083	7.20	0.012
52	7.454	0.148	2.14	86	1.5	-	81	-0.084	7.14	0.012
53	7.598	0.144	2.14	86	2.0	-	81	-0.080	7.17	0.015
54	7.746	0.148	2.15	86	1.5	-	80	-0.081	7.23	0.014
55	7.891	0.145	2.14	87	2.0	-	80	-0.082	7.28	0.019
56	8.037	0.146	2.14	87	1.7	-	80	-0.082	7.36	0.015
57	8.183	0.146	2.15	87	2.0	-	80	-0.081	7.30	0.017
58	8.329	0.146	2.14	87	1.5	-	80	-0.080	7.14	0.017
59	8.475	0.146	2.15	88	2.0	-	80	-0.081	7.09	0.023
60	8.620	0.145	2.14	88	2.0	100	80	-0.079	6.98	0.021
61	8.767	0.147	2.15	88	1.5	-	80	-0.079	6.95	0.022
62	8.912	0.145	2.15	88	1.9	-	80	-0.079	6.95	0.026
63	9.060	0.148	2.16	88	1.5	-	80	-0.080	6.90	0.028

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
64	9.205	0.145	2.16	89	2.0	-	80	-0.078	6.98	0.036
65	9.354	0.149	2.16	89	2.0	-	80	-0.076	6.98	0.036
66	9.497	0.143	2.15	89	1.8	-	80	-0.078	7.02	0.037
67	9.646	0.149	2.16	89	1.9	-	80	-0.081	7.06	0.036
68	9.790	0.144	2.16	89	1.5	-	80	-0.080	7.08	0.038
69	9.939	0.149	2.16	90	2.0	-	80	-0.077	7.16	0.032
70	10.083	0.144	2.15	90	1.5	100	80	-0.078	7.18	0.039
71	10.232	0.149	2.16	90	1.7	-	80	-0.077	7.22	0.034
72	10.377	0.145	2.16	90	1.9	-	80	-0.078	7.26	0.039
73	10.525	0.148	2.16	90	1.6	-	80	-0.075	7.28	0.039
74	10.670	0.145	2.16	91	1.7	-	80	-0.077	7.35	0.037
75	10.819	0.149	2.17	91	2.0	-	80	-0.077	7.32	0.037
76	10.965	0.146	2.17	91	1.9	-	80	-0.075	7.38	0.039
77	11.113	0.148	2.16	91	1.5	-	79	-0.077	7.44	0.033
78	11.259	0.146	2.16	91	2.0	-	80	-0.076	7.48	0.037
79	11.406	0.147	2.16	91	2.0	-	79	-0.077	7.54	0.041
80	11.553	0.147	2.17	91	2.0	100	79	-0.077	7.48	0.036
81	11.700	0.147	2.17	92	1.9	-	79	-0.076	7.62	0.036
82	11.847	0.147	2.17	92	1.9	-	79	-0.075	7.65	0.038
83	11.993	0.146	2.17	92	1.6	-	79	-0.076	7.68	0.034
84	12.141	0.148	2.16	92	2.0	-	79	-0.076	7.84	0.025
85	12.287	0.146	2.17	92	1.8	-	79	-0.078	7.97	0.025
86	12.436	0.149	2.16	92	2.0	-	79	-0.077	8.05	0.017
87	12.582	0.146	2.17	92	1.5	-	79	-0.079	8.37	0.010
88	12.731	0.149	2.17	93	1.9	-	79	-0.078	8.53	0.013
89	12.876	0.145	2.17	93	1.7	-	79	-0.076	8.45	0.015
90	13.026	0.150	2.17	93	1.7	100	79	-0.077	8.39	0.019
91	13.172	0.146	2.18	93	1.8	-	80	-0.075	7.62	0.022
92	13.321	0.149	2.18	93	1.8	-	79	-0.076	10.02	0.022
93	13.467	0.146	2.17	93	2.0	-	80	-0.076	9.84	0.020
94	13.616	0.149	2.17	93	1.5	-	80	-0.076	9.86	0.021
95	13.761	0.145	2.17	93	1.5	-	80	-0.077	9.70	0.020

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
96	13.911	0.150	2.17	93	2.0	-	80	-0.078	9.68	0.012
97	14.056	0.145	2.17	94	1.5	-	80	-0.080	9.68	0.011
98	14.206	0.150	2.17	94	2.0	-	79	-0.080	9.72	0.011
99	14.351	0.145	2.17	94	1.6	-	79	-0.077	9.40	0.008
100	14.501	0.150	2.17	94	2.0	98	79	-0.079	9.33	0.006
101	14.646	0.145	2.17	94	1.9	-	79	-0.075	8.93	0.009
102	14.795	0.149	2.17	94	1.5	-	79	-0.075	8.54	0.006
103	14.940	0.145	2.16	94	1.5	-	79	-0.075	8.36	0.006
104	15.090	0.150	2.16	94	1.5	-	79	-0.074	8.28	0.007
105	15.236	0.146	2.17	94	1.5	-	79	-0.075	8.17	0.008
106	15.385	0.149	2.17	94	1.6	-	79	-0.073	8.01	0.011
107	15.531	0.146	2.17	94	2.0	-	79	-0.076	7.78	0.010
108	15.681	0.150	2.17	94	1.8	-	79	-0.074	7.38	0.009
109	15.826	0.145	2.16	94	1.5	-	79	-0.073	7.23	0.011
110	15.976	0.150	2.16	95	2.0	99	79	-0.075	7.25	0.009
111	16.122	0.146	2.17	95	1.8	-	79	-0.071	7.27	0.012
112	16.272	0.150	2.17	95	1.7	-	79	-0.073	6.93	0.014
113	16.418	0.146	2.17	95	1.5	-	79	-0.073	6.89	0.016
114	16.567	0.149	2.17	95	2.0	-	79	-0.077	6.80	0.008
115	16.714	0.147	2.17	95	1.9	-	79	-0.072	6.69	0.009
116	16.862	0.148	2.17	95	1.9	-	79	-0.069	6.72	0.011
117	17.009	0.147	2.17	95	2.0	-	79	-0.070	6.76	0.008
118	17.157	0.148	2.17	95	1.5	-	79	-0.070	6.78	0.014
119	17.305	0.148	2.17	95	1.6	-	79	-0.071	6.83	0.012
120	17.453	0.148	2.17	95	1.5	99	79	-0.072	6.85	0.013
121	17.601	0.148	2.17	95	1.5	-	79	-0.070	6.91	0.013
122	17.749	0.148	2.17	95	2.0	-	79	-0.072	6.93	0.010
123	17.896	0.147	2.17	95	1.8	-	79	-0.073	6.96	0.013
124	18.044	0.148	2.17	95	1.7	-	79	-0.072	7.04	0.015
125	18.193	0.149	2.17	95	1.6	-	78	-0.072	7.06	0.015
126	18.340	0.147	2.17	95	1.8	-	79	-0.070	6.93	0.010
127	18.488	0.148	2.17	95	1.5	-	79	-0.070	6.90	0.012

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
128	18.635	0.147	2.17	96	1.5	-	79	-0.070	6.97	0.011
129	18.784	0.149	2.17	96	2.0	-	79	-0.071	6.33	0.015
130	18.931	0.147	2.17	96	1.9	99	79	-0.070	6.33	0.009
131	19.080	0.149	2.17	96	1.6	-	79	-0.072	6.40	0.010
132	19.227	0.147	2.17	96	1.9	-	79	-0.070	6.43	0.014
133	19.376	0.149	2.17	96	1.5	-	79	-0.071	6.37	0.015
134	19.523	0.147	2.18	96	1.8	-	78	-0.069	6.43	0.011
135	19.673	0.150	2.17	96	1.5	-	78	-0.070	6.42	0.012
136	19.819	0.146	2.17	96	1.6	-	78	-0.069	6.43	0.008
137	19.969	0.150	2.18	96	1.6	-	78	-0.070	6.36	0.011
138	20.115	0.146	2.18	96	1.8	-	78	-0.070	6.32	0.009
139	20.265	0.150	2.17	96	2.0	-	78	-0.067	6.36	0.013
140	20.411	0.146	2.17	96	1.7	99	79	-0.069	6.42	0.012
141	20.561	0.150	2.17	96	2.0	-	78	-0.070	6.37	0.012
142	20.707	0.146	2.17	96	1.9	-	78	-0.069	6.34	0.010
143	20.857	0.150	2.18	96	1.5	-	78	-0.069	6.31	0.013
144	21.004	0.147	2.18	96	1.9	-	78	-0.070	6.34	0.013
145	21.154	0.150	2.17	96	1.6	-	78	-0.069	6.39	0.015
146	21.300	0.146	2.17	96	2.0	-	78	-0.069	6.37	0.012
147	21.450	0.150	2.17	96	1.5	-	78	-0.068	6.52	0.011
148	21.596	0.146	2.18	96	1.8	-	78	-0.069	6.54	0.013
149	21.746	0.150	2.18	96	1.9	-	78	-0.069	6.47	0.014
150	21.892	0.146	2.17	96	1.9	98	78	-0.069	6.42	0.013
151	22.042	0.150	2.17	96	1.6	-	78	-0.068	6.42	0.014
152	22.188	0.146	2.16	96	2.0	-	78	-0.069	6.56	0.015
153	22.338	0.150	2.17	96	1.9	-	78	-0.068	6.61	0.020
154	22.484	0.146	2.18	96	1.6	-	78	-0.068	6.52	0.011
155	22.634	0.150	2.17	96	1.7	-	78	-0.069	6.60	0.015
156	22.780	0.146	2.17	96	1.8	-	78	-0.067	6.65	0.016
157	22.931	0.151	2.17	96	1.5	-	78	-0.070	6.69	0.013
158	23.076	0.145	2.17	96	1.5	-	78	-0.067	6.72	0.013
159	23.227	0.151	2.17	96	2.0	-	78	-0.067	6.73	0.013

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
160	23.372	0.145	2.17	96	1.6	99	78	-0.069	6.79	0.013
161	23.523	0.151	2.17	96	1.7	-	78	-0.067	6.84	0.014
162	23.669	0.146	2.17	97	1.9	-	78	-0.069	6.84	0.013
163	23.819	0.150	2.17	96	1.8	-	79	-0.067	6.71	0.014
164	23.965	0.146	2.18	97	1.5	-	79	-0.066	6.69	0.011
165	24.115	0.150	2.18	97	1.5	-	79	-0.067	6.76	0.016
166	24.261	0.146	2.17	96	2.1	-	79	-0.067	6.82	0.012
167	24.411	0.150	2.17	97	1.6	-	79	-0.064	6.79	0.017
168	24.557	0.146	2.17	97	1.7	-	79	-0.067	6.83	0.013
169	24.707	0.150	2.17	97	1.8	-	79	-0.070	6.83	0.014
170	24.853	0.146	2.17	97	1.5	101	79	-0.067	6.82	0.017
171	25.003	0.150	2.17	97	1.5	-	79	-0.067	6.80	0.014
172	25.150	0.147	2.17	97	2.0	-	79	-0.070	6.87	0.017
173	25.300	0.150	2.17	97	1.6	-	79	-0.067	6.84	0.014
174	25.446	0.146	2.17	97	1.8	-	79	-0.068	6.81	0.015
175	25.596	0.150	2.17	97	1.8	-	79	-0.068	6.62	0.014
176	25.743	0.147	2.17	97	1.5	-	79	-0.068	6.39	0.008
177	25.893	0.150	2.17	97	1.5	-	79	-0.068	6.29	0.011
178	26.039	0.146	2.18	97	1.6	-	79	-0.069	6.23	0.013
179	26.189	0.150	2.17	97	2.0	-	79	-0.068	6.49	0.012
180	26.335	0.146	2.17	97	2.0	101	79	-0.069	6.49	0.012
181	26.485	0.150	2.17	97	1.6	-	79	-0.067	6.42	0.015
182	26.632	0.147	2.17	97	1.5	-	79	-0.066	6.51	0.014
183	26.782	0.150	2.17	97	1.5	-	79	-0.063	6.55	0.013
184	26.929	0.147	2.17	97	1.5	-	79	-0.064	6.57	0.014
185	27.079	0.150	2.18	97	1.9	-	80	-0.065	6.57	0.012
186	27.226	0.147	2.18	97	1.7	-	80	-0.067	6.49	0.012
187	27.375	0.149	2.18	97	1.5	-	80	-0.066	6.44	0.012
188	27.523	0.148	2.18	97	1.8	-	80	-0.066	6.43	0.013
189	27.672	0.149	2.17	97	1.5	-	80	-0.066	6.10	0.017
190	27.819	0.147	2.17	97	1.5	101	80	-0.068	5.92	0.012
191	27.969	0.150	2.17	98	2.0	-	80	-0.068	5.96	0.013

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
192	28.116	0.147	2.17	97	1.5	-	80	-0.066	5.98	0.012
193	28.266	0.150	2.18	97	1.7	-	80	-0.064	5.84	0.009
194	28.413	0.147	2.18	98	2.0	-	80	-0.066	5.83	0.014
195	28.563	0.150	2.18	98	2.0	-	80	-0.068	5.89	0.013
196	28.710	0.147	2.18	98	1.9	-	80	-0.067	5.92	0.017
197	28.860	0.150	2.18	98	1.6	99	80	-0.068	5.85	0.013
Avg/Tot	28.860	0.146	2.15	90.1	1.7	100	79.1	-0.077	8.49	0.140



## BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Particulate Sampling Data							
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.001		0.66	74	1.7		71
1	0.155	0.154	1.07	73	1.7	-	71
2	0.309	0.154	1.07	73	1.9	-	71
3	0.463	0.154	1.08	73	1.8	-	71
4	0.618	0.155	1.09	73	1.7	-	71
5	0.773	0.155	1.09	73	1.7	-	72
6	0.928	0.155	1.10	74	1.9	-	72
7	1.084	0.156	1.11	74	1.8	-	72
8	1.239	0.155	1.11	74	1.9	-	72
9	1.395	0.156	1.11	74	1.9	-	73
10	1.551	0.156	1.11	74	1.7	102	73
11	1.708	0.157	1.10	75	1.9	-	73
12	1.865	0.157	1.11	75	1.9	-	74
13	2.022	0.157	1.12	75	1.8	-	74
14	2.179	0.157	1.12	75	1.8	-	74
15	2.337	0.158	1.12	76	1.8	-	74
16	2.493	0.156	1.11	76	1.9	-	75
17	2.650	0.157	1.11	76	1.9	-	75
18	2.809	0.159	1.12	76	1.7	-	75
19	2.967	0.158	1.13	77	1.9	-	75
20	3.125	0.158	1.13	77	1.9	102	75
21	3.281	0.156	1.13	78	1.8	-	75
22	3.440	0.159	1.13	78	1.8	-	75
23	3.600	0.160	1.14	78	1.7	-	76
24	3.759	0.159	1.14	78	1.7	-	76
25	3.917	0.158	1.14	78	1.7	-	76
26	4.076	0.159	1.13	79	1.9	-	76
27	4.237	0.161	1.15	79	1.9	-	76
28	4.397	0.160	1.15	79	1.9	-	76
29	4.556	0.159	1.14	79	1.9	-	76
30	4.716	0.160	1.15	79	1.7	101	76
31	4.877	0.161	1.16	80	1.9	-	76

## BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Particulate Sampling Data							
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	5.036	0.159	1.15	80	1.8	-	76
33	5.198	0.162	1.15	80	1.9	-	77
34	5.360	0.162	1.16	81	1.7	-	77
35	5.520	0.160	1.16	81	1.8	-	77
36	5.682	0.162	1.16	81	1.7	-	77
37	5.844	0.162	1.17	81	1.9	-	77
38	6.005	0.161	1.16	81	1.8	-	77
39	6.167	0.162	1.16	82	1.9	-	77
40	6.330	0.163	1.17	82	1.8	102	77
41	6.491	0.161	1.16	82	1.9	-	77
42	6.655	0.164	1.18	82	1.9	-	77
43	6.816	0.161	1.17	83	1.8	-	77
44	6.980	0.164	1.17	83	1.9	-	77
45	7.143	0.163	1.18	83	1.9	-	77
46	7.305	0.162	1.17	83	1.9	-	77
47	7.470	0.165	1.18	83	1.8	-	77
48	7.632	0.162	1.18	83	1.8	-	77
49	7.796	0.164	1.18	83	1.8	-	77
50	7.960	0.164	1.19	84	1.9	101	77
51	8.124	0.164	1.18	84	1.8	-	77
52	8.289	0.165	1.19	84	1.8	-	77
53	8.452	0.163	1.18	84	1.9	-	77
54	8.617	0.165	1.19	85	1.7	-	77
55	8.780	0.163	1.18	85	1.8	-	77
56	8.945	0.165	1.19	85	1.7	-	77
57	9.109	0.164	1.18	85	1.8	-	77
58	9.274	0.165	1.19	85	1.7	-	77
59	9.438	0.164	1.19	85	1.9	-	77
60	9.604	0.166	1.19	85	1.9	102	77
Avg/Tot	9.603	0.160	1.14	79.2	1.8	102	75.3

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

**Stove ΔT:** 117

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	509	541	432	587	394	492.8	802.6
1	503	536	442	584	398	492.5	706.4
2	496	531	449	582	402	491.8	793.2
3	489	526	457	587	407	493.1	967.6
4	484	521	465	603	411	496.8	1074.0
5	477	517	473	629	416	502.3	1154.3
6	473	513	478	660	420	508.7	1199.1
7	468	510	482	692	424	515.1	1213.0
8	465	507	485	722	427	521.3	1214.2
9	463	504	488	748	431	526.7	1202.6
10	464	502	490	772	433	532.3	1194.6
11	462	500	493	794	436	537.0	1195.3
12	462	499	496	814	438	541.9	1203.0
13	463	499	498	833	440	546.6	1204.9
14	463	498	500	850	443	550.7	1208.6
15	464	498	502	865	444	554.6	1198.3
16	459	498	476	855	440	545.4	1181.0
17	461	498	455	858	436	541.6	1174.1
18	467	498	440	862	432	539.7	1172.7
19	465	498	429	862	427	536.2	1170.6
20	467	498	420	862	423	533.9	1167.0
21	468	499	412	863	418	531.8	1163.6
22	469	499	405	862	413	529.7	1171.4
23	469	500	399	862	409	527.8	1162.4
24	474	500	395	863	404	527.3	1164.6
25	475	501	390	864	400	526.0	1163.9
26	477	502	387	864	396	525.2	1172.1
27	476	503	383	864	393	523.9	1167.7
28	481	503	381	864	390	523.7	1175.4
29	482	504	379	865	387	523.1	1175.7
30	481	505	377	866	384	522.4	1175.6
31	486	506	376	868	381	523.4	1178.0
32	487	507	375	868	378	523.2	1179.5
33	489	508	375	869	376	523.5	1179.5
34	486	510	376	868	374	522.7	1180.6
35	490	511	378	869	372	523.8	1183.0
36	491	512	379	869	369	524.2	1186.2
37	496	514	382	871	368	526.0	1185.4
38	499	517	385	872	366	527.6	1184.2
39	513	520	387	877	364	532.1	1188.9
40	521	523	386	880	363	534.5	1179.0
41	532	527	387	879	361	537.1	1145.6
42	542	530	388	871	359	538.2	1109.7
43	546	534	389	855	357	536.2	1072.3
44	553	537	389	840	355	534.7	1035.8
45	556	540	388	822	354	532.0	1012.7
46	559	541	387	805	352	528.6	1001.9
47	564	542	384	787	350	525.3	1000.9

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

**Stove ΔT:** 117

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	568	541	381	771	348	521.6	995.3
49	568	540	377	756	346	517.4	985.8
50	570	538	374	741	344	513.2	976.4
51	570	537	371	727	341	509.2	967.1
52	571	534	367	714	339	505.1	959.7
53	568	532	364	702	337	500.5	954.9
54	573	528	362	691	335	497.8	947.5
55	572	525	360	680	333	494.0	941.1
56	570	522	358	670	331	490.3	934.0
57	567	520	357	660	328	486.5	926.9
58	565	517	356	651	326	483.1	918.0
59	561	515	354	641	325	479.3	913.5
60	560	513	353	633	322	476.2	909.2
61	556	511	352	625	321	472.8	907.1
62	555	508	350	618	319	470.1	909.9
63	546	506	349	612	317	465.9	912.7
64	545	504	348	607	315	463.5	915.2
65	544	501	346	602	313	461.3	918.0
66	542	498	344	599	312	458.8	921.2
67	538	497	342	596	310	456.4	923.5
68	533	494	340	593	309	453.9	921.9
69	531	493	339	591	307	451.9	920.8
70	530	491	337	589	306	450.3	921.4
71	526	489	335	587	305	448.2	919.4
72	526	487	334	585	304	447.1	918.4
73	522	486	332	583	302	445.0	918.7
74	523	485	330	582	301	444.0	917.5
75	521	483	328	580	300	442.5	916.2
76	519	482	327	579	299	441.1	915.6
77	519	481	325	578	298	440.2	914.3
78	516	480	324	577	297	438.9	914.2
79	513	479	323	577	296	437.8	913.6
80	513	478	322	576	295	436.9	913.4
81	514	478	321	575	294	436.4	912.8
82	513	477	320	574	294	435.7	912.7
83	513	477	319	574	293	435.3	910.4
84	509	476	319	575	292	434.1	908.6
85	513	476	318	575	292	434.7	910.4
86	511	476	317	576	291	434.2	912.3
87	509	477	317	578	290	434.2	909.5
88	508	477	318	580	290	434.5	908.5
89	504	478	318	582	289	434.2	906.2
90	505	479	319	584	289	435.0	903.9
91	504	481	319	584	288	435.2	918.6
92	505	481	321	582	287	435.3	913.5
93	511	482	321	582	287	436.6	940.4
94	515	482	323	582	287	437.7	958.7
95	518	482	325	583	287	438.8	959.6

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

**Stove ΔT:** 117

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	522	481	327	585	287	440.3	952.8
97	525	481	329	587	287	441.8	948.9
98	529	480	330	591	288	443.4	943.5
99	532	479	331	593	289	444.8	934.7
100	532	478	331	596	291	445.5	927.6
101	534	478	332	597	292	446.4	918.7
102	537	476	331	596	294	446.7	906.8
103	536	476	331	595	295	446.5	896.0
104	533	474	330	594	297	445.6	889.2
105	537	473	329	591	298	445.7	883.8
106	536	473	329	588	300	445.2	878.5
107	535	472	327	584	301	444.0	874.3
108	533	471	326	579	303	442.4	867.6
109	530	470	325	574	304	440.8	857.2
110	530	469	324	568	306	439.4	847.4
111	527	468	324	563	308	437.8	842.0
112	526	467	324	558	309	436.6	838.7
113	521	466	324	552	310	434.5	836.3
114	520	465	323	547	311	433.2	833.1
115	517	463	323	542	313	431.6	826.3
116	512	462	323	538	314	429.9	824.4
117	511	461	322	533	315	428.5	824.0
118	510	460	322	529	316	427.2	823.6
119	508	458	320	526	317	425.9	823.5
120	505	457	319	522	318	424.3	822.8
121	504	456	318	519	319	423.1	821.4
122	500	455	318	516	320	421.6	818.7
123	499	454	317	513	321	420.8	816.6
124	496	452	317	511	322	419.6	814.8
125	495	451	317	508	323	418.7	813.5
126	492	450	316	506	323	417.7	811.0
127	491	449	317	504	324	417.0	808.9
128	488	449	317	502	325	416.1	807.8
129	485	448	317	500	325	414.9	803.2
130	483	447	317	497	326	413.7	795.4
131	482	446	317	494	327	412.9	793.0
132	477	445	316	491	327	411.2	792.4
133	474	443	316	489	328	410.0	790.7
134	474	443	315	486	329	409.4	788.0
135	473	442	315	483	329	408.3	786.5
136	470	441	314	481	330	407.1	786.5
137	467	440	314	479	330	405.9	785.8
138	464	439	313	477	330	404.5	784.0
139	463	438	312	475	331	403.7	782.6
140	462	437	311	474	331	402.8	781.2
141	460	436	310	472	331	401.8	780.0
142	457	434	309	471	331	400.4	779.0
143	456	433	308	469	331	399.5	779.3

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

Stove ΔT: 117

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	454	432	307	468	331	398.5	778.6
145	452	431	306	466	331	397.3	775.5
146	449	430	305	465	331	396.1	773.2
147	447	429	304	464	332	395.1	772.3
148	448	429	303	462	332	394.7	771.7
149	446	428	303	461	331	393.8	770.8
150	447	427	302	460	332	393.3	771.5
151	445	426	301	459	332	392.4	772.7
152	445	425	300	458	332	392.0	775.9
153	443	424	300	457	332	391.1	777.5
154	441	424	300	456	332	390.4	774.5
155	438	424	300	455	332	389.7	772.2
156	438	423	300	454	332	389.1	770.3
157	439	423	300	453	332	389.1	768.8
158	436	423	299	451	331	388.1	767.5
159	437	423	300	451	331	388.3	766.9
160	436	423	300	449	331	387.9	766.3
161	435	423	301	448	331	387.7	765.8
162	435	423	303	448	330	387.8	765.3
163	431	424	305	447	330	387.5	763.8
164	432	424	308	447	330	388.1	762.8
165	432	424	310	446	330	388.4	764.1
166	431	423	312	445	329	388.1	766.2
167	427	424	313	445	329	387.4	767.8
168	427	424	314	444	329	387.5	769.2
169	430	424	315	444	329	388.4	769.5
170	428	423	316	444	328	387.6	768.1
171	428	423	317	443	327	387.6	769.3
172	428	423	318	443	327	387.7	771.3
173	429	423	318	443	326	387.7	773.0
174	427	423	318	442	326	387.3	773.4
175	428	423	319	442	325	387.4	763.5
176	428	422	320	442	325	387.3	756.9
177	427	423	319	441	324	386.8	754.8
178	426	422	319	441	324	386.3	752.8
179	427	422	319	440	324	386.3	751.2
180	427	422	318	439	324	385.8	750.2
181	427	421	317	439	324	385.4	751.7
182	427	421	316	438	324	385.1	754.8
183	427	419	314	437	324	384.5	756.9
184	427	419	313	437	325	384.2	757.5
185	426	418	312	437	325	383.8	758.4
186	426	419	311	437	325	383.7	760.5
187	426	417	310	437	326	383.1	762.4
188	426	417	309	437	326	382.9	763.6
189	424	416	307	437	326	382.1	763.3
190	424	415	305	436	326	381.2	763.7
191	426	414	304	436	326	381.1	764.4

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

**Stove ΔT:** 117

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
192	425	413	303	435	326	380.4	764.3
193	425	412	301	434	326	379.7	764.0
194	424	411	300	434	326	378.7	764.5
195	424	409	298	433	325	377.9	765.4
196	423	408	297	433	325	377.1	766.4
197	422	407	295	432	324	376.1	766.1
Average	488.1	470.7	346.1	596.0	337.0	447.6	910.3

## LAB SAMPLE DATA - ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 2

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/20/2023

		Sample ID	Tare, mg	Final, mg	Catch, mg
<b>Filters</b>	<b>A</b>	G00574	242.3	243.6	1.3
	<b>B</b>	G00575	242.3	243.6	1.3
	<b>C - 1st Hour</b>	G00576	242.0	243.0	1.0
	<b>Amb</b>	G00577	242.9	243.0	0.1
<b>Probes</b>	<b>A</b>	19A	117026.5	117026.6	0.1
	<b>B</b>	19B	117013.4	117013.7	0.3
	<b>C - 1st Hour</b>	19C	114231.3	114231.4	0.1
<b>O-rings</b>	<b>A</b>	19A	3585.5	3586.2	0.7
	<b>B</b>	19B	3633.1	3633.7	0.6
	<b>C - 1st Hour</b>	19C	3615.0	3615.5	0.5

**Placed in Dessicator on:**

<b>Filters</b>	<b>A</b>	243.6	243.6		
	<b>B</b>	243.6	243.6		
	<b>C - 1st Hour</b>	243.0	243.0		
	<b>Amb</b>	242.9	243.0		
<b>Probes</b>	<b>A</b>	117026.6	117026.6		
	<b>B</b>	117013.8	117013.7		
	<b>C - 1st Hour</b>	114231.5	114231.4		
<b>O-Rings</b>	<b>A</b>	3586.0	3586.2		
	<b>B</b>	3633.6	3633.7		
	<b>C - 1st Hour</b>	3615.5	3615.5		

<b>Train A Aggregate, mg:</b>	<b>2.1</b>
<b>Train B Aggregate, mg:</b>	<b>2.2</b>
<b>Train C Aggregate, mg:</b>	<b>1.6</b>
<b>Ambient, mg:</b>	<b>0.1</b>



# ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 23-153 Tracking #: 150  
 Model: CI2700-1 Run Number: 2 Test Date: 6/20/23

## Wood Heater Run Notes

### Test Control Settings

Primary Air Setting(s): Fully Open  
 Targeted Burn Category: IV

### Preburn Notes

Time	Notes
77:00	Power outage, logging systems on battery backup but scale readout lost for 16 mins Power returned, all data logging resumed End PB
93:00	
107:00	

### Test Notes

Test Burn Start Time: 11:58 Test Fuel Loaded by: 45 seconds  
 Door Closed: 60 seconds Air Control Set at: 0 seconds  
 Other Loading Notes: Fan on high @ 15 min

Time	Notes
	<i>-None-</i>

Test Burn End Time: 15:15


### Flue Gas Concentration Measurement

**Calibration Gas Values:** Span Gas CO<sub>2</sub> (%): 17.01 CO (%): 4.306  
 Mid Gas CO<sub>2</sub> (%): 10.09 CO (%): 2.53

### Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	10:33	10:34	10:36	16:16	16:17	16:18
CO <sub>2</sub>	0.02	16.89	9.98	0.06	16.99	9.99
CO	0.015	4.266	2.463	0.033	4.254	2.482

**Flue Gas Probe Leak Check:** Initial: No Leakage Final: No Leakage

Technician Signature: 

Date: 6/26/23

# ASTM E2780 Wood Heater Run Sheets

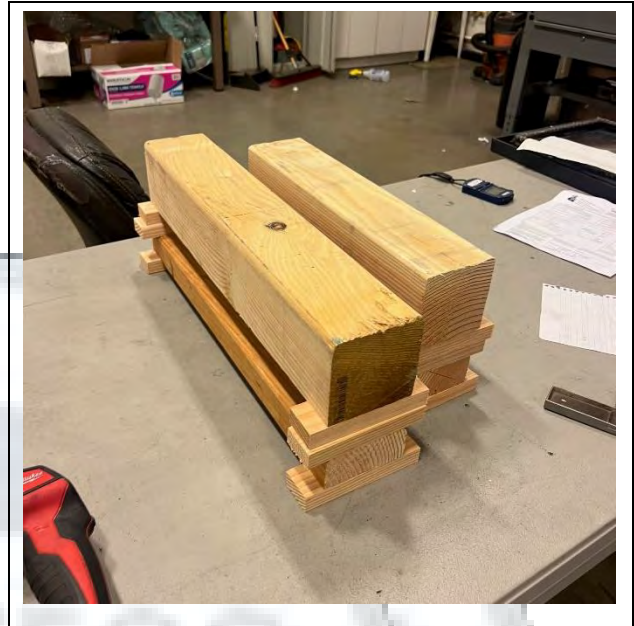
Client: FPI  
Model: CI2700-1

Job Number: 23-153  
Run Number: 2

Tracking #: 150  
Test Date: 6/20/23



Test Fuel Side View




Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: 

Date: 6/26/23

**WOOD STOVE TEST DATA PACKET**  
**ASTM E2780/E2515**



**Run 3 Data Summary**

Client: FPI  
Model: C12700-1  
Job #: 23-153  
Tracking #: 150  
Test Date: 6/21/2023

  
\_\_\_\_\_  
Technician Signature

7/3/2023  
\_\_\_\_\_  
Date

## TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI

Model: CI2700-1

Run #: 3

Job #: 23-153

Tracking #: 150

Technician: AK

Date: 6/21/2023

<b>Burn Rate (kg/hr):</b>	<b>1.22</b>
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft <sup>3</sup> )	34.294	39.416	37.253	9.616
Average Gas Velocity in Dilution Tunnel (ft/sec)	7.3			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	19500.0			
Average Gas Meter Temperature (°F)	71.7	96.2	94.7	81.9
Total Sample Volume (dscf)	34.973	38.121	35.786	9.282
Average Tunnel Temperature (°F)	90.6			
Total Time of Test (min)	252			
Total Particulate Catch (mg)	0.1	1.6	1.7	1.5
Particulate Concentration, dry-standard (g/dscf)	0.0000029	0.0000420	0.0000475	0.0001616
Total PM Emissions (g)	0.23	3.20	3.66	3.10
Particulate Emission Rate (g/hr)	0.06	0.76	0.87	3.10
Emissions Factor (g/kg)	-	0.62	0.71	-
Difference from Average Total Particulate Emissions (g)	-	0.23	0.23	-
Difference from Average Total Particulate Emissions (%)	-	6.6%	6.6%	-
Difference from Average Emissions Factor (g/kg)	-	0.04	0.04	-

<b>Final Average Results</b>	
Total Particulate Emissions (g)	3.43
Particulate Emission Rate (g/hr)	0.82
Emissions Factor (g/kg)	0.67
HHV Efficiency (%)	77.1%
LHV Efficiency (%)	83.4%
CO Emissions (g/min)	0.25

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	82.1	OK
Face Velocity	< 30 ft/min	9.0	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min:71.3/Max:72.7	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	47.6	OK

## B415.1 Efficiency Results

**Manufacturer:** FPI  
**Model:** CI2700-1  
**Date:** 06/21/23  
**Run:** 3  
**Control #:** 23-153  
**Test Duration:** 252  
**Output Category:** 2

### Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
<b>Overall Efficiency</b>	77.1%	83.4%
<b>Combustion Efficiency</b>	99.5%	99.5%
<b>Heat Transfer Efficiency</b>	77.5%	83.8%

<b>Output Rate (kJ/h)</b>	18,529	17,576	<b>(Btu/h)</b>
<b>Burn Rate (kg/h)</b>	1.21	2.67	<b>(lb/h)</b>
<b>Input (kJ/h)</b>	24,022	22,788	<b>(Btu/h)</b>

<b>Test Load Weight (dry kg)</b>	5.09	11.23	<b>dry lb</b>
<b>MC wet (%)</b>	16.85		
<b>MC dry (%)</b>	20.27		
<b>Particulate (g )</b>	3.43		
<b>CO (g)</b>	63		
<b>Test Duration (h)</b>	4.20		

	Particulate	CO
<b>Emissions</b>		
<b>g/MJ Output</b>	0.04	0.81
<b>g/kg Dry Fuel</b>	0.67	12.40
<b>g/h</b>	0.82	15.04
<b>g/min</b>	0.01	0.25
<b>lb/MM Btu Output</b>	0.10	1.89

<b>Air/Fuel Ratio (A/F)</b>	14.50
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VERSION:

2.4

4/15/2010

# WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	10.00	22.4		2x4	15.00	19.5
2x4	10.00	19.9		2x4	15.00	22.1
2x4	10.00	22.4				
2x4	10.00	21.4				
2x4	10.00	19.6				
2x4	15.00	20.2				
2x4	15.00	19.6				
2x4	15.00	19.0				
Total Fuel Weight (lbs):		12.68	Average Moisture (%DB):		20.6	

Firebox Volume (ft<sup>3</sup>): 1.83  
 Total 2x4 Crib Weight, with spacers (lbs): 4.80  
 Total 4x4 Crib Weight, with spacers (lbs): 8.70  
 Total Wet Fuel Weight, with spacers (lbs): 13.50

**Coal Bed Range (20-25%):**  
 Min (lbs): 2.70  
 Max (lbs): 3.38

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	15.00	1.73	19.2	19.3	19.7	1.45
2x4	20.00	2.25	20.1	19.1	19.7	1.88
4x4	15.00	3.57	20.0	19.1	19.7	2.98
4x4	20.00	4.43	24.5	22.0	20.8	3.62
Total Dry Weight, no spacers (lbs):						9.93
Total Dry Weight, with spacers (lbs):						11.33

Spacer Moisture Readings (%DB)						
10.8	6.7					
12.4	6.2					
7.9	8.1					
10.4	6.7					
11.9	8.6					
9.7	6.4					

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft <sup>3</sup> , DB)	28.0	OK
Loading Density	6.3 - 7.7 (lbs/ft <sup>3</sup> , WB)	7.38	OK
2x4 Fuel Mix	35 - 65 % of total weight	36%	OK

## DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: **FPI**  
 Model: **CI2700-1**  
 Run #: **3**  
 Test Start Time: **13:17**

Job #: **23-153**  
 Tracking #: **150**  
 Technician: **AK**  
 Date: **6/21/2023**

Total Sampling Time (min): **252**  
 Recording Interval (min): **1**

Meter Box  $\gamma$  Factor: **1.010** (A)  
 Meter Box  $\gamma$  Factor: **1.001** (B)  
 Meter Box  $\gamma$  Factor: **0.985** (C)  
 Meter Box  $\gamma$  Factor: **1.024** (Ambient)

Induced Draft Check (in. H<sub>2</sub>O): **0**  
 Smoke Capture Check (%): **100%**  
 Date Flue Pipe Last Cleaned: **6/16/2023**

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.03	30.01	30.02
Relative Humidity (%)	35.5	28.7	
Room Air Velocity (ft/min)	0	0.0	
Scale Audit (lbs)	10.0	10.0	
Ambient Sample Volume:	34.294		ft <sup>3</sup>

	Pre-Test		Post-Test	
	cfm	@ in Hg	cfm	@ in Hg
Leak Checks Pitot	0		0	
A	0.000	-5	0.000	-5
B	0.000	-5	0.001	-5
C	0.000	-5	0.001	-5
Ambient	0.000	-12	0.000	-12

### DILUTION TUNNEL FLOW

#### Traverse Data

Point	dP (in H <sub>2</sub> O)	Temp (°F)
1	0.008	94
2	0.010	94
3	0.014	94
4	0.014	93
5	0.014	93
6	0.008	93
7	0.006	93
8	0.014	93
9	0.014	93
10	0.014	93
11	0.012	93
12	0.008	93
Center	0.016	92

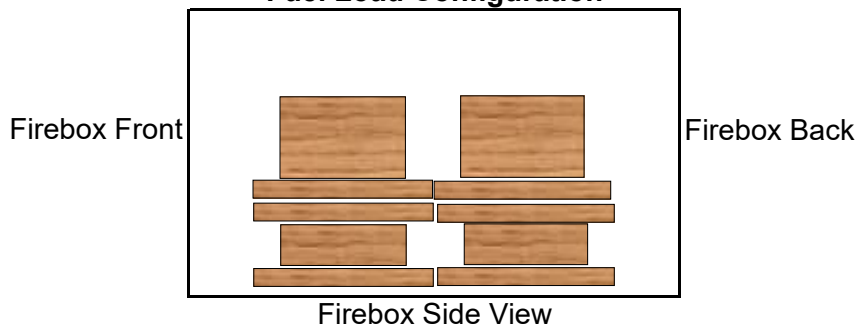
Dilution Tunnel H<sub>2</sub>O: **2.00** percent  
 Tunnel Diameter: **12** inches  
 Pitot Tube Cp: **0.99** [unitless]  
 Dilution Tunnel MW(dry): **29.00** lb/lb-mole  
 Dilution Tunnel MW(wet): **28.78** lb/lb-mole  
 Tunnel Area: **0.7854** ft<sup>2</sup>

$V_{strav}$ : **7.14** ft/sec  
 $V_{scent}$ : **8.56** ft/sec  
 $F_p$ : **0.835** [ratio]  
 Initial Tunnel Flow: **315.8** scf/min

Static Pressure: **-0.080** in. H<sub>2</sub>O

### TEST FUEL PROPERTIES

#### Fuel Load Configuration



#### Actual Fuel Used Properties

Fuel Type: **D. Fir**  
 HHV (kJ/kg) **19,810**  
 %C **48.73**  
 %H **6.87**  
 %O **43.9**  
 %Ash **0.5**  
 MC (%DB) **20.3**



# WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Recording Interval (min): 1  
 Run Time (min): 70

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
0	6.25	-0.084	547	516	480	939	393	575.1	476	71	
1	6.13	-0.083	549	519	472	935	391	573.0	439	71	
2	6.02	-0.083	549	522	465	932	389	571.2	420	71	
3	5.92	-0.080	550	523	459	929	386	569.4	406	71	
4	5.84	-0.079	543	526	453	927	384	566.5	397	71	
5	5.77	-0.077	547	527	449	924	381	565.5	390	71	
6	5.68	-0.078	546	527	444	922	378	563.4	384	71	
7	5.61	-0.078	544	528	441	918	375	561.2	380	71	
8	5.53	-0.077	542	528	438	914	373	558.9	375	71	
9	5.46	-0.076	540	529	435	909	370	556.5	372	71	
10	5.39	-0.077	539	528	432	904	368	554.3	368	71	
11	5.32	-0.075	535	528	430	898	365	551.2	366	71	
12	5.27	-0.071	535	527	428	892	363	548.9	363	71	
13	5.20	-0.073	532	526	427	884	361	546.1	360	71	
14	5.14	-0.072	531	525	426	877	359	543.8	357	71	
15	5.10	-0.072	532	523	426	871	357	541.9	355	71	
16	5.04	-0.071	527	522	427	864	355	539.0	352	71	
17	5.00	-0.072	526	520	429	856	354	536.9	349	71	
18	4.95	-0.071	526	518	431	845	352	534.4	346	71	
19	4.90	-0.070	520	516	434	834	350	530.7	346	71	
20	4.85	-0.072	520	514	437	822	349	528.3	344	71	
21	4.82	-0.072	521	512	441	810	347	526.3	342	71	
22	4.78	-0.071	518	510	444	799	346	523.3	340	71	
23	4.73	-0.070	517	508	448	786	345	520.8	337	71	
24	4.70	-0.067	514	507	451	774	344	518.1	334	71	
25	4.67	-0.068	514	505	455	762	343	515.9	331	71	
26	4.63	-0.066	515	503	459	751	342	514.1	330	71	
27	4.59	-0.066	510	502	464	740	341	511.2	327	71	
28	4.56	-0.065	508	500	468	729	341	508.9	325	71	
29	4.54	-0.064	507	499	471	718	340	507.1	321	71	
30	4.51	-0.063	505	497	475	707	340	504.7	318	71	
31	4.48	-0.062	504	495	478	698	339	502.9	316	71	
32	4.45	-0.062	502	494	480	689	339	500.8	314	71	
33	4.42	-0.062	502	492	482	680	338	498.9	313	71	
34	4.40	-0.063	500	491	483	672	338	496.7	311	71	
35	4.39	-0.062	500	489	485	664	338	495.0	309	71	
36	4.35	-0.061	497	488	485	657	338	493.0	306	71	
37	4.33	-0.063	495	487	486	651	338	491.3	305	71	
38	4.30	-0.061	493	485	486	645	338	489.2	303	71	
39	4.27	-0.061	493	483	486	637	338	487.6	301	71	
40	4.25	-0.060	489	483	485	632	338	485.4	300	71	
41	4.22	-0.060	488	481	485	626	339	483.6	298	71	
42	4.20	-0.060	486	480	485	620	339	481.9	297	71	
43	4.18	-0.058	488	478	484	615	339	480.9	295	71	
44	4.16	-0.057	484	477	483	610	340	478.9	294	71	



## WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Recording Interval (min): 1  
 Run Time (min): 70

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
45	3.71	-0.062	482	476	483	604	340	476.9	369	71	
46	3.68	-0.059	481	475	480	598	341	475.0	330	72	
47	3.67	-0.060	480	474	477	592	342	472.9	311	72	
48	3.65	-0.059	478	472	471	588	343	470.4	302	72	
49	3.63	-0.057	475	471	464	583	344	467.2	296	71	
50	3.61	-0.059	477	469	456	578	345	465.0	292	71	
51	3.61	-0.057	476	467	450	574	346	462.6	288	72	
52	3.59	-0.060	472	465	444	570	347	459.8	286	71	
53	3.58	-0.057	470	463	439	567	348	457.5	283	71	
54	3.56	-0.058	470	462	435	563	350	455.8	282	71	
55	3.54	-0.055	468	460	430	560	351	453.7	279	72	
56	3.53	-0.055	464	458	426	556	351	451.2	277	71	
57	3.51	-0.058	466	456	422	554	352	450.1	276	71	
58	3.50	-0.056	464	454	419	550	353	448.0	274	71	
59	3.49	-0.054	463	452	415	547	354	446.3	273	71	
60	3.46	-0.054	465	450	412	545	354	445.1	271	71	

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.017	1.26	77	0.8		13.50		96	326	77	71
1	0.131	0.131	0.017	1.98	77	0.9	-	13.49	-0.01	99	345	78	72
2	0.269	0.138	0.017	2.01	77	0.9	-	13.43	-0.06	94	332	78	72
3	0.414	0.145	0.017	2.03	77	0.9	-	13.36	-0.07	93	332	78	72
4	0.556	0.142	0.017	2.06	77	0.9	-	13.31	-0.05	92	340	78	72
5	0.701	0.145	0.016	2.08	77	0.9	-	13.24	-0.07	93	347	79	72
6	0.841	0.140	0.017	2.11	77	0.9	-	13.20	-0.04	91	320	79	72
7	0.988	0.147	0.017	2.12	77	0.9	-	13.15	-0.05	90	304	79	72
8	1.135	0.147	0.017	2.15	77	0.9	-	13.11	-0.04	90	303	79	72
9	1.280	0.145	0.017	2.17	77	0.9	-	13.04	-0.07	90	302	79	72
10	1.429	0.149	0.017	2.17	77	0.9	94	12.98	-0.06	89	303	79	72
11	1.573	0.144	0.017	2.19	78	0.9	-	12.93	-0.05	90	305	79	72
12	1.723	0.150	0.017	2.19	78	0.9	-	12.86	-0.07	90	308	79	72
13	1.867	0.144	0.017	2.19	78	0.9	-	12.79	-0.07	90	312	79	71
14	2.013	0.146	0.017	2.20	78	0.9	-	12.71	-0.08	90	317	80	72
15	2.163	0.150	0.017	2.21	79	0.8	-	12.60	-0.11	90	324	80	72
16	2.315	0.152	0.018	2.22	79	0.9	-	12.51	-0.09	90	330	80	72
17	2.461	0.146	0.017	2.22	79	0.9	-	12.42	-0.09	90	333	80	71
18	2.612	0.151	0.017	2.23	79	0.9	-	12.32	-0.10	90	337	80	72
19	2.759	0.147	0.016	2.23	80	0.9	-	12.24	-0.08	90	342	80	72
20	2.911	0.152	0.017	2.25	80	0.9	97	12.14	-0.10	90	346	80	71
21	3.058	0.147	0.017	2.25	80	0.9	-	12.03	-0.11	90	350	80	71
22	3.211	0.153	0.017	2.24	80	0.9	-	11.92	-0.11	91	354	80	71
23	3.358	0.147	0.017	2.25	81	0.9	-	11.82	-0.10	92	357	80	71
24	3.511	0.153	0.017	2.26	81	0.9	-	11.71	-0.11	92	361	80	72
25	3.658	0.147	0.017	2.27	81	0.9	-	11.59	-0.12	92	366	80	72
26	3.812	0.154	0.017	2.27	82	0.9	-	11.48	-0.11	92	369	80	72
27	3.960	0.148	0.017	2.28	82	0.9	-	11.36	-0.12	92	372	80	72
28	4.109	0.149	0.017	2.29	82	0.9	-	11.26	-0.10	92	372	80	72
29	4.261	0.152	0.017	2.28	83	0.9	-	11.13	-0.13	91	372	80	71
30	4.415	0.154	0.017	2.29	83	0.9	98	11.03	-0.10	91	372	80	71
31	4.563	0.148	0.017	2.28	83	0.9	-	10.92	-0.11	91	373	80	71

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.718	0.155	0.017	2.30	84	0.9	-	10.82	-0.10	92	374	80	71
33	4.868	0.150	0.017	2.30	84	0.9	-	10.72	-0.10	92	375	81	71
34	5.023	0.155	0.017	2.31	84	0.9	-	10.59	-0.13	92	376	81	71
35	5.172	0.149	0.017	2.31	85	0.9	-	10.49	-0.10	92	378	81	71
36	5.327	0.155	0.017	2.30	85	0.9	-	10.38	-0.11	93	379	81	71
37	5.477	0.150	0.017	2.31	85	0.9	-	10.25	-0.13	93	380	81	71
38	5.631	0.154	0.017	2.32	86	0.9	-	10.13	-0.12	92	380	81	71
39	5.781	0.150	0.016	2.31	86	0.9	-	10.02	-0.11	93	381	81	71
40	5.935	0.154	0.018	2.32	86	0.9	97	9.91	-0.11	93	382	81	72
41	6.087	0.152	0.017	2.32	86	0.9	-	9.80	-0.11	93	383	81	72
42	6.240	0.153	0.018	2.32	87	0.9	-	9.68	-0.12	93	385	81	72
43	6.394	0.154	0.017	2.33	87	0.9	-	9.57	-0.11	93	384	81	72
44	6.547	0.153	0.016	2.33	87	0.9	-	9.43	-0.14	93	384	81	72
45	6.702	0.155	0.017	2.33	88	0.9	-	9.31	-0.12	94	385	81	72
46	6.853	0.151	0.017	2.33	88	0.9	-	9.19	-0.12	94	386	81	72
47	7.008	0.155	0.017	2.34	88	0.9	-	9.06	-0.13	94	386	81	72
48	7.159	0.151	0.017	2.33	88	0.9	-	8.96	-0.10	95	385	81	72
49	7.315	0.156	0.017	2.33	89	0.9	-	8.82	-0.14	94	384	81	72
50	7.467	0.152	0.017	2.34	89	0.9	98	8.70	-0.12	94	384	81	72
51	7.624	0.157	0.017	2.35	89	0.9	-	8.58	-0.12	94	384	81	72
52	7.776	0.152	0.017	2.35	90	0.9	-	8.47	-0.11	94	385	81	72
53	7.931	0.155	0.017	2.34	90	0.9	-	8.35	-0.12	94	385	81	72
54	8.084	0.153	0.017	2.34	90	0.9	-	8.23	-0.12	94	386	81	72
55	8.238	0.154	0.017	2.35	90	0.9	-	8.10	-0.13	94	386	81	72
56	8.394	0.156	0.017	2.35	91	0.9	-	7.98	-0.12	94	386	81	71
57	8.548	0.154	0.017	2.36	91	0.9	-	7.87	-0.11	94	386	81	72
58	8.705	0.157	0.017	2.35	91	0.9	-	7.75	-0.12	94	386	81	72
59	8.855	0.150	0.017	2.35	91	0.9	-	7.64	-0.11	94	387	81	72
60	9.013	0.158	0.017	2.36	92	0.9	100	7.51	-0.13	94	388	81	72
61	9.165	0.152	0.017	2.35	92	0.9	-	7.40	-0.11	94	388	81	72
62	9.324	0.159	0.017	2.36	92	0.9	-	7.28	-0.12	94	389	81	72
63	9.477	0.153	0.017	2.38	92	0.9	-	7.16	-0.12	94	389	82	72

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: C12700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	9.633	0.156	0.018	2.37	92	0.9	-	7.05	-0.11	94	390	82	72
65	9.787	0.154	0.016	2.36	93	0.9	-	6.93	-0.12	94	390	81	72
66	9.943	0.156	0.017	2.37	93	0.9	-	6.82	-0.11	94	391	82	72
67	10.100	0.157	0.016	2.37	93	0.9	-	6.71	-0.11	95	392	82	72
68	10.253	0.153	0.017	2.37	93	0.9	-	6.60	-0.11	95	393	82	72
69	10.411	0.158	0.017	2.37	93	0.9	-	6.49	-0.11	95	394	82	72
70	10.564	0.153	0.017	2.38	94	0.9	100	6.38	-0.11	95	395	82	72
71	10.723	0.159	0.017	2.37	94	0.9	-	6.27	-0.11	95	395	82	72
72	10.876	0.153	0.016	2.38	94	0.9	-	6.15	-0.12	95	396	82	72
73	11.033	0.157	0.017	2.38	94	0.9	-	6.05	-0.10	95	398	82	72
74	11.189	0.156	0.016	2.39	94	0.9	-	5.94	-0.11	96	399	82	72
75	11.345	0.156	0.017	2.38	95	1.0	-	5.81	-0.13	95	398	82	72
76	11.503	0.158	0.017	2.39	95	0.9	-	5.71	-0.10	94	398	82	72
77	11.656	0.153	0.018	2.39	95	0.9	-	5.61	-0.10	94	398	82	72
78	11.816	0.160	0.017	2.38	95	1.0	-	5.50	-0.11	94	399	82	72
79	11.970	0.154	0.017	2.39	95	0.9	-	5.40	-0.10	94	399	82	72
80	12.128	0.158	0.017	2.39	95	0.9	100	5.29	-0.11	94	399	82	72
81	12.283	0.155	0.017	2.39	95	0.9	-	5.18	-0.11	94	399	82	72
82	12.440	0.157	0.016	2.39	96	0.9	-	5.08	-0.10	95	398	82	72
83	12.599	0.159	0.016	2.38	96	1.0	-	4.97	-0.11	95	399	82	72
84	12.752	0.153	0.017	2.39	96	0.9	-	4.86	-0.11	94	398	82	72
85	12.911	0.159	0.017	2.39	96	0.9	-	4.78	-0.08	94	398	82	72
86	13.066	0.155	0.017	2.39	96	0.9	-	4.68	-0.10	94	397	82	72
87	13.226	0.160	0.017	2.39	97	0.9	-	4.59	-0.09	95	397	82	72
88	13.380	0.154	0.016	2.39	97	0.9	-	4.50	-0.09	95	396	82	72
89	13.537	0.157	0.017	2.40	97	0.9	-	4.40	-0.10	95	397	82	72
90	13.696	0.159	0.017	2.39	97	1.0	100	4.32	-0.08	94	395	82	72
91	13.850	0.154	0.017	2.39	97	1.0	-	4.25	-0.07	94	395	82	72
92	14.010	0.160	0.017	2.40	97	0.9	-	4.16	-0.09	95	396	82	72
93	14.165	0.155	0.017	2.40	97	1.0	-	4.08	-0.08	94	394	82	72
94	14.325	0.160	0.017	2.39	97	0.9	-	3.99	-0.09	94	394	82	72
95	14.479	0.154	0.017	2.39	97	1.0	-	3.92	-0.07	94	393	82	72

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 3Technician: AKDate: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	14.637	0.158	0.017	2.39	97	0.9	-	3.85	-0.07	95	391	82	72
97	14.796	0.159	0.018	2.40	98	0.9	-	3.78	-0.07	94	392	82	72
98	14.950	0.154	0.017	2.39	98	1.0	-	3.69	-0.09	94	391	82	72
99	15.110	0.160	0.017	2.40	98	0.9	-	3.61	-0.08	94	389	82	72
100	15.266	0.156	0.016	2.40	98	1.0	101	3.56	-0.05	94	387	82	72
101	15.425	0.159	0.017	2.41	98	0.9	-	3.48	-0.08	94	385	82	72
102	15.580	0.155	0.017	2.40	98	0.9	-	3.41	-0.07	94	384	82	72
103	15.739	0.159	0.017	2.41	98	0.9	-	3.33	-0.08	94	384	82	72
104	15.899	0.160	0.016	2.40	98	0.9	-	3.28	-0.05	94	383	82	72
105	16.052	0.153	0.017	2.39	99	0.9	-	3.21	-0.07	94	380	82	72
106	16.213	0.161	0.017	2.40	99	0.9	-	3.14	-0.07	94	378	82	72
107	16.368	0.155	0.016	2.40	99	1.0	-	3.09	-0.05	94	378	82	72
108	16.527	0.159	0.017	2.41	99	0.9	-	3.03	-0.06	94	376	82	72
109	16.684	0.157	0.017	2.40	99	0.9	-	2.97	-0.06	94	374	82	72
110	16.842	0.158	0.016	2.40	99	0.9	103	2.92	-0.05	93	374	82	72
111	17.001	0.159	0.017	2.41	99	0.9	-	2.87	-0.05	94	372	82	72
112	17.155	0.154	0.017	2.40	99	0.9	-	2.83	-0.04	93	368	82	72
113	17.317	0.162	0.017	2.41	99	1.0	-	2.78	-0.05	93	367	82	72
114	17.472	0.155	0.017	2.40	99	0.9	-	2.74	-0.04	93	366	82	72
115	17.630	0.158	0.017	2.40	99	0.9	-	2.69	-0.05	93	363	82	72
116	17.790	0.160	0.017	2.42	99	1.0	-	2.64	-0.05	93	361	82	72
117	17.946	0.156	0.017	2.43	99	0.9	-	2.58	-0.06	92	359	82	72
118	18.106	0.160	0.018	2.42	100	0.9	-	2.54	-0.04	92	357	82	72
119	18.262	0.156	0.017	2.41	100	0.9	-	2.49	-0.05	92	356	82	72
120	18.422	0.160	0.017	2.42	100	0.9	102	2.46	-0.03	92	355	82	72
121	18.578	0.156	0.017	2.42	100	0.9	-	2.42	-0.04	92	353	82	72
122	18.737	0.159	0.017	2.41	100	0.9	-	2.39	-0.03	93	352	82	72
123	18.897	0.160	0.017	2.41	100	1.0	-	2.35	-0.04	93	351	82	72
124	19.046	0.149	0.017	2.42	100	0.9	-	2.32	-0.03	92	350	82	72
125	19.213	0.167	0.017	2.42	100	1.0	-	2.27	-0.05	91	339	82	72
126	19.366	0.153	0.017	2.41	100	1.0	-	2.25	-0.02	91	331	82	72
127	19.528	0.162	0.017	2.42	100	1.0	-	2.23	-0.02	91	325	82	72

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: C12700-1Tracking #: 150Run #: 3Technician: AKDate: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	19.687	0.159	0.017	2.41	100	0.9	-	2.20	-0.03	91	320	82	72
129	19.844	0.157	0.017	2.42	100	0.9	-	2.18	-0.02	91	317	81	72
130	20.001	0.157	0.017	2.42	100	0.9	100	2.16	-0.02	91	315	81	72
131	20.157	0.156	0.017	2.42	100	0.9	-	2.13	-0.03	90	312	81	72
132	20.319	0.162	0.017	2.42	101	0.9	-	2.12	-0.01	91	311	82	72
133	20.475	0.156	0.017	2.42	101	1.0	-	2.10	-0.02	90	308	81	72
134	20.634	0.159	0.017	2.42	100	0.9	-	2.07	-0.03	90	305	81	72
135	20.795	0.161	0.017	2.42	101	1.0	-	2.05	-0.02	90	303	81	72
136	20.949	0.154	0.017	2.41	101	0.9	-	2.03	-0.02	90	302	81	72
137	21.111	0.162	0.017	2.42	101	0.9	-	2.00	-0.03	90	299	81	72
138	21.268	0.157	0.017	2.43	101	0.9	-	1.98	-0.02	90	299	81	72
139	21.427	0.159	0.017	2.42	101	1.0	-	1.98	0.00	90	297	81	72
140	21.587	0.160	0.017	2.42	101	1.0	100	1.95	-0.03	90	295	81	72
141	21.743	0.156	0.017	2.43	101	0.9	-	1.94	-0.01	90	295	81	72
142	21.904	0.161	0.017	2.44	101	0.9	-	1.92	-0.02	90	293	81	72
143	22.061	0.157	0.016	2.44	101	1.0	-	1.89	-0.03	90	292	81	72
144	22.221	0.160	0.017	2.43	101	0.9	-	1.88	-0.01	89	291	81	72
145	22.378	0.157	0.017	2.43	101	0.9	-	1.86	-0.02	89	290	81	72
146	22.537	0.159	0.017	2.43	101	1.0	-	1.84	-0.02	89	289	81	72
147	22.697	0.160	0.017	2.42	101	1.0	-	1.83	-0.01	89	288	81	72
148	22.853	0.156	0.017	2.42	101	0.9	-	1.81	-0.02	89	286	81	72
149	23.016	0.163	0.017	2.41	101	0.9	-	1.79	-0.02	89	286	81	72
150	23.172	0.156	0.017	2.42	101	0.9	100	1.77	-0.02	89	284	81	72
151	23.331	0.159	0.017	2.41	101	0.9	-	1.75	-0.02	89	283	81	72
152	23.492	0.161	0.017	2.42	101	0.9	-	1.74	-0.01	89	282	81	72
153	23.647	0.155	0.017	2.43	102	1.0	-	1.72	-0.02	89	282	81	72
154	23.809	0.162	0.017	2.42	102	0.9	-	1.69	-0.03	89	281	81	72
155	23.966	0.157	0.017	2.42	102	0.9	-	1.68	-0.01	89	280	81	72
156	24.125	0.159	0.017	2.42	102	1.0	-	1.66	-0.02	89	278	81	72
157	24.285	0.160	0.017	2.43	102	1.0	-	1.64	-0.02	89	277	81	72
158	24.442	0.157	0.017	2.43	102	1.0	-	1.62	-0.02	89	277	81	72
159	24.602	0.160	0.017	2.41	102	0.9	-	1.60	-0.02	89	276	81	72

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 3Technician: AKDate: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	24.759	0.157	0.017	2.42	102	0.9	100	1.58	-0.02	89	275	81	72
161	24.920	0.161	0.016	2.41	102	1.0	-	1.57	-0.01	89	275	81	72
162	25.077	0.157	0.017	2.41	102	0.9	-	1.55	-0.02	89	274	81	72
163	25.237	0.160	0.017	2.41	102	1.0	-	1.53	-0.02	88	274	81	72
164	25.397	0.160	0.017	2.41	102	1.0	-	1.52	-0.01	88	273	81	72
165	25.550	0.153	0.017	2.41	102	0.9	-	1.49	-0.03	88	272	81	72
166	25.716	0.166	0.017	2.43	102	1.0	-	1.49	0.00	89	271	81	72
167	25.875	0.159	0.017	2.42	102	1.0	-	1.47	-0.02	89	270	81	72
168	26.033	0.158	0.017	2.42	102	1.0	-	1.46	-0.01	89	270	81	72
169	26.191	0.158	0.017	2.42	102	0.9	-	1.43	-0.03	88	269	81	71
170	26.349	0.158	0.016	2.39	102	1.0	101	1.41	-0.02	88	269	81	72
171	26.512	0.163	0.017	2.40	102	0.9	-	1.39	-0.02	88	269	81	71
172	26.668	0.156	0.018	2.40	102	1.0	-	1.38	-0.01	88	268	81	72
173	26.829	0.161	0.017	2.41	102	0.9	-	1.36	-0.02	88	267	81	71
174	26.990	0.161	0.017	2.41	102	1.0	-	1.34	-0.02	88	266	81	71
175	27.143	0.153	0.017	2.41	102	0.9	-	1.32	-0.02	88	266	81	71
176	27.311	0.168	0.017	2.42	102	1.0	-	1.30	-0.02	88	266	81	71
177	27.467	0.156	0.017	2.42	102	0.9	-	1.28	-0.02	88	265	81	72
178	27.627	0.160	0.017	2.43	102	0.9	-	1.26	-0.02	88	265	81	71
179	27.788	0.161	0.017	2.42	102	0.9	-	1.25	-0.01	88	264	81	72
180	27.944	0.156	0.017	2.43	102	0.9	102	1.23	-0.02	88	264	81	72
181	28.107	0.163	0.017	2.42	102	0.9	-	1.21	-0.02	88	264	81	72
182	28.263	0.156	0.017	2.43	102	0.9	-	1.19	-0.02	88	263	81	72
183	28.423	0.160	0.018	2.42	103	0.9	-	1.17	-0.02	88	262	81	72
184	28.584	0.161	0.017	2.43	103	0.9	-	1.15	-0.02	88	263	81	72
185	28.740	0.156	0.017	2.43	102	1.0	-	1.15	0.00	88	262	81	72
186	28.902	0.162	0.017	2.43	102	0.9	-	1.12	-0.03	87	261	80	72
187	29.059	0.157	0.017	2.42	102	0.9	-	1.11	-0.01	87	260	80	72
188	29.220	0.161	0.017	2.43	103	0.9	-	1.08	-0.03	88	260	81	72
189	29.379	0.159	0.016	2.42	103	0.9	-	1.07	-0.01	88	260	81	72
190	29.537	0.158	0.017	2.42	103	1.0	100	1.04	-0.03	88	260	81	72
191	29.698	0.161	0.017	2.42	103	0.9	-	1.03	-0.01	88	260	81	72

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI Job #: 23-153  
 Model: CI2700-1 Tracking #: 150  
 Run #: 3 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
192	29.856	0.158	0.017	2.41	103	0.9	-	1.01	-0.02	88	259	81	72
193	30.016	0.160	0.017	2.42	103	0.9	-	0.98	-0.03	88	259	81	72
194	30.175	0.159	0.017	2.42	103	0.9	-	0.96	-0.02	88	259	81	72
195	30.334	0.159	0.017	2.42	103	0.9	-	0.96	0.00	88	258	81	72
196	30.495	0.161	0.017	2.42	103	0.9	-	0.94	-0.02	88	258	81	72
197	30.652	0.157	0.017	2.43	103	1.0	-	0.92	-0.02	88	257	81	72
198	30.812	0.160	0.017	2.44	103	1.0	-	0.90	-0.02	87	257	81	72
199	30.971	0.159	0.017	2.43	103	0.9	-	0.88	-0.02	87	257	81	72
200	31.131	0.160	0.017	2.43	103	0.9	100	0.85	-0.03	88	256	81	72
201	31.292	0.161	0.017	2.43	103	0.9	-	0.85	0.00	88	256	81	72
202	31.445	0.153	0.018	2.42	103	1.0	-	0.84	-0.01	87	256	81	72
203	31.611	0.166	0.016	2.44	103	0.9	-	0.81	-0.03	87	256	80	72
204	31.768	0.157	0.017	2.44	103	0.9	-	0.80	-0.01	87	255	80	72
205	31.928	0.160	0.017	2.43	103	0.9	-	0.78	-0.02	86	255	80	72
206	32.089	0.161	0.017	2.44	103	0.9	-	0.76	-0.02	86	254	80	72
207	32.242	0.153	0.018	2.43	103	1.0	-	0.74	-0.02	86	254	80	72
208	32.403	0.161	0.016	2.43	103	0.9	-	0.74	0.00	86	254	80	72
209	32.562	0.159	0.016	2.43	103	1.0	-	0.71	-0.03	86	253	80	72
210	32.722	0.160	0.017	2.42	103	0.9	100	0.70	-0.01	86	252	80	72
211	32.883	0.161	0.016	2.41	103	0.9	-	0.69	-0.01	86	252	80	72
212	33.040	0.157	0.017	2.41	103	0.9	-	0.66	-0.03	86	252	80	72
213	33.202	0.162	0.017	2.41	103	0.9	-	0.65	-0.01	86	251	80	72
214	33.356	0.154	0.016	2.42	103	1.0	-	0.63	-0.02	87	251	80	72
215	33.519	0.163	0.016	2.42	103	0.9	-	0.62	-0.01	87	251	80	72
216	33.680	0.161	0.016	2.42	103	0.9	-	0.60	-0.02	87	251	80	72
217	33.839	0.159	0.016	2.43	103	0.9	-	0.59	-0.01	87	251	80	72
218	34.002	0.163	0.016	2.41	103	0.9	-	0.56	-0.03	87	249	80	72
219	34.159	0.157	0.016	2.42	103	0.9	-	0.56	0.00	87	249	80	71
220	34.318	0.159	0.016	2.41	103	0.9	101	0.54	-0.02	87	249	80	72
221	34.479	0.161	0.016	2.43	103	1.0	-	0.52	-0.02	87	248	80	72
222	34.636	0.157	0.016	2.43	103	0.9	-	0.50	-0.02	87	248	80	72
223	34.798	0.162	0.016	2.42	103	0.9	-	0.49	-0.01	87	247	80	71



## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 3Technician: AKDate: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
224	34.956	0.158	0.016	2.42	103	1.0	-	0.46	-0.03	87	247	80	72
225	35.116	0.160	0.016	2.43	103	0.9	-	0.44	-0.02	87	247	80	72
226	35.276	0.160	0.016	2.42	103	0.9	-	0.43	-0.01	88	246	80	72
227	35.434	0.158	0.015	2.43	103	0.9	-	0.42	-0.01	88	246	80	72
228	35.595	0.161	0.016	2.41	103	0.9	-	0.40	-0.02	88	247	80	72
229	35.752	0.157	0.016	2.42	103	0.9	-	0.39	-0.01	87	246	80	72
230	35.911	0.159	0.016	2.43	103	0.9	103	0.38	-0.01	88	246	80	72
231	36.068	0.157	0.016	2.42	103	0.9	-	0.35	-0.03	88	246	80	72
232	36.228	0.160	0.016	2.41	103	0.9	-	0.34	-0.01	88	245	80	72
233	36.392	0.164	0.016	2.42	103	0.9	-	0.32	-0.02	88	246	80	72
234	36.549	0.157	0.016	2.42	103	1.0	-	0.31	-0.01	88	245	80	72
235	36.711	0.162	0.016	2.43	103	0.9	-	0.28	-0.03	88	245	80	72
236	36.868	0.157	0.017	2.41	103	0.9	-	0.27	-0.01	87	244	80	72
237	37.028	0.160	0.016	2.41	103	0.9	-	0.25	-0.02	88	244	80	72
238	37.189	0.161	0.016	2.42	103	0.9	-	0.23	-0.02	88	244	80	72
239	37.346	0.157	0.016	2.42	103	0.9	-	0.22	-0.01	88	244	80	72
240	37.506	0.160	0.016	2.42	103	0.9	103	0.20	-0.02	88	244	80	72
241	37.659	0.153	0.017	2.43	103	0.9	-	0.19	-0.01	88	243	80	72
242	37.823	0.164	0.017	2.41	103	0.9	-	0.18	-0.01	88	244	80	72
243	37.986	0.163	0.017	2.42	103	0.9	-	0.15	-0.03	88	243	81	72
244	38.139	0.153	0.017	2.41	103	1.0	-	0.14	-0.01	88	242	81	72
245	38.303	0.164	0.017	2.42	103	0.9	-	0.12	-0.02	88	242	81	72
246	38.457	0.154	0.017	2.42	103	0.9	-	0.12	0.00	88	242	81	72
247	38.616	0.159	0.016	2.41	103	1.0	-	0.10	-0.02	88	242	81	72
248	38.777	0.161	0.017	2.42	103	0.9	-	0.08	-0.02	88	242	81	72
249	38.937	0.160	0.016	2.42	103	1.0	-	0.06	-0.02	88	241	80	72
250	39.099	0.162	0.016	2.41	103	0.9	103	0.05	-0.01	88	241	80	73
251	39.256	0.157	0.017	2.43	103	0.9	-	0.03	-0.02	88	241	81	73
252	39.416	0.160	0.017	2.41	103	0.9	100	0.00	-0.03	88	241	81	73
Avg/Tot	39.416	0.156	0.017	2.37	96.2	0.9	100			90.6	318.7	80.8	71.7

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
0	0.000		1.48	76	1.9		76	-0.063	4.78	0.007
1	0.137	0.137	2.09	76	1.7	-	78	-0.061	2.67	0.002
2	0.278	0.141	2.09	76	1.9	-	78	-0.067	1.73	0.002
3	0.422	0.144	2.09	76	1.6	-	78	-0.072	3.80	0.002
4	0.564	0.142	2.10	76	1.6	-	78	-0.069	4.20	0.002
5	0.708	0.144	2.10	76	2.0	-	78	-0.071	4.13	0.001
6	0.846	0.138	2.10	76	2.0	-	79	-0.064	3.99	0.003
7	0.994	0.148	2.11	76	1.6	-	78	-0.063	4.00	0.001
8	1.136	0.142	2.11	76	1.5	-	78	-0.064	3.88	0.001
9	1.280	0.144	2.11	76	2.0	-	78	-0.062	4.11	0.002
10	1.422	0.142	2.11	76	1.5	99	79	-0.063	4.59	0.002
11	1.564	0.142	2.11	77	1.7	-	79	-0.065	4.94	0.003
12	1.709	0.145	2.11	77	1.5	-	79	-0.067	5.31	0.002
13	1.851	0.142	2.12	77	2.0	-	79	-0.065	6.07	0.005
14	1.991	0.140	2.11	77	1.5	-	79	-0.067	6.26	0.007
15	2.137	0.146	2.11	78	1.5	-	79	-0.070	6.99	0.008
16	2.283	0.146	2.11	78	1.9	-	79	-0.068	8.02	0.008
17	2.425	0.142	2.12	78	2.0	-	79	-0.071	7.19	0.005
18	2.570	0.145	2.12	78	1.9	-	79	-0.071	6.99	0.005
19	2.714	0.144	2.12	79	1.8	-	79	-0.072	7.68	0.008
20	2.856	0.142	2.12	79	2.0	100	79	-0.073	7.64	0.007
21	3.002	0.146	2.12	79	1.6	-	79	-0.076	8.10	0.007
22	3.144	0.142	2.12	80	1.9	-	79	-0.073	8.39	0.016
23	3.291	0.147	2.13	80	1.6	-	79	-0.073	8.44	0.020
24	3.433	0.142	2.13	80	1.5	-	79	-0.074	8.85	0.025
25	3.579	0.146	2.13	80	1.6	-	79	-0.076	9.02	0.030
26	3.720	0.141	2.12	81	1.6	-	79	-0.076	9.06	0.032
27	3.867	0.147	2.12	81	2.0	-	79	-0.076	8.77	0.027
28	4.006	0.139	2.12	82	1.7	-	79	-0.076	8.62	0.019
29	4.156	0.150	2.13	82	1.5	-	79	-0.076	8.90	0.016
30	4.301	0.145	2.13	82	1.8	100	79	-0.077	8.75	0.009
31	4.444	0.143	2.13	83	1.5	-	79	-0.078	8.93	0.014

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
32	4.590	0.146	2.13	83	1.5	-	79	-0.076	9.13	0.016
33	4.734	0.144	2.13	83	1.8	-	80	-0.076	9.23	0.012
34	4.881	0.147	2.14	83	1.5	-	80	-0.076	9.31	0.013
35	5.025	0.144	2.14	84	2.0	-	79	-0.076	9.48	0.013
36	5.172	0.147	2.14	84	2.0	-	80	-0.074	9.74	0.012
37	5.315	0.143	2.13	84	2.0	-	80	-0.078	10.08	0.016
38	5.462	0.147	2.14	85	1.5	-	80	-0.077	10.05	0.011
39	5.605	0.143	2.13	85	1.6	-	80	-0.076	10.05	0.011
40	5.753	0.148	2.14	85	1.6	98	80	-0.074	10.11	0.010
41	5.897	0.144	2.14	86	1.7	-	80	-0.076	10.29	0.015
42	6.045	0.148	2.14	86	1.5	-	80	-0.076	10.52	0.025
43	6.189	0.144	2.14	86	1.9	-	80	-0.076	10.95	0.065
44	6.335	0.146	2.14	86	2.0	-	80	-0.075	10.97	0.062
45	6.481	0.146	2.14	87	1.7	-	80	-0.077	10.98	0.070
46	6.627	0.146	2.14	87	1.9	-	80	-0.076	11.10	0.089
47	6.772	0.145	2.14	87	1.9	-	80	-0.076	11.11	0.127
48	6.918	0.146	2.14	88	2.0	-	80	-0.077	11.15	0.165
49	7.066	0.148	2.15	88	1.9	-	80	-0.076	11.08	0.151
50	7.210	0.144	2.14	88	1.5	98	80	-0.079	11.13	0.171
51	7.359	0.149	2.15	88	2.0	-	80	-0.076	11.07	0.180
52	7.504	0.145	2.15	89	1.9	-	80	-0.079	11.02	0.166
53	7.653	0.149	2.15	89	1.8	-	80	-0.078	11.10	0.180
54	7.797	0.144	2.15	89	1.5	-	80	-0.075	11.07	0.210
55	7.946	0.149	2.15	89	1.6	-	80	-0.081	11.08	0.206
56	8.090	0.144	2.15	90	1.6	-	80	-0.078	11.10	0.249
57	8.239	0.149	2.15	90	1.9	-	80	-0.078	11.19	0.217
58	8.383	0.144	2.15	90	2.0	-	80	-0.077	11.20	0.255
59	8.532	0.149	2.14	90	2.0	-	80	-0.080	11.14	0.237
60	8.677	0.145	2.15	91	1.7	100	80	-0.079	11.38	0.226
61	8.826	0.149	2.15	91	1.8	-	80	-0.080	11.36	0.278
62	8.971	0.145	2.16	91	1.6	-	80	-0.078	11.31	0.261
63	9.120	0.149	2.16	91	1.5	-	80	-0.076	11.30	0.259

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
64	9.266	0.146	2.16	92	1.5	-	80	-0.076	11.41	0.241
65	9.414	0.148	2.16	92	1.6	-	80	-0.077	11.55	0.245
66	9.560	0.146	2.16	92	1.8	-	80	-0.077	11.65	0.265
67	9.708	0.148	2.15	92	2.0	-	80	-0.081	11.67	0.321
68	9.854	0.146	2.16	92	1.9	-	80	-0.077	11.65	0.344
69	10.002	0.148	2.17	93	1.9	-	80	-0.078	11.67	0.387
70	10.149	0.147	2.16	93	1.7	100	80	-0.080	11.60	0.355
71	10.296	0.147	2.16	93	2.0	-	80	-0.078	11.67	0.350
72	10.444	0.148	2.16	93	1.5	-	80	-0.077	11.53	0.372
73	10.590	0.146	2.17	93	1.6	-	80	-0.078	11.63	0.417
74	10.738	0.148	2.16	94	1.6	-	80	-0.077	11.57	0.436
75	10.885	0.147	2.16	94	1.5	-	80	-0.078	11.53	0.368
76	11.034	0.149	2.16	94	2.0	-	80	-0.080	11.54	0.357
77	11.180	0.146	2.16	94	1.6	-	80	-0.081	11.57	0.461
78	11.329	0.149	2.17	94	2.0	-	80	-0.078	11.56	0.462
79	11.476	0.147	2.17	94	1.7	-	80	-0.080	11.42	0.479
80	11.625	0.149	2.17	94	1.7	100	80	-0.079	11.38	0.556
81	11.771	0.146	2.17	95	2.0	-	80	-0.078	11.38	0.542
82	11.921	0.150	2.17	95	1.8	-	80	-0.079	11.30	0.551
83	12.067	0.146	2.17	95	1.6	-	81	-0.083	11.20	0.577
84	12.217	0.150	2.17	95	1.7	-	81	-0.079	11.19	0.574
85	12.363	0.146	2.17	95	2.0	-	81	-0.079	11.11	0.557
86	12.513	0.150	2.17	95	1.6	-	80	-0.081	10.93	0.548
87	12.659	0.146	2.17	96	2.0	-	80	-0.080	10.82	0.504
88	12.809	0.150	2.17	96	1.5	-	80	-0.079	10.80	0.404
89	12.955	0.146	2.18	96	1.8	-	81	-0.079	10.80	0.268
90	13.105	0.150	2.17	96	2.0	100	80	-0.078	10.79	0.158
91	13.251	0.146	2.17	96	2.0	-	80	-0.081	10.66	0.092
92	13.401	0.150	2.17	96	1.6	-	80	-0.076	10.57	0.046
93	13.547	0.146	2.17	96	2.0	-	80	-0.079	10.49	0.016
94	13.698	0.151	2.17	96	1.9	-	80	-0.079	10.39	0.009
95	13.844	0.146	2.17	96	1.6	-	80	-0.078	10.38	0.006

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
96	13.994	0.150	2.17	97	1.5	-	80	-0.076	10.45	0.006
97	14.140	0.146	2.17	97	1.6	-	81	-0.076	10.40	0.004
98	14.291	0.151	2.17	97	1.6	-	81	-0.077	10.21	0.005
99	14.437	0.146	2.17	97	2.0	-	80	-0.078	10.24	0.003
100	14.588	0.151	2.17	97	1.8	101	80	-0.075	10.16	0.002
101	14.733	0.145	2.17	97	1.6	-	80	-0.079	10.15	0.004
102	14.884	0.151	2.17	97	1.6	-	81	-0.077	10.11	0.003
103	15.030	0.146	2.17	97	1.8	-	81	-0.078	10.18	0.002
104	15.181	0.151	2.17	97	2.0	-	80	-0.078	9.99	0.001
105	15.327	0.146	2.17	97	1.9	-	81	-0.076	9.69	0.001
106	15.477	0.150	2.17	97	1.6	-	81	-0.076	9.47	0.003
107	15.623	0.146	2.17	98	1.7	-	81	-0.077	9.38	0.001
108	15.774	0.151	2.17	98	1.5	-	81	-0.077	9.28	0.001
109	15.920	0.146	2.17	98	1.7	-	80	-0.072	9.24	0.001
110	16.071	0.151	2.17	98	2.0	103	81	-0.074	9.22	0.001
111	16.217	0.146	2.17	98	2.0	-	80	-0.073	9.15	0.000
112	16.368	0.151	2.17	98	1.9	-	80	-0.073	8.89	0.001
113	16.514	0.146	2.17	98	1.6	-	80	-0.074	8.67	0.001
114	16.665	0.151	2.17	98	1.5	-	80	-0.070	8.66	0.000
115	16.811	0.146	2.18	98	1.9	-	80	-0.074	8.61	0.000
116	16.962	0.151	2.18	98	2.0	-	80	-0.072	8.71	0.000
117	17.108	0.146	2.18	98	1.9	-	80	-0.069	8.62	0.000
118	17.259	0.151	2.18	98	1.5	-	80	-0.071	8.60	0.000
119	17.405	0.146	2.18	98	1.6	-	80	-0.072	8.45	0.000
120	17.556	0.151	2.18	98	1.5	101	80	-0.068	8.54	0.000
121	17.703	0.147	2.18	98	2.0	-	80	-0.072	8.40	0.000
122	17.854	0.151	2.18	98	1.6	-	80	-0.071	8.35	0.000
123	18.000	0.146	2.18	99	1.7	-	80	-0.071	8.35	0.000
124	18.146	0.146	2.18	99	1.7	-	80	-0.073	8.35	0.000
125	18.298	0.152	2.18	99	2.0	-	80	-0.068	8.20	0.000
126	18.446	0.148	2.17	99	2.0	-	80	-0.066	8.16	0.001
127	18.596	0.150	2.18	99	2.0	-	80	-0.069	7.94	0.000

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
128	18.747	0.151	2.18	99	1.8	-	80	-0.068	7.76	0.000
129	18.894	0.147	2.18	99	1.9	-	80	-0.063	7.48	0.000
130	19.042	0.148	2.17	99	1.5	99	80	-0.064	7.38	0.001
131	19.188	0.146	2.18	99	1.7	-	80	-0.063	7.28	0.000
132	19.340	0.152	2.18	99	1.5	-	80	-0.063	7.33	0.000
133	19.486	0.146	2.18	99	2.0	-	80	-0.061	7.27	0.000
134	19.638	0.152	2.18	99	1.8	-	80	-0.064	7.36	0.000
135	19.784	0.146	2.18	99	1.5	-	80	-0.062	7.34	0.000
136	19.936	0.152	2.18	99	1.5	-	80	-0.063	7.31	0.000
137	20.083	0.147	2.18	99	1.6	-	80	-0.060	7.30	0.000
138	20.235	0.152	2.19	99	2.0	-	80	-0.061	7.36	0.000
139	20.381	0.146	2.18	99	2.0	-	80	-0.063	7.31	0.000
140	20.533	0.152	2.18	99	1.5	100	80	-0.062	7.36	0.000
141	20.679	0.146	2.18	99	1.7	-	80	-0.061	7.38	0.000
142	20.831	0.152	2.18	99	1.7	-	80	-0.059	7.36	0.000
143	20.977	0.146	2.18	99	2.0	-	80	-0.058	7.38	0.000
144	21.129	0.152	2.18	99	1.5	-	80	-0.059	7.35	0.000
145	21.276	0.147	2.18	99	1.5	-	80	-0.061	7.36	0.000
146	21.427	0.151	2.18	100	1.9	-	80	-0.059	7.37	0.000
147	21.574	0.147	2.18	100	1.9	-	80	-0.061	7.37	0.000
148	21.726	0.152	2.18	100	1.5	-	80	-0.057	7.36	0.000
149	21.872	0.146	2.18	100	2.0	-	79	-0.059	7.33	0.001
150	22.024	0.152	2.18	100	1.8	99	79	-0.059	7.34	0.001
151	22.171	0.147	2.18	100	2.0	-	79	-0.058	7.30	0.000
152	22.322	0.151	2.18	100	1.9	-	79	-0.057	7.31	0.000
153	22.469	0.147	2.18	100	2.0	-	79	-0.057	7.38	0.000
154	22.621	0.152	2.18	100	2.0	-	79	-0.055	7.33	0.000
155	22.767	0.146	2.17	100	1.8	-	79	-0.057	7.35	0.000
156	22.919	0.152	2.18	100	2.0	-	79	-0.056	7.36	0.000
157	23.066	0.147	2.18	100	2.0	-	80	-0.055	7.38	0.000
158	23.217	0.151	2.18	100	2.0	-	79	-0.058	7.32	0.000
159	23.364	0.147	2.19	100	1.8	-	80	-0.057	7.40	0.001

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
160	23.516	0.152	2.19	100	1.5	99	80	-0.055	7.39	0.000
161	23.663	0.147	2.18	100	2.0	-	80	-0.059	7.33	0.000
162	23.815	0.152	2.19	100	1.9	-	79	-0.057	7.35	0.000
163	23.961	0.146	2.18	100	1.9	-	79	-0.057	7.40	0.000
164	24.113	0.152	2.19	100	1.5	-	79	-0.057	7.37	0.001
165	24.258	0.145	2.19	100	2.0	-	79	-0.058	7.37	0.000
166	24.411	0.153	2.19	100	1.9	-	79	-0.059	7.39	0.001
167	24.560	0.149	2.18	100	1.8	-	79	-0.055	7.32	0.001
168	24.709	0.149	2.18	100	2.0	-	79	-0.055	7.30	0.000
169	24.854	0.145	2.19	100	1.5	-	79	-0.056	7.37	0.001
170	25.007	0.153	2.18	100	1.6	101	79	-0.056	7.34	0.001
171	25.155	0.148	2.18	100	1.6	-	79	-0.054	7.39	0.001
172	25.306	0.151	2.18	100	1.6	-	79	-0.055	7.74	0.001
173	25.454	0.148	2.18	100	1.5	-	79	-0.054	7.78	0.000
174	25.605	0.151	2.19	100	1.5	-	79	-0.053	7.81	0.000
175	25.749	0.144	2.18	100	1.9	-	79	-0.055	7.77	0.001
176	25.905	0.156	2.18	100	1.8	-	79	-0.053	7.80	0.000
177	26.053	0.148	2.18	100	1.8	-	79	-0.054	7.83	0.001
178	26.204	0.151	2.18	100	1.5	-	79	-0.054	7.84	0.001
179	26.352	0.148	2.18	100	2.0	-	79	-0.054	7.81	0.000
180	26.502	0.150	2.18	100	2.0	101	79	-0.052	7.83	0.000
181	26.651	0.149	2.18	100	2.0	-	79	-0.052	7.79	0.000
182	26.802	0.151	2.18	100	1.8	-	79	-0.053	7.76	0.000
183	26.950	0.148	2.18	100	1.5	-	79	-0.050	7.73	0.001
184	27.100	0.150	2.18	100	1.5	-	79	-0.055	7.72	0.001
185	27.249	0.149	2.18	100	1.7	-	79	-0.053	7.70	0.000
186	27.398	0.149	2.18	100	1.5	-	79	-0.054	7.81	0.001
187	27.548	0.150	2.18	100	1.9	-	79	-0.053	7.65	0.001
188	27.697	0.149	2.18	101	1.6	-	79	-0.053	7.71	0.000
189	27.846	0.149	2.18	101	1.5	-	79	-0.051	7.80	0.001
190	27.996	0.150	2.18	101	1.6	99	79	-0.049	7.74	0.000
191	28.145	0.149	2.18	101	1.9	-	79	-0.056	7.74	0.001

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
192	28.294	0.149	2.18	101	2.0	-	79	-0.054	7.64	0.000
193	28.444	0.150	2.18	101	1.7	-	79	-0.053	7.67	0.000
194	28.593	0.149	2.18	101	2.0	-	79	-0.052	7.60	0.000
195	28.743	0.150	2.18	101	2.0	-	79	-0.053	7.57	0.000
196	28.892	0.149	2.18	101	2.0	-	79	-0.053	7.54	0.000
197	29.042	0.150	2.19	101	1.5	-	79	-0.053	7.52	0.000
198	29.188	0.146	2.18	101	1.6	-	79	-0.051	7.42	0.000
199	29.341	0.153	2.18	101	1.8	-	79	-0.048	7.42	0.000
200	29.489	0.148	2.19	101	1.5	99	79	-0.048	7.37	0.001
201	29.640	0.151	2.19	101	1.8	-	79	-0.053	7.30	0.001
202	29.786	0.146	2.18	101	1.6	-	79	-0.050	7.39	0.001
203	29.938	0.152	2.19	101	1.5	-	79	-0.052	7.29	0.001
204	30.086	0.148	2.18	101	1.8	-	79	-0.052	7.32	0.000
205	30.237	0.151	2.18	101	2.0	-	79	-0.053	7.31	0.000
206	30.384	0.147	2.18	101	1.8	-	79	-0.053	7.31	0.001
207	30.533	0.149	2.18	101	1.6	-	79	-0.051	7.30	0.001
208	30.679	0.146	2.19	101	2.0	-	79	-0.053	7.32	0.000
209	30.831	0.152	2.18	101	1.8	-	79	-0.048	7.27	0.002
210	30.979	0.148	2.18	101	1.5	99	79	-0.050	7.23	0.000
211	31.130	0.151	2.18	101	1.8	-	79	-0.054	7.22	0.000
212	31.278	0.148	2.19	101	2.0	-	79	-0.051	7.28	0.001
213	31.429	0.151	2.18	101	1.8	-	79	-0.053	7.20	0.000
214	31.574	0.145	2.18	101	1.9	-	79	-0.053	7.15	0.001
215	31.728	0.154	2.18	101	2.0	-	79	-0.050	7.14	0.000
216	31.875	0.147	2.19	101	2.0	-	79	-0.050	7.24	0.000
217	32.029	0.154	2.18	101	1.7	-	79	-0.049	7.26	0.000
218	32.176	0.147	2.18	101	1.5	-	79	-0.052	7.35	0.001
219	32.328	0.152	2.18	101	1.5	-	79	-0.050	7.15	0.000
220	32.476	0.148	2.19	101	1.5	101	79	-0.047	7.18	0.000
221	32.628	0.152	2.18	101	2.0	-	79	-0.047	7.26	0.001
222	32.775	0.147	2.18	101	1.9	-	79	-0.048	7.29	0.001
223	32.926	0.151	2.18	101	1.9	-	79	-0.049	7.20	0.000



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
224	33.074	0.148	2.18	101	1.5	-	79	-0.048	7.21	0.000
225	33.226	0.152	2.18	101	1.5	-	79	-0.048	7.20	0.000
226	33.372	0.146	2.18	101	1.9	-	79	-0.048	7.25	0.001
227	33.524	0.152	2.18	101	1.5	-	79	-0.051	7.26	0.000
228	33.671	0.147	2.18	101	1.5	-	79	-0.047	7.27	0.002
229	33.823	0.152	2.18	101	2.0	-	79	-0.048	7.13	0.000
230	33.967	0.144	2.18	101	1.5	102	79	-0.049	7.18	0.000
231	34.119	0.152	2.18	101	1.6	-	79	-0.049	7.25	0.001
232	34.266	0.147	2.18	101	1.5	-	79	-0.048	7.14	0.001
233	34.421	0.155	2.18	101	1.6	-	79	-0.049	7.14	0.001
234	34.568	0.147	2.18	101	1.6	-	79	-0.048	7.22	0.000
235	34.719	0.151	2.18	101	1.6	-	79	-0.048	7.17	0.000
236	34.866	0.147	2.18	101	1.9	-	79	-0.052	7.14	0.001
237	35.018	0.152	2.18	101	1.6	-	79	-0.050	7.09	0.001
238	35.165	0.147	2.18	101	2.0	-	79	-0.048	7.14	0.000
239	35.316	0.151	2.18	101	1.9	-	79	-0.044	7.22	0.000
240	35.461	0.145	2.17	101	2.0	102	79	-0.049	7.22	0.001
241	35.610	0.149	2.18	101	1.6	-	79	-0.045	7.15	0.001
242	35.760	0.150	2.18	101	2.0	-	79	-0.045	7.26	0.000
243	35.913	0.153	2.17	101	1.5	-	79	-0.047	7.23	0.001
244	36.058	0.145	2.18	101	1.7	-	79	-0.048	7.14	0.000
245	36.209	0.151	2.18	101	1.8	-	80	-0.050	7.16	0.001
246	36.354	0.145	2.18	101	1.5	-	80	-0.047	7.13	0.000
247	36.506	0.152	2.18	101	2.0	-	80	-0.046	7.15	0.001
248	36.653	0.147	2.18	101	1.8	-	80	-0.051	7.17	0.001
249	36.806	0.153	2.18	101	1.7	-	80	-0.046	7.11	0.001
250	36.954	0.148	2.19	101	2.0	102	80	-0.047	7.14	0.001
251	37.105	0.151	2.18	101	1.8	-	80	-0.047	7.14	0.001
252	37.253	0.148	2.18	101	1.5	99	80	-0.049	7.06	0.000
Avg/Tot	37.253	0.148	2.16	94.7	1.7	100	79.5	-0.064	8.38	0.062

## BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Particulate Sampling Data							
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.000		0.69	77	1.7		75
1	0.152	0.152	1.07	76	1.8	-	75
2	0.306	0.154	1.08	76	1.7	-	75
3	0.460	0.154	1.09	76	1.7	-	75
4	0.614	0.154	1.09	76	1.8	-	75
5	0.769	0.155	1.10	76	1.7	-	75
6	0.922	0.153	1.10	76	1.7	-	75
7	1.080	0.158	1.09	76	1.7	-	75
8	1.236	0.156	1.11	76	1.7	-	75
9	1.394	0.158	1.11	77	1.7	-	76
10	1.551	0.157	1.12	77	1.8	97	76
11	1.708	0.157	1.12	77	1.9	-	76
12	1.864	0.156	1.11	77	1.9	-	76
13	2.022	0.158	1.11	78	1.7	-	76
14	2.174	0.152	1.11	78	1.9	-	76
15	2.338	0.164	1.12	78	1.8	-	76
16	2.496	0.158	1.12	78	1.7	-	76
17	2.652	0.156	1.12	78	1.7	-	76
18	2.810	0.158	1.11	79	1.8	-	76
19	2.969	0.159	1.12	79	1.9	-	76
20	3.128	0.159	1.13	80	1.9	98	76
21	3.287	0.159	1.14	80	1.7	-	76
22	3.445	0.158	1.12	80	1.9	-	76
23	3.604	0.159	1.13	80	1.8	-	76
24	3.764	0.160	1.14	81	1.8	-	76
25	3.923	0.159	1.15	81	1.7	-	76
26	4.083	0.160	1.13	81	1.9	-	76
27	4.243	0.160	1.15	81	1.9	-	76
28	4.399	0.156	1.15	81	1.9	-	76
29	4.564	0.165	1.14	82	1.9	-	76
30	4.725	0.161	1.15	82	1.9	99	76
31	4.887	0.162	1.16	82	1.7	-	77

## BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Particulate Sampling Data							
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	5.047	0.160	1.15	83	1.9	-	77
33	5.209	0.162	1.15	83	1.9	-	76
34	5.371	0.162	1.16	83	1.7	-	77
35	5.531	0.160	1.15	83	1.8	-	77
36	5.694	0.163	1.16	83	1.8	-	77
37	5.856	0.162	1.17	84	1.9	-	77
38	6.018	0.162	1.16	84	1.9	-	77
39	6.181	0.163	1.17	84	1.8	-	77
40	6.342	0.161	1.17	84	1.9	99	77
41	6.505	0.163	1.16	85	1.9	-	77
42	6.669	0.164	1.17	85	1.9	-	77
43	6.830	0.161	1.16	85	1.9	-	77
44	6.994	0.164	1.17	85	1.8	-	77
45	7.156	0.162	1.17	85	1.7	-	77
46	7.320	0.164	1.17	86	1.9	-	77
47	7.484	0.164	1.18	86	1.9	-	77
48	7.647	0.163	1.17	86	1.9	-	77
49	7.811	0.164	1.18	87	1.9	-	77
50	7.974	0.163	1.17	87	1.8	99	77
51	8.138	0.164	1.18	87	1.8	-	77
52	8.301	0.163	1.18	87	1.8	-	77
53	8.466	0.165	1.18	87	1.8	-	77
54	8.630	0.164	1.18	88	1.9	-	77
55	8.794	0.164	1.17	88	1.9	-	77
56	8.959	0.165	1.18	88	1.9	-	77
57	9.122	0.163	1.17	88	1.8	-	77
58	9.287	0.165	1.18	88	1.9	-	77
59	9.451	0.164	1.17	88	1.8	-	77
60	9.616	0.165	1.18	88	1.9	101	77
Avg/Tot	9.616	0.160	1.14	81.9	1.8	99	76.3

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

**Stove ΔT:** 48

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	445	427	394	521	359	429.3	686.4
1	439	423	398	517	361	427.5	607.5
2	431	418	399	511	363	424.3	581.2
3	428	413	400	506	366	422.3	651.3
4	422	409	401	501	368	420.2	697.1
5	415	404	401	497	371	417.8	712.8
6	410	399	401	495	373	415.7	709.8
7	405	395	400	493	375	413.7	709.4
8	401	391	399	491	377	411.7	707.5
9	394	386	398	489	379	409.2	707.7
10	390	382	396	488	380	407.3	722.0
11	388	378	395	487	381	405.9	745.0
12	383	375	394	488	383	404.5	771.2
13	380	371	394	490	383	403.6	805.2
14	376	368	394	493	384	403.0	837.7
15	373	366	394	498	385	403.1	870.0
16	371	363	394	504	385	403.4	895.4
17	368	361	394	509	385	403.4	898.7
18	366	359	395	515	385	403.9	899.1
19	365	356	396	520	385	404.5	911.0
20	362	354	397	525	385	404.8	925.3
21	361	353	398	531	385	405.5	954.8
22	359	351	400	538	385	406.5	974.6
23	356	350	401	547	384	407.8	992.2
24	355	349	403	556	384	409.6	1012.8
25	352	348	406	566	384	411.1	1032.4
26	353	348	408	577	383	413.7	1041.2
27	353	347	411	586	383	415.8	1035.5
28	353	346	413	595	382	417.9	1020.2
29	353	346	406	595	381	416.2	1008.7
30	352	346	397	599	379	414.4	1008.9
31	352	346	390	603	377	413.5	1008.4
32	351	346	385	607	374	412.7	1012.5
33	352	346	382	612	371	412.4	1017.6
34	352	347	379	616	367	412.1	1021.0
35	353	347	376	621	364	412.2	1026.8
36	356	348	374	627	361	413.0	1033.4
37	355	349	372	634	357	413.5	1034.0
38	354	351	371	641	354	414.2	1039.1
39	355	352	370	648	352	415.1	1049.7
40	356	354	369	655	349	416.3	1056.4
41	354	355	368	662	346	417.1	1057.1
42	355	356	368	669	344	418.4	1055.2
43	358	358	367	677	342	420.3	1048.0
44	361	359	368	685	339	422.3	1047.8
45	362	361	368	694	337	424.4	1039.6
46	362	363	370	704	335	426.8	1029.2
47	366	365	371	713	333	429.6	1018.1

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

**Stove ΔT:** 48

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	365	367	373	722	332	431.6	1006.3
49	370	368	375	730	330	434.5	1005.6
50	370	371	377	736	328	436.3	1008.1
51	371	373	379	742	327	438.5	1008.6
52	373	375	382	747	325	440.4	1013.6
53	375	377	385	752	324	442.5	1013.3
54	377	378	388	757	323	444.5	1014.8
55	379	380	391	761	321	446.4	1015.8
56	381	382	395	765	320	448.5	1015.5
57	382	383	399	768	319	450.2	1017.7
58	384	385	403	770	318	452.2	1016.8
59	391	387	408	773	316	454.8	1013.8
60	393	388	412	776	315	456.8	1018.0
61	394	390	417	778	314	458.7	1021.2
62	395	392	422	780	313	460.5	1022.3
63	397	394	428	784	312	463.0	1026.9
64	398	396	433	787	311	464.9	1028.8
65	402	397	439	790	310	467.6	1029.4
66	404	399	445	794	309	470.1	1032.6
67	406	401	450	797	308	472.4	1037.0
68	408	404	455	799	307	474.6	1038.2
69	409	406	460	801	307	476.5	1042.2
70	408	409	464	803	306	478.1	1047.4
71	412	411	469	804	305	480.2	1051.3
72	416	413	472	806	305	482.3	1054.2
73	417	416	477	807	304	484.0	1053.9
74	420	418	480	808	303	486.0	1053.9
75	417	421	483	808	303	486.6	1053.5
76	418	424	486	809	303	488.1	1050.5
77	419	427	489	809	303	489.3	1048.4
78	422	430	492	809	302	491.0	1046.7
79	425	432	494	809	302	492.4	1044.5
80	426	435	496	809	302	493.6	1042.1
81	425	438	498	809	302	494.3	1042.4
82	430	440	500	808	302	496.0	1041.8
83	430	444	502	807	302	496.9	1040.4
84	432	446	504	806	302	498.1	1038.6
85	431	449	506	806	303	498.7	1037.0
86	435	451	508	804	302	500.0	1035.4
87	437	453	510	801	302	500.6	1036.5
88	440	454	512	799	303	501.3	1039.4
89	442	456	515	795	303	502.2	1044.8
90	441	459	517	790	303	501.9	1048.8
91	442	460	519	786	303	502.1	1049.6
92	446	462	521	782	304	503.0	1045.8
93	445	465	523	777	304	502.7	1042.3
94	447	467	525	773	304	503.1	1038.8
95	448	468	527	769	305	503.4	1036.3

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Stove ΔT: 48

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	447	471	529	766	305	503.6	1034.7
97	452	473	531	762	306	504.5	1031.4
98	452	475	533	758	306	504.9	1025.0
99	453	477	534	755	307	505.0	1019.6
100	454	477	534	753	307	505.0	1013.4
101	457	479	535	749	308	505.6	1007.3
102	458	481	536	746	309	505.7	1002.8
103	461	483	536	743	309	506.3	999.2
104	461	484	535	740	310	505.9	994.5
105	462	485	535	736	310	505.7	986.4
106	464	487	535	732	311	505.5	979.1
107	465	488	534	727	312	504.9	973.5
108	466	489	534	722	312	504.5	967.3
109	468	490	534	718	313	504.5	962.2
110	465	491	534	714	313	503.6	958.5
111	469	492	535	710	314	504.0	955.1
112	469	493	535	706	315	503.5	948.2
113	471	494	534	701	316	503.2	936.5
114	470	495	534	697	317	502.4	926.7
115	468	495	532	692	318	501.2	919.9
116	472	496	532	688	319	501.2	914.9
117	473	497	530	683	320	500.4	911.1
118	473	497	529	678	320	499.4	908.1
119	474	497	528	674	321	498.9	905.2
120	478	497	527	670	322	498.8	902.2
121	481	497	526	666	323	498.6	899.1
122	482	496	525	662	323	497.7	896.4
123	483	496	524	659	324	497.3	894.4
124	485	496	523	655	325	497.0	892.3
125	485	496	522	652	326	495.9	884.0
126	486	495	521	648	327	495.4	877.6
127	487	494	519	644	327	494.3	872.5
128	485	493	517	640	328	492.7	866.4
129	484	493	515	636	329	491.3	858.7
130	482	492	513	632	330	489.5	849.3
131	481	490	510	627	331	487.9	839.9
132	482	489	508	622	331	486.6	832.5
133	484	487	506	618	332	485.3	826.4
134	480	486	503	613	332	483.1	821.5
135	479	485	502	608	333	481.4	817.3
136	478	484	500	604	334	479.7	813.4
137	474	482	497	600	334	477.6	810.0
138	474	481	494	596	335	476.0	807.1
139	476	480	492	592	335	474.8	804.3
140	473	479	489	588	336	472.9	801.5
141	473	477	487	584	336	471.4	798.9
142	471	475	485	581	336	469.5	796.4
143	470	474	483	578	336	468.3	793.9

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Stove ΔT: 48

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	469	472	481	575	337	466.6	791.6
145	467	471	479	571	337	464.9	789.5
146	466	470	477	568	337	463.7	787.3
147	466	468	475	565	337	462.2	785.0
148	466	466	473	563	337	461.0	782.9
149	463	465	471	560	337	459.4	781.0
150	461	464	468	558	337	457.6	779.0
151	460	464	468	555	338	456.8	777.4
152	459	462	468	553	338	455.9	775.7
153	460	461	466	550	338	454.9	774.5
154	459	460	467	548	338	454.3	773.7
155	458	458	464	546	338	452.9	772.6
156	456	457	461	544	338	451.2	771.3
157	453	456	458	542	338	449.5	770.0
158	452	454	455	540	338	448.0	768.3
159	450	454	452	539	338	446.5	766.7
160	449	452	450	537	338	445.3	765.1
161	447	451	447	535	338	443.6	763.9
162	445	450	445	533	338	442.3	762.4
163	446	448	443	532	338	441.4	761.1
164	445	447	441	530	338	440.2	759.8
165	443	447	439	528	338	439.0	758.6
166	444	445	437	527	338	438.0	757.5
167	440	444	435	525	338	436.4	756.3
168	440	442	433	524	338	435.5	755.3
169	439	442	431	523	338	434.4	754.2
170	438	441	430	521	337	433.4	753.2
171	436	439	428	520	337	431.9	752.1
172	436	438	428	518	337	431.5	751.1
173	435	438	427	517	337	430.7	749.6
174	435	437	427	516	337	430.2	747.9
175	433	436	426	515	337	429.2	746.8
176	431	436	425	514	337	428.5	746.1
177	430	436	424	513	336	427.9	745.6
178	430	435	423	512	336	427.2	744.6
179	429	435	422	511	336	426.5	742.2
180	428	435	422	510	336	426.0	740.5
181	427	434	421	509	336	425.1	739.1
182	428	433	420	507	336	424.7	738.1
183	426	433	418	507	335	423.9	737.6
184	426	432	417	506	335	423.3	737.8
185	426	432	416	505	335	422.5	737.7
186	424	432	414	504	335	421.7	737.7
187	422	432	413	503	335	420.9	737.8
188	421	432	412	502	335	420.2	738.1
189	420	431	410	502	334	419.5	737.5
190	419	431	409	501	334	418.9	736.5
191	418	431	408	501	334	418.2	735.6

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

**Stove ΔT:** 48

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
192	417	431	407	500	334	417.7	734.9
193	416	430	406	499	334	417.1	734.4
194	415	430	405	499	334	416.5	733.1
195	416	430	404	498	334	416.1	731.7
196	414	430	403	497	334	415.5	730.9
197	414	429	402	497	333	414.9	730.2
198	413	429	400	495	333	413.9	728.8
199	413	429	399	495	333	413.4	727.7
200	411	428	397	494	333	412.5	727.1
201	411	427	396	493	333	411.9	726.4
202	408	428	395	493	332	411.1	725.7
203	409	426	393	492	332	410.4	725.3
204	407	427	392	491	332	409.6	725.5
205	408	426	390	490	331	409.0	725.5
206	408	425	389	489	331	408.5	725.4
207	406	425	388	489	331	407.7	725.1
208	404	424	387	488	331	406.7	724.6
209	404	423	386	488	330	406.0	723.9
210	403	422	385	487	330	405.4	723.7
211	403	422	384	486	329	404.9	723.6
212	401	423	383	485	329	404.1	723.3
213	401	422	382	485	329	403.5	722.7
214	400	422	381	484	328	402.9	722.1
215	400	421	380	484	328	402.5	721.7
216	397	421	379	483	328	401.5	721.4
217	398	420	378	483	327	401.2	718.5
218	397	420	377	482	327	400.3	713.4
219	397	419	376	481	326	399.9	709.4
220	397	419	374	480	326	399.3	705.5
221	396	419	373	479	326	398.5	702.9
222	395	418	372	478	325	397.7	701.7
223	395	417	371	477	325	397.1	701.4
224	395	417	370	476	324	396.6	701.5
225	395	417	369	475	324	396.0	701.4
226	395	417	368	474	324	395.4	701.5
227	395	417	367	473	323	394.9	702.0
228	394	417	366	472	323	394.2	702.6
229	392	416	365	471	323	393.4	702.7
230	392	416	364	471	322	393.0	702.8
231	390	415	363	470	322	392.1	702.1
232	391	415	362	470	322	391.8	700.7
233	389	414	361	469	321	391.0	699.1
234	390	414	360	468	321	390.7	697.9
235	389	413	359	467	321	389.8	697.0
236	389	413	358	467	320	389.3	696.1
237	389	412	358	466	320	388.9	695.9
238	389	412	357	465	320	388.4	696.0
239	388	411	356	464	320	387.7	696.0



# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

**Stove ΔT:** 48

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
240	388	411	355	464	319	387.3	695.9
241	387	411	355	463	319	386.9	695.8
242	386	410	354	463	319	386.4	695.9
243	385	410	354	462	318	385.9	695.9
244	385	409	354	462	318	385.4	696.0
245	385	408	353	461	318	384.9	696.0
246	383	408	352	461	317	384.3	696.1
247	383	408	352	461	317	384.2	696.4
248	383	407	352	460	317	383.6	696.7
249	380	407	351	460	316	382.8	696.8
250	382	406	351	460	316	382.9	696.7
251	379	406	350	459	316	382.1	696.8
252	378	406	350	459	316	381.7	696.9
Average	417.7	426.4	433.4	600.2	332.2	442.0	856.2

## LAB SAMPLE DATA - ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 3

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

		Sample ID	Tare, mg	Final, mg	Catch, mg
<b>Filters</b>	<b>A</b>	G00578	242.7	244.0	1.3
	<b>B</b>	G00579	242.5	243.6	1.1
	<b>C - 1st Hour</b>	G00580	242.4	243.5	1.1
	<b>Amb</b>	G00581	242.6	242.7	0.1
<b>Probes</b>	<b>A</b>	20A	115626.4	115626.4	0.0
	<b>B</b>	20B	115966.0	115966.0	0.0
	<b>C - 1st Hour</b>	20C	113775.1	113775.2	0.1
<b>O-rings</b>	<b>A</b>	20A	3559.1	3559.4	0.3
	<b>B</b>	20B	3614.5	3615.1	0.6
	<b>C - 1st Hour</b>	20C	3610.8	3611.1	0.3

**Placed in Dessicator on:**

<b>Filters</b>	<b>A</b>	243.9	244.0		
	<b>B</b>	243.7	243.6		
	<b>C - 1st Hour</b>	243.5	243.5		
	<b>Amb</b>	242.7	242.7		
<b>Probes</b>	<b>A</b>	115626.4	115626.4		
	<b>B</b>	115966.0	115966.0		
	<b>C - 1st Hour</b>	113775.3	113775.2		
<b>O-Rings</b>	<b>A</b>	3559.4	3559.4		
	<b>B</b>	3615.1	3615.1		
	<b>C - 1st Hour</b>	3611.0	3611.1		

<b>Train A Aggregate, mg:</b>	<b>1.6</b>
<b>Train B Aggregate, mg:</b>	<b>1.7</b>
<b>Train C Aggregate, mg:</b>	<b>1.5</b>
<b>Ambient, mg:</b>	<b>0.1</b>

## ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 23-153 Tracking #: 150  
 Model: CI2700-1 Run Number: 3 Test Date: 6/21/23

### Wood Heater Run Notes

#### Test Control Settings

Primary Air Setting(s): Open 1/8" from fully closed  
 Targeted Burn Category: II

#### Preburn Notes

Time	Notes
44:00 70:00	Stirred coals, removed 0.45 lb End PB

#### Test Notes

Test Burn Start Time: 13:17 Test Fuel Loaded by: 25 seconds  
 Door Closed: 35 seconds Air Control Set at: 300 seconds  
 Other Loading Notes: Fan on low @ 30 min

Time	Notes
	<i>-None-</i>

Test Burn End Time: 17:29


#### Flue Gas Concentration Measurement

**Calibration Gas Values:** Span Gas CO<sub>2</sub> (%): 17.01 CO (%): 4.306  
 Mid Gas CO<sub>2</sub> (%): 10.09 CO (%): 2.53

#### Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	12:12	12:13	12:14	18:20	18:21	18:22
CO <sub>2</sub>	0.01	17.02	10.04	-0.04	16.94	9.93
CO	-0.035	4.306	2.515	-0.066	4.286	2.486

**Flue Gas Probe Leak Check:** Initial: No Leakage Final: No Leakage

Technician Signature: 

Date: 6/26/23

# ASTM E2780 Wood Heater Run Sheets

Client: FPI  
Model: C12700-1

Job Number: 23-153  
Run Number: 3

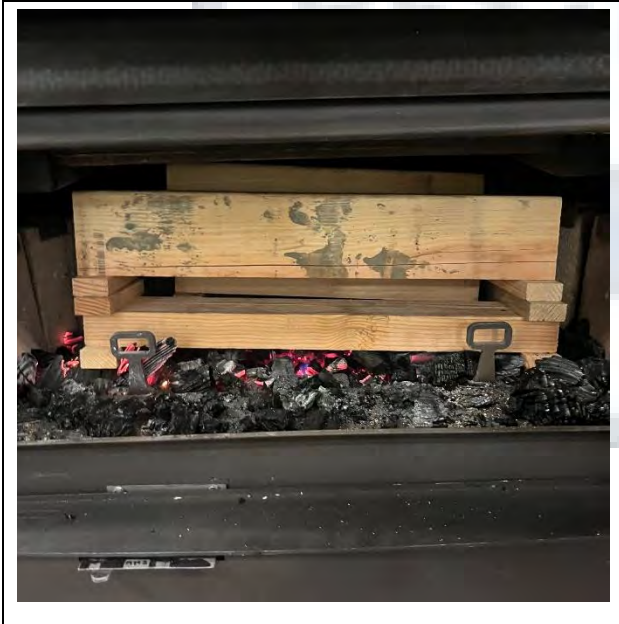
Tracking #: 150  
Test Date: 6/21/23



Test Fuel Side View



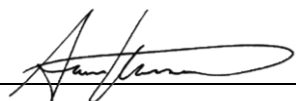
Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: 

Date: 6/26/23

**WOOD STOVE TEST DATA PACKET**  
**ASTM E2780/E2515**



**Run 4 Data Summary**

Client: FPI  
Model: C12700-1  
Job #: 23-153  
Tracking #: 150  
Test Date: 6/21/2023

  
\_\_\_\_\_  
Technician Signature

7/3/2023  
\_\_\_\_\_  
Date

# TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI

Model: CI2700-1

Run #: 4

Job #: 23-153

Tracking #: 150

Technician: AK

Date: 6/21/2023

<b>Burn Rate (kg/hr):</b>	<b>1.96</b>
---------------------------	-------------

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft <sup>3</sup> )	29.661	24.534	23.134	9.631
Average Gas Velocity in Dilution Tunnel (ft/sec)	7.3			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	19024.4			
Average Gas Meter Temperature (°F)	73.0	94.8	93.6	83.9
Total Sample Volume (dscf)	30.045	23.685	22.172	9.221
Average Tunnel Temperature (°F)	102.0			
Total Time of Test (min)	157			
Total Particulate Catch (mg)	0.0	1.4	1.3	1.2
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000591	0.0000586	0.0001301
Total PM Emissions (g)	0.00	2.94	2.92	2.48
Particulate Emission Rate (g/hr)	0.00	1.12	1.12	2.48
Emissions Factor (g/kg)	-	0.57	0.57	-
Difference from Average Total Particulate Emissions (g)	-	0.01	0.01	-
Difference from Average Total Particulate Emissions (%)	-	0.4%	0.4%	-
Difference from Average Emissions Factor (g/kg)	-	0.00	0.00	-

<b>Final Average Results</b>	
Total Particulate Emissions (g)	2.93
Particulate Emission Rate (g/hr)	1.12
Emissions Factor (g/kg)	0.57
HHV Efficiency (%)	74.4%
LHV Efficiency (%)	80.4%
CO Emissions (g/min)	0.44

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	85.7	OK
Face Velocity	< 30 ft/min	9.4	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:72.5/Max:73.3	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	29.6	OK

## B415.1 Efficiency Results

**Manufacturer:** FPI  
**Model:** CI2700-1  
**Date:** 06/21/23  
**Run:** 4  
**Control #:** 23-153  
**Test Duration:** 157  
**Output Category:** 4

### Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
<b>Overall Efficiency</b>	74.4%	80.4%
<b>Combustion Efficiency</b>	99.3%	99.3%
<b>Heat Transfer Efficiency</b>	74.9%	80.9%

<b>Output Rate (kJ/h)</b>	28,639	27,168	<b>(Btu/h)</b>
<b>Burn Rate (kg/h)</b>	1.94	4.28	<b>(lb/h)</b>
<b>Input (kJ/h)</b>	38,512	36,533	<b>(Btu/h)</b>

<b>Test Load Weight (dry kg)</b>	5.09	11.21	<b>dry lb</b>
<b>MC wet (%)</b>	16.95		
<b>MC dry (%)</b>	20.41		
<b>Particulate (g )</b>	2.93		
<b>CO (g)</b>	69		
<b>Test Duration (h)</b>	2.62		

Emissions	Particulate	CO
<b>g/MJ Output</b>	0.04	0.92
<b>g/kg Dry Fuel</b>	0.58	13.50
<b>g/h</b>	1.12	26.25
<b>g/min</b>	0.02	0.44
<b>lb/MM Btu Output</b>	0.09	2.13

<b>Air/Fuel Ratio (A/F)</b>	12.77
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VERSION:

2.4

4/15/2010

# WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	10.00	20.5		2x4	15.00	21.5
2x4	10.00	20.9		2x4	15.00	23.2
2x4	10.00	19.7				
2x4	10.00	22.1				
2x4	10.00	19.0				
2x4	15.00	19.3				
2x4	15.00	19.8				
2x4	15.00	20.3				
Total Fuel Weight (lbs):		12.04		Average Moisture (%DB):		20.6

Firebox Volume (ft<sup>3</sup>): 1.83  
 Total 2x4 Crib Weight, with spacers (lbs): 5.01  
 Total 4x4 Crib Weight, with spacers (lbs): 8.55  
 Total Wet Fuel Weight, with spacers (lbs): 13.56

**Coal Bed Range (20-25%):**  
 Min (lbs): 2.71  
 Max (lbs): 3.39

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	15.00	1.83	20.6	21.7	21.5	1.51
2x4	20.00	2.40	22.3	19.5	19.1	2.00
4x4	15.00	3.92	20.2	20.1	19.2	3.27
4x4	20.00	4.23	19.8	21.2	19.7	3.52
Total Dry Weight, no spacers (lbs):						10.29
Total Dry Weight, with spacers (lbs):						11.33

Spacer Moisture Readings (%DB)						
16.6	18.6					
13.3	16.6					
10.9	17.8					
13.7	11.8					
10.2	14.5					
10.4	9.7					

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft <sup>3</sup> , DB)	29.0	OK
Loading Density	6.3 - 7.7 (lbs/ft <sup>3</sup> , WB)	7.41	OK
2x4 Fuel Mix	35 - 65 % of total weight	37%	OK



## DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: **FPI**  
 Model: **CI2700-1**  
 Run #: **4**  
 Test Start Time: **12:44**

Job #: **23-153**  
 Tracking #: **150**  
 Technician: **AK**  
 Date: **6/21/2023**

Total Sampling Time (min): **157**  
 Recording Interval (min): **1**

Meter Box  $\gamma$  Factor: **1.010** (A)  
 Meter Box  $\gamma$  Factor: **1.001** (B)  
 Meter Box  $\gamma$  Factor: **0.985** (C)  
 Meter Box  $\gamma$  Factor: **1.024** (Ambient)

Induced Draft Check (in. H<sub>2</sub>O): **0**  
 Smoke Capture Check (%): **100%**  
 Date Flue Pipe Last Cleaned: **6/16/2023**

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.87	29.91	29.89
Relative Humidity (%)	41.5	36.7	
Room Air Velocity (ft/min)	0	0.0	
Scale Audit (lbs)	10.0	10.0	
Ambient Sample Volume:	29.661		ft <sup>3</sup>

	Pre-Test		Post-Test	
	cfm	@ in Hg	cfm	@ in Hg
Leak Checks Pitot	0		0	
A	0.001	-5	0.001	-5
B	0.000	-5	0.000	-5
C	0.000	-5	0.001	-5
Ambient	0.000	-12	0.000	-12

### DILUTION TUNNEL FLOW

#### Traverse Data

Point	dP (in H <sub>2</sub> O)	Temp (°F)
1	0.006	103
2	0.014	103
3	0.016	103
4	0.014	103
5	0.012	103
6	0.012	103
7	0.006	102
8	0.010	102
9	0.016	102
10	0.014	102
11	0.014	102
12	0.010	102
Center	0.017	101

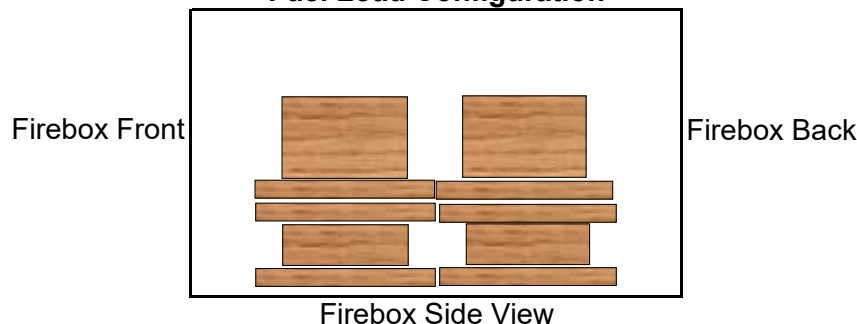
Dilution Tunnel H<sub>2</sub>O: **2.00** percent  
 Tunnel Diameter: **12** inches  
 Pitot Tube Cp: **0.99** [unitless]  
 Dilution Tunnel MW(dry): **29.00** lb/lb-mole  
 Dilution Tunnel MW(wet): **28.78** lb/lb-mole  
 Tunnel Area: **0.7854** ft<sup>2</sup>

$V_{strav}$ : **7.42** ft/sec  
 $V_{scent}$ : **8.92** ft/sec  
 $F_p$ : **0.832** [ratio]  
 Initial Tunnel Flow: **321.1** scf/min

Static Pressure: **-0.080** in. H<sub>2</sub>O

### TEST FUEL PROPERTIES

#### Fuel Load Configuration



#### Actual Fuel Used Properties

Fuel Type: **D. Fir**  
 HHV (kJ/kg) **19,810**  
 %C **48.73**  
 %H **6.87**  
 %O **43.9**  
 %Ash **0.5**  
 MC (%DB) **20.4**

# WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Recording Interval (min): 1  
 Run Time (min): 88

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
0	13.39	-0.085	529	485	504	783	287	517.8	481	73	
1	13.28	-0.086	526	484	478	759	289	507.2	453	73	
2	13.18	-0.087	521	482	453	748	291	499.2	451	73	
3	13.01	-0.088	515	480	430	745	293	492.7	457	73	
4	12.88	-0.089	511	475	412	746	294	487.6	463	73	
5	12.72	-0.088	503	473	398	749	295	483.5	466	73	
6	12.59	-0.091	501	469	385	753	295	480.6	469	73	
7	12.45	-0.089	494	464	375	755	295	476.4	473	73	
8	12.30	-0.091	489	460	366	754	295	472.9	475	72	
9	12.14	-0.090	485	457	359	754	295	469.7	480	72	
10	11.95	-0.091	478	454	352	751	294	465.6	485	72	
11	11.78	-0.094	474	451	346	749	293	462.6	491	72	
12	11.61	-0.093	472	449	340	752	292	461.0	494	72	
13	11.42	-0.093	468	447	336	757	292	459.8	494	72	
14	11.26	-0.093	464	446	331	760	291	458.0	492	72	
15	11.08	-0.092	463	444	327	764	290	457.5	492	72	
16	10.89	-0.092	458	443	324	769	289	456.6	493	72	
17	10.70	-0.092	455	442	322	775	289	456.4	493	72	
18	10.53	-0.092	454	441	320	779	288	456.4	493	72	
19	10.35	-0.092	453	440	319	783	287	456.3	494	72	
20	10.16	-0.091	453	441	319	787	286	457.0	494	72	
21	9.98	-0.092	447	440	320	791	285	456.5	494	72	
22	9.82	-0.091	451	441	320	793	285	457.6	492	72	
23	9.64	-0.093	450	440	320	795	284	457.7	491	72	
24	9.48	-0.091	451	442	319	796	283	458.4	487	73	
25	9.33	-0.090	453	442	317	796	283	458.1	485	73	
26	9.17	-0.090	454	443	316	796	282	457.9	483	73	
27	9.01	-0.090	454	443	314	797	282	457.9	480	73	
28	8.86	-0.089	455	444	314	798	281	458.4	480	73	
29	8.70	-0.090	457	446	316	800	280	459.9	481	73	
30	8.52	-0.089	456	449	319	802	280	461.2	482	73	
31	8.37	-0.090	457	452	322	803	279	462.6	482	73	
32	8.18	-0.092	457	456	325	804	279	464.1	481	73	
33	8.03	-0.091	459	458	327	805	278	465.4	480	73	
34	7.88	-0.087	459	461	328	805	278	466.3	478	73	
35	7.73	-0.088	459	464	331	806	277	467.4	478	73	
36	7.58	-0.090	461	467	332	805	277	468.2	476	73	
37	7.44	-0.087	463	469	334	803	276	468.9	475	73	
38	7.30	-0.088	462	473	336	801	276	469.7	475	73	
39	7.15	-0.089	463	477	339	800	275	470.8	474	73	
40	7.01	-0.087	466	480	342	798	275	472.0	474	73	
41	6.87	-0.088	468	483	344	797	275	473.4	472	73	
42	6.73	-0.089	469	486	347	797	274	474.6	472	73	
43	6.58	-0.087	473	489	350	799	274	477.1	474	73	
44	6.44	-0.086	478	493	352	802	273	479.6	473	73	

## WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Recording Interval (min): 1  
 Run Time (min): 88

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
45	6.31	-0.088	480	496	355	804	273	481.4	473	73	
46	6.17	-0.087	486	499	357	805	272	483.8	470	73	
47	6.04	-0.086	488	503	360	805	272	485.7	470	73	
48	5.91	-0.087	490	505	363	804	272	487.0	467	73	
49	5.78	-0.086	495	508	367	803	271	488.9	466	73	
50	5.66	-0.087	497	512	373	799	271	490.3	466	73	
51	5.53	-0.085	498	514	378	796	271	491.4	464	73	
52	5.43	-0.087	498	517	382	794	271	492.3	462	73	
53	5.33	-0.083	500	521	386	789	271	493.2	460	73	
54	5.24	-0.082	499	523	392	785	270	493.7	457	73	
55	5.13	-0.085	496	525	398	780	271	493.8	456	73	
56	5.04	-0.085	497	527	404	776	270	494.9	455	73	
57	4.95	-0.083	498	529	409	774	270	496.0	455	73	
58	4.86	-0.084	498	530	415	775	271	497.6	455	73	
59	4.77	-0.084	500	532	420	776	270	499.4	455	73	
60	4.67	-0.083	501	533	424	775	270	500.5	454	73	

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.017	0.71	79	0.7		13.50		99	399	79	73
1	0.136	0.136	0.016	2.02	79	0.9	-	13.55	0.05	116	453	81	73
2	0.282	0.146	0.016	2.06	79	0.9	-	13.28	-0.27	106	425	81	73
3	0.427	0.145	0.017	2.09	79	0.8	-	13.16	-0.12	103	426	81	73
4	0.575	0.148	0.017	2.12	79	0.8	-	13.04	-0.12	103	435	81	73
5	0.714	0.139	0.017	2.13	79	0.9	-	12.90	-0.14	103	446	82	73
6	0.865	0.151	0.017	2.15	79	0.9	-	12.77	-0.13	103	454	82	73
7	1.011	0.146	0.016	2.17	79	0.8	-	12.62	-0.15	103	459	82	73
8	1.163	0.152	0.016	2.18	79	0.9	-	12.49	-0.13	104	463	82	73
9	1.308	0.145	0.017	2.19	80	0.9	-	12.35	-0.14	104	468	83	73
10	1.458	0.150	0.017	2.20	80	0.9	95	12.20	-0.15	104	472	83	73
11	1.604	0.146	0.017	2.21	80	0.9	-	12.03	-0.17	104	475	83	73
12	1.758	0.154	0.017	2.22	80	0.9	-	11.89	-0.14	104	479	83	73
13	1.903	0.145	0.017	2.22	80	0.9	-	11.73	-0.16	105	482	83	73
14	2.056	0.153	0.016	2.23	81	0.9	-	11.58	-0.15	105	483	83	73
15	2.205	0.149	0.017	2.24	81	0.9	-	11.42	-0.16	105	486	83	73
16	2.358	0.153	0.017	2.25	81	0.9	-	11.26	-0.16	105	481	84	73
17	2.505	0.147	0.016	2.24	81	0.9	-	11.11	-0.15	104	479	84	73
18	2.658	0.153	0.017	2.24	81	0.9	-	10.95	-0.16	104	478	84	73
19	2.804	0.146	0.017	2.26	82	0.9	-	10.81	-0.14	105	477	84	73
20	2.960	0.156	0.017	2.26	82	0.9	97	10.65	-0.16	105	475	84	73
21	3.108	0.148	0.016	2.25	82	0.9	-	10.52	-0.13	105	473	84	73
22	3.263	0.155	0.016	2.27	83	0.9	-	10.37	-0.15	105	471	84	73
23	3.410	0.147	0.016	2.27	83	0.9	-	10.21	-0.16	105	470	84	73
24	3.566	0.156	0.016	2.26	83	0.9	-	10.07	-0.14	105	469	84	73
25	3.715	0.149	0.016	2.29	84	0.9	-	9.92	-0.15	105	468	84	73
26	3.870	0.155	0.017	2.29	84	0.9	-	9.77	-0.15	105	467	85	73
27	4.017	0.147	0.017	2.29	84	0.9	-	9.63	-0.14	104	466	85	73
28	4.173	0.156	0.017	2.31	85	0.9	-	9.48	-0.15	104	465	84	73
29	4.326	0.153	0.017	2.30	85	0.9	-	9.33	-0.15	104	464	85	73
30	4.478	0.152	0.017	2.31	85	0.9	98	9.19	-0.14	104	465	85	73
31	4.630	0.152	0.016	2.30	86	0.9	-	9.02	-0.17	104	463	85	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.785	0.155	0.016	2.30	86	0.9	-	8.89	-0.13	104	463	85	73
33	4.934	0.149	0.017	2.32	86	0.9	-	8.75	-0.14	105	463	85	73
34	5.091	0.157	0.017	2.32	87	0.9	-	8.60	-0.15	104	462	85	73
35	5.246	0.155	0.016	2.33	87	0.9	-	8.46	-0.14	104	461	85	73
36	5.398	0.152	0.017	2.32	87	0.9	-	8.32	-0.14	104	462	85	73
37	5.551	0.153	0.017	2.32	88	0.9	-	8.18	-0.14	104	462	85	73
38	5.704	0.153	0.016	2.32	88	0.9	-	8.02	-0.16	104	462	85	73
39	5.861	0.157	0.017	2.33	88	0.9	-	7.88	-0.14	104	463	85	73
40	6.009	0.148	0.017	2.32	89	0.9	98	7.73	-0.15	104	464	85	73
41	6.170	0.161	0.016	2.33	89	0.9	-	7.58	-0.15	104	464	85	73
42	6.319	0.149	0.016	2.33	89	0.9	-	7.45	-0.13	104	463	85	73
43	6.478	0.159	0.016	2.34	89	0.9	-	7.30	-0.15	104	464	85	73
44	6.628	0.150	0.016	2.33	90	0.9	-	7.15	-0.15	105	464	85	73
45	6.783	0.155	0.016	2.34	90	0.9	-	7.01	-0.14	105	464	85	73
46	6.942	0.159	0.016	2.34	91	0.9	-	6.88	-0.13	105	465	85	73
47	7.096	0.154	0.017	2.36	91	0.9	-	6.74	-0.14	105	463	85	73
48	7.251	0.155	0.017	2.36	91	0.9	-	6.60	-0.14	105	463	85	73
49	7.402	0.151	0.017	2.35	91	0.9	-	6.46	-0.14	104	464	85	73
50	7.561	0.159	0.017	2.36	91	1.0	99	6.33	-0.13	104	464	85	73
51	7.714	0.153	0.016	2.36	92	0.9	-	6.18	-0.15	105	464	85	73
52	7.875	0.161	0.017	2.36	92	0.9	-	6.05	-0.13	105	465	85	73
53	8.026	0.151	0.017	2.36	93	1.0	-	5.91	-0.14	105	466	86	73
54	8.182	0.156	0.016	2.35	93	0.9	-	5.79	-0.12	105	466	86	73
55	8.341	0.159	0.016	2.36	93	0.9	-	5.65	-0.14	105	464	86	73
56	8.496	0.155	0.016	2.37	93	0.9	-	5.54	-0.11	105	462	86	73
57	8.653	0.157	0.017	2.37	93	0.9	-	5.42	-0.12	105	462	86	73
58	8.806	0.153	0.017	2.37	94	0.9	-	5.31	-0.11	104	461	86	73
59	8.963	0.157	0.017	2.37	94	0.9	-	5.20	-0.11	104	461	86	73
60	9.139	0.176	0.016	2.37	94	0.9	102	5.08	-0.12	105	461	86	73
61	9.297	0.158	0.016	2.37	94	0.9	-	4.97	-0.11	104	460	85	73
62	9.452	0.155	0.017	2.37	95	0.9	-	4.85	-0.12	104	460	86	73
63	9.606	0.154	0.017	2.37	95	0.9	-	4.74	-0.11	104	460	86	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 4Technician: AKDate: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	9.765	0.159	0.017	2.38	95	0.9	-	4.63	-0.11	104	461	86	73
65	9.919	0.154	0.017	2.38	95	0.9	-	4.53	-0.10	104	459	86	73
66	10.078	0.159	0.017	2.38	95	0.9	-	4.43	-0.10	104	457	86	73
67	10.235	0.157	0.016	2.38	96	1.0	-	4.34	-0.09	104	456	85	73
68	10.395	0.160	0.016	2.39	96	0.9	-	4.24	-0.10	104	454	85	73
69	10.550	0.155	0.016	2.39	96	0.9	-	4.15	-0.09	104	452	86	73
70	10.707	0.157	0.016	2.39	96	0.9	102	4.06	-0.09	104	451	86	73
71	10.864	0.157	0.017	2.39	97	0.9	-	3.95	-0.11	103	450	86	73
72	11.018	0.154	0.016	2.39	97	0.9	-	3.87	-0.08	103	451	86	73
73	11.181	0.163	0.017	2.38	97	1.0	-	3.76	-0.11	104	452	86	73
74	11.336	0.155	0.017	2.39	97	0.9	-	3.67	-0.09	104	451	86	73
75	11.493	0.157	0.016	2.40	97	1.0	-	3.58	-0.09	104	450	86	73
76	11.651	0.158	0.017	2.39	97	0.9	-	3.48	-0.10	103	449	85	73
77	11.807	0.156	0.016	2.39	97	0.9	-	3.40	-0.08	103	448	85	73
78	11.969	0.162	0.017	2.41	98	0.9	-	3.31	-0.09	103	446	86	73
79	12.123	0.154	0.017	2.39	98	0.9	-	3.22	-0.09	103	446	85	73
80	12.284	0.161	0.016	2.39	98	0.9	102	3.13	-0.09	103	445	86	73
81	12.440	0.156	0.017	2.41	98	0.9	-	3.05	-0.08	103	443	86	73
82	12.598	0.158	0.016	2.40	98	0.9	-	2.96	-0.09	104	441	86	73
83	12.756	0.158	0.017	2.39	98	0.9	-	2.88	-0.08	103	440	86	73
84	12.914	0.158	0.017	2.40	99	0.9	-	2.80	-0.08	103	439	86	73
85	13.073	0.159	0.017	2.40	99	0.9	-	2.73	-0.07	103	438	86	73
86	13.229	0.156	0.016	2.41	99	0.9	-	2.66	-0.07	103	437	86	73
87	13.387	0.158	0.017	2.41	99	0.9	-	2.58	-0.08	103	435	86	73
88	13.542	0.155	0.016	2.40	99	0.9	-	2.51	-0.07	103	434	86	73
89	13.705	0.163	0.016	2.40	99	0.9	-	2.44	-0.07	103	433	86	73
90	13.865	0.160	0.017	2.40	99	1.0	101	2.37	-0.07	102	431	86	73
91	14.020	0.155	0.016	2.41	100	0.9	-	2.30	-0.07	102	430	86	73
92	14.181	0.161	0.017	2.40	100	0.9	-	2.23	-0.07	102	430	86	73
93	14.338	0.157	0.017	2.41	100	0.9	-	2.17	-0.06	102	428	86	73
94	14.497	0.159	0.017	2.41	100	0.9	-	2.11	-0.06	102	427	86	73
95	14.652	0.155	0.017	2.41	100	0.9	-	2.05	-0.06	102	425	85	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	14.814	0.162	0.017	2.41	100	0.9	-	1.99	-0.06	102	424	85	73
97	14.971	0.157	0.016	2.41	100	0.9	-	1.94	-0.05	102	421	85	73
98	15.127	0.156	0.016	2.41	100	0.9	-	1.90	-0.04	101	419	85	73
99	15.291	0.164	0.017	2.42	100	0.9	-	1.84	-0.06	101	417	85	73
100	15.447	0.156	0.017	2.41	101	0.9	99	1.79	-0.05	101	415	85	73
101	15.604	0.157	0.017	2.41	101	1.0	-	1.75	-0.04	101	411	85	73
102	15.767	0.163	0.017	2.42	101	1.0	-	1.71	-0.04	101	407	85	73
103	15.920	0.153	0.017	2.41	101	0.9	-	1.67	-0.04	100	405	85	73
104	16.085	0.165	0.017	2.41	101	0.9	-	1.64	-0.03	100	401	85	73
105	16.239	0.154	0.017	2.41	101	1.0	-	1.61	-0.03	100	399	85	73
106	16.398	0.159	0.017	2.40	101	0.9	-	1.57	-0.04	100	397	85	73
107	16.562	0.164	0.017	2.40	101	0.9	-	1.53	-0.04	100	395	85	73
108	16.715	0.153	0.017	2.40	101	0.9	-	1.50	-0.03	100	392	85	73
109	16.880	0.165	0.016	2.42	101	0.9	-	1.46	-0.04	100	391	85	73
110	17.037	0.157	0.016	2.41	101	0.9	101	1.43	-0.03	100	390	85	73
111	17.194	0.157	0.017	2.42	101	0.9	-	1.40	-0.03	100	388	85	73
112	17.357	0.163	0.016	2.42	102	1.0	-	1.37	-0.03	100	387	85	73
113	17.512	0.155	0.017	2.40	102	0.9	-	1.33	-0.04	100	387	85	73
114	17.675	0.163	0.017	2.39	102	0.9	-	1.29	-0.04	99	385	85	73
115	17.833	0.158	0.017	2.40	102	0.9	-	1.26	-0.03	99	384	85	73
116	17.991	0.158	0.017	2.41	102	0.9	-	1.22	-0.04	99	384	85	73
117	18.153	0.162	0.017	2.40	102	0.9	-	1.20	-0.02	99	382	85	73
118	18.311	0.158	0.017	2.39	102	0.9	-	1.17	-0.03	99	380	85	73
119	18.472	0.161	0.016	2.39	102	1.0	-	1.14	-0.03	99	380	85	73
120	18.626	0.154	0.017	2.39	102	0.9	100	1.11	-0.03	99	378	85	73
121	18.790	0.164	0.016	2.41	102	0.9	-	1.07	-0.04	99	378	85	73
122	18.948	0.158	0.016	2.42	102	0.9	-	1.04	-0.03	99	377	85	73
123	19.108	0.160	0.016	2.42	102	0.9	-	1.01	-0.03	99	376	85	73
124	19.266	0.158	0.016	2.42	103	0.9	-	0.97	-0.04	99	377	85	73
125	19.426	0.160	0.017	2.41	103	0.9	-	0.94	-0.03	99	376	85	73
126	19.588	0.162	0.016	2.42	103	1.0	-	0.92	-0.02	99	375	85	73
127	19.745	0.157	0.016	2.41	103	0.9	-	0.88	-0.04	98	375	85	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: C12700-1Tracking #: 150Run #: 4Technician: AKDate: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	19.906	0.161	0.017	2.42	103	0.9	-	0.85	-0.03	98	373	85	73
129	20.066	0.160	0.016	2.41	103	0.9	-	0.83	-0.02	98	373	85	73
130	20.220	0.154	0.016	2.41	103	1.0	100	0.78	-0.05	99	372	85	73
131	20.386	0.166	0.017	2.42	103	0.9	-	0.76	-0.02	98	372	85	73
132	20.543	0.157	0.016	2.41	103	0.9	-	0.73	-0.03	98	371	85	73
133	20.701	0.158	0.017	2.41	103	0.9	-	0.70	-0.03	98	370	85	73
134	20.864	0.163	0.017	2.42	103	0.9	-	0.67	-0.03	98	371	85	73
135	21.020	0.156	0.017	2.41	103	1.0	-	0.64	-0.03	98	370	85	73
136	21.181	0.161	0.017	2.40	103	0.9	-	0.61	-0.03	98	369	85	73
137	21.341	0.160	0.016	2.41	103	0.9	-	0.58	-0.03	98	367	85	73
138	21.502	0.161	0.016	2.39	103	1.0	-	0.56	-0.02	98	368	85	73
139	21.661	0.159	0.017	2.39	103	0.9	-	0.53	-0.03	98	367	85	73
140	21.819	0.158	0.016	2.38	103	1.0	102	0.50	-0.03	98	366	85	73
141	21.983	0.164	0.017	2.39	104	0.9	-	0.47	-0.03	98	366	85	73
142	22.137	0.154	0.016	2.40	104	1.0	-	0.44	-0.03	98	366	85	73
143	22.300	0.163	0.016	2.40	104	0.9	-	0.41	-0.03	98	366	85	73
144	22.462	0.162	0.016	2.41	104	0.9	-	0.38	-0.03	98	365	85	73
145	22.617	0.155	0.016	2.40	104	0.9	-	0.35	-0.03	98	364	85	73
146	22.781	0.164	0.016	2.42	104	0.9	-	0.32	-0.03	98	365	85	73
147	22.936	0.155	0.016	2.42	104	1.0	-	0.29	-0.03	98	365	85	73
148	23.099	0.163	0.016	2.44	104	0.9	-	0.27	-0.02	98	365	85	73
149	23.261	0.162	0.016	2.43	104	0.9	-	0.24	-0.03	98	363	85	73
150	23.414	0.153	0.016	2.42	104	0.9	102	0.20	-0.04	98	363	84	73
151	23.580	0.166	0.015	2.42	104	0.9	-	0.18	-0.02	98	361	84	73
152	23.737	0.157	0.016	2.43	104	0.9	-	0.15	-0.03	97	361	84	73
153	23.898	0.161	0.016	2.42	104	0.9	-	0.12	-0.03	97	360	84	73
154	24.060	0.162	0.016	2.42	104	0.9	-	0.09	-0.03	97	359	84	73
155	24.214	0.154	0.016	2.41	104	0.9	-	0.07	-0.02	97	359	84	73
156	24.377	0.163	0.016	2.40	104	0.9	-	0.03	-0.04	97	359	84	73
157	24.534	0.157	0.015	2.39	104	0.9	103	0.00	-0.03	97	358	84	73
Avg/Tot	24.534	0.156	0.017	2.35	94.8	0.9	100			102.0	426.3	84.7	73.0



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
0	0.000		0.80	78	1.7		77	-0.075	7.54	0.029
1	0.132	0.132	2.08	78	1.7	-	80	-0.088	6.22	0.034
2	0.273	0.141	2.09	78	1.7	-	81	-0.081	3.86	0.026
3	0.421	0.148	2.09	78	1.9	-	81	-0.083	6.72	0.033
4	0.562	0.141	2.09	78	1.6	-	81	-0.084	7.51	0.071
5	0.706	0.144	2.10	78	1.8	-	81	-0.085	8.31	0.135
6	0.848	0.142	2.09	78	1.6	-	81	-0.086	8.85	0.093
7	0.994	0.146	2.10	78	1.6	-	82	-0.088	8.42	0.056
8	1.137	0.143	2.10	78	1.5	-	82	-0.089	8.71	0.114
9	1.280	0.143	2.09	79	1.5	-	82	-0.090	9.08	0.169
10	1.424	0.144	2.10	79	1.5	98	82	-0.089	9.52	0.190
11	1.565	0.141	2.10	79	1.9	-	82	-0.089	10.12	0.294
12	1.714	0.149	2.10	79	2.0	-	82	-0.091	10.26	0.274
13	1.852	0.138	2.10	79	1.8	-	82	-0.088	10.20	0.215
14	1.998	0.146	2.10	79	1.8	-	82	-0.088	10.47	0.158
15	2.143	0.145	2.10	80	1.8	-	82	-0.091	10.46	0.274
16	2.289	0.146	2.11	80	2.0	-	82	-0.090	10.54	0.129
17	2.432	0.143	2.11	80	1.9	-	83	-0.088	10.16	0.256
18	2.576	0.144	2.11	81	1.7	-	83	-0.090	10.22	0.281
19	2.718	0.142	2.10	81	1.6	-	83	-0.087	10.63	0.239
20	2.863	0.145	2.10	81	1.8	99	83	-0.087	10.46	0.180
21	3.010	0.147	2.10	81	1.9	-	83	-0.086	10.45	0.091
22	3.153	0.143	2.11	82	2.0	-	83	-0.086	10.37	0.085
23	3.299	0.146	2.11	82	1.7	-	83	-0.086	10.50	0.117
24	3.441	0.142	2.11	82	1.5	-	83	-0.088	10.63	0.109
25	3.588	0.147	2.10	83	2.0	-	83	-0.087	10.50	0.118
26	3.731	0.143	2.11	83	2.0	-	83	-0.087	10.46	0.123
27	3.876	0.145	2.12	83	1.5	-	83	-0.087	10.67	0.115
28	4.020	0.144	2.11	84	1.5	-	83	-0.086	10.71	0.125
29	4.168	0.148	2.12	84	1.9	-	83	-0.085	10.72	0.124
30	4.310	0.142	2.11	84	1.7	99	83	-0.087	10.80	0.125
31	4.456	0.146	2.11	85	2.0	-	83	-0.088	11.03	0.129

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
32	4.603	0.147	2.11	85	1.9	-	83	-0.086	11.12	0.142
33	4.745	0.142	2.12	85	2.0	-	83	-0.085	11.11	0.140
34	4.895	0.150	2.13	86	1.5	-	83	-0.085	11.14	0.174
35	5.039	0.144	2.12	86	1.6	-	83	-0.086	11.08	0.201
36	5.187	0.148	2.12	86	1.5	-	83	-0.087	11.23	0.224
37	5.328	0.141	2.12	87	1.5	-	83	-0.086	11.34	0.250
38	5.478	0.150	2.12	87	1.9	-	83	-0.084	11.61	0.306
39	5.621	0.143	2.12	87	1.6	-	83	-0.086	11.70	0.306
40	5.767	0.146	2.12	88	1.8	99	83	-0.086	11.77	0.324
41	5.914	0.147	2.12	88	2.0	-	83	-0.085	11.79	0.324
42	6.060	0.146	2.13	88	1.6	-	83	-0.085	11.73	0.307
43	6.207	0.147	2.13	88	1.6	-	83	-0.083	11.70	0.316
44	6.352	0.145	2.13	89	1.5	-	83	-0.085	11.69	0.304
45	6.498	0.146	2.13	89	2.0	-	83	-0.086	11.73	0.269
46	6.647	0.149	2.13	89	1.8	-	83	-0.086	11.69	0.236
47	6.794	0.147	2.14	90	1.9	-	83	-0.086	11.61	0.262
48	6.937	0.143	2.14	90	1.8	-	83	-0.085	11.58	0.283
49	7.084	0.147	2.13	90	1.7	-	83	-0.087	11.60	0.362
50	7.230	0.146	2.13	90	1.5	99	83	-0.085	11.56	0.377
51	7.379	0.149	2.13	91	1.7	-	83	-0.086	11.52	0.419
52	7.527	0.148	2.13	91	2.0	-	83	-0.088	11.83	0.442
53	7.673	0.146	2.14	91	1.7	-	83	-0.086	11.84	0.411
54	7.819	0.146	2.14	92	1.5	-	83	-0.085	11.77	0.375
55	7.970	0.151	2.13	92	1.7	-	83	-0.085	11.63	0.213
56	8.116	0.146	2.14	92	1.7	-	83	-0.087	11.39	0.142
57	8.265	0.149	2.15	92	1.6	-	83	-0.084	11.20	0.081
58	8.411	0.146	2.14	93	1.7	-	83	-0.082	11.30	0.083
59	8.558	0.147	2.14	93	2.0	-	83	-0.084	11.32	0.083
60	8.706	0.148	2.14	93	1.5	101	83	-0.085	11.48	0.126
61	8.855	0.149	2.14	93	1.6	-	83	-0.085	11.51	0.108
62	9.000	0.145	2.15	94	1.6	-	83	-0.083	11.52	0.118
63	9.147	0.147	2.14	94	1.9	-	83	-0.087	11.42	0.213

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
64	9.292	0.145	2.14	94	2.0	-	83	-0.086	11.65	0.203
65	9.442	0.150	2.15	94	1.5	-	83	-0.085	11.20	0.146
66	9.587	0.145	2.14	95	1.6	-	83	-0.085	10.97	0.127
67	9.740	0.153	2.15	95	2.0	-	83	-0.083	10.77	0.052
68	9.885	0.145	2.15	95	1.5	-	83	-0.084	10.49	0.027
69	10.035	0.150	2.15	95	1.7	-	83	-0.082	10.38	0.044
70	10.181	0.146	2.14	95	1.8	102	83	-0.085	10.68	0.067
71	10.329	0.148	2.15	96	1.5	-	83	-0.086	11.05	0.035
72	10.475	0.146	2.15	96	1.9	-	83	-0.084	11.25	0.034
73	10.627	0.152	2.15	96	1.9	-	83	-0.084	11.28	0.033
74	10.773	0.146	2.15	96	1.5	-	83	-0.083	11.26	0.036
75	10.920	0.147	2.15	96	1.8	-	83	-0.082	11.21	0.023
76	11.070	0.150	2.15	96	1.9	-	83	-0.084	11.13	0.029
77	11.217	0.147	2.15	97	1.8	-	83	-0.083	11.16	0.023
78	11.366	0.149	2.15	97	2.0	-	83	-0.081	11.09	0.025
79	11.516	0.150	2.16	97	1.8	-	83	-0.082	11.09	0.025
80	11.662	0.146	2.15	97	1.6	102	83	-0.083	10.98	0.016
81	11.812	0.150	2.15	97	1.9	-	83	-0.083	10.89	0.022
82	11.959	0.147	2.15	97	1.8	-	83	-0.083	10.75	0.021
83	12.108	0.149	2.15	98	1.9	-	83	-0.081	10.75	0.018
84	12.255	0.147	2.15	98	1.7	-	83	-0.078	10.57	0.014
85	12.405	0.150	2.15	98	2.0	-	83	-0.083	10.47	0.018
86	12.552	0.147	2.15	98	1.5	-	83	-0.080	10.38	0.015
87	12.700	0.148	2.16	98	1.5	-	83	-0.081	10.23	0.015
88	12.848	0.148	2.16	98	1.6	-	83	-0.079	10.23	0.018
89	12.999	0.151	2.16	98	1.6	-	83	-0.080	10.24	0.017
90	13.147	0.148	2.16	98	1.5	100	83	-0.079	10.21	0.016
91	13.297	0.150	2.16	99	2.0	-	83	-0.078	10.26	0.019
92	13.444	0.147	2.16	99	2.0	-	83	-0.082	10.20	0.015
93	13.594	0.150	2.16	99	1.5	-	83	-0.079	9.99	0.014
94	13.741	0.147	2.16	99	1.5	-	83	-0.078	9.74	0.012
95	13.889	0.148	2.16	99	1.5	-	83	-0.077	9.76	0.014

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
96	14.038	0.149	2.16	99	1.8	-	83	-0.082	9.65	0.014
97	14.186	0.148	2.16	99	2.0	-	83	-0.076	9.55	0.014
98	14.334	0.148	2.16	99	1.8	-	83	-0.080	9.41	0.016
99	14.486	0.152	2.16	99	1.9	-	83	-0.079	9.12	0.014
100	14.633	0.147	2.16	99	2.0	98	83	-0.077	8.43	0.019
101	14.781	0.148	2.16	99	1.5	-	83	-0.079	8.08	0.017
102	14.931	0.150	2.16	100	1.5	-	83	-0.076	8.04	0.010
103	15.078	0.147	2.16	100	1.5	-	83	-0.078	8.07	0.017
104	15.228	0.150	2.16	100	1.5	-	83	-0.076	8.06	0.012
105	15.376	0.148	2.16	100	2.0	-	83	-0.075	8.11	0.015
106	15.524	0.148	2.16	100	2.0	-	83	-0.074	7.97	0.012
107	15.676	0.152	2.16	100	1.6	-	83	-0.074	7.78	0.016
108	15.822	0.146	2.16	100	1.7	-	82	-0.075	7.81	0.011
109	15.974	0.152	2.16	100	2.0	-	82	-0.076	7.84	0.015
110	16.121	0.147	2.16	100	1.6	100	83	-0.072	7.82	0.021
111	16.269	0.148	2.16	100	1.6	-	82	-0.075	7.82	0.016
112	16.419	0.150	2.16	100	1.5	-	83	-0.069	7.96	0.013
113	16.567	0.148	2.16	100	1.5	-	82	-0.074	7.86	0.018
114	16.717	0.150	2.16	100	1.8	-	83	-0.072	7.92	0.016
115	16.867	0.150	2.16	100	1.9	-	82	-0.076	7.90	0.018
116	17.013	0.146	2.16	101	1.5	-	82	-0.071	7.87	0.018
117	17.165	0.152	2.16	101	1.5	-	82	-0.074	7.85	0.022
118	17.313	0.148	2.16	101	1.5	-	82	-0.074	7.85	0.017
119	17.463	0.150	2.16	101	1.5	-	82	-0.070	7.83	0.018
120	17.609	0.146	2.16	101	1.8	100	82	-0.073	7.82	0.015
121	17.762	0.153	2.16	101	1.6	-	82	-0.074	7.88	0.023
122	17.909	0.147	2.16	101	1.9	-	82	-0.073	7.91	0.025
123	18.060	0.151	2.16	101	2.0	-	82	-0.074	7.89	0.024
124	18.205	0.145	2.16	101	2.0	-	82	-0.072	7.90	0.024
125	18.358	0.153	2.16	101	1.5	-	82	-0.074	7.89	0.016
126	18.505	0.147	2.16	101	1.9	-	82	-0.071	7.86	0.025
127	18.656	0.151	2.16	101	1.6	-	82	-0.071	7.82	0.019

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
128	18.804	0.148	2.16	101	2.0	-	82	-0.072	7.85	0.023
129	18.955	0.151	2.16	101	2.0	-	82	-0.075	7.85	0.020
130	19.100	0.145	2.16	101	1.9	100	82	-0.071	7.58	0.025
131	19.253	0.153	2.16	101	1.5	-	82	-0.069	7.62	0.024
132	19.400	0.147	2.15	101	1.6	-	82	-0.072	7.58	0.028
133	19.549	0.149	2.16	101	1.5	-	82	-0.072	7.54	0.024
134	19.699	0.150	2.16	101	1.8	-	82	-0.069	7.57	0.025
135	19.850	0.151	2.16	101	2.0	-	82	-0.072	7.57	0.027
136	19.995	0.145	2.16	101	1.9	-	82	-0.071	7.48	0.026
137	20.149	0.154	2.16	101	2.0	-	82	-0.070	7.46	0.026
138	20.296	0.147	2.17	102	1.7	-	82	-0.070	7.52	0.024
139	20.445	0.149	2.16	102	1.9	-	82	-0.069	7.52	0.029
140	20.595	0.150	2.16	102	1.9	101	82	-0.071	7.46	0.031
141	20.747	0.152	2.17	102	1.9	-	82	-0.071	7.48	0.031
142	20.891	0.144	2.16	102	1.5	-	82	-0.068	7.44	0.030
143	21.045	0.154	2.16	102	2.0	-	82	-0.071	7.48	0.023
144	21.192	0.147	2.16	102	1.7	-	82	-0.073	7.47	0.029
145	21.344	0.152	2.16	102	1.9	-	82	-0.074	7.49	0.029
146	21.491	0.147	2.16	102	1.5	-	82	-0.069	7.48	0.026
147	21.640	0.149	2.16	102	1.5	-	82	-0.070	7.49	0.028
148	21.790	0.150	2.15	102	1.9	-	82	-0.071	7.46	0.027
149	21.941	0.151	2.16	102	1.9	-	82	-0.072	7.43	0.023
150	22.086	0.145	2.16	102	1.7	101	82	-0.070	7.39	0.026
151	22.240	0.154	2.16	102	2.0	-	82	-0.068	7.39	0.024
152	22.387	0.147	2.17	102	2.0	-	82	-0.068	7.33	0.027
153	22.539	0.152	2.17	102	1.6	-	82	-0.073	7.36	0.025
154	22.686	0.147	2.17	102	2.0	-	82	-0.068	7.37	0.029
155	22.835	0.149	2.16	102	1.9	-	82	-0.070	7.24	0.028
156	22.983	0.148	2.16	102	2.0	-	82	-0.067	7.21	0.032
157	23.134	0.151	2.16	102	1.9	103	82	-0.069	7.25	0.027
Avg/Tot	23.134	0.147	2.13	93.6	1.7	100	82.5	-0.080	9.49	0.095

## BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Particulate Sampling Data							
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.000		0.39	79	1.7		76
1	0.151	0.151	1.07	78	1.8	-	77
2	0.305	0.154	1.07	78	1.7	-	77
3	0.461	0.156	1.08	78	1.9	-	77
4	0.617	0.156	1.07	78	1.8	-	77
5	0.770	0.153	1.08	78	1.7	-	77
6	0.927	0.157	1.09	78	1.7	-	77
7	1.086	0.159	1.10	78	1.9	-	78
8	1.243	0.157	1.10	79	1.7	-	78
9	1.400	0.157	1.10	79	1.9	-	78
10	1.554	0.154	1.10	79	1.7	96	78
11	1.711	0.157	1.09	79	1.9	-	78
12	1.871	0.160	1.10	79	1.8	-	78
13	2.026	0.155	1.11	80	1.7	-	78
14	2.184	0.158	1.11	80	1.9	-	79
15	2.343	0.159	1.11	80	1.9	-	79
16	2.501	0.158	1.10	80	1.7	-	79
17	2.659	0.158	1.11	81	1.7	-	79
18	2.818	0.159	1.12	81	1.9	-	79
19	2.974	0.156	1.12	81	1.7	-	79
20	3.134	0.160	1.11	82	1.9	98	79
21	3.294	0.160	1.12	82	1.9	-	80
22	3.453	0.159	1.13	82	1.9	-	80
23	3.613	0.160	1.13	82	1.7	-	80
24	3.772	0.159	1.12	83	1.7	-	80
25	3.933	0.161	1.13	83	1.7	-	80
26	4.093	0.160	1.14	83	1.8	-	80
27	4.250	0.157	1.14	83	1.7	-	80
28	4.411	0.161	1.13	83	1.7	-	80
29	4.576	0.165	1.15	84	1.8	-	80
30	4.733	0.157	1.15	84	1.8	99	80
31	4.898	0.165	1.14	84	1.8	-	80

## BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Particulate Sampling Data							
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	5.060	0.162	1.15	85	1.8	-	80
33	5.218	0.158	1.15	85	1.9	-	80
34	5.383	0.165	1.15	85	1.9	-	80
35	5.545	0.162	1.16	85	1.7	-	80
36	5.706	0.161	1.14	85	1.9	-	80
37	5.867	0.161	1.15	86	1.7	-	80
38	6.031	0.164	1.16	86	1.9	-	80
39	6.194	0.163	1.15	86	1.8	-	80
40	6.354	0.160	1.16	87	1.9	99	80
41	6.519	0.165	1.15	87	1.9	-	80
42	6.680	0.161	1.15	87	1.8	-	81
43	6.845	0.165	1.16	87	1.9	-	81
44	7.005	0.160	1.15	87	1.9	-	81
45	7.169	0.164	1.16	88	2.0	-	81
46	7.335	0.166	1.15	88	1.9	-	81
47	7.499	0.164	1.17	88	1.9	-	81
48	7.659	0.160	1.17	88	1.7	-	81
49	7.823	0.164	1.16	88	1.9	-	81
50	7.987	0.164	1.17	89	1.9	100	81
51	8.150	0.163	1.16	89	1.7	-	81
52	8.317	0.167	1.17	89	1.9	-	81
53	8.477	0.160	1.16	89	1.7	-	81
54	8.642	0.165	1.17	89	1.9	-	81
55	8.808	0.166	1.16	89	1.8	-	81
56	8.974	0.166	1.17	89	1.7	-	81
57	9.136	0.162	1.17	90	1.8	-	81
58	9.302	0.166	1.17	90	1.8	-	81
59	9.464	0.162	1.17	90	1.8	-	81
60	9.631	0.167	1.16	91	1.9	102	81
Avg/Tot	9.631	0.161	1.12	83.9	1.8	99	79.5

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Stove ΔT: 30

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
0	507	544	467	621	301	488.2	904.1	
1	506	539	479	619	307	490.0	779.5	
2	499	531	482	614	313	487.7	793.8	
3	495	523	482	612	320	486.4	919.8	
4	490	516	482	612	326	485.2	962.9	
5	485	510	481	616	333	484.9	1004.7	
6	480	503	481	623	339	485.0	1031.3	
7	476	497	480	630	344	485.6	1035.9	
8	473	492	482	637	350	486.8	1034.2	
9	471	487	483	646	355	488.0	1043.4	
10	466	482	482	655	360	489.0	1053.2	
11	465	478	482	668	364	491.4	1066.5	
12	463	474	482	683	369	494.3	1075.4	
13	462	471	482	696	373	496.8	1087.7	
14	461	468	483	711	376	499.7	1086.2	
15	460	466	484	724	380	502.6	1090.2	
16	458	464	460	722	378	496.5	1079.6	
17	458	463	438	724	377	491.9	1092.9	
18	458	461	421	726	375	488.2	1091.8	
19	458	459	408	730	372	485.6	1082.7	
20	457	458	398	733	369	483.0	1080.5	
21	457	457	390	737	366	481.4	1068.8	
22	455	457	383	740	363	479.6	1064.1	
23	456	457	377	741	360	478.3	1067.7	
24	456	456	373	742	357	476.7	1067.7	
25	454	456	369	742	354	474.8	1068.6	
26	455	455	365	741	351	473.4	1068.7	
27	456	454	362	740	348	472.1	1066.0	
28	459	454	360	740	346	471.6	1065.3	
29	458	454	358	741	344	470.7	1063.1	
30	459	453	355	742	341	470.1	1060.5	
31	456	453	354	744	339	469.1	1061.4	
32	459	453	353	747	337	469.9	1063.6	
33	458	453	351	751	335	469.7	1065.3	
34	460	453	351	753	333	470.1	1065.9	
35	461	454	352	755	331	470.6	1063.8	
36	461	454	353	758	329	470.9	1064.3	
37	462	453	354	761	328	471.6	1068.1	
38	462	454	356	764	326	472.4	1071.6	
39	463	454	358	768	325	473.4	1076.1	
40	462	454	360	772	323	474.3	1080.1	
41	465	455	362	777	322	476.0	1081.5	
42	467	456	365	780	320	477.6	1083.0	
43	468	456	367	783	319	478.8	1082.2	
44	470	458	370	786	318	480.2	1084.1	
45	471	459	372	788	317	481.2	1084.4	
46	473	461	374	791	316	482.8	1084.7	
47	474	461	376	793	314	483.5	1084.3	



# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

Stove ΔT: 30

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
48	474	463	379	795	313	484.8	1083.7	
49	476	464	382	797	312	486.1	1085.0	
50	477	466	384	799	311	487.2	1085.0	
51	480	467	387	801	310	489.0	1085.7	
52	479	469	390	802	309	489.7	1088.4	
53	481	471	394	802	308	491.1	1089.5	
54	482	473	398	804	307	492.5	1089.0	
55	482	475	401	805	306	493.8	1086.8	
56	481	476	404	803	305	493.9	1080.9	
57	482	478	407	801	305	494.4	1075.9	
58	482	479	409	800	304	494.8	1077.0	
59	482	481	411	798	303	494.9	1080.0	
60	483	482	413	797	303	495.5	1083.2	
61	482	484	415	795	302	495.6	1083.6	
62	482	486	417	795	301	496.0	1085.0	
63	483	490	418	793	301	496.9	1083.9	
64	481	493	420	792	300	497.3	1087.7	
65	484	496	421	791	300	498.2	1078.2	
66	486	499	422	789	299	498.9	1070.0	
67	488	501	423	787	299	499.5	1064.8	
68	487	504	424	783	299	499.2	1058.0	
69	488	506	425	778	299	499.1	1052.8	
70	489	510	426	774	299	499.5	1050.9	
71	487	515	428	772	299	499.9	1054.2	
72	490	520	430	769	299	501.4	1067.4	
73	493	526	432	767	299	503.2	1071.9	
74	492	533	434	765	299	504.3	1070.1	
75	492	537	436	763	299	505.3	1065.8	
76	499	542	438	762	299	508.0	1064.1	
77	498	547	440	761	300	509.0	1063.2	
78	500	552	443	760	300	510.8	1061.1	
79	504	555	445	759	300	512.6	1058.7	
80	505	558	447	759	301	514.0	1052.0	
81	508	560	449	757	302	515.2	1042.2	
82	509	563	452	755	302	516.1	1034.4	
83	512	565	454	753	303	517.3	1036.9	
84	516	567	456	751	303	518.6	1035.4	
85	517	568	458	748	304	519.1	1029.1	
86	519	570	461	746	305	520.0	1021.7	
87	523	571	463	743	306	520.9	1016.9	
88	523	572	466	740	307	521.5	1012.4	
89	527	574	469	738	307	523.0	1010.9	
90	528	575	473	737	308	524.1	1013.4	
91	531	576	475	735	309	525.2	1014.2	
92	534	578	477	733	310	526.3	1014.6	
93	535	580	479	731	311	526.9	1010.3	
94	535	581	480	727	312	527.1	1000.6	
95	537	583	481	725	313	527.6	991.3	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

**Stove ΔT:** 30

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	538	585	482	721	314	527.9	984.3
97	541	587	482	719	315	528.6	980.3
98	541	588	483	715	316	528.5	974.2
99	542	590	484	709	317	528.5	965.1
100	540	592	485	701	318	527.2	950.1
101	544	593	484	693	320	526.5	932.5
102	542	594	484	683	321	524.6	917.7
103	544	594	483	674	322	523.4	908.7
104	544	595	482	665	324	521.9	902.1
105	544	596	481	657	325	520.4	897.2
106	545	596	480	649	326	519.1	892.8
107	544	596	478	641	328	517.4	887.2
108	541	596	476	635	329	515.5	883.4
109	540	596	474	628	330	513.7	881.2
110	538	596	473	622	332	512.2	879.5
111	541	596	471	617	334	511.7	877.8
112	539	596	469	612	335	510.2	875.8
113	540	595	468	607	337	509.2	873.8
114	539	594	467	602	339	508.2	871.6
115	538	593	464	598	340	506.6	869.3
116	536	592	458	593	342	504.2	867.4
117	536	591	453	589	343	502.6	865.5
118	535	590	452	586	345	501.6	863.4
119	534	589	449	583	347	500.1	861.6
120	532	587	446	580	348	498.5	861.7
121	531	587	442	577	350	497.4	862.3
122	532	586	439	575	351	496.4	861.7
123	529	584	437	572	352	494.8	860.3
124	527	584	434	570	353	493.7	859.4
125	528	582	432	567	355	492.9	857.8
126	527	581	430	565	355	491.8	856.4
127	526	580	428	563	357	490.8	855.3
128	526	579	426	562	357	489.9	854.1
129	525	578	424	560	359	489.2	853.4
130	523	578	422	558	359	487.9	852.6
131	520	576	420	556	360	486.4	852.6
132	522	575	418	555	361	486.0	852.9
133	521	574	416	553	362	485.0	852.5
134	519	572	414	551	362	483.7	851.3
135	517	570	412	550	363	482.4	850.1
136	516	569	410	548	364	481.4	848.4
137	512	567	408	547	364	479.5	846.4
138	513	565	406	545	365	478.9	845.0
139	511	564	404	544	365	477.8	844.8
140	511	563	403	543	366	476.9	845.7
141	511	561	401	542	367	476.2	846.2
142	507	559	399	541	367	474.6	846.3
143	506	558	397	540	368	473.7	845.7

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

**Stove ΔT:** 30

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	505	556	396	539	368	472.7	844.3
145	502	555	394	538	368	471.4	843.1
146	501	554	393	537	368	470.7	841.9
147	500	553	391	536	369	469.8	840.8
148	499	551	389	535	369	468.6	839.7
149	496	549	387	534	369	466.9	836.5
150	496	547	385	532	370	465.8	832.7
151	496	546	382	530	370	464.8	829.8
152	495	545	381	529	370	463.9	828.7
153	491	544	379	527	371	462.4	827.7
154	491	542	378	526	371	461.5	827.6
155	492	542	376	524	371	461.0	828.1
156	490	541	375	523	372	460.1	828.0
157	486	539	374	522	372	458.5	828.1
<b>Average</b>	498.1	527.4	425.2	682.3	333.8	493.3	980.0

## LAB SAMPLE DATA - ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 4

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/21/2023

		Sample ID	Tare, mg	Final, mg	Catch, mg
<b>Filters</b>	<b>A</b>	G00582	242.7	243.6	0.9
	<b>B</b>	G00583	242.5	243.0	0.5
	<b>C - 1st Hour</b>	G00584	242.9	243.3	0.4
	<b>Amb</b>	G00585	242.7	242.7	0.0
<b>Probes</b>	<b>A</b>	1A	115626.9	115626.9	0.0
	<b>B</b>	1B	115902.2	115902.2	0.0
	<b>C - 1st Hour</b>	1C	116432.8	116432.9	0.1
<b>O-rings</b>	<b>A</b>	1A	3567.5	3568.0	0.5
	<b>B</b>	1B	3555.8	3556.6	0.8
	<b>C - 1st Hour</b>	1C	4167.2	4167.9	0.7

**Placed in Dessicator on:**

<b>Filters</b>	<b>A</b>	243.6	243.6		
	<b>B</b>	242.9	243.0		
	<b>C - 1st Hour</b>	243.1	243.3		
	<b>Amb</b>	242.7	242.7		
<b>Probes</b>	<b>A</b>	115626.9	115626.9		
	<b>B</b>	115902.3	115902.2		
	<b>C - 1st Hour</b>	116432.9	116432.9		
<b>O-Rings</b>	<b>A</b>	3568.1	3568.0		
	<b>B</b>	3556.7	3556.6		
	<b>C - 1st Hour</b>	4168.0	4167.9		

<b>Train A Aggregate, mg:</b>	<b>1.4</b>
<b>Train B Aggregate, mg:</b>	<b>1.3</b>
<b>Train C Aggregate, mg:</b>	<b>1.2</b>
<b>Ambient, mg:</b>	<b>0.0</b>

# ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 23-153 Tracking #: 150  
 Model: CI2700-1 Run Number: 4 Test Date: 6/22/23

## Wood Heater Run Notes

### Test Control Settings

Primary Air Setting(s): Fully Open  
 Targeted Burn Category: IV

### Preburn Notes

Time	Notes
88:00	End PB

### Test Notes

Test Burn Start Time: 12:44 Test Fuel Loaded by: 40 seconds  
 Door Closed: 50 seconds Air Control Set at: 0 seconds  
 Other Loading Notes: Fan on high @ 15 min

Time	Notes
	<i>-None-</i>

Test Burn End Time: 15:21

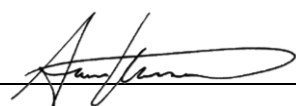
### Flue Gas Concentration Measurement

**Calibration Gas Values:** Span Gas CO<sub>2</sub> (%): 17.01 CO (%): 4.306  
 Mid Gas CO<sub>2</sub> (%): 10.09 CO (%): 2.53

### Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	11:14	11:16	11:17	6/23 12:03	6/23 12:04	6/23 12:05
CO <sub>2</sub>	0.00	17.01	10.00	-0.04	17.07	9.97
CO	0.000	4.305	2.508	-0.011	4.323	2.470

**Flue Gas Probe Leak Check:** Initial: No Leakage Final: No Leakage

Technician Signature: 

Date: 6/26/23

# ASTM E2780 Wood Heater Run Sheets

Client: FPI  
Model: C12700-1

Job Number: 23-153  
Run Number: 4

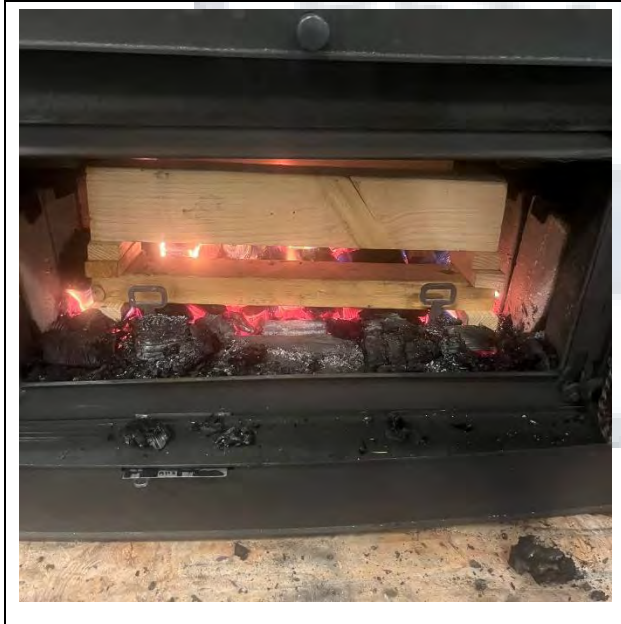
Tracking #: 150  
Test Date: 6/22/23



Test Fuel Side View



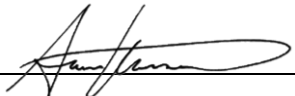
Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: 

Date: 6/26/23

**WOOD STOVE TEST DATA PACKET**  
**ASTM E2780/E2515**



**Run 5 Data Summary**

Client: FPI  
Model: C12700-1  
Job #: 23-153  
Tracking #: 150  
Test Date: 6/23/2023

  
\_\_\_\_\_  
Technician Signature

7/12/2023  
\_\_\_\_\_  
Date



## TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI

Model: CI2700-1

Run #: 5

Job #: 23-153

Tracking #: 150

Technician: AK

Date: 6/23/2023

<b>Burn Rate (kg/hr):</b>	<b>1.04</b>
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft <sup>3</sup> )	62.228	45.362	42.752	9.700
Average Gas Velocity in Dilution Tunnel (ft/sec)	7.3			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	19152.4			
Average Gas Meter Temperature (°F)	73.1	98.8	97.2	83.8
Total Sample Volume (dscf)	62.870	43.378	40.613	9.268
Average Tunnel Temperature (°F)	93.0			
Total Time of Test (min)	288			
Total Particulate Catch (mg)	0.1	1.9	1.7	1.2
Particulate Concentration, dry-standard (g/dscf)	0.0000016	0.0000438	0.0000419	0.0001295
Total PM Emissions (g)	0.15	3.88	3.70	2.45
Particulate Emission Rate (g/hr)	0.03	0.81	0.77	2.45
Emissions Factor (g/kg)	-	0.78	0.75	-
Difference from Average Total Particulate Emissions (g)	-	0.09	0.09	-
Difference from Average Total Particulate Emissions (%)	-	2.4%	2.4%	-
Difference from Average Emissions Factor (g/kg)	-	0.02	0.02	-

<b>Final Average Results</b>	
Total Particulate Emissions (g)	3.79
Particulate Emission Rate (g/hr)	0.79
Emissions Factor (g/kg)	0.76
HHV Efficiency (%)	76.6%
LHV Efficiency (%)	82.7%
CO Emissions (g/min)	0.58

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	83.3	OK
Face Velocity	< 30 ft/min	8.9	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:72.2/Max:75.5	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	49.6	OK



## B415.1 Efficiency Results

**Manufacturer:** FPI  
**Model:** CI2700-1  
**Date:** 06/23/23  
**Run:** 5  
**Control #:** 23-153  
**Test Duration:** 288  
**Output Category:** 2

### Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
<b>Overall Efficiency</b>	76.6%	82.7%
<b>Combustion Efficiency</b>	97.9%	97.9%
<b>Heat Transfer Efficiency</b>	78.2%	84.6%

<b>Output Rate (kJ/h)</b>	15,566	14,766	<b>(Btu/h)</b>
<b>Burn Rate (kg/h)</b>	1.03	2.26	<b>(lb/h)</b>
<b>Input (kJ/h)</b>	20,331	19,286	<b>(Btu/h)</b>

<b>Test Load Weight (dry kg)</b>	4.93	10.86	<b>dry lb</b>
<b>MC wet (%)</b>	17.87		
<b>MC dry (%)</b>	21.76		
<b>Particulate (g )</b>	3.79		
<b>CO (g)</b>	167		
<b>Test Duration (h)</b>	4.80		

Emissions	Particulate	CO
<b>g/MJ Output</b>	0.05	2.24
<b>g/kg Dry Fuel</b>	0.77	33.95
<b>g/h</b>	0.79	34.84
<b>g/min</b>	0.01	0.58
<b>lb/MM Btu Output</b>	0.12	5.20

<b>Air/Fuel Ratio (A/F)</b>	14.49
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VERSION:

2.4

4/15/2010

# WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	10.00	19.4		2x4	15.00	20.6
2x4	10.00	19.3		2x4	15.00	19.9
2x4	10.00	23.2				
2x4	10.00	23.8				
2x4	10.00	24.6				
2x4	15.00	19.2				
2x4	15.00	20.0				
2x4	15.00	22.6				
Total Fuel Weight (lbs):		11.95		Average Moisture (%DB):		21.3

Firebox Volume (ft<sup>3</sup>): 1.83  
 Total 2x4 Crib Weight, with spacers (lbs): 4.94  
 Total 4x4 Crib Weight, with spacers (lbs): 8.31  
 Total Wet Fuel Weight, with spacers (lbs): 13.25

**Coal Bed Range (20-25%):**  
 Min (lbs): 2.65  
 Max (lbs): 3.31

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	15.00	1.85	21.2	21.2	20.2	1.53
2x4	20.00	2.27	22.3	22.1	22.0	1.86
4x4	15.00	3.42	24.3	22.2	19.5	2.80
4x4	20.00	4.54	24.5	21.9	19.7	3.72
Total Dry Weight, no spacers (lbs):						9.91
Total Dry Weight, with spacers (lbs):						10.95

Spacer Moisture Readings (%DB)						
11.2	11.3					
13.3	13.2					
9.1	17.4					
10.0	12.6					
15.7	17.2					
8.8	10.2					

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft <sup>3</sup> , DB)	28.0	OK
Loading Density	6.3 - 7.7 (lbs/ft <sup>3</sup> , WB)	7.24	OK
2x4 Fuel Mix	35 - 65 % of total weight	37%	OK

## DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: **FPI**  
 Model: **CI2700-1**  
 Run #: **5**  
 Test Start Time: **12:28**

Job #: **23-153**  
 Tracking #: **150**  
 Technician: **AK**  
 Date: **6/23/2023**

Total Sampling Time (min): **288**  
 Recording Interval (min): **1**

Meter Box  $\gamma$  Factor: **1.010** (A)  
 Meter Box  $\gamma$  Factor: **1.001** (B)  
 Meter Box  $\gamma$  Factor: **0.985** (C)  
 Meter Box  $\gamma$  Factor: **1.024** (Ambient)

Induced Draft Check (in. H<sub>2</sub>O): **0**  
 Smoke Capture Check (%): **100%**  
 Date Flue Pipe Last Cleaned: **6/16/2023**

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.81	29.83	29.82
Relative Humidity (%)	34.1	42.1	
Room Air Velocity (ft/min)	0	0.0	
Scale Audit (lbs)	10.0	10.0	
Ambient Sample Volume:	62.228		ft <sup>3</sup>

	Pre-Test		Post-Test	
	cfm	@ in Hg	cfm	@ in Hg
Leak Checks Pitot	0		0	
A	0.000	-5	0.000	-5
B	0.000	-5	0.000	-5
C	0.001	-5	0.001	-5
Ambient	0.000	-12	0.000	-12

## DILUTION TUNNEL FLOW

### Traverse Data

Point	dP (in H <sub>2</sub> O)	Temp (°F)
1	0.006	91
2	0.012	91
3	0.014	91
4	0.014	90
5	0.012	90
6	0.008	90
7	0.008	90
8	0.010	90
9	0.014	89
10	0.014	89
11	0.012	89
12	0.008	88
Center	0.016	88

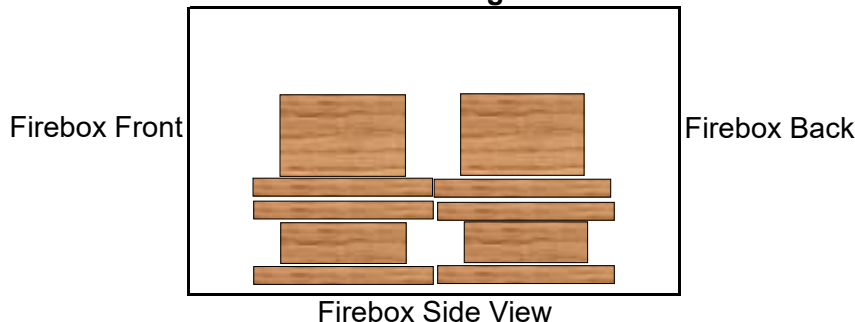
Dilution Tunnel H<sub>2</sub>O: **2.00** percent  
 Tunnel Diameter: **12** inches  
 Pitot Tube Cp: **0.99** [unitless]  
 Dilution Tunnel MW(dry): **29.00** lb/lb-mole  
 Dilution Tunnel MW(wet): **28.78** lb/lb-mole  
 Tunnel Area: **0.7854** ft<sup>2</sup>

$V_{strav}$ : **7.05** ft/sec  
 $V_{scent}$ : **8.56** ft/sec  
 $F_p$ : **0.823** [ratio]  
 Initial Tunnel Flow: **311.3** scf/min

Static Pressure: **-0.080** in. H<sub>2</sub>O

## TEST FUEL PROPERTIES

### Fuel Load Configuration



### Actual Fuel Used Properties

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	21.8

# WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Recording Interval (min): 1  
 Run Time (min): 60

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
0	5.71	-0.085	567	573	464	1024	352	596.0	502	73	
1	5.60	-0.084	572	573	467	1020	353	597.1	457	74	
2	5.49	-0.081	573	574	469	1016	354	597.2	433	74	
3	5.39	-0.082	573	574	472	1013	354	597.1	417	73	
4	5.30	-0.080	572	574	474	1010	355	596.9	408	74	
5	5.20	-0.080	571	574	476	1008	356	596.7	400	74	
6	5.13	-0.079	572	573	478	1006	356	597.0	393	74	
7	5.05	-0.079	571	572	479	1004	357	596.7	386	74	
8	5.00	-0.077	569	570	481	1002	357	595.8	379	74	
9	4.95	-0.075	567	569	483	996	358	594.4	374	74	
10	4.92	-0.075	567	567	484	987	358	592.6	368	74	
11	4.88	-0.074	562	565	486	974	358	589.1	365	74	
12	4.84	-0.075	560	563	488	960	359	585.9	361	74	
13	4.79	-0.072	558	561	490	944	359	582.3	356	74	
14	4.75	-0.072	556	559	492	928	359	578.7	354	73	
15	4.72	-0.072	552	557	495	914	360	575.5	351	74	
16	4.69	-0.072	550	554	498	902	360	572.7	349	74	
17	4.64	-0.071	549	552	501	890	360	570.4	347	74	
18	4.61	-0.070	545	549	503	879	361	567.4	344	73	
19	4.58	-0.071	543	548	506	869	361	565.4	341	73	
20	4.55	-0.069	540	545	509	858	361	562.5	339	73	
21	4.53	-0.069	539	543	512	846	362	560.1	337	73	
22	4.50	-0.068	536	540	515	833	362	557.2	335	73	
23	4.47	-0.069	532	538	519	822	363	554.6	332	73	
24	4.44	-0.067	531	535	523	810	363	552.4	330	73	
25	4.43	-0.067	529	532	527	800	364	550.5	328	73	
26	4.40	-0.069	527	530	532	790	364	548.5	325	73	
27	4.37	-0.066	527	527	536	781	365	547.2	324	73	
28	4.35	-0.065	523	525	541	772	365	545.2	323	73	
29	4.31	-0.063	522	523	546	764	366	544.0	321	73	
30	4.29	-0.066	521	520	550	756	367	542.4	318	73	
31	4.26	-0.064	521	518	553	748	367	541.4	317	73	
32	4.24	-0.066	518	516	556	741	368	539.7	315	73	
33	4.21	-0.063	517	513	559	735	368	538.5	313	73	
34	4.19	-0.063	516	511	562	729	369	537.2	312	73	
35	4.16	-0.063	516	509	564	724	370	536.4	310	73	
36	4.14	-0.062	513	507	566	718	370	534.8	309	73	
37	4.11	-0.063	513	506	569	714	372	534.7	308	74	
38	4.08	-0.063	513	504	571	709	372	533.6	308	74	
39	4.06	-0.062	512	501	572	704	372	532.2	306	74	
40	4.04	-0.064	511	499	574	699	373	531.1	305	74	
41	4.01	-0.063	508	497	575	695	373	529.7	303	74	
42	3.43	-0.078	508	492	577	689	374	528.2	413	74	
43	3.41	-0.064	506	492	575	682	375	525.8	362	74	
44	3.39	-0.063	503	491	573	676	375	523.6	334	74	

## WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Recording Interval (min): 1  
 Run Time (min): 60

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
45	3.37	-0.061	502	489	570	670	376	521.4	319	73	
46	3.35	-0.062	499	488	566	665	377	518.9	311	73	
47	3.33	-0.061	497	486	560	660	378	516.4	305	73	
48	3.32	-0.062	496	485	555	656	379	514.2	301	73	
49	3.30	-0.061	495	483	551	652	381	512.2	298	73	
50	3.29	-0.059	493	481	546	648	382	510.0	295	73	
51	3.28	-0.060	492	479	542	643	384	508.0	293	73	
52	3.26	-0.058	491	477	538	639	385	506.1	290	73	
53	3.25	-0.058	490	475	534	635	387	504.2	289	73	
54	3.23	-0.060	488	473	530	632	388	502.2	287	73	
55	3.21	-0.058	486	471	527	628	390	500.1	285	73	
56	3.20	-0.059	485	469	523	625	391	498.5	284	73	
57	3.18	-0.056	484	467	520	621	392	496.9	282	73	
58	3.17	-0.057	484	465	517	618	393	495.4	281	73	
59	3.16	-0.055	483	463	514	615	395	493.9	279	73	
60	3.14	-0.055	482	462	512	612	396	492.6	277	73	

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.002		0.016	0.18	80	0.3		13.22		97	329	77	73
1	0.136	0.134	0.016	2.01	80	0.9	-	13.20	-0.02	106	370	78	73
2	0.279	0.143	0.017	2.05	79	0.9	-	13.13	-0.07	99	353	78	73
3	0.423	0.144	0.017	2.07	79	0.9	-	13.07	-0.06	98	359	79	73
4	0.565	0.142	0.017	2.09	80	0.9	-	13.01	-0.06	97	365	79	73
5	0.715	0.150	0.017	2.13	80	0.9	-	12.95	-0.06	97	371	79	73
6	0.859	0.144	0.017	2.15	80	0.9	-	12.88	-0.07	95	352	79	73
7	1.008	0.149	0.017	2.16	80	0.9	-	12.84	-0.04	95	335	80	73
8	1.154	0.146	0.017	2.17	80	0.9	-	12.79	-0.05	94	327	80	73
9	1.303	0.149	0.017	2.18	80	0.9	-	12.72	-0.07	94	323	80	73
10	1.450	0.147	0.017	2.19	80	0.9	96	12.64	-0.08	94	324	80	73
11	1.599	0.149	0.017	2.19	80	0.9	-	12.57	-0.07	94	323	80	73
12	1.748	0.149	0.017	2.20	81	0.9	-	12.50	-0.07	94	326	80	73
13	1.897	0.149	0.016	2.21	81	0.9	-	12.43	-0.07	93	328	80	73
14	2.046	0.149	0.017	2.22	81	0.9	-	12.37	-0.06	93	327	81	73
15	2.196	0.150	0.017	2.23	81	0.9	-	12.30	-0.07	93	326	81	73
16	2.346	0.150	0.017	2.23	81	0.9	-	12.23	-0.07	94	326	81	73
17	2.496	0.150	0.017	2.24	82	0.9	-	12.17	-0.06	93	327	81	73
18	2.646	0.150	0.017	2.23	82	0.9	-	12.08	-0.09	94	329	81	73
19	2.796	0.150	0.016	2.25	82	0.9	-	11.99	-0.09	94	331	81	73
20	2.947	0.151	0.017	2.25	82	0.9	98	11.89	-0.10	94	335	81	73
21	3.102	0.155	0.017	2.26	83	0.9	-	11.79	-0.10	94	340	81	73
22	3.249	0.147	0.017	2.26	83	0.9	-	11.70	-0.09	93	339	81	73
23	3.401	0.152	0.017	2.27	83	0.9	-	11.60	-0.10	93	339	81	73
24	3.551	0.150	0.016	2.27	84	0.9	-	11.52	-0.08	94	339	82	73
25	3.704	0.153	0.017	2.28	84	0.9	-	11.43	-0.09	93	340	82	73
26	3.857	0.153	0.016	2.28	84	0.9	-	11.33	-0.10	93	340	82	72
27	4.008	0.151	0.017	2.28	85	0.9	-	11.25	-0.08	94	341	82	72
28	4.158	0.150	0.017	2.30	85	0.9	-	11.15	-0.10	94	340	82	72
29	4.312	0.154	0.017	2.29	85	0.9	-	11.08	-0.07	94	342	82	72
30	4.461	0.149	0.017	2.29	85	0.9	98	10.98	-0.10	93	343	82	72
31	4.616	0.155	0.017	2.30	86	0.9	-	10.88	-0.10	94	344	82	72

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.768	0.152	0.016	2.29	86	0.9	-	10.78	-0.10	94	346	82	72
33	4.921	0.153	0.017	2.30	86	0.9	-	10.68	-0.10	93	348	82	72
34	5.072	0.151	0.017	2.31	87	0.9	-	10.59	-0.09	94	351	82	72
35	5.228	0.156	0.017	2.32	87	0.9	-	10.48	-0.11	94	352	82	72
36	5.379	0.151	0.017	2.32	87	0.9	-	10.38	-0.10	94	353	82	72
37	5.535	0.156	0.017	2.32	88	0.9	-	10.28	-0.10	94	354	82	72
38	5.685	0.150	0.017	2.33	88	0.9	-	10.17	-0.11	94	356	82	72
39	5.842	0.157	0.017	2.32	88	0.9	-	10.07	-0.10	94	358	82	72
40	5.992	0.150	0.017	2.32	89	0.9	99	9.95	-0.12	95	359	82	72
41	6.146	0.154	0.017	2.32	89	0.9	-	9.85	-0.10	94	357	82	72
42	6.302	0.156	0.017	2.33	89	0.9	-	9.74	-0.11	94	354	82	72
43	6.454	0.152	0.017	2.34	89	0.9	-	9.65	-0.09	94	350	82	72
44	6.612	0.158	0.017	2.34	90	0.9	-	9.55	-0.10	94	351	82	72
45	6.761	0.149	0.017	2.33	90	0.9	-	9.44	-0.11	94	350	82	72
46	6.918	0.157	0.017	2.34	90	0.9	-	9.35	-0.09	94	350	82	72
47	7.070	0.152	0.017	2.34	90	0.9	-	9.25	-0.10	94	351	82	72
48	7.231	0.161	0.017	2.34	91	0.9	-	9.15	-0.10	94	350	82	72
49	7.381	0.150	0.017	2.35	91	0.9	-	9.06	-0.09	94	349	82	72
50	7.536	0.155	0.017	2.35	91	0.9	99	8.95	-0.11	94	349	82	72
51	7.690	0.154	0.017	2.34	92	0.9	-	8.86	-0.09	94	351	82	72
52	7.845	0.155	0.017	2.35	92	0.9	-	8.76	-0.10	94	351	82	72
53	8.002	0.157	0.017	2.35	92	0.9	-	8.66	-0.10	95	350	82	72
54	8.156	0.154	0.017	2.36	92	0.9	-	8.56	-0.10	95	351	82	72
55	8.312	0.156	0.017	2.36	93	0.9	-	8.46	-0.10	94	352	82	72
56	8.464	0.152	0.017	2.35	93	0.9	-	8.36	-0.10	94	352	82	72
57	8.624	0.160	0.017	2.35	93	0.9	-	8.25	-0.11	94	352	82	72
58	8.777	0.153	0.017	2.36	93	0.9	-	8.17	-0.08	95	351	82	72
59	8.934	0.157	0.017	2.37	93	0.9	-	8.07	-0.10	94	351	82	72
60	9.090	0.156	0.017	2.35	94	0.9	99	7.97	-0.10	94	349	82	73
61	9.247	0.157	0.016	2.36	94	0.9	-	7.86	-0.11	94	349	82	73
62	9.402	0.155	0.017	2.37	94	0.9	-	7.77	-0.09	94	348	83	73
63	9.556	0.154	0.017	2.37	94	0.9	-	7.68	-0.09	94	347	83	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: C12700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	9.714	0.158	0.017	2.37	95	0.9	-	7.58	-0.10	94	347	83	73
65	9.870	0.156	0.017	2.36	95	0.9	-	7.48	-0.10	94	346	82	73
66	10.027	0.157	0.017	2.37	95	0.9	-	7.40	-0.08	94	346	82	73
67	10.181	0.154	0.017	2.38	95	0.9	-	7.30	-0.10	94	345	83	73
68	10.340	0.159	0.017	2.38	95	0.9	-	7.21	-0.09	94	345	83	73
69	10.495	0.155	0.017	2.38	96	0.9	-	7.12	-0.09	94	347	83	72
70	10.651	0.156	0.017	2.38	96	0.9	100	7.02	-0.10	95	347	83	72
71	10.811	0.160	0.016	2.38	96	0.9	-	6.92	-0.10	94	348	83	72
72	10.962	0.151	0.017	2.37	96	0.9	-	6.83	-0.09	95	349	83	73
73	11.123	0.161	0.017	2.38	96	0.9	-	6.73	-0.10	95	350	83	73
74	11.278	0.155	0.017	2.39	97	0.9	-	6.63	-0.10	95	351	83	73
75	11.437	0.159	0.017	2.38	97	0.9	-	6.52	-0.11	95	353	83	73
76	11.591	0.154	0.017	2.38	97	0.9	-	6.43	-0.09	95	353	83	73
77	11.751	0.160	0.017	2.39	97	0.9	-	6.33	-0.10	95	353	83	73
78	11.910	0.159	0.017	2.39	97	1.0	-	6.24	-0.09	95	353	83	73
79	12.061	0.151	0.017	2.39	97	0.9	-	6.14	-0.10	95	353	83	73
80	12.225	0.164	0.017	2.39	97	0.9	100	6.05	-0.09	95	354	83	73
81	12.377	0.152	0.017	2.39	98	0.9	-	5.95	-0.10	95	355	83	73
82	12.535	0.158	0.017	2.39	98	0.9	-	5.86	-0.09	95	355	83	73
83	12.692	0.157	0.017	2.40	98	0.9	-	5.76	-0.10	96	355	83	73
84	12.849	0.157	0.017	2.39	98	0.9	-	5.67	-0.09	96	355	83	73
85	13.011	0.162	0.017	2.40	98	0.9	-	5.58	-0.09	96	354	83	73
86	13.162	0.151	0.017	2.39	98	0.9	-	5.48	-0.10	96	356	83	73
87	13.324	0.162	0.018	2.40	98	0.9	-	5.39	-0.09	95	355	83	73
88	13.481	0.157	0.017	2.40	98	0.9	-	5.31	-0.08	95	355	83	73
89	13.637	0.156	0.017	2.40	99	0.9	-	5.22	-0.09	95	355	83	73
90	13.800	0.163	0.017	2.39	99	0.9	100	5.11	-0.11	96	354	83	73
91	13.953	0.153	0.017	2.40	99	0.9	-	5.03	-0.08	95	355	83	73
92	14.115	0.162	0.017	2.39	99	0.9	-	4.93	-0.10	95	355	83	73
93	14.268	0.153	0.017	2.40	99	1.0	-	4.84	-0.09	96	354	83	73
94	14.429	0.161	0.017	2.41	99	0.9	-	4.75	-0.09	96	354	83	73
95	14.587	0.158	0.017	2.40	99	0.9	-	4.66	-0.09	96	354	83	73



## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	14.743	0.156	0.017	2.40	99	1.0	-	4.58	-0.08	96	355	83	73
97	14.903	0.160	0.017	2.41	100	0.9	-	4.49	-0.09	96	355	83	73
98	15.060	0.157	0.018	2.40	100	0.9	-	4.41	-0.08	96	355	83	73
99	15.219	0.159	0.017	2.40	100	0.9	-	4.32	-0.09	95	355	83	73
100	15.375	0.156	0.017	2.40	100	0.9	100	4.24	-0.08	96	354	83	73
101	15.534	0.159	0.017	2.40	100	0.9	-	4.15	-0.09	96	354	83	73
102	15.693	0.159	0.017	2.40	100	0.9	-	4.08	-0.07	96	352	83	73
103	15.850	0.157	0.017	2.40	100	0.9	-	4.00	-0.08	95	352	83	73
104	16.012	0.162	0.017	2.41	100	0.9	-	3.94	-0.06	95	350	83	73
105	16.168	0.156	0.017	2.40	100	0.9	-	3.87	-0.07	96	348	83	73
106	16.327	0.159	0.017	2.41	100	0.9	-	3.82	-0.05	95	345	83	73
107	16.482	0.155	0.017	2.41	100	0.9	-	3.75	-0.07	95	345	83	73
108	16.641	0.159	0.017	2.40	101	0.9	-	3.69	-0.06	96	344	83	73
109	16.802	0.161	0.017	2.41	101	0.9	-	3.62	-0.07	95	343	83	73
110	16.956	0.154	0.017	2.41	101	0.9	100	3.57	-0.05	95	342	83	73
111	17.118	0.162	0.017	2.41	101	1.0	-	3.50	-0.07	95	341	83	73
112	17.276	0.158	0.017	2.42	101	0.9	-	3.45	-0.05	95	341	83	73
113	17.435	0.159	0.018	2.41	101	0.9	-	3.39	-0.06	95	339	83	73
114	17.595	0.160	0.017	2.42	101	0.9	-	3.34	-0.05	95	337	83	73
115	17.751	0.156	0.018	2.41	101	0.9	-	3.29	-0.05	95	336	83	73
116	17.912	0.161	0.017	2.40	101	0.9	-	3.25	-0.04	95	334	83	73
117	18.068	0.156	0.017	2.41	101	0.9	-	3.20	-0.05	95	332	83	73
118	18.229	0.161	0.017	2.40	101	0.9	-	3.16	-0.04	95	330	83	73
119	18.386	0.157	0.017	2.39	101	0.9	-	3.12	-0.04	94	328	83	73
120	18.545	0.159	0.017	2.41	101	1.0	100	3.08	-0.04	94	326	83	73
121	18.705	0.160	0.017	2.42	101	0.9	-	3.04	-0.04	94	324	83	73
122	18.858	0.153	0.017	2.41	101	0.9	-	3.00	-0.04	95	323	83	73
123	19.020	0.162	0.017	2.41	102	0.9	-	2.96	-0.04	95	321	83	73
124	19.176	0.156	0.017	2.40	102	0.9	-	2.92	-0.04	95	321	83	73
125	19.339	0.163	0.017	2.42	102	0.9	-	2.88	-0.04	95	319	83	73
126	19.500	0.161	0.017	2.42	102	0.9	-	2.85	-0.03	95	319	83	73
127	19.655	0.155	0.017	2.41	102	0.9	-	2.81	-0.04	94	317	83	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	19.815	0.160	0.017	2.40	102	0.9	-	2.77	-0.04	94	316	83	73
129	19.974	0.159	0.017	2.41	102	1.0	-	2.73	-0.04	94	315	83	73
130	20.133	0.159	0.017	2.40	102	0.9	100	2.70	-0.03	94	314	83	73
131	20.294	0.161	0.017	2.41	102	0.9	-	2.67	-0.03	94	313	83	73
132	20.450	0.156	0.017	2.41	102	1.0	-	2.64	-0.03	95	311	83	73
133	20.611	0.161	0.017	2.38	102	1.0	-	2.62	-0.02	94	310	83	73
134	20.769	0.158	0.017	2.39	102	0.9	-	2.58	-0.04	94	309	83	73
135	20.927	0.158	0.017	2.40	102	0.9	-	2.55	-0.03	94	309	83	73
136	21.088	0.161	0.017	2.39	102	1.0	-	2.51	-0.04	94	307	83	73
137	21.244	0.156	0.017	2.40	103	0.9	-	2.48	-0.03	94	306	83	73
138	21.407	0.163	0.017	2.41	103	0.9	-	2.45	-0.03	94	305	83	73
139	21.564	0.157	0.017	2.42	103	0.9	-	2.42	-0.03	93	305	83	73
140	21.723	0.159	0.017	2.42	103	0.9	100	2.40	-0.02	93	303	83	73
141	21.879	0.156	0.017	2.42	103	0.9	-	2.38	-0.02	94	302	83	73
142	22.042	0.163	0.017	2.42	103	0.9	-	2.36	-0.02	94	301	83	73
143	22.202	0.160	0.017	2.42	103	0.9	-	2.33	-0.03	94	300	83	73
144	22.356	0.154	0.017	2.41	103	1.0	-	2.30	-0.03	94	299	83	73
145	22.519	0.163	0.017	2.40	103	0.9	-	2.28	-0.02	94	297	83	73
146	22.675	0.156	0.017	2.40	103	0.9	-	2.25	-0.03	94	298	83	73
147	22.838	0.163	0.017	2.41	103	0.9	-	2.23	-0.02	93	296	83	73
148	22.997	0.159	0.017	2.41	103	0.9	-	2.21	-0.02	94	295	83	73
149	23.153	0.156	0.017	2.42	103	0.9	-	2.20	-0.01	93	295	83	73
150	23.316	0.163	0.017	2.42	103	0.9	100	2.18	-0.02	93	293	83	73
151	23.472	0.156	0.017	2.42	103	0.9	-	2.15	-0.03	93	292	83	73
152	23.632	0.160	0.017	2.41	103	0.9	-	2.13	-0.02	93	291	83	73
153	23.793	0.161	0.016	2.42	103	0.9	-	2.11	-0.02	93	290	83	73
154	23.952	0.159	0.016	2.41	103	0.9	-	2.10	-0.01	93	288	83	73
155	24.112	0.160	0.017	2.41	103	1.0	-	2.08	-0.02	93	288	83	73
156	24.270	0.158	0.017	2.41	103	1.0	-	2.06	-0.02	93	287	83	73
157	24.429	0.159	0.017	2.42	103	0.9	-	2.04	-0.02	93	286	82	73
158	24.593	0.164	0.017	2.41	103	0.9	-	2.01	-0.03	93	285	83	74
159	24.749	0.156	0.016	2.41	103	0.9	-	2.00	-0.01	93	285	83	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	24.908	0.159	0.017	2.41	103	0.9	100	1.98	-0.02	93	283	83	74
161	25.066	0.158	0.017	2.40	103	0.9	-	1.96	-0.02	93	283	83	73
162	25.226	0.160	0.017	2.41	103	0.9	-	1.94	-0.02	93	282	83	74
163	25.389	0.163	0.016	2.40	103	0.9	-	1.92	-0.02	93	281	83	74
164	25.546	0.157	0.017	2.39	103	0.9	-	1.90	-0.02	93	282	83	74
165	25.705	0.159	0.017	2.39	104	0.9	-	1.88	-0.02	93	281	83	74
166	25.863	0.158	0.017	2.38	104	0.9	-	1.86	-0.02	92	280	83	73
167	26.027	0.164	0.017	2.38	104	0.9	-	1.84	-0.02	92	280	83	73
168	26.187	0.160	0.017	2.38	104	0.9	-	1.82	-0.02	92	279	83	73
169	26.343	0.156	0.017	2.39	104	0.9	-	1.81	-0.01	92	278	83	73
170	26.506	0.163	0.017	2.39	104	0.9	100	1.78	-0.03	92	278	83	73
171	26.661	0.155	0.017	2.39	104	0.9	-	1.77	-0.01	92	278	83	73
172	26.822	0.161	0.017	2.41	104	0.9	-	1.75	-0.02	92	277	83	73
173	26.984	0.162	0.017	2.40	104	0.9	-	1.74	-0.01	92	277	83	73
174	27.140	0.156	0.017	2.40	104	0.9	-	1.72	-0.02	92	277	83	73
175	27.301	0.161	0.017	2.41	104	0.9	-	1.70	-0.02	92	277	83	73
176	27.458	0.157	0.017	2.40	104	0.9	-	1.69	-0.01	92	277	83	73
177	27.621	0.163	0.016	2.41	104	0.9	-	1.67	-0.02	92	277	83	73
178	27.778	0.157	0.016	2.41	104	0.9	-	1.66	-0.01	92	275	83	73
179	27.938	0.160	0.017	2.41	104	0.9	-	1.64	-0.02	92	276	83	73
180	28.099	0.161	0.017	2.42	104	0.9	100	1.62	-0.02	92	275	83	73
181	28.256	0.157	0.016	2.42	104	0.9	-	1.61	-0.01	92	274	83	73
182	28.421	0.165	0.016	2.43	104	0.9	-	1.59	-0.02	92	274	83	73
183	28.576	0.155	0.017	2.42	104	0.9	-	1.58	-0.01	92	273	83	73
184	28.739	0.163	0.017	2.41	104	0.9	-	1.55	-0.03	91	274	83	73
185	28.897	0.158	0.017	2.43	104	0.9	-	1.55	0.00	92	273	83	73
186	29.054	0.157	0.017	2.44	104	0.9	-	1.53	-0.02	92	272	83	73
187	29.220	0.166	0.017	2.44	104	0.9	-	1.52	-0.01	91	272	82	73
188	29.374	0.154	0.017	2.43	104	0.9	-	1.49	-0.03	91	271	82	73
189	29.535	0.161	0.017	2.43	104	1.0	-	1.48	-0.01	91	271	82	73
190	29.696	0.161	0.017	2.43	104	0.9	100	1.47	-0.01	92	270	82	73
191	29.855	0.159	0.016	2.42	104	0.9	-	1.45	-0.02	92	270	82	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
192	30.015	0.160	0.016	2.42	104	1.0	-	1.43	-0.02	92	270	83	73
193	30.172	0.157	0.016	2.42	104	0.9	-	1.41	-0.02	91	269	82	73
194	30.333	0.161	0.017	2.41	104	0.9	-	1.40	-0.01	92	268	83	73
195	30.496	0.163	0.016	2.41	104	0.9	-	1.38	-0.02	92	269	83	73
196	30.650	0.154	0.016	2.41	104	0.9	-	1.37	-0.01	92	268	82	73
197	30.814	0.164	0.017	2.42	104	0.9	-	1.35	-0.02	92	268	82	73
198	30.970	0.156	0.016	2.43	104	0.9	-	1.33	-0.02	92	268	83	73
199	31.134	0.164	0.017	2.43	104	0.9	-	1.32	-0.01	92	267	83	73
200	31.295	0.161	0.017	2.42	104	0.9	100	1.30	-0.02	92	267	83	73
201	31.449	0.154	0.017	2.42	104	1.0	-	1.28	-0.02	91	267	83	73
202	31.612	0.163	0.017	2.42	104	0.9	-	1.27	-0.01	91	266	83	73
203	31.769	0.157	0.017	2.42	104	0.9	-	1.25	-0.02	91	267	83	73
204	31.930	0.161	0.017	2.42	104	0.9	-	1.23	-0.02	91	265	83	73
205	32.092	0.162	0.017	2.41	104	1.0	-	1.22	-0.01	91	265	83	73
206	32.247	0.155	0.017	2.40	104	0.9	-	1.21	-0.01	91	265	83	73
207	32.411	0.164	0.017	2.39	104	0.9	-	1.19	-0.02	91	265	83	73
208	32.571	0.160	0.016	2.41	104	0.9	-	1.17	-0.02	91	264	83	73
209	32.729	0.158	0.017	2.38	104	0.9	-	1.16	-0.01	91	264	82	73
210	32.891	0.162	0.016	2.40	104	0.9	101	1.14	-0.02	91	264	82	73
211	33.046	0.155	0.017	2.39	104	0.9	-	1.13	-0.01	91	263	83	73
212	33.210	0.164	0.017	2.39	104	0.9	-	1.11	-0.02	91	263	83	73
213	33.370	0.160	0.016	2.40	104	1.0	-	1.10	-0.01	91	262	83	73
214	33.527	0.157	0.016	2.39	104	0.9	-	1.08	-0.02	91	261	82	73
215	33.692	0.165	0.017	2.42	104	1.0	-	1.06	-0.02	91	262	82	73
216	33.845	0.153	0.016	2.41	104	1.0	-	1.05	-0.01	91	261	82	73
217	34.009	0.164	0.017	2.41	104	1.0	-	1.03	-0.02	91	261	82	73
218	34.168	0.159	0.017	2.41	104	1.0	-	1.02	-0.01	90	261	82	73
219	34.326	0.158	0.017	2.41	104	0.9	-	1.00	-0.02	90	260	82	73
220	34.487	0.161	0.017	2.43	104	0.9	101	0.99	-0.01	91	260	82	73
221	34.644	0.157	0.017	2.42	104	0.9	-	0.97	-0.02	91	259	82	73
222	34.810	0.166	0.017	2.42	104	0.9	-	0.96	-0.01	90	259	82	73
223	34.966	0.156	0.017	2.41	104	1.0	-	0.94	-0.02	90	259	82	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
224	35.124	0.158	0.017	2.41	104	0.9	-	0.93	-0.01	90	259	82	73
225	35.286	0.162	0.017	2.41	104	0.9	-	0.92	-0.01	91	258	82	73
226	35.445	0.159	0.017	2.42	104	0.9	-	0.90	-0.02	90	257	82	73
227	35.606	0.161	0.016	2.41	104	0.9	-	0.89	-0.01	90	257	82	73
228	35.763	0.157	0.016	2.41	104	0.9	-	0.87	-0.02	90	256	82	73
229	35.923	0.160	0.017	2.41	104	0.9	-	0.85	-0.02	90	256	82	73
230	36.086	0.163	0.017	2.40	104	0.9	100	0.84	-0.01	90	257	82	73
231	36.242	0.156	0.016	2.41	104	0.9	-	0.82	-0.02	90	256	82	73
232	36.408	0.166	0.016	2.41	104	0.9	-	0.80	-0.02	90	256	82	73
233	36.563	0.155	0.016	2.41	104	0.9	-	0.80	0.00	90	255	82	73
234	36.726	0.163	0.017	2.40	104	0.9	-	0.79	-0.01	90	255	82	73
235	36.885	0.159	0.017	2.40	104	0.9	-	0.77	-0.02	91	255	82	73
236	37.041	0.156	0.017	2.41	104	0.9	-	0.74	-0.03	91	254	82	73
237	37.207	0.166	0.017	2.41	104	0.9	-	0.73	-0.01	90	254	82	73
238	37.362	0.155	0.017	2.41	104	0.9	-	0.72	-0.01	90	254	82	73
239	37.522	0.160	0.017	2.41	104	0.9	-	0.70	-0.02	91	254	82	73
240	37.684	0.162	0.017	2.41	104	0.9	100	0.69	-0.01	90	254	82	73
241	37.843	0.159	0.016	2.40	104	0.9	-	0.68	-0.01	90	253	82	73
242	38.004	0.161	0.016	2.40	104	0.9	-	0.66	-0.02	91	252	82	73
243	38.161	0.157	0.016	2.41	104	0.9	-	0.65	-0.01	90	252	82	73
244	38.324	0.163	0.017	2.40	104	0.9	-	0.63	-0.02	90	251	82	73
245	38.487	0.163	0.016	2.41	104	0.9	-	0.62	-0.01	90	251	82	73
246	38.640	0.153	0.017	2.41	104	0.9	-	0.60	-0.02	91	250	82	73
247	38.803	0.163	0.017	2.40	104	1.0	-	0.59	-0.01	91	251	82	74
248	38.961	0.158	0.017	2.41	104	0.9	-	0.57	-0.02	91	251	82	74
249	39.121	0.160	0.016	2.39	104	0.9	-	0.56	-0.01	91	251	82	74
250	39.283	0.162	0.017	2.40	104	0.9	100	0.55	-0.01	90	251	82	74
251	39.440	0.157	0.017	2.40	104	1.0	-	0.54	-0.01	90	250	82	74
252	39.603	0.163	0.017	2.39	104	1.0	-	0.52	-0.02	91	250	82	74
253	39.762	0.159	0.017	2.40	104	0.9	-	0.51	-0.01	91	251	82	74
254	39.920	0.158	0.017	2.38	104	0.9	-	0.49	-0.02	91	250	82	74
255	40.083	0.163	0.017	2.39	104	0.9	-	0.47	-0.02	91	249	82	74

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
256	40.242	0.159	0.017	2.39	104	0.9	-	0.47	0.00	91	249	83	74
257	40.403	0.161	0.017	2.38	104	0.9	-	0.45	-0.02	91	249	83	74
258	40.560	0.157	0.017	2.40	104	1.0	-	0.44	-0.01	91	249	83	74
259	40.720	0.160	0.017	2.40	104	0.9	-	0.42	-0.02	91	249	83	74
260	40.886	0.166	0.017	2.41	104	1.0	100	0.41	-0.01	91	250	83	74
261	41.039	0.153	0.016	2.41	104	0.9	-	0.39	-0.02	91	249	83	75
262	41.203	0.164	0.017	2.43	104	0.9	-	0.38	-0.01	91	249	83	75
263	41.362	0.159	0.017	2.42	104	0.9	-	0.36	-0.02	91	248	83	75
264	41.524	0.162	0.017	2.41	104	0.9	-	0.35	-0.01	91	247	83	75
265	41.686	0.162	0.016	2.44	104	0.9	-	0.34	-0.01	91	247	83	75
266	41.841	0.155	0.017	2.43	105	0.9	-	0.32	-0.02	91	246	83	75
267	42.005	0.164	0.017	2.44	104	1.0	-	0.31	-0.01	91	246	83	75
268	42.162	0.157	0.016	2.43	105	1.0	-	0.29	-0.02	91	246	83	75
269	42.321	0.159	0.017	2.42	105	1.0	-	0.28	-0.01	91	246	83	75
270	42.483	0.162	0.017	2.43	105	1.0	100	0.26	-0.02	91	245	83	75
271	42.639	0.156	0.017	2.43	105	0.9	-	0.25	-0.01	91	246	83	75
272	42.803	0.164	0.017	2.43	105	1.0	-	0.24	-0.01	91	246	83	75
273	42.960	0.157	0.017	2.43	105	0.9	-	0.22	-0.02	91	246	83	75
274	43.121	0.161	0.017	2.43	105	1.0	-	0.21	-0.01	91	247	83	75
275	43.284	0.163	0.017	2.43	105	1.0	-	0.20	-0.01	91	246	83	75
276	43.439	0.155	0.016	2.43	105	0.9	-	0.18	-0.02	91	246	83	75
277	43.604	0.165	0.016	2.43	105	1.0	-	0.17	-0.01	91	246	83	75
278	43.760	0.156	0.017	2.44	105	1.0	-	0.16	-0.01	91	245	83	75
279	43.922	0.162	0.017	2.43	105	0.9	-	0.14	-0.02	91	245	83	75
280	44.084	0.162	0.017	2.44	105	0.9	100	0.12	-0.02	91	245	83	75
281	44.240	0.156	0.017	2.43	105	0.9	-	0.11	-0.01	91	244	83	75
282	44.404	0.164	0.017	2.44	105	1.0	-	0.10	-0.01	91	244	83	76
283	44.561	0.157	0.017	2.45	105	0.9	-	0.08	-0.02	91	243	83	76
284	44.722	0.161	0.017	2.44	105	0.9	-	0.06	-0.02	91	243	83	76
285	44.884	0.162	0.017	2.44	105	0.9	-	0.06	0.00	91	244	83	76
286	45.040	0.156	0.017	2.43	105	0.9	-	0.04	-0.02	91	243	83	76
287	45.207	0.167	0.017	2.43	105	0.9	-	0.02	-0.02	91	242	83	76

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: <u>FPI</u>	Job #: <u>23-153</u>
Model: <u>CI2700-1</u>	Tracking #: <u>150</u>
Run #: <u>5</u>	Technician: <u>AK</u>
	Date: <u>6/23/2023</u>

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
288	45.364	0.157	0.017	2.42	105	0.9	100	0.00	-0.02	91	243	83	76
Avg/Tot	45.362	0.158	0.017	2.37	98.8	0.9	100			93.0	302.0	82.3	73.1

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
0	0.000		0.22	79	1.2		77	-0.069	5.90	0.024
1	0.137	0.137	2.10	79	1.6	-	78	-0.068	3.07	0.037
2	0.285	0.148	2.10	79	1.6	-	79	-0.072	2.85	0.060
3	0.423	0.138	2.11	79	2.0	-	79	-0.074	3.79	0.021
4	0.569	0.146	2.10	79	1.5	-	79	-0.075	3.40	0.026
5	0.711	0.142	2.10	79	1.5	-	80	-0.074	3.39	0.026
6	0.857	0.146	2.11	79	1.5	-	80	-0.070	4.39	0.024
7	1.000	0.143	2.10	79	1.6	-	80	-0.068	4.23	0.021
8	1.142	0.142	2.11	79	1.7	-	80	-0.068	4.27	0.024
9	1.287	0.145	2.10	79	1.6	-	80	-0.067	5.41	0.026
10	1.430	0.143	2.10	79	1.6	101	80	-0.069	5.81	0.030
11	1.577	0.147	2.11	79	1.9	-	80	-0.070	5.88	0.032
12	1.718	0.141	2.11	80	1.5	-	80	-0.068	6.32	0.031
13	1.864	0.146	2.11	80	1.5	-	80	-0.069	6.45	0.030
14	2.005	0.141	2.11	80	1.6	-	80	-0.069	5.92	0.020
15	2.151	0.146	2.11	80	1.7	-	80	-0.069	5.71	0.024
16	2.295	0.144	2.11	81	1.5	-	80	-0.071	5.54	0.029
17	2.440	0.145	2.11	81	1.5	-	80	-0.069	5.68	0.027
18	2.584	0.144	2.11	81	1.5	-	80	-0.068	6.29	0.033
19	2.727	0.143	2.11	81	1.9	-	80	-0.072	8.52	0.041
20	2.873	0.146	2.11	82	1.5	100	81	-0.070	9.42	0.040
21	3.019	0.146	2.12	82	1.6	-	81	-0.071	9.26	0.067
22	3.164	0.145	2.12	82	2.0	-	80	-0.071	8.49	0.075
23	3.306	0.142	2.12	82	1.6	-	81	-0.070	8.41	0.057
24	3.453	0.147	2.11	83	1.6	-	81	-0.071	8.70	0.044
25	3.595	0.142	2.12	83	1.7	-	81	-0.071	8.38	0.054
26	3.745	0.150	2.11	83	2.0	-	81	-0.072	7.96	0.055
27	3.886	0.141	2.12	84	2.0	-	81	-0.072	8.03	0.058
28	4.033	0.147	2.12	84	1.9	-	81	-0.071	8.04	0.059
29	4.178	0.145	2.13	84	1.7	-	81	-0.072	8.18	0.056
30	4.323	0.145	2.13	85	1.6	100	80	-0.070	8.32	0.060
31	4.468	0.145	2.12	85	1.6	-	80	-0.072	8.62	0.062



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
32	4.616	0.148	2.13	85	1.9	-	80	-0.072	8.95	0.070
33	4.759	0.143	2.12	86	1.8	-	80	-0.073	9.23	0.074
34	4.904	0.145	2.12	86	1.9	-	81	-0.074	9.39	0.100
35	5.051	0.147	2.13	86	1.7	-	81	-0.071	9.55	0.153
36	5.196	0.145	2.13	86	1.8	-	81	-0.072	9.68	0.214
37	5.345	0.149	2.13	87	1.5	-	81	-0.074	9.79	0.239
38	5.488	0.143	2.13	87	2.0	-	81	-0.072	9.88	0.224
39	5.639	0.151	2.13	87	1.7	-	81	-0.074	9.97	0.282
40	5.780	0.141	2.13	88	1.8	100	81	-0.074	9.98	0.417
41	5.928	0.148	2.14	88	1.7	-	81	-0.076	10.07	0.477
42	6.072	0.144	2.12	88	1.7	-	81	-0.073	10.37	0.541
43	6.220	0.148	2.13	89	2.0	-	81	-0.073	10.26	0.325
44	6.367	0.147	2.13	89	1.5	-	81	-0.071	10.12	0.201
45	6.513	0.146	2.13	89	1.5	-	81	-0.074	10.46	0.141
46	6.659	0.146	2.14	89	2.0	-	81	-0.076	10.62	0.187
47	6.807	0.148	2.13	90	2.0	-	81	-0.073	10.62	0.342
48	6.955	0.148	2.14	90	2.0	-	81	-0.073	10.75	0.302
49	7.100	0.145	2.13	90	1.8	-	81	-0.070	10.53	0.257
50	7.246	0.146	2.14	90	1.5	100	81	-0.072	10.70	0.198
51	7.394	0.148	2.14	91	1.5	-	81	-0.074	10.67	0.214
52	7.540	0.146	2.14	91	2.0	-	81	-0.071	10.69	0.263
53	7.687	0.147	2.14	91	1.9	-	81	-0.073	10.70	0.269
54	7.834	0.147	2.14	91	2.0	-	81	-0.070	10.81	0.284
55	7.980	0.146	2.13	92	1.8	-	81	-0.074	10.86	0.340
56	8.129	0.149	2.14	92	1.9	-	81	-0.075	10.91	0.424
57	8.275	0.146	2.15	92	2.0	-	81	-0.072	11.03	0.531
58	8.424	0.149	2.15	92	1.5	-	81	-0.068	10.77	0.599
59	8.570	0.146	2.15	92	1.7	-	81	-0.071	10.95	0.429
60	8.722	0.152	2.14	93	1.9	100	81	-0.073	11.02	0.545
61	8.867	0.145	2.15	93	1.9	-	81	-0.072	11.17	0.689
62	9.015	0.148	2.16	93	1.5	-	81	-0.072	11.14	0.627
63	9.160	0.145	2.15	93	1.5	-	81	-0.071	11.30	0.390

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
64	9.310	0.150	2.16	94	2.0	-	81	-0.071	11.40	0.407
65	9.458	0.148	2.16	94	1.8	-	81	-0.075	11.26	0.456
66	9.605	0.147	2.15	94	1.8	-	81	-0.071	11.14	0.495
67	9.750	0.145	2.15	94	2.0	-	81	-0.069	11.02	0.502
68	9.903	0.153	2.15	94	1.5	-	81	-0.070	11.36	0.503
69	10.046	0.143	2.15	95	1.8	-	81	-0.070	11.23	0.552
70	10.196	0.150	2.15	95	1.8	100	81	-0.073	11.25	0.589
71	10.344	0.148	2.16	95	1.5	-	81	-0.074	11.32	0.691
72	10.492	0.148	2.16	95	1.6	-	81	-0.072	11.26	0.837
73	10.637	0.145	2.15	95	2.0	-	81	-0.071	11.42	0.869
74	10.788	0.151	2.15	95	1.5	-	81	-0.071	11.41	0.841
75	10.936	0.148	2.15	96	1.5	-	81	-0.070	11.40	0.932
76	11.083	0.147	2.15	96	1.5	-	81	-0.074	11.29	0.883
77	11.232	0.149	2.15	96	1.9	-	81	-0.072	11.34	0.865
78	11.382	0.150	2.16	96	1.5	-	81	-0.073	11.37	0.846
79	11.525	0.143	2.15	96	1.6	-	81	-0.075	11.29	0.826
80	11.678	0.153	2.16	96	1.5	100	81	-0.075	11.31	0.877
81	11.822	0.144	2.15	96	1.9	-	81	-0.072	11.40	0.874
82	11.972	0.150	2.15	97	1.9	-	81	-0.071	11.54	0.910
83	12.118	0.146	2.16	97	2.0	-	81	-0.072	11.56	0.916
84	12.269	0.151	2.15	97	1.6	-	81	-0.075	11.43	0.894
85	12.417	0.148	2.15	97	1.5	-	81	-0.075	11.50	0.911
86	12.566	0.149	2.16	97	1.5	-	81	-0.075	11.58	0.909
87	12.712	0.146	2.16	97	1.5	-	81	-0.073	11.43	0.950
88	12.865	0.153	2.15	97	1.9	-	81	-0.075	11.36	0.937
89	13.009	0.144	2.16	97	1.6	-	81	-0.074	11.48	0.948
90	13.162	0.153	2.16	98	1.9	100	81	-0.069	11.34	0.995
91	13.306	0.144	2.16	98	1.9	-	81	-0.074	11.39	1.057
92	13.459	0.153	2.16	98	1.6	-	81	-0.072	11.44	1.098
93	13.604	0.145	2.16	98	1.7	-	81	-0.073	11.43	1.162
94	13.754	0.150	2.16	98	2.0	-	81	-0.072	11.36	1.115
95	13.903	0.149	2.16	98	1.9	-	81	-0.071	11.35	1.118

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
96	14.051	0.148	2.16	98	1.9	-	81	-0.074	11.49	1.120
97	14.198	0.147	2.16	98	1.9	-	81	-0.072	11.41	1.099
98	14.351	0.153	2.16	98	1.6	-	81	-0.071	11.45	1.050
99	14.496	0.145	2.16	98	2.0	-	81	-0.072	11.32	1.041
100	14.646	0.150	2.16	99	2.0	100	81	-0.071	11.26	0.979
101	14.793	0.147	2.16	99	1.5	-	81	-0.072	11.20	0.888
102	14.944	0.151	2.16	99	1.7	-	81	-0.073	11.02	0.766
103	15.090	0.146	2.16	99	1.7	-	81	-0.070	10.91	0.651
104	15.243	0.153	2.16	99	1.5	-	81	-0.071	10.78	0.567
105	15.390	0.147	2.16	99	1.5	-	81	-0.071	10.49	0.454
106	15.539	0.149	2.16	99	1.7	-	81	-0.069	10.43	0.360
107	15.686	0.147	2.17	99	1.5	-	81	-0.072	10.42	0.330
108	15.836	0.150	2.16	99	2.0	-	81	-0.070	10.67	0.320
109	15.983	0.147	2.16	99	1.5	-	81	-0.071	10.64	0.295
110	16.134	0.151	2.16	99	1.7	100	81	-0.069	10.59	0.279
111	16.281	0.147	2.16	99	1.6	-	81	-0.070	10.51	0.279
112	16.434	0.153	2.16	99	1.8	-	81	-0.070	10.33	0.248
113	16.581	0.147	2.16	100	1.6	-	81	-0.070	10.04	0.165
114	16.732	0.151	2.16	100	2.0	-	81	-0.070	9.93	0.124
115	16.879	0.147	2.16	100	2.0	-	81	-0.064	9.84	0.101
116	17.030	0.151	2.16	100	1.5	-	81	-0.069	9.66	0.073
117	17.177	0.147	2.16	100	1.6	-	81	-0.068	9.49	0.040
118	17.328	0.151	2.17	100	1.5	-	81	-0.066	9.36	0.029
119	17.475	0.147	2.16	100	1.8	-	81	-0.067	9.27	0.027
120	17.626	0.151	2.17	100	1.5	100	81	-0.066	9.20	0.024
121	17.774	0.148	2.17	100	2.0	-	81	-0.066	9.22	0.019
122	17.922	0.148	2.17	100	1.5	-	81	-0.066	9.21	0.019
123	18.069	0.147	2.17	100	2.0	-	81	-0.064	9.22	0.018
124	18.220	0.151	2.17	100	2.0	-	81	-0.068	9.21	0.019
125	18.370	0.150	2.17	100	1.5	-	81	-0.064	9.18	0.018
126	18.522	0.152	2.17	100	1.9	-	81	-0.064	9.15	0.019
127	18.669	0.147	2.17	100	2.0	-	82	-0.065	9.20	0.022

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
128	18.818	0.149	2.17	100	1.6	-	82	-0.062	9.10	0.021
129	18.967	0.149	2.16	100	2.0	-	81	-0.064	8.97	0.016
130	19.119	0.152	2.17	100	1.9	100	81	-0.063	8.91	0.015
131	19.266	0.147	2.17	100	1.5	-	81	-0.062	8.60	0.014
132	19.418	0.152	2.17	101	1.9	-	81	-0.062	8.77	0.017
133	19.564	0.146	2.17	101	1.5	-	81	-0.063	8.67	0.013
134	19.716	0.152	2.16	101	1.6	-	81	-0.064	8.72	0.019
135	19.861	0.145	2.17	101	1.5	-	81	-0.063	8.74	0.014
136	20.015	0.154	2.16	101	1.6	-	81	-0.063	8.65	0.019
137	20.159	0.144	2.17	101	2.0	-	81	-0.060	8.53	0.023
138	20.313	0.154	2.17	101	1.6	-	81	-0.065	8.60	0.018
139	20.461	0.148	2.17	101	1.8	-	81	-0.059	8.51	0.020
140	20.609	0.148	2.17	101	1.9	99	81	-0.062	8.46	0.017
141	20.756	0.147	2.17	101	1.9	-	81	-0.063	8.50	0.017
142	20.910	0.154	2.17	101	1.6	-	81	-0.062	8.39	0.020
143	21.057	0.147	2.17	101	1.6	-	81	-0.057	8.38	0.019
144	21.207	0.150	2.17	101	1.6	-	81	-0.062	8.17	0.020
145	21.354	0.147	2.17	101	1.7	-	81	-0.061	7.96	0.016
146	21.505	0.151	2.17	101	1.6	-	81	-0.058	8.06	0.017
147	21.654	0.149	2.17	101	1.5	-	81	-0.059	8.01	0.014
148	21.804	0.150	2.17	101	1.6	-	81	-0.058	7.99	0.017
149	21.951	0.147	2.18	101	1.5	-	81	-0.059	7.91	0.023
150	22.102	0.151	2.17	101	1.5	100	81	-0.060	7.96	0.014
151	22.249	0.147	2.17	101	1.9	-	81	-0.059	8.04	0.012
152	22.400	0.151	2.17	101	2.0	-	81	-0.059	7.94	0.013
153	22.548	0.148	2.17	101	2.0	-	81	-0.058	7.97	0.014
154	22.701	0.153	2.17	101	1.7	-	81	-0.057	7.95	0.015
155	22.847	0.146	2.17	101	1.5	-	81	-0.059	7.89	0.014
156	22.998	0.151	2.17	101	1.7	-	81	-0.060	7.92	0.016
157	23.146	0.148	2.17	101	1.6	-	81	-0.057	7.83	0.016
158	23.298	0.152	2.16	101	2.0	-	81	-0.058	7.94	0.012
159	23.446	0.148	2.16	101	2.0	-	81	-0.058	7.87	0.015

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
160	23.595	0.149	2.17	102	1.6	99	81	-0.054	7.95	0.018
161	23.743	0.148	2.17	102	2.0	-	81	-0.058	7.89	0.014
162	23.893	0.150	2.16	102	1.7	-	81	-0.056	7.88	0.018
163	24.045	0.152	2.17	102	1.6	-	81	-0.058	7.57	0.018
164	24.195	0.150	2.17	102	2.0	-	81	-0.059	7.48	0.014
165	24.341	0.146	2.17	102	1.5	-	81	-0.059	7.39	0.017
166	24.492	0.151	2.17	102	1.6	-	81	-0.057	7.48	0.018
167	24.644	0.152	2.17	102	1.5	-	81	-0.058	7.43	0.020
168	24.793	0.149	2.17	102	1.9	-	81	-0.058	7.51	0.018
169	24.940	0.147	2.17	102	1.9	-	81	-0.057	7.48	0.017
170	25.092	0.152	2.17	102	1.7	100	81	-0.053	7.28	0.020
171	25.239	0.147	2.17	102	1.6	-	81	-0.058	7.09	0.024
172	25.389	0.150	2.17	102	1.5	-	81	-0.053	6.87	0.021
173	25.541	0.152	2.17	102	1.5	-	81	-0.057	6.82	0.021
174	25.688	0.147	2.17	102	1.9	-	81	-0.060	6.76	0.023
175	25.837	0.149	2.17	102	2.0	-	81	-0.059	6.74	0.019
176	25.987	0.150	2.17	102	1.8	-	81	-0.056	6.76	0.023
177	26.137	0.150	2.17	102	1.5	-	81	-0.056	6.75	0.018
178	26.286	0.149	2.18	102	1.5	-	81	-0.054	6.84	0.026
179	26.436	0.150	2.18	102	1.7	-	81	-0.056	6.90	0.019
180	26.585	0.149	2.17	102	1.6	99	81	-0.055	6.92	0.026
181	26.735	0.150	2.18	102	1.7	-	81	-0.054	6.96	0.025
182	26.885	0.150	2.17	102	2.0	-	81	-0.057	7.09	0.023
183	27.034	0.149	2.18	102	1.9	-	81	-0.053	7.06	0.020
184	27.185	0.151	2.18	102	1.9	-	81	-0.054	7.13	0.024
185	27.333	0.148	2.18	102	1.6	-	81	-0.054	7.11	0.027
186	27.481	0.148	2.18	102	2.0	-	81	-0.055	7.17	0.021
187	27.635	0.154	2.17	102	1.5	-	81	-0.057	7.25	0.025
188	27.780	0.145	2.17	102	1.6	-	81	-0.054	7.18	0.031
189	27.932	0.152	2.17	102	1.5	-	81	-0.054	7.24	0.024
190	28.079	0.147	2.17	102	2.0	99	81	-0.052	7.22	0.026
191	28.233	0.154	2.17	102	1.5	-	81	-0.055	7.28	0.029

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
192	28.378	0.145	2.17	102	2.0	-	81	-0.051	7.19	0.029
193	28.530	0.152	2.17	102	1.5	-	81	-0.053	7.26	0.026
194	28.677	0.147	2.18	102	2.0	-	81	-0.057	7.20	0.027
195	28.832	0.155	2.17	102	1.5	-	81	-0.052	7.26	0.025
196	28.977	0.145	2.17	102	1.5	-	81	-0.054	7.23	0.027
197	29.129	0.152	2.18	102	2.0	-	81	-0.055	7.25	0.032
198	29.276	0.147	2.17	102	1.8	-	81	-0.053	7.17	0.030
199	29.431	0.155	2.17	102	1.5	-	81	-0.050	7.20	0.031
200	29.578	0.147	2.17	102	1.6	100	81	-0.055	7.15	0.028
201	29.728	0.150	2.17	102	1.8	-	81	-0.056	7.15	0.030
202	29.875	0.147	2.17	102	1.9	-	81	-0.054	7.10	0.031
203	30.027	0.152	2.17	102	2.0	-	81	-0.057	7.24	0.028
204	30.174	0.147	2.17	102	1.8	-	81	-0.055	7.28	0.029
205	30.326	0.152	2.17	102	1.8	-	81	-0.054	7.14	0.030
206	30.474	0.148	2.18	102	1.6	-	81	-0.053	7.17	0.028
207	30.626	0.152	2.17	102	2.0	-	81	-0.052	7.15	0.031
208	30.775	0.149	2.17	102	1.8	-	81	-0.054	7.01	0.034
209	30.924	0.149	2.18	102	1.8	-	81	-0.054	7.08	0.031
210	31.072	0.148	2.18	102	1.5	101	81	-0.056	7.01	0.031
211	31.223	0.151	2.17	102	1.6	-	81	-0.056	6.96	0.030
212	31.371	0.148	2.17	102	1.8	-	81	-0.055	7.00	0.033
213	31.525	0.154	2.17	102	1.5	-	81	-0.054	7.06	0.030
214	31.670	0.145	2.18	102	1.6	-	81	-0.054	6.98	0.031
215	31.823	0.153	2.17	102	2.0	-	81	-0.053	7.08	0.029
216	31.970	0.147	2.17	102	2.0	-	81	-0.055	7.04	0.030
217	32.120	0.150	2.17	102	2.0	-	81	-0.054	7.04	0.026
218	32.271	0.151	2.17	102	2.0	-	80	-0.053	7.02	0.027
219	32.419	0.148	2.17	102	1.6	-	80	-0.055	7.02	0.033
220	32.568	0.149	2.17	102	1.8	101	80	-0.049	6.97	0.033
221	32.719	0.151	2.18	102	1.9	-	81	-0.052	7.10	0.030
222	32.871	0.152	2.17	102	1.6	-	81	-0.055	6.99	0.029
223	33.021	0.150	2.18	102	1.7	-	81	-0.054	7.08	0.032

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: 23-153Model: CI2700-1Tracking #: 150Run #: 5Technician: AKDate: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
224	33.168	0.147	2.17	102	2.0	-	81	-0.052	6.99	0.026
225	33.318	0.150	2.18	102	1.9	-	80	-0.055	6.91	0.029
226	33.470	0.152	2.17	102	1.5	-	80	-0.054	6.97	0.036
227	33.617	0.147	2.18	102	2.0	-	80	-0.055	6.98	0.030
228	33.767	0.150	2.17	102	1.7	-	80	-0.052	6.95	0.030
229	33.917	0.150	2.17	102	1.5	-	80	-0.050	6.88	0.029
230	34.067	0.150	2.17	102	1.6	99	80	-0.050	6.88	0.031
231	34.216	0.149	2.17	102	1.5	-	80	-0.050	6.81	0.028
232	34.369	0.153	2.18	102	1.6	-	80	-0.052	6.88	0.028
233	34.516	0.147	2.17	102	1.7	-	80	-0.052	6.79	0.032
234	34.668	0.152	2.17	102	1.5	-	80	-0.052	6.76	0.028
235	34.814	0.146	2.18	102	1.5	-	80	-0.051	6.80	0.028
236	34.965	0.151	2.17	102	1.6	-	80	-0.054	6.93	0.032
237	35.116	0.151	2.18	102	1.5	-	80	-0.053	6.93	0.027
238	35.264	0.148	2.17	102	1.6	-	80	-0.052	6.84	0.030
239	35.413	0.149	2.18	102	1.7	-	80	-0.053	6.82	0.027
240	35.564	0.151	2.17	102	1.6	99	80	-0.052	6.82	0.025
241	35.714	0.150	2.17	102	2.0	-	80	-0.050	6.80	0.027
242	35.863	0.149	2.18	102	1.5	-	80	-0.052	6.85	0.030
243	36.011	0.148	2.17	102	1.5	-	80	-0.051	6.80	0.028
244	36.165	0.154	2.17	102	2.0	-	80	-0.050	6.72	0.030
245	36.313	0.148	2.18	102	1.9	-	80	-0.050	6.74	0.029
246	36.462	0.149	2.17	102	1.7	-	80	-0.051	6.72	0.030
247	36.610	0.148	2.18	102	1.5	-	80	-0.051	6.74	0.034
248	36.762	0.152	2.17	102	1.8	-	81	-0.053	6.68	0.031
249	36.910	0.148	2.17	102	1.7	-	81	-0.053	6.67	0.037
250	37.062	0.152	2.18	102	1.9	99	81	-0.053	6.71	0.034
251	37.209	0.147	2.17	102	1.7	-	81	-0.051	6.68	0.029
252	37.361	0.152	2.17	102	1.9	-	81	-0.052	6.66	0.031
253	37.511	0.150	2.17	102	1.5	-	81	-0.047	6.78	0.029
254	37.661	0.150	2.17	102	1.6	-	81	-0.051	6.73	0.029
255	37.808	0.147	2.17	102	1.6	-	81	-0.048	6.65	0.028

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
256	37.963	0.155	2.18	102	1.9	-	81	-0.051	6.77	0.030
257	38.108	0.145	2.18	102	1.5	-	81	-0.052	6.69	0.028
258	38.260	0.152	2.17	102	1.7	-	81	-0.049	6.67	0.026
259	38.407	0.147	2.18	102	2.0	-	81	-0.049	6.57	0.031
260	38.560	0.153	2.17	102	1.5	99	81	-0.049	6.65	0.028
261	38.706	0.146	2.17	102	1.7	-	81	-0.051	6.56	0.030
262	38.857	0.151	2.17	102	1.5	-	81	-0.050	6.65	0.025
263	39.008	0.151	2.17	102	1.5	-	81	-0.048	6.68	0.029
264	39.159	0.151	2.18	102	1.5	-	81	-0.052	6.65	0.031
265	39.307	0.148	2.17	102	1.5	-	81	-0.050	6.65	0.032
266	39.458	0.151	2.17	102	1.5	-	81	-0.049	6.60	0.030
267	39.607	0.149	2.17	102	1.9	-	82	-0.049	6.55	0.027
268	39.758	0.151	2.17	102	1.5	-	82	-0.047	6.57	0.028
269	39.904	0.146	2.17	102	1.5	-	82	-0.049	6.48	0.027
270	40.055	0.151	2.17	102	2.0	99	82	-0.053	6.47	0.029
271	40.204	0.149	2.17	102	1.5	-	82	-0.050	6.51	0.032
272	40.355	0.151	2.17	102	2.0	-	82	-0.050	6.52	0.029
273	40.504	0.149	2.17	102	1.7	-	82	-0.048	6.51	0.026
274	40.654	0.150	2.17	103	1.8	-	82	-0.052	6.43	0.028
275	40.804	0.150	2.17	103	1.5	-	82	-0.048	6.54	0.027
276	40.954	0.150	2.17	103	1.5	-	82	-0.050	6.50	0.027
277	41.103	0.149	2.17	103	1.5	-	82	-0.050	6.48	0.033
278	41.253	0.150	2.16	103	1.6	-	82	-0.048	6.45	0.025
279	41.403	0.150	2.17	103	1.5	-	82	-0.049	6.55	0.025
280	41.553	0.150	2.17	103	1.9	99	82	-0.050	6.68	0.030
281	41.703	0.150	2.17	103	1.5	-	82	-0.047	6.61	0.029
282	41.852	0.149	2.17	103	1.6	-	82	-0.052	6.57	0.025
283	42.003	0.151	2.18	103	1.8	-	82	-0.049	6.50	0.025
284	42.151	0.148	2.17	103	1.9	-	82	-0.047	6.62	0.027
285	42.302	0.151	2.17	103	1.5	-	82	-0.048	6.58	0.030
286	42.450	0.148	2.17	103	1.8	-	82	-0.049	6.57	0.026
287	42.604	0.154	2.17	103	1.7	-	82	-0.049	6.54	0.025



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
288	42.752	0.148	2.17	103	1.4	99	82	-0.047	6.60	0.025
Avg/Tot	42.752	0.148	2.15	97.2	1.7	100	80.9	-0.062	8.26	0.186

## BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Particulate Sampling Data							
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.000		0.12	79	0.6		75
1	0.153	0.153	1.09	78	1.8	-	75
2	0.311	0.158	1.09	78	1.6	-	75
3	0.464	0.153	1.10	78	1.7	-	76
4	0.619	0.155	1.10	78	1.7	-	76
5	0.776	0.157	1.10	79	1.7	-	76
6	0.934	0.158	1.11	79	1.7	-	76
7	1.093	0.159	1.12	79	1.7	-	76
8	1.251	0.158	1.12	79	1.9	-	76
9	1.408	0.157	1.12	79	1.8	-	76
10	1.567	0.159	1.11	79	1.7	99	77
11	1.726	0.159	1.12	80	1.8	-	77
12	1.885	0.159	1.13	80	1.8	-	77
13	2.043	0.158	1.12	80	1.7	-	77
14	2.202	0.159	1.12	80	1.9	-	77
15	2.362	0.160	1.12	80	1.8	-	77
16	2.521	0.159	1.13	81	1.9	-	77
17	2.679	0.158	1.13	81	1.7	-	77
18	2.839	0.160	1.12	81	1.7	-	77
19	3.000	0.161	1.14	82	1.7	-	77
20	3.160	0.160	1.14	82	1.9	99	77
21	3.322	0.162	1.13	82	1.7	-	77
22	3.480	0.158	1.14	82	1.9	-	77
23	3.642	0.162	1.15	82	1.8	-	77
24	3.801	0.159	1.14	82	1.7	-	78
25	3.964	0.163	1.15	82	1.8	-	78
26	4.128	0.164	1.16	83	1.8	-	78
27	4.286	0.158	1.15	83	1.8	-	78
28	4.449	0.163	1.16	83	1.8	-	78
29	4.611	0.162	1.16	84	1.8	-	78
30	4.773	0.162	1.15	84	1.8	100	78
31	4.936	0.163	1.16	84	1.9	-	78

## BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Particulate Sampling Data							
Elapsed Time (min)	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	5.100	0.164	1.15	84	1.8	-	78
33	5.261	0.161	1.16	85	1.9	-	78
34	5.424	0.163	1.17	85	1.8	-	78
35	5.586	0.162	1.16	85	1.8	-	78
36	5.750	0.164	1.17	85	1.8	-	78
37	5.913	0.163	1.17	85	1.8	-	78
38	6.077	0.164	1.17	86	1.9	-	78
39	6.242	0.165	1.17	86	1.7	-	78
40	6.404	0.162	1.17	86	1.9	100	78
41	6.568	0.164	1.18	87	1.8	-	78
42	6.731	0.163	1.16	87	1.7	-	78
43	6.896	0.165	1.18	87	1.8	-	78
44	7.062	0.166	1.17	87	1.9	-	78
45	7.224	0.162	1.18	87	1.9	-	78
46	7.387	0.163	1.18	87	1.9	-	78
47	7.553	0.166	1.18	88	1.9	-	78
48	7.719	0.166	1.17	88	1.7	-	78
49	7.882	0.163	1.17	88	1.9	-	78
50	8.046	0.164	1.18	88	1.9	101	78
51	8.211	0.165	1.18	88	1.9	-	78
52	8.376	0.165	1.19	88	1.9	-	78
53	8.541	0.165	1.18	88	1.9	-	78
54	8.707	0.166	1.18	88	1.8	-	78
55	8.871	0.164	1.18	89	1.9	-	78
56	9.037	0.166	1.19	89	1.9	-	78
57	9.201	0.164	1.18	89	1.8	-	78
58	9.368	0.167	1.19	89	1.9	-	78
59	9.532	0.164	1.18	90	1.9	-	78
60	9.700	0.168	1.19	90	1.9	101	78
Avg/Tot	9.700	0.162	1.13	83.8	1.8	100	77.3

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Stove ΔT: 50

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
0	481	460	506	608	397	490.2	771.7	
1	479	453	498	601	398	485.8	636.4	
2	474	448	491	593	399	480.8	628.8	
3	468	443	483	586	400	476.2	726.5	
4	462	438	477	580	401	471.5	755.6	
5	458	432	471	574	402	467.5	764.7	
6	452	427	468	569	403	463.7	761.7	
7	446	422	464	566	403	460.1	766.9	
8	442	417	459	562	404	456.8	781.2	
9	437	412	456	560	404	453.7	802.3	
10	431	408	452	559	404	450.8	826.4	
11	427	404	449	559	404	448.6	838.2	
12	425	400	446	560	404	446.7	856.0	
13	422	396	442	561	403	445.0	875.5	
14	420	393	438	564	403	443.5	870.8	
15	419	389	434	566	403	442.3	864.3	
16	418	386	431	568	402	440.9	866.6	
17	416	382	428	570	401	439.6	874.3	
18	414	380	426	574	401	438.9	879.0	
19	412	377	425	581	400	438.9	892.4	
20	410	375	425	595	399	440.6	931.1	
21	408	373	424	604	398	441.4	985.8	
22	405	371	423	611	397	441.3	994.8	
23	403	370	421	619	396	441.7	983.1	
24	402	368	419	630	395	442.7	978.5	
25	400	367	417	638	394	443.1	980.1	
26	398	365	415	643	393	442.8	983.5	
27	396	364	413	646	392	442.5	984.1	
28	395	363	412	649	391	442.1	983.2	
29	394	362	411	652	390	441.8	988.3	
30	393	361	410	655	389	441.4	994.9	
31	391	360	409	658	388	441.2	1002.8	
32	391	360	409	662	386	441.7	1012.3	
33	390	359	409	666	385	442.0	1016.1	
34	389	359	410	671	384	442.5	1024.6	
35	389	358	411	678	383	443.8	1031.9	
36	389	358	412	684	382	445.1	1037.5	
37	389	358	413	693	381	446.9	1040.7	
38	390	359	415	703	380	449.1	1044.1	
39	389	359	416	713	379	451.1	1047.3	
40	390	359	417	725	378	453.8	1043.1	
41	391	359	418	738	377	456.6	1030.2	
42	391	360	419	750	376	459.4	1019.5	
43	392	361	420	761	375	461.7	1017.9	
44	392	361	422	768	374	463.4	1024.9	
45	392	362	423	774	373	464.8	1029.3	
46	392	363	425	781	373	466.5	1029.4	
47	392	363	425	788	372	468.0	1019.5	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

**Stove ΔT:** 50

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	395	365	427	794	371	470.2	1013.9
49	394	365	428	798	370	471.1	1016.2
50	395	366	430	802	369	472.4	1021.4
51	396	367	431	806	368	473.8	1022.6
52	398	368	434	809	368	475.4	1023.7
53	399	369	436	813	367	476.8	1024.5
54	401	370	439	816	366	478.4	1023.3
55	403	371	442	820	365	480.2	1019.4
56	405	373	445	825	365	482.3	1013.9
57	407	374	448	829	364	484.2	1009.4
58	408	375	451	833	363	486.0	1005.0
59	410	376	455	836	362	487.9	1011.5
60	412	378	460	840	362	490.3	1011.3
61	414	379	464	844	361	492.4	1011.3
62	415	381	468	846	360	494.1	1007.7
63	416	382	472	848	360	495.5	1005.7
64	417	383	477	849	359	497.1	1005.0
65	419	384	481	851	358	498.6	1000.5
66	420	386	486	853	358	500.4	995.4
67	422	387	491	854	357	502.1	993.1
68	422	389	495	855	357	503.6	1000.0
69	424	390	500	856	356	505.2	1008.6
70	426	392	505	858	356	507.3	1012.6
71	428	392	511	859	355	508.9	1016.5
72	431	394	516	860	355	510.9	1023.9
73	432	395	521	860	355	512.7	1028.8
74	432	396	526	861	354	513.9	1031.3
75	434	398	532	861	354	515.7	1032.7
76	438	399	537	861	354	517.7	1032.8
77	439	400	542	861	353	519.1	1031.0
78	440	402	547	861	353	520.4	1028.8
79	442	403	551	861	353	521.9	1026.7
80	444	404	556	860	353	523.2	1026.1
81	446	405	561	859	353	524.6	1027.5
82	448	406	566	858	352	526.0	1030.2
83	450	407	571	857	352	527.4	1031.5
84	452	408	575	855	352	528.5	1030.8
85	455	410	580	854	352	530.2	1031.5
86	455	411	585	853	352	531.1	1034.2
87	457	412	590	852	352	532.5	1033.8
88	461	413	594	851	352	534.2	1032.8
89	463	415	598	851	352	535.6	1032.8
90	465	416	602	850	352	536.8	1037.8
91	467	417	606	849	352	538.2	1040.3
92	468	419	610	849	352	539.3	1042.3
93	470	419	614	848	352	540.5	1044.7
94	472	421	618	847	352	541.8	1046.2
95	475	422	622	845	352	543.0	1046.3

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Stove ΔT: 50

Temperature Data (*F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	477	424	626	842	352	544.1	1046.6
97	480	426	629	839	352	545.2	1046.9
98	481	427	632	837	352	545.6	1045.2
99	483	428	635	834	352	546.5	1043.7
100	485	430	638	831	352	547.2	1039.6
101	485	431	641	828	352	547.5	1034.7
102	488	432	644	825	352	548.1	1029.5
103	490	433	646	821	353	548.5	1022.6
104	493	435	648	817	353	549.1	1014.3
105	495	436	649	814	353	549.2	1004.9
106	498	437	649	810	353	549.4	995.5
107	499	439	649	805	353	549.1	990.7
108	501	440	650	801	354	549.1	989.8
109	503	442	650	797	354	549.2	989.7
110	506	443	650	794	354	549.4	989.2
111	508	445	648	792	354	549.3	986.1
112	508	446	647	789	355	548.9	982.3
113	509	448	646	788	355	548.9	977.8
114	510	449	645	786	355	548.9	972.6
115	511	451	645	784	356	549.1	965.0
116	510	452	645	780	356	548.6	955.2
117	509	454	645	776	356	547.8	944.5
118	510	454	644	771	357	547.1	933.4
119	510	456	643	765	357	546.2	924.3
120	510	457	643	760	358	545.4	917.7
121	510	458	642	755	358	544.6	913.1
122	510	459	641	750	358	543.7	909.4
123	509	460	640	746	359	542.8	906.7
124	509	462	640	742	359	542.3	903.9
125	510	463	639	738	360	541.9	901.0
126	510	464	638	734	360	541.2	898.5
127	509	465	637	731	361	540.4	896.2
128	510	466	636	727	361	540.1	894.1
129	510	467	635	724	362	539.5	890.6
130	509	467	634	721	362	538.6	886.2
131	509	468	632	718	363	538.0	881.6
132	509	468	631	715	364	537.2	877.7
133	505	469	629	712	364	535.8	874.7
134	508	470	628	708	365	535.5	872.7
135	506	470	626	705	365	534.4	871.4
136	506	470	625	702	366	533.6	869.9
137	504	470	623	699	366	532.7	868.1
138	504	470	622	696	367	532.0	865.8
139	504	471	620	694	368	531.3	863.3
140	505	471	619	691	368	530.8	861.3
141	505	471	618	689	369	530.3	859.2
142	503	471	616	686	369	529.4	856.7
143	504	472	615	684	370	529.0	854.0

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

**Stove ΔT:** 50

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	503	472	614	681	371	528.1	850.4
145	503	471	612	679	371	527.1	844.6
146	501	472	611	676	372	526.1	838.8
147	503	472	609	672	372	525.5	834.1
148	501	471	607	669	373	524.2	830.1
149	501	471	606	666	373	523.5	826.9
150	500	471	604	663	374	522.4	823.9
151	499	471	603	660	374	521.2	821.2
152	499	471	601	657	375	520.5	818.8
153	498	470	599	654	376	519.4	816.4
154	497	470	597	651	376	518.3	813.5
155	497	470	596	649	377	517.5	810.7
156	495	469	594	646	377	516.3	808.2
157	496	468	592	643	377	515.4	806.0
158	496	468	591	641	378	514.7	803.9
159	496	467	590	639	378	514.0	802.3
160	494	467	588	637	379	513.0	800.7
161	494	467	587	634	379	512.2	799.3
162	495	466	586	632	380	511.7	798.1
163	494	465	585	630	380	510.8	796.9
164	492	465	583	628	381	509.7	795.5
165	492	464	582	626	381	508.9	794.5
166	491	463	580	624	382	508.1	794.1
167	491	462	578	622	383	507.2	793.3
168	490	461	577	621	383	506.3	791.8
169	489	460	576	619	384	505.5	790.6
170	489	460	574	617	384	504.9	789.5
171	489	459	573	616	385	504.3	789.1
172	489	458	572	614	386	503.7	789.2
173	487	457	571	612	386	502.8	789.3
174	486	456	570	611	387	502.0	788.9
175	485	456	569	609	387	501.4	787.0
176	485	455	568	608	388	500.6	784.9
177	484	454	566	606	389	499.7	783.4
178	482	453	564	605	390	498.7	782.4
179	481	453	562	604	391	498.0	781.5
180	480	452	560	602	391	497.1	781.6
181	478	451	558	601	392	496.0	781.8
182	478	451	556	600	393	495.6	781.3
183	477	450	554	599	394	494.6	780.5
184	474	449	552	598	394	493.4	779.6
185	474	448	550	597	395	492.7	779.3
186	472	448	547	596	395	491.7	779.2
187	471	447	545	595	396	490.7	779.2
188	469	446	543	595	396	489.8	778.7
189	468	445	541	594	397	489.0	777.7
190	467	445	539	593	397	488.3	776.6
191	467	444	537	592	398	487.6	775.9

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Stove ΔT: 50

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
192	466	444	535	592	398	486.9	775.4
193	464	443	533	591	398	485.9	775.0
194	464	443	532	590	399	485.5	774.3
195	462	442	530	589	399	484.5	773.2
196	463	441	528	589	398	484.0	772.5
197	461	441	527	588	399	483.0	772.1
198	460	441	525	587	399	482.4	771.5
199	458	440	524	587	399	481.7	770.5
200	458	440	524	586	399	481.1	769.1
201	458	439	522	585	399	480.7	767.6
202	455	439	522	584	399	479.8	766.2
203	455	439	521	583	399	479.3	764.8
204	457	438	520	582	399	479.1	762.9
205	455	437	519	581	399	478.2	762.2
206	454	437	518	581	399	477.7	762.3
207	453	436	516	580	400	477.1	761.9
208	452	436	515	579	400	476.4	761.9
209	450	436	514	579	400	475.6	762.6
210	449	435	513	578	400	474.9	763.0
211	450	435	512	577	400	474.7	762.7
212	448	434	511	577	400	474.0	762.0
213	446	434	510	576	400	473.2	761.1
214	446	433	509	576	400	472.8	760.0
215	447	433	508	575	400	472.6	758.8
216	445	432	507	574	400	471.8	757.7
217	444	432	506	574	400	471.1	756.6
218	443	431	505	573	400	470.4	755.4
219	441	431	505	572	400	469.8	754.3
220	441	431	504	571	400	469.3	753.3
221	441	431	503	571	400	469.1	752.5
222	439	430	502	570	400	468.2	751.4
223	438	430	501	569	400	467.7	750.2
224	438	430	501	569	400	467.4	749.0
225	436	429	500	568	400	466.4	748.0
226	437	429	499	567	400	466.3	747.4
227	435	428	498	566	400	465.4	746.7
228	435	428	498	565	400	465.0	746.0
229	433	428	497	564	400	464.2	745.3
230	433	427	496	564	400	463.9	744.1
231	433	427	496	563	400	463.6	742.6
232	432	427	495	562	400	463.0	741.7
233	432	426	494	561	399	462.5	740.9
234	431	426	494	561	399	461.9	740.5
235	428	426	493	560	399	461.2	740.4
236	428	426	492	559	399	460.8	739.2
237	429	425	492	558	399	460.5	737.0
238	426	425	491	557	399	459.8	735.2
239	427	425	491	556	399	459.6	733.5



# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

Stove ΔT: 50

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
240	425	424	491	555	399	458.8	732.1	
241	426	424	490	554	399	458.6	731.0	
242	426	424	490	553	399	458.2	730.2	
243	426	423	490	552	399	457.9	729.5	
244	425	424	489	551	399	457.3	729.0	
245	424	423	488	550	399	456.7	729.1	
246	423	422	487	550	399	456.2	729.9	
247	423	422	486	549	399	455.9	730.8	
248	423	421	486	549	400	455.5	731.0	
249	421	421	485	548	400	455.0	730.8	
250	421	421	484	548	400	454.6	730.7	
251	420	420	483	547	400	454.2	730.2	
252	420	420	483	547	401	454.1	729.7	
253	420	420	482	547	401	453.8	728.6	
254	419	419	483	546	401	453.6	727.2	
255	418	419	483	546	401	453.3	725.6	
256	416	419	483	545	402	452.9	724.4	
257	416	418	483	545	402	452.7	723.7	
258	416	418	482	544	402	452.2	723.5	
259	415	418	481	544	402	451.9	723.0	
260	415	417	481	543	402	451.7	721.9	
261	414	417	480	542	403	451.2	720.5	
262	414	417	480	542	403	450.8	719.1	
263	414	416	479	541	403	450.7	717.7	
264	413	416	479	540	404	450.4	717.0	
265	412	416	479	540	404	450.0	716.4	
266	411	415	478	539	404	449.5	716.0	
267	411	415	477	538	405	449.2	715.6	
268	410	415	476	538	405	448.6	715.6	
269	409	414	476	537	405	448.3	716.0	
270	408	414	475	537	405	447.7	716.1	
271	408	414	474	537	406	447.6	716.0	
272	407	414	473	536	406	447.1	716.0	
273	406	413	472	536	406	446.7	715.6	
274	405	413	471	536	406	446.0	715.0	
275	405	413	470	535	406	445.9	714.3	
276	404	413	470	535	406	445.3	713.5	
277	403	413	469	534	406	444.9	713.5	
278	402	413	468	534	406	444.4	713.9	
279	401	413	467	533	406	444.0	714.0	
280	399	413	466	532	406	443.3	714.3	
281	399	413	465	532	406	443.0	714.2	
282	398	413	464	531	406	442.5	713.7	
283	398	413	463	531	406	442.2	713.1	
284	397	413	463	530	406	441.7	712.6	
285	397	413	462	530	407	441.5	712.1	
286	396	413	461	529	407	441.2	711.6	
287	395	413	461	529	407	440.8	711.1	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

**Stove ΔT:** 50

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
288	395	413	460	528	407	440.6	710.5
Average	448.5	423.3	524.9	663.7	382.5	488.6	859.6

## LAB SAMPLE DATA - ASTM E2515

Client: FPI  
 Model: CI2700-1  
 Run #: 5

Job #: 23-153  
 Tracking #: 150  
 Technician: AK  
 Date: 6/23/2023

		Sample ID	Tare, mg	Final, mg	Catch, mg
<b>Filters</b>	<b>A</b>	G00586	241.6	243.0	1.4
	<b>B</b>	G00587	242.4	243.8	1.4
	<b>C - 1st Hour</b>	G00588	242.6	243.6	1.0
	<b>Amb</b>	G00589	242.0	242.1	0.1
<b>Probes</b>	<b>A</b>	2A	116056.6	116057.0	0.4
	<b>B</b>	2B	116173.5	116173.6	0.1
	<b>C - 1st Hour</b>	2C	116428.8	116428.9	0.1
<b>O-rings</b>	<b>A</b>	2A	3553.7	3553.8	0.1
	<b>B</b>	2B	3573.0	3573.2	0.2
	<b>C - 1st Hour</b>	2C	3390.9	3391.0	0.1

**Placed in Dessicator on:** 6/23/2023

<b>Filters</b>	<b>A</b>	242.8	243.0		
	<b>B</b>	243.6	243.8		
	<b>C - 1st Hour</b>	243.6	243.6		
	<b>Amb</b>	242.1	242.1		
<b>Probes</b>	<b>A</b>	116057.1	116057.0		
	<b>B</b>	116173.6	116173.6		
	<b>C - 1st Hour</b>	116428.9	116428.9		
<b>O-Rings</b>	<b>A</b>	3553.8	3553.8		
	<b>B</b>	3573.4	3573.2		
	<b>C - 1st Hour</b>	3391.1	3391.0		

<b>Train A Aggregate, mg:</b>	<b>1.9</b>
<b>Train B Aggregate, mg:</b>	<b>1.7</b>
<b>Train C Aggregate, mg:</b>	<b>1.2</b>
<b>Ambient, mg:</b>	<b>0.1</b>

# ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 23-153 Tracking #: 150  
 Model: CI2700-1 Run Number: 5 Test Date: 6/23/23

## Wood Heater Run Notes

### Test Control Settings

Primary Air Setting(s): Open 1/8" from fully closed  
 Targeted Burn Category: II

### Preburn Notes

Time	Notes
41:00 60:00	Raked coals, removed 0.50 lb End PB

### Test Notes

Test Burn Start Time: 12:28 Test Fuel Loaded by: 35 seconds  
 Door Closed: 45 seconds Air Control Set at: 300 seconds  
 Other Loading Notes: Fan off (fan confirmation)

Time	Notes
	<i>-None-</i>

Test Burn End Time: 17:16


### Flue Gas Concentration Measurement

**Calibration Gas Values:** Span Gas CO<sub>2</sub> (%): 17.01 CO (%): 4.306  
 Mid Gas CO<sub>2</sub> (%): 10.09 CO (%): 2.53

### Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	12:06	12:07	12:08	17:30	17:31	17:32
CO <sub>2</sub>	0.00	17.01	9.93	-0.02	17.00	9.95
CO	0.000	4.307	2.447	-0.018	4.311	2.452

**Flue Gas Probe Leak Check:** Initial: No Leakage Final: No Leakage

Technician Signature: 

Date: 6/26/23

# ASTM E2780 Wood Heater Run Sheets

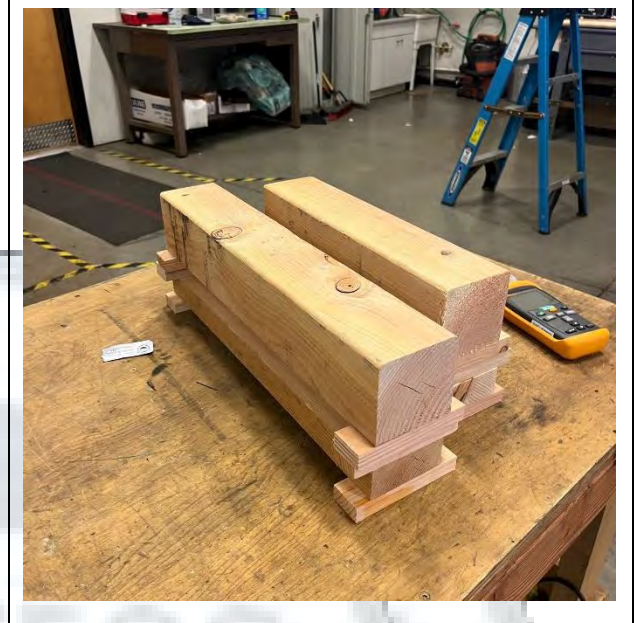
Client: FPI  
Model: C12700-1

Job Number: 23-153  
Run Number: 5

Tracking #: 150  
Test Date: 6/23/23



Test Fuel Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: 

Date: 6/26/23



# ASTM E2515 - Glass Filters

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
G00541	241.9	241.9	-	-	A	23-144	#1
G00542	242.2	242.0	-	-	SB	23-114	#1
G00543	242.9	242.9	-	-	SB	↓	↓
G00544	243.4	243.5	-	-	SB	↓	↓
G00545	241.7	241.5	-	-	SB	↓	↓
G00546	241.6	241.6	-	-	SB	23-106	#1
G00547	243.0	242.8	-	-	SB	↓	↓
G00548	243.2	243.2	-	-	SB	↓	↓
G00549	243.0	242.9	-	-	SB	↓	↓
G00550	243.6	243.7	-	-	SB	23-106	#2
G00551	243.8	243.9	-	-	SB	↓	↓
G00552	241.6	241.7	-	-	SB	↓	↓
G00553	241.9	241.8	-	-	SB	↓	↓
G00554	244.4	244.2	-	-	SB	23-106	#3
G00555	243.5	243.6	-	-	SB	↓	↓
G00556	242.6	242.5	-	-	SB	↓	↓
G00557	242.8	242.7	-	-	SB	↓	↓
G00558	243.5	243.4	-	-	SB	23-106	#4

Weight 1 Date/Time:
5/4 - 11:00
Weight 2 Date/Time:
5/5 - 8:00
Weight 3 Date/Time:
Weight 4 Date/Time:

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
G00559	243.3	243.2	-	-	A	23-106	#4
G00560	241.7	241.6	-	-	A	↓	↓
G00561	242.3	242.1	-	-	A	↓	↓
G00562	243.3	243.4	-	-	A	23-106	#5
G00563	243.6	243.6	-	-	A	↓	↓
G00564	244.2	244.0	-	-	A	↓	↓
G00565	243.4	243.6	-	-	A	↓	↓
G00566	243.1	243.0	-	-	A	23-106	#6
G00567	242.7	242.6	-	-	A	↓	↓
G00568	243.9	244.1	-	-	A	↓	↓
G00569	243.0	243.0	-	-	A	↓	↓
G00570	242.7	242.6	-	-	A	23-153	#1
G00571	242.1	242.2	-	-	A	↓	↓
G00572	242.0	241.9	-	-	A	↓	↓
G00573	241.6	241.8	-	-	A	↓	↓
G00574	242.3	242.3	-	-	A	23-153	#2
G00575	242.2	242.3	-	-	A	↓	↓
G00576	241.9	242.0	-	-	A	↓	↓

Weight 1 Date/Time:
6/5 17:45
Weight 2 Date/Time:
6/7 1045
Weight 3 Date/Time:
Weight 4 Date/Time:



# ASTM E2515 - Glass Filters

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
G00577	243.0	242.9	-	-	SB	23-153	#2
G00578	242.5	242.7	-	-	SB	23-153	#3
G00579	242.7	242.5	-	-	SB	↓	↓
G00580	242.3	242.4	-	-	SB	↓	↓
G00581	242.6	242.6	-	-	SB	↓	↓
G00582	242.7	242.7	-	-	SB	23-153	#4
G00583	242.4	242.5	-	-	SB	↓	↓
G00584	243.0	242.7	242.9	-	SB	↓	↓
G00585	242.7	242.7	-	-	SB	↓	↓
G00586	241.8	241.6	-	-	SB	23-153	#5
G00587	242.5	242.4	-	-	SB	↓	↓
G00588	242.6	242.6	-	-	SB	↓	↓
G00589	242.1	242.0	-	-	SB	↓	↓
G00590	242.6	242.6	-	-	SB	22-791	#1-HST
G00591	242.0	241.9	-	-	SB	↓	↓
G00592	241.5	241.4	-	-	SB	22-791	#2-HST
G00593	242.5	242.4	-	-	SB	↓	↓
G00594	241.8	241.8	-	-	SB	22-791	#3-HST

Weight 1 Date/Time:
6/19 - 10:20
Weight 2 Date/Time:
6/20 - 3:30
Weight 3 Date/Time:
Weight 4 Date/Time:

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
G00595	242.6	242.3	242.4	-	SB	22-791	#3-HST
G00596	242.8	242.1	-	-	SB		
G00597	242.1	242.2	-	-	SB		
G00598	241.0	240.9	-	-	SB		
G00599	241.8	242.0	-	-	SB		
G00600	241.2	241.2	-	-	SB		
G00601	242.1	242.2	-	-	SB		
G00602	241.6	241.6	-	-	SB		
G00603	242.5	242.6	-	-	SB		
G00604	242.4	242.3	-	-	SB		
G00605	243.0	242.9	-	-	SB		
G00606	242.8	242.4	242.6	-	SB		
G00607	242.2	242.0	-	-	SB		
G00608	243.3	243.3	-	-	SB		
G00609	242.4	242.3	-	-	SB		
G00610	242.1	242.2	-	-	SB		
G00611	241.9	241.9	-	-	SB		
G00612	242.4	242.5	-	-	SB		

Weight 1 Date/Time:
6/20 - 3:30
Weight 2 Date/Time:
6/21 - 3:30
Weight 3 Date/Time:
6/22 - 5:00
Weight 4 Date/Time:



# ASTM E2515 - Probe Samples 11-20

Date:	5/31/23	6/1/23	6/2/23	6/3/23			
Time:	10:00	15:30	11:00	08:00			
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
11A	116864.4	116864.2	-	-	A	23-101	#8
11B	117338.8	117338.6	-	-	A		
11C	116184.9	116184.9	-	-	A		
12A	116704.7	116704.4	116704.9	116704.4	A	23-106	#1
12B	117770.7	117770.6	-	-	A		
12C	117170.7	117170.6	-	-	A		
13A	117313.8	117313.4	117313.9	117313.8	A	23-106	#2
13B	116941.0	116940.5	116941.2	116941.0	A		
13C	115649.5	115649.6	-	-	A		
14A	116632.5	116632.5	116632.7	-	A	23-106	#3
14B	116618.2	-	116618.4	-	A		
14C	116529.9	-	116530.1	-	A		
15A	117238.7	-	117238.9	-	A	23-106	#4
15B	116751.6	-	116751.8	-	A		
15C	116846.7	-	116846.9	-	A		

Date:	6/5/23	6/7/23					
Time:	1800	1030					
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
16A	116378.0	116378.0	-	-	A	23-106	#5
16B	115860.5	115860.5	-	-	A		
16C	114147.1	114147.0	-	-	A		
17A	116810.6	116810.7	-	-	A	23-106	#6
17B	117140.0	117139.4	-	-	A		
17C	113141.1	113141.3	-	-	A		
18A	117499.1	117499.2	-	-	A	23-153	#1
18B	117331.1	117331.2	-	-	A		
18C	114334.7	114334.8	-	-	A		
19A	117026.3	117026.5	-	-	A	23-153	#2
19B	117013.2	117013.4	-	-	A		
19C	114231.4	114231.3	-	-	A		
20A	115626.3	115626.4	-	-	A	23-153	#3
20B	115965.9	115965.960	-	-	A		
20C	113775.2	113775.1	-	-	A		



# ASTM E2515 - Probe Samples 1-10

Date:		6/19	6/20	6/21			
Time:		10:00	3:30	3:30			
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
1A	115626.9	115626.9	-	-	SB	23-153	#4
1B	115902.1	115902.2	-	-	SB		
1C	116432.8	116432.8	-	-	SB		
2A	116056.8	116056.8	-	-	SB	23-153	#5
2B	116173.6	116173.5	-	-	SB		
2C	116428.9	116428.8	-	-	SB		
3A	115880.0	115879.8	-	-	SB	22-791	#1-HST
3B	116119.8	116119.6	-	-	SB		
3C	116617.4	116616.8	116616.6	-	SB	22-791	#2-HST
4A	116022.4	116022.0	116021.9	-	SB	↓	↓
4B	116181.6	116181.4	-	-	SB		
4C	116996.7	116996.6	-	-	SB		
5A	116757.3	116757.1	-	-	SB		
5B	116875.5	116875.4	-	-	SB		
5C	115855.3	115855.1	-	-	SB		

Date:							
Time:							
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
6A							
6B							
6C							
7A							
7B							
7C							
8A							
8B							
8C							
9A							
9B							
9C							
10A							
10B							
10C							



# ASTM E2515 - O-Ring Samples 11-20

Date:		5/30/23	5/31/23				
Time:		16:00	8:00				
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
11A	3423.5	3423.5	-	-	SB	23-161	#8
11B	4233.8	4233.9	-	-	SB		
11C	3588.5	3588.4	-	-	SB		
12A	3586.1	3586.2	-	-	SB	23-106	#1
12B	3550.5	3550.7	-	-	SB		
12C	3616.2	3616.3	-	-	SB		
13A	3595.7	3595.7	-	-	SB	23-106	#2
13B	3641.9	3641.9	-	-	SB		
13C	4408.9	4408.9	-	-	SB		
14A	3366.2	3366.4	-	-	SB	23-106	#3
14B	3341.2	3341.3	-	-	SB		
14C	3445.2	3445.2	-	-	SB		
15A	3569.5	3569.5	-	-	SB	23-106	#4
15B	3570.8	3570.9	-	-	SB		
15C	3396.5	3396.5	-	-	SB		

Date:		6/5/23	6/7/23				
Time:		1800	1030				
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
16A	3572.8	3572.7	-	-	A	23-106	#5
16B	3638.7	3638.6	-	-	A		
16C	3601.5	3601.3	-	-	A		
17A	3613.7	3613.5	-	-	A	23-106	#6
17B	3569.5	3569.5	-	-	A		
17C	3597.2	3597.0	-	-	A		
18A	3602.4	3602.6	-	-	A	23-153	#1
18B	3545.6	3545.8	-	-	A		
18C	3527.9	3528.1	-	-	A		
19A	3585.7	3585.5	-	-	A	23-153	#2
19B	3633.0	3633.1	-	-	A		
19C	3614.9	3615.0	-	-	A		
20A	3558.9	3559.1	-	-	A	23-153	#3
20B	3614.3	3614.5	-	-	A		
20C	3610.6	3610.8	-	-	A		



# ASTM E2515 - O-Ring Samples 1-10

Date:							
Time:							
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
1A	3567.6	3567.5	-	-	SB	23-153	#4
1B	3556.0	3555.8	-	-	SB		
1C	4167.3	4167.2	-	-	SB		
2A	3553.6	3553.7	-	-	SB	23-153	#5
2B	3572.9	3573.0	-	-	SB		
2C	3390.9	3390.9	-	-	SB		
3A	3580.1	3580.0	-	-	SB	22-791	#1-HST
3B	3568.8	3568.7	-	-	SB		
3C	3622.8	3622.7	-	-	SB		
4A	3375.7	3375.9	-	-	SB	↓	↓
4B	3579.9	3579.8	-	-	SB		
4C	3372.6	3372.7	-	-	SB		
5A	3536.8	3536.8	-	-	SB		
5B	3532.6	3532.6	-	-	SB		
5C	3376.8	3376.9	-	-	SB		

Date:							
Time:							
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
6A							
6B							
6C							
7A							
7B							
7C							
8A							
8B							
8C							
9A							
9B							
9C							
10A							
10B							
10C							

# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

Elapsed Time (min)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	13.75	389.4	71.1	475.3	293.6	380	426.9	369.4	883	389
1	13.66	397.3	71.5	473.2	296.3	388.1	428.2	368.4	802.8	390.8
2	13.58	383.5	71.5	470.2	299.6	391.3	426.9	367.6	801.3	391.1
3	13.48	382	71.3	468.2	303	391.4	421.8	363.9	816.8	389.7
4	13.39	385.2	71.7	465.7	306.6	387.7	420.1	361.3	842.6	388.3
5	13.27	390.9	71.7	463.8	310.1	389.9	418.6	361.4	887.2	388.8
6	13.19	360.9	71.4	462.2	313.6	393.1	410.2	355.8	889.9	387
7	13.12	342	71.3	459.6	316.9	396.5	406.2	353	903.6	386.4
8	13.04	333.6	71.2	458	320.1	397.7	405.7	352.3	922.9	386.7
9	12.98	330.4	70.7	457.2	323	395	400.8	349	946.8	385
10	12.9	328.5	70.8	456.6	325.8	388.1	398.4	347.2	971	383.2
11	12.83	327.4	71.3	457.2	328.3	385.6	395.6	346.6	991.7	382.7
12	12.74	328.5	70.8	458.4	330.7	380.6	393.2	343.2	1010.5	381.2
13	12.66	328.8	70.9	461.9	332.8	381.1	389.2	342.4	1027.7	381.5
14	12.54	331.6	70.9	463.7	334.8	377.2	387.3	335.9	1046.9	379.8
15	12.45	334.1	70.7	467.1	336.5	370.8	383.8	338.8	1070.3	379.4
16	12.34	340.4	70.7	478.3	338	369.8	378.9	337.3	1095.9	380.5
17	12.22	346.3	70.5	490.1	339.3	371.1	378.5	336.9	1114.6	383.2
18	12.1	350.8	71.1	496.2	340.5	370.7	374.7	333.6	1134.3	383.1
19	11.99	356.3	70.9	500.7	341.5	371.9	372.3	334.4	1158.5	384.1
20	11.85	361.4	70.8	507.2	342.3	369	371.9	331.5	1181.4	384.4
21	11.73	366.5	71	515.6	343	375	368.7	332.8	1201.6	387
22	11.59	371.3	70.9	521.4	343.5	372.6	366.6	330.8	1218.7	387
23	11.48	375.8	71.4	527.2	344	368.3	366	329.3	1229	387
24	11.33	379.5	71.1	532.3	344.4	369.7	364.8	328.4	1234.5	387.9
25	11.2	382.9	71	535.9	344.7	371.5	362.8	329.5	1238.1	388.9
26	11.04	386.4	71.4	541.3	344.9	372.7	360.3	329.1	1236.2	389.6
27	10.89	388.4	71.6	544.9	345	371	359.3	328.9	1227	389.8
28	10.76	389.3	71.7	548.9	345.1	375.6	359.4	329.1	1220.5	391.6
29	10.62	391	71.5	552.8	345	371.6	357.9	327.7	1211.7	391
30	10.47	391.8	71.7	554.8	344.6	367	357.6	331.5	1198.6	391.1
31	10.34	388.8	71.4	557.5	342.3	348	357.4	332.9	1194.5	387.6
32	10.2	389.7	71.9	556.7	339.7	340	356.8	332.1	1205.7	385.1
33	10.05	391.4	72	551.9	336.4	336	356.2	331.5	1209.5	382.4
34	9.9	390.9	72.1	548.5	332.9	330.1	354.7	327.9	1201.1	378.8
35	9.76	389.4	72	547	329.4	328.9	353.5	328.2	1187.7	377.4
36	9.63	388.2	71.7	548.1	325.8	325.8	352.5	330.6	1177.5	376.6
37	9.49	385.7	71.6	548.1	322.4	323.7	353.5	329.9	1167.4	375.5
38	9.32	385.2	71.6	550.2	319.5	322	354.6	328.3	1159.1	374.9
39	9.18	384.2	71.7	552	316.4	320	353.4	329.7	1154.6	374.3
40	9.03	383.2	71.5	552.2	313.3	317.6	354.6	330.1	1154.3	373.6
41	8.9	382.5	71.8	553.3	310.5	317	353.8	330.9	1151.7	373.1
42	8.76	382.2	71.4	556.1	307.9	314.4	355	330.1	1151.1	372.7
43	8.61	381.5	71.7	555	305.8	313.3	354.7	330	1150.2	371.7
44	8.46	381.1	72	553.4	303.5	313.1	356.5	329.7	1150.6	371.3
45	8.32	381.2	72.5	552.5	301.3	313.2	356.2	329.9	1150.3	370.6
46	8.19	380.2	72	553.1	299.3	312.6	355.8	331.4	1148.3	370.4
47	8.04	380.4	72.2	552.2	297.6	310.9	357.1	331.6	1150.2	369.9
48	7.9	379.9	72.1	552	296	311.3	356.9	331.9	1146.4	369.6
49	7.76	379.3	72.2	551.5	294.4	311.5	357.4	331	1146.6	369.2
50	7.62	378.6	72.5	551	292.9	311.3	358	332.7	1143.5	369.2
51	7.49	377.8	72.5	550.2	291.6	311.1	356.6	330.6	1142.3	368
52	7.37	377.5	72.8	549.9	290.3	310.7	358.6	333.1	1143.3	368.5
53	7.23	377.6	72.8	549.2	289.2	312.5	358	332.9	1143	368.4
54	7.09	376.2	72.2	545.6	288.2	313.8	358.5	333.3	1144.9	367.9
55	6.95	375.6	72.5	547.5	287.2	315.1	359.7	332.2	1143.9	368.3
56	6.84	374.9	72.6	547.4	286.4	315.8	360.6	334.4	1144.9	368.9
57	6.72	374.6	72.6	546.7	285.5	318.2	361.2	333.9	1148	369.1
58	6.56	373	72.8	545.9	284.6	318.7	361.3	335.8	1151.6	369.3
59	6.44	373.3	72.7	546.1	284	320.2	362.9	337.4	1158.6	370.1
60	6.34	372.7	72.7	546.9	283.3	322.7	363.9	336.1	1163.9	370.6
61	6.21	372.1	73.1	544.4	282.6	324.4	362.9	338.6	1167.5	370.6
62	6.09	371.1	73.1	545.2	282	327.8	364	339.1	1168.2	371.6
63	5.98	370.9	73	544.3	281.3	330.5	365.9	339.9	1166.5	372.4
64	5.86	370.5	72.9	546	281	335.7	367.5	341	1165.8	374.2
65	5.75	369.6	73.2	548.8	280.5	338	369.7	342.4	1167.4	375.9
66	5.64	369.1	72.8	548.8	280.2	342.4	369.5	342.5	1168.8	376.7
67	5.54	369.2	73.1	545	279.7	345.2	368.3	342.7	1170.2	376.2
68	5.43	369.3	73.4	546.6	279.4	349.1	371.2	342.4	1169.5	377.7
69	5.31	369.3	73.3	547	278.9	352.9	371.9	343.9	1169	378.9
70	5.22	368.6	73.2	546.9	278.8	356.1	373.7	343	1169.4	379.7
71	5.11	368	73	548.2	278.5	360.2	374.2	345	1169.4	381.2
72	5.03	368.4	72.5	547.8	278.4	363.3	375.6	345.4	1163.6	382.1
73	4.94	366	72.7	547.3	278.4	363.8	379.1	348.6	1146.5	383.4
74	4.87	363.2	72.8	545.4	278.2	365.6	382.3	349.3	1121.4	384.2
75	4.81	359.1	73.1	542.2	278	366.7	384.3	351.1	1097.5	384.5
76	4.72	355.7	73.1	540.4	277.8	368.3	386.9	352.3	1076.6	385.1
77	4.68	351.3	73.4	537.7	277.9	371.8	388.8	355.3	1058.8	386.3
78	4.63	347.2	73.4	535	277.9	372.5	387.7	355.7	1044.7	385.8
79	4.56	343.3	73.1	531.4	278	371.3	392.9	356.5	1034.4	386
80	4.52	340.1	73.2	527.9	278.3	369.1	395.4	358.8	1025.4	385.9
81	4.48	336.4	73.4	524	278.3	366.5	395.1	359.9	1018.5	384.8
82	4.42	333	73.4	518.5	278.4	365.1	397.5	358.7	1012.6	383.6

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83	4.38	330.6	73	513.9	278.6	362.6	399.4	360	1007.5	382.9
84	4.33	327.8	73.2	510.3	278.8	359.7	401	362.1	1002.4	382.4
85	4.28	325.4	73.3	502.6	278.9	357.7	399.7	359.9	997.8	379.8
86	4.23	322.9	73.3	499.6	279.1	356.3	399.8	361.3	992.5	379.2
87	4.19	320.9	73	494.4	279.1	353.5	402	363.1	987.2	378.4
88	4.16	318.7	73.1	491.2	279.3	351.3	400.5	361.4	982	376.7
89	4.11	317.3	73.2	486.9	279.2	350.3	399.4	361	977.1	375.4
90	4.06	315.6	73.2	483.9	279.4	348.1	402.8	364.5	973.3	375.7
91	4.02	314	73.4	479.4	279.3	347	400.3	361.4	970	373.5
92	3.98	312.8	73.2	477.3	279.4	343.9	403.4	366	967.2	374
93	3.94	310.9	73.2	474.9	279.4	345.4	403	363	964.5	373.1
94	3.9	310.1	73.9	470.9	279.4	342.8	402.3	364	962	371.9
95	3.85	308.2	73.7	468.1	279.3	343.4	401	364.2	960.4	371.2
96	3.8	306.8	73.7	466.5	279.3	341.4	401.1	365.2	959.3	370.7
97	3.75	305.9	73.3	463.8	279.3	339.5	399.9	365.1	958.6	369.5
98	3.71	304.8	73.1	463	279.2	338.2	400.3	365.2	957.3	369.2
99	3.67	304.2	73.4	463	279.1	336.6	397.9	365.6	956.2	368.4
100	3.61	303.4	73.5	460.9	278.9	335	398.8	364.8	955.8	367.7
101	3.56	302.4	73.5	460.4	278.9	334.2	398.5	365.2	956.1	367.5
102	3.53	301.9	73.7	459.4	278.7	333.4	399.5	364.6	958.8	367.1
103	3.48	301	73.7	458.2	278.6	333.2	396.9	365.6	960.4	366.5
104	3.44	300.3	73.4	458.2	278.5	332.1	396	365.6	960.5	366.1
105	3.4	299.1	73.5	456.9	278.3	330.9	395.4	362.3	957.9	364.8
106	3.35	298.3	73.3	455	278.2	330.6	396.2	363.8	954.1	364.7
107	3.31	296.5	73.6	454.1	277.9	329.7	395.5	364	948.2	364.2
108	3.29	295.5	73.6	452.2	277.7	328.6	396.3	363.6	943.1	363.7
109	3.25	293.9	73.7	449.9	277.5	327.9	395.9	363.6	937.1	363
110	3.21	292.5	73.5	448	277.4	326	395.4	362.8	930.6	361.9
111	3.18	291.6	72.8	445.5	277.3	324.3	392.8	364.5	924.8	360.9
112	3.14	290.2	73.4	443.2	277.1	324.8	394.5	364.1	920.9	360.7
113	3.1	289.3	73.3	441.3	276.9	323.3	391.8	363.9	916.9	359.4
114	3.06	288.7	73.8	437.7	276.6	323.3	391.1	363.1	914.8	358.4
115	3.02	287.1	73.8	436.3	276.6	323.6	391	362.4	912.9	358
116	2.99	286.9	73.6	433.8	276.3	322.1	393.5	361.4	910.8	357.4
117	2.95	285.4	73.6	431.3	276.1	321.1	390.9	359	912.2	355.7
118	2.91	284.3	73.6	428.6	275.9	319.9	388.9	360.8	912.7	354.8
119	2.87	283.4	73.7	427.4	275.7	319.8	387	360.6	912.9	354.1
120	2.84	282.1	73.6	425.3	275.5	319.7	385.6	359.7	911.7	353.1
121	2.82	281.5	74.1	424.4	275.3	318.4	386.2	359.6	909.9	352.8
122	2.79	280.4	73.7	423.2	275.1	316.1	384.9	359.4	907.5	351.7
123	2.76	278.8	74	421.4	274.8	317.9	385.5	358.6	904.5	351.6
124	2.71	278	73.6	419.1	274.6	316.9	385.2	358.2	901.5	350.8
125	2.7	277.6	73.8	418.4	274.5	316.1	386	358.3	897.4	350.7
126	2.67	276	74	417.5	274.3	315.5	385.1	358.4	896.3	350.2
127	2.64	275.5	74	416	274.1	316.3	386.8	356.4	895.9	349.9
128	2.61	274.5	73.9	414.6	274	316	384.6	357	898	349.2
129	2.59	273.9	73.7	413.5	273.7	315.1	385.9	356.9	900	349
130	2.55	273.1	73.8	412.4	273.5	314	383.9	356	901.6	347.9
131	2.52	272.4	73.8	410.3	273.4	314.7	386.2	356.7	902.2	348.3
132	2.5	272.3	74	409.5	273.1	313.9	386.2	356.4	902.8	347.8
133	2.47	271.3	73.8	409.1	273.1	315.2	386.5	356.6	903.3	348.1
134	2.46	270.7	73.8	407.7	272.8	313.7	385.9	356	902.9	347.2
135	2.44	270.3	73.8	406.8	272.7	313.5	385.8	357.4	902.1	347.2
136	2.43	268.9	74.1	406.3	272.7	314.4	386.1	355.9	900.1	347.1
137	2.38	268.3	74.4	405.2	272.5	314.8	385.4	356.3	897.2	346.8
138	2.37	267.8	74.2	403.9	272.3	314.9	383.5	355.4	893.3	346
139	2.34	267.1	74	402.4	272.2	314.1	384.8	355.3	888.7	345.8
140	2.32	266.3	74.4	401.3	272.2	314.7	385.6	356.4	883.6	346
141	2.3	265	74	400.3	272	315.4	382.8	355.9	878.3	345.3
142	2.28	264.3	74.3	398.9	272	315.9	383.2	356.3	872.8	345.3
143	2.26	263.1	74.3	397.5	271.8	315.3	386.2	357.5	867.8	345.6
144	2.24	262.1	74.3	395.9	271.8	316.1	383.1	353.6	863.3	344.1
145	2.22	261.3	74.4	394.3	271.8	317.4	383.9	355.2	859.3	344.5
146	2.21	260.6	74.1	392.9	271.7	316.2	382.7	353.2	855.9	343.3
147	2.18	259.5	74.2	390.7	271.7	316.4	383.6	353.3	852.9	343.1
148	2.16	258.2	74.5	389.5	271.5	317.3	380.7	354.3	850.3	342.6
149	2.14	256.9	74.2	388.2	271.4	317.4	380.1	352.1	847.2	341.8
150	2.11	256.4	74.1	386.1	271.5	318.7	380	351.9	842.9	341.6
151	2.1	255.7	74.4	385.3	271.2	318.2	380.7	351	838	341.3
152	2.07	255	74.3	384.4	271.3	319.9	379.6	352	833.7	341.4
153	2.05	253.9	74.4	382.9	271.3	320.4	381.5	350.9	830.2	341.4
154	2.02	253.2	74.3	381.8	271.3	319	380	353.5	827.3	341.1
155	2.01	252.2	74.3	380.1	271.3	319.6	379.3	351.4	824.9	340.4
156	2	251.9	74.4	378.7	271.2	320.2	379	348.1	822.7	339.4
157	1.97	251.5	74.3	377.3	271.1	320.8	377.9	350.4	819.8	339.5
158	1.94	250.3	74.3	376.1	271.2	321.3	377.9	351	815.3	339.5
159	1.92	249.6	74	374.6	271.3	321.1	376.1	350.2	810.7	338.6
160	1.92	248.8	74.5	373.5	271.3	320.8	375.6	347.8	806.3	337.8
161	1.88	247.9	74.3	371.9	271.1	320.9	376.7	348.3	802.5	337.8
162	1.86	246.6	74.5	370.8	271.1	322.4	372.5	348.7	799.6	337.1
163	1.85	245.8	74.4	369.5	271.1	321	373.4	346.4	797.4	336.3
164	1.83	245.3	74.3	367.9	271.2	321.9	373	346.4	795.8	336.1
165	1.8	245.2	74.4	366.9	271.2	321.5	371.6	346.2	794.4	335.5
166	1.8	244.6	74.4	364.9	271.1	321.8	373.4	344.4	793.4	335.1

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167	1.78	243.9	74.3	364.2	271.1	321.1	370.8	344.5	792.8	334.4
168	1.75	243	74.2	362.9	271.2	321	369.5	343.2	792.5	333.6
169	1.74	242.7	74.2	361.7	271.2	321	369.8	342.4	792.5	333.2
170	1.72	242.6	74.4	361	271.2	319.8	369.4	342.6	792.8	332.8
171	1.7	241.7	74.6	360.1	271.1	318.4	369.9	342.4	793.3	332.4
172	1.68	241.5	74.3	359.1	271.1	318.6	368.2	342.2	793.2	331.8
173	1.67	241	74.5	358.8	271.2	318	368.7	341.3	792.3	331.6
174	1.65	240.8	74.4	357.8	271.1	318.2	366.7	341.5	790.7	331.1
175	1.63	240.2	74.5	357.4	271.1	317.9	365.8	341.2	789.7	330.7
176	1.62	240	74	356.5	271	317.4	366.4	339.5	788.6	330.2
177	1.58	240.1	74.5	355.9	271	316.1	366.7	338.6	788.3	329.7
178	1.56	239	74.3	355.3	271.1	316.6	365.2	336.5	788.2	328.9
179	1.55	238.7	74.5	354.6	271	315.5	365	337.4	788.1	328.7
180	1.54	238.2	74.2	353.9	271	314.8	365.4	336.2	787.9	328.3
181	1.53	238.7	74.4	353.2	271	314.7	363.4	336.2	787.8	327.7
182	1.51	238.5	74.5	353	271	315.2	363.9	336.2	787.3	327.9
183	1.5	237.6	74.5	352.4	270.9	313.2	363.3	335.8	787.2	327.1
184	1.47	237.5	74.5	352.2	270.9	313.9	363.3	336	787	327.2
185	1.46	237.2	74.4	351.5	270.9	314.1	359.5	329.5	786.5	325.1
186	1.44	237.1	74.2	351.2	270.9	313.4	362.5	331.4	786.2	325.9
187	1.43	237.2	74.4	350.3	270.9	312.7	360.1	329.4	786	324.7
188	1.41	236.3	74.6	349.7	270.8	312.7	360.2	331.4	785.4	325
189	1.39	236.3	74.5	349.4	270.8	312.1	359.8	327.5	785.1	323.9
190	1.36	235.8	74.6	349.1	270.8	311	359.7	330	784.8	324.1
191	1.35	235.2	74.2	349	270.7	310.4	359.1	328.1	784.3	323.5
192	1.34	235.2	74.4	348.7	270.7	309.8	358	328.7	784.1	323.2
193	1.32	234.5	74.6	347.6	270.6	308.9	354.9	330.2	783.8	322.4
194	1.3	234.3	74.4	347.4	270.6	308.2	356.3	327.3	783.3	322
195	1.29	233.7	74.4	346.8	270.6	308.4	355.5	327.8	782.9	321.8
196	1.27	233.5	74.5	346.3	270.4	306.7	354.6	327.4	782.7	321.1
197	1.26	232.8	74.7	346.1	270.4	308.6	354.2	325.2	782.5	320.9
198	1.24	232.1	74.4	345.9	270.4	307.3	354.4	325.8	781.9	320.7
199	1.22	231.1	74.6	345.6	270.2	307.8	353.5	323.9	781.5	320.2
200	1.21	231	74.6	345	270.2	305.8	353.4	324.2	781.2	319.7
201	1.19	231.2	74.6	345	270.1	307.8	353.1	325.3	780.9	320.3
202	1.17	231.1	74.5	344.4	270	306.1	352.3	321.4	780.5	318.8
203	1.15	230.5	74.5	343.9	269.9	305.9	351.7	323.3	779.6	318.9
204	1.14	230.6	74.4	343.9	269.8	303.4	351.6	324.3	778.3	318.6
205	1.13	229.9	74.5	343.1	269.7	302.4	349.7	320.7	776.8	317.1
206	1.1	229.1	74.3	342.7	269.5	300.8	349.9	323.2	775.2	317.2
207	1.08	228.4	74.5	342.6	269.3	300.3	349.5	321.8	773.7	316.7
208	1.08	227.8	74.2	342.3	269.3	298.4	349.7	321.6	772.3	316.3
209	1.05	227.9	74.1	341.5	269.2	297.1	347.5	319.4	771.2	314.9
210	1.04	226.8	74.3	340.9	269	296.3	348.3	318.3	769.9	314.5
211	1.03	226.6	74.3	340.1	268.9	294.5	347.1	320.3	768.7	314.2
212	1.01	226.6	74.3	339.9	268.7	294.3	347.1	321.1	767.8	314.2
213	1.01	226.3	74.3	339.5	268.6	292.4	346.2	319.9	766.9	313.3
214	0.99	226.6	74.4	339.1	268.5	291.3	345.7	319.2	766	312.7
215	0.97	226.2	74.2	338.9	268.3	290.1	344.9	318.3	765.4	312.1
216	0.95	225.7	74.3	339	268.1	287.8	344.8	316.7	764.5	311.3
217	0.94	224.9	74.1	338.5	268.1	287.4	343.1	317.5	764	310.9
218	0.94	224.7	74.2	337.9	267.9	286.6	342.7	315.8	763.5	310.2
219	0.91	224	74	337.7	267.7	285	342.5	315.1	763.4	309.6
220	0.9	223.3	74.5	337.3	267.4	284	342.7	316.5	763.7	309.6
221	0.88	223	74.2	336.6	267.3	283.5	342.3	315.2	764.3	309
222	0.87	222	74.2	336.4	267.1	281.6	340.6	314.4	764.4	308
223	0.86	221.4	74.2	335.9	266.9	280.6	341.5	313.5	763.8	307.7
224	0.84	221.7	74.4	335.3	266.7	278.9	341.1	315.7	763	307.5
225	0.82	221.4	74.2	335.5	266.4	277.8	338.6	313.7	761.7	306.4
226	0.81	220.3	74.4	334.8	266.1	277.1	338.9	311.9	760.3	305.8
227	0.79	220.4	74.5	333.7	265.9	275.4	337.7	312	759.1	304.9
228	0.78	219.9	74.4	333.7	265.7	274.8	337.6	310.3	757.6	304.4
229	0.77	219.5	74.5	333.1	265.4	273.4	337	312.7	756.2	304.3
230	0.75	218.3	74.4	332.3	265.2	272.7	335.6	309.5	754.7	303.1
231	0.74	218.1	74.2	331.9	264.7	272.2	335.4	310.3	753.4	302.9
232	0.72	217.8	74.1	331.4	264.5	271.5	334.7	310.1	752.1	302.4
233	0.71	217.6	74.3	331	264.2	270	334.5	307.9	750.8	301.5
234	0.69	217	74.3	330.1	263.8	269.4	333.8	309.4	749.6	301.3
235	0.68	216.6	74.2	329	263.5	269.1	333	307.5	748.5	300.4
236	0.66	216	74.5	328.7	263.3	267.7	331	307.7	747.8	299.7
237	0.64	215.7	74.3	328.6	262.9	266.8	331.8	307	747.1	299.4
238	0.62	215	74	328	262.7	265.4	331.5	305.8	745.9	298.6
239	0.64	214.2	74.4	327.5	262.4	265	331	305.6	745	298.3
240	0.61	213.9	74.2	327.3	262.1	264.3	328.9	304.5	743.5	297.4
241	0.6	213.9	74.3	326.3	261.9	263.7	330.4	303	741.2	297.1
242	0.59	213.5	74	326.4	261.7	262.7	330.9	305.1	738.4	297.4
243	0.57	212.8	74.1	325.9	261.6	261.6	328.7	303.7	735.5	296.3
244	0.57	212.4	74.1	324.7	261.4	260.8	327.4	302.7	732.2	295.4
245	0.55	211.7	74.2	324.7	261.2	259.8	328	303.6	729.2	295.4
246	0.53	211.6	74.3	323.4	261	259.2	327.2	303.2	726.4	294.8
247	0.54	211.3	73.9	323	261	257.6	326.5	302.5	723.7	294.1
248	0.51	210.2	74.1	322	260.9	256.8	326.2	302.8	721.2	293.8
249	0.49	209.5	74.3	321.4	260.7	255.9	325.3	301.5	718.8	293
250	0.48	208.7	74.3	320	260.7	255	324.4	300.9	716.7	292.2

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251	0.47	207.9	74.2	319	260.6	254.5	324.4	301.1	714.5	291.9
252	0.45	207.3	74.1	317.9	260.5	253.6	324.6	300.4	712.5	291.4
253	0.44	206.9	74	317	260.3	252.8	323.3	299	710.5	290.5
254	0.43	206.5	74.2	316	260	252	322.7	298.9	708.7	289.9
255	0.42	205.8	74.1	315.2	259.9	250.9	322	298.3	706.7	289.3
256	0.42	205	74.3	314.4	259.7	249.4	320.7	297.5	704.9	288.3
257	0.39	204.7	74	313.2	259.5	249.2	320.1	297	703.5	287.8
258	0.39	204.2	74	312.4	259.3	248.7	318.4	296.9	702.1	287.1
259	0.38	203.9	74	311.4	259	247.6	318.9	296	700.5	286.6
260	0.37	203	74	310.7	258.8	247.5	317.2	295.6	699	286
261	0.34	203.1	73.9	309.4	258.5	246.2	318	295.7	697.7	285.6
262	0.35	202.2	73.8	308.4	258.3	245.6	316.2	293.8	696.5	284.5
263	0.32	201.7	74	307.4	258	244.6	315.9	294.5	695.4	284.1
264	0.31	200.8	74.2	306.2	257.8	243.8	313.8	292.1	694.3	282.7
265	0.3	200.5	73.9	305.7	257.4	243.3	313.7	294.8	693.2	283
266	0.3	199.8	74.1	304.6	257	243.1	312.9	293.3	692.1	282.2
267	0.28	199.4	74	303.8	256.7	242.4	313	291.1	691	281.4
268	0.26	199.2	73.8	303	256.4	241.6	311.7	292.7	690.1	281.1
269	0.26	198.7	74.1	302.1	256	241	310.9	291.3	689	280.3
270	0.26	198.3	74.1	301.1	255.6	240.5	311.7	291.9	688.3	280.2
271	0.23	197.9	74	300.4	255.2	240.1	309.5	291.6	687.2	279.4
272	0.23	197.7	73.8	299.8	254.7	239	309.8	291.2	685.9	278.9
273	0.22	197.1	73.8	299	254.3	238.4	308.8	290.3	684.6	278.2
274	0.2	196.7	74	298.4	254	238.1	309.1	289	683.7	277.7
275	0.19	196.5	74	297.7	253.6	237.5	307.8	288	682.7	276.9
276	0.18	196.3	73.9	296.9	253.1	237.1	307.7	289.4	681.3	276.9
277	0.16	195.8	73.9	296.2	252.7	236.5	307.6	287.4	680.2	276.1
278	0.15	195.4	73.8	295.5	252.4	236.2	306.7	287.1	678.9	275.6
279	0.15	194.9	74	294.6	252	235.6	306.4	286.9	677.6	275.1
280	0.12	194.9	74.1	293.6	251.4	234.9	306.4	285.3	676	274.3
281	0.11	194.4	73.7	293.2	251.1	235.1	306.1	286.8	674.5	274.5
282	0.11	194.2	73.9	292.3	250.7	234.3	305.6	286.2	673.1	273.8
283	0.11	193.3	73.9	291.7	250.3	234	305.1	285.8	671.8	273.4
284	0.09	193.3	73.9	291.2	249.9	233.7	303.9	285.6	670.5	272.8
285	0.08	192.5	73.9	290.5	249.5	232.6	303.8	283.9	669.5	272.1
286	0	192.1	73.9	289.6	249.1	232.6	302.1	284.1	668.7	271.5

Tests were done at a medium low air setting

Test load average moisture content 19.5%

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## 6/2/23 - 6/5/23

Elapsed Time (min)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	13.91	364.7	67.7	489.3	288.5	378.6	421.1	353.8	785.3	386.3
1	13.93	372.1	67.9	479.4	291.7	391.2	420.8	354.4	692.1	387.5
2	13.82	365.7	67.7	475.3	295.3	404.8	417.5	353.9	783	389.4
3	13.69	374.7	68	471.9	299.3	404	417.3	350.5	892	388.6
4	13.57	386.8	68	470	303.2	404.3	412	348.4	952.4	387.6
5	13.44	397.9	67.8	481.7	307.1	404.7	409.9	346	1007.9	389.9
6	13.33	382.2	68.2	487.2	310.9	399.1	402.9	338.9	1010.9	387.8
7	13.23	361.5	67.7	488.4	314.5	402.8	399.4	340.7	1013.6	389.2
8	13.11	354.3	67.6	487.8	317.9	392.9	396	339.5	1047	386.8
9	12.99	351	67.5	489.5	321.1	388	394.3	337.7	1053.8	386.1
10	12.88	350	68.1	495.8	324.1	382.6	390.6	333.7	1053.1	385.4
11	12.77	350.4	67.4	502.2	326.8	387.6	390.1	333.6	1058.5	388.1
12	12.62	351	67.6	509.2	329.3	388.9	386.2	331.1	1069	389
13	12.5	354.3	67.4	518.1	331.6	395.7	382.9	329.2	1094.4	391.5
14	12.36	355.7	67.5	525.4	333.7	395.3	379.4	326.6	1092.9	392.1
15	12.24	357.9	68	532.1	335.7	393.1	377.1	327.5	1095.8	393.1
16	12.1	360.6	67.6	539.4	337.3	393	374.9	325.4	1108.1	394
17	11.95	363.1	67.6	546.1	338.8	389.8	372.4	324.3	1118.2	394.3
18	11.78	365.5	67.5	554	340.1	390.2	372.2	321.4	1122.2	395.6
19	11.64	367.7	67.8	562	341.3	390.3	372.3	321.1	1128.5	397.4
20	11.5	368.9	68.2	568.8	342.3	391.4	370.2	320.8	1128.7	398.7
21	11.37	369.6	67.8	574.7	343.2	391.5	368	319.5	1128.5	399.4
22	11.21	370.2	68	582	343.9	391	367.5	318.5	1120.1	400.6
23	11.07	371.5	67.8	588.4	344.5	391.9	365.7	317.3	1121.7	401.6
24	10.93	372.2	68.1	591.9	345.1	393.3	365.5	318.5	1123.8	402.9
25	10.78	373.1	67.8	597.8	345.6	393.4	364.3	317	1114.4	403.6
26	10.63	373.3	68	601.9	346	395.4	364	317.2	1101.4	404.9
27	10.48	373.8	68.1	607	346.3	390.8	363.7	316.5	1090.6	404.8
28	10.34	373.4	68.4	610.6	346.6	394	364.9	317	1082.6	406.6
29	10.21	373.4	68.3	612.3	346.8	391.3	364.8	315.9	1079.2	406.2
30	10.05	373	68.2	614.8	346.7	388.3	365.8	318.4	1077	406.8
31	9.91	371.9	68.3	609.6	344.8	365.6	368.4	320	1073.4	401.7
32	9.79	369.8	68.4	603.7	342.5	357.2	369.2	317.6	1071.6	398
33	9.64	367.3	68.6	599.7	339.6	351	369.1	319.3	1072.8	395.7
34	9.5	365.6	68.5	595.6	336.5	346.2	370.8	318.3	1074.6	393.5
35	9.38	363.7	68.3	585.4	333.3	342.7	371.3	320.7	1074.7	390.7
36	9.24	361.9	68.5	586.3	329.8	339.9	372.6	320	1076.5	389.7
37	9.12	361.8	69.1	587.2	326.7	337.4	373.6	320.1	1077.1	389
38	8.98	361.3	68.6	587.4	323.6	335.5	373.7	320.2	1076.4	388.1
39	8.83	361	68.9	584.6	320.9	332.7	375	320.7	1075.4	386.8
40	8.71	359.7	68.6	583.9	318.3	330.4	375.4	320.8	1073.7	385.8
41	8.58	358.6	68.8	582.5	315.6	329	375	322.1	1070.9	384.8
42	8.45	358	69.2	579.9	313.3	328	376.5	321.6	1071.1	383.9
43	8.3	356.9	68.9	578.8	311	327.3	378.5	322.1	1071.4	383.5
44	8.19	355.8	68.9	581.5	308.9	327.5	379.2	321.2	1070.6	383.7
45	8.06	355.4	68.7	579.8	307	330.2	378.9	321.3	1070.8	383.4
46	7.96	354.9	68.8	578.4	305.2	330.9	379.1	322.1	1068.5	383.1
47	7.8	355	68.9	579.8	303.4	331.6	380.1	322.3	1067.9	383.4
48	7.68	354.6	68.6	581.8	301.8	332.2	380.6	321.5	1066.5	383.6
49	7.55	353.8	68.7	582.5	300.3	333.6	382.2	322.1	1065	384.2
50	7.42	353.4	68.6	584.4	298.9	336	383.1	322.9	1063.1	385
51	7.31	352.5	68.8	582.8	297.5	338.1	384.1	322.1	1062.8	384.9
52	7.17	351.5	68.7	578.9	296.3	340.5	385.5	323	1061	384.8
53	7.06	351.4	68.8	574.5	294.9	340.6	386.7	323.2	1062.5	384
54	6.94	350.3	68.7	574.8	293.8	341.2	386.5	322.5	1062.7	383.8
55	6.83	349	68.8	568.8	292.8	343.1	388.6	322.9	1062.6	383.2
56	6.72	348.9	68.9	566.9	291.7	344.9	388	322.6	1059.3	382.8
57	6.61	348.5	68.8	565.2	290.8	346.4	388.9	322.1	1058.4	382.6
58	6.5	347.2	68.8	564.5	290	344.9	389.1	323.3	1057.8	382.3
59	6.39	347	69.3	569.2	289.2	343.2	391.2	324.4	1059.4	383.4
60	6.29	346.4	69.3	570.6	288.4	346.6	391.1	323.2	1059.3	384
61	6.19	345.6	68.9	571.7	287.6	349	391.1	323.9	1055.9	384.7
62	6.09	343.5	69.3	569.9	286.9	351.3	392.2	323.3	1051.4	384.7
63	5.99	342.6	69	568.7	286.4	347.9	391.9	322.4	1049	384.7
64	5.89	340.9	69.5	565.2	285.8	346.7	389.7	324.1	1046.4	382.3
65	5.79	339.4	69.2	563	285.3	352.2	391.9	325.2	1044.7	383.5
66	5.71	338.8	69.1	559.8	284.9	352.2	391.9	326.4	1041.6	383
67	5.62	337.9	69.5	556.5	284.5	350.9	390.5	322.2	1038	380.9
68	5.54	336.4	68.9	554	284.1	348.4	389.8	320.4	1033.4	379.3
69	5.44	334.3	69.1	552	283.5	349.6	390.8	321.4	1029	379.5
70	5.35	333.3	69.4	546.9	283	351.2	391.5	323.9	1024.1	379.3
71	5.27	332.1	69	544.7	282.6	356.2	392.7	326.1	1020	380.4
72	5.2	330.7	69.3	542.2	282.3	356.6	392.4	325.2	1015.3	379.8
73	5.12	329.8	68.7	538.9	282	358.6	391.8	326.3	1010.4	379.5
74	5.04	328.2	68.9	535.5	281.7	359.2	394.8	328.2	1004.5	379.9
75	4.97	326.3	69.1	528.8	281.4	359.6	394.3	327.3	996.9	378.3
76	4.9	324.5	68.6	521.9	281.1	359.6	395.5	328.2	988.6	377.3
77	4.83	322.7	69	522.8	280.7	360.2	395.4	328.8	981.4	377.6
78	4.77	321.2	68.9	518.1	280.4	359.5	397.6	328.4	975.6	376.8
79	4.69	320.2	69	532.2	280.2	358.2	396.3	330.4	970.8	379.4
80	4.65	318	68.5	530.3	279.9	359.7	395.9	330.1	962.9	379.2
81	4.59	316.5	67.9	533.6	279.7	358.7	393.4	330.2	955.8	379.1
82	4.53	315.1	68.2	522.5	279.4	357.2	395.5	330.4	951.7	377



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## 6/2/23 - 6/5/23

83	4.47	313.5	68.2	502	279.3	357.3	394.9	331.8	946.7	373.1
84	4.4	312	68.1	501.8	278.9	356	396.9	332.8	943.3	373.3
85	4.34	311	68.2	491.9	278.7	355.7	394.4	332.1	939.4	370.6
86	4.29	309.3	68.5	486.9	278.5	356	396.5	333.1	934.8	370.2
87	4.23	308.5	68.2	483.3	278.3	354.6	395.9	334.9	930.6	369.4
88	4.17	307.3	68.2	482	278.3	354.1	397.9	333.6	927.4	369.2
89	4.11	306.4	68	510.4	278.2	354.6	396.3	336.1	925.5	375.1
90	4.07	305.4	67.9	510.9	277.9	352.5	398.3	335.3	924.8	375
91	4	304.6	69.4	513.6	277.8	353.9	398.8	335.1	924	375.8
92	3.95	304	68.5	507.8	277.8	354.1	398	335.4	922.8	374.6
93	3.88	302.2	69.3	515.6	277.5	352.5	396.7	334.7	921.2	375.4
94	3.83	301.5	69.6	516.8	277.6	352.8	395.9	334.4	920.8	375.5
95	3.78	300.3	68.5	517.2	277.6	352.3	396.3	333.4	920.8	375.4
96	3.72	299.7	69.4	514.3	277.5	351.2	395.3	337.8	922	375.2
97	3.67	298.7	68.7	517.9	277.4	349.9	396.9	339.7	923	376.4
98	3.6	298.3	68.7	520.5	277.4	351.7	399.6	339.7	924.4	377.8
99	3.54	298.9	68.3	522.4	277.3	350.6	398.3	341	926	377.9
100	3.47	298.5	67.9	519.1	277.3	349.3	399.8	341.5	926.2	377.4
101	3.42	297.9	68.1	520.5	277.4	348.1	399.3	341.8	924.9	377.4
102	3.36	298.5	68	519.1	277.3	349.1	398.3	342.8	928.1	377.3
103	3.29	298.4	68.5	520.2	277.2	348.7	400.5	342.7	934.4	377.9
104	3.24	298.4	68.1	517.8	277.2	349.1	400.3	341.7	936	377.2
105	3.19	298.1	68.3	513.9	277.2	349.3	398.3	344.7	934.6	376.7
106	3.13	297.6	68	510.2	277.2	347.4	400.2	344.2	931.2	375.9
107	3.09	297	68.1	506.9	277.1	348.5	399.1	345.3	926.1	375.4
108	3.04	295.9	68	506.9	277.3	347.4	401.1	345.5	921.2	375.7
109	3.01	294.8	67.9	502.1	277.5	346.5	400.5	345.5	919.5	374.4
110	2.97	293.8	68	501	277.7	346.3	402	345	916.4	374.4
111	2.93	292.3	68	494	277.9	346.9	399.8	344.8	909.6	372.7
112	2.9	291.1	68.3	482.3	278.1	346.7	401.1	345.5	898.5	370.7
113	2.87	289.4	68.4	480.8	278.4	347.1	401.3	345.4	886.3	370.6
114	2.83	287.8	68.4	470.4	278.7	347.2	400.8	346.1	877	368.6
115	2.81	286.1	68.1	471.6	279	348.5	402.2	344.3	870.1	369.1
116	2.77	284.2	69.4	469.2	278.9	346.7	400.4	344.7	864.8	368
117	2.75	282.4	69	464.9	279.5	346.5	401.3	345.2	860.9	367.5
118	2.7	281.2	68.5	465	279.7	344.4	401.1	345	858.4	367
119	2.7	279.5	68.5	463.2	279.8	344.3	400.8	344.3	855.6	366.5
120	2.67	278.1	68.8	467.5	280.1	345.5	401.8	344.3	853	367.8
121	2.63	276.3	68.4	461.2	280.4	344.9	400.2	344.7	850.9	366.3
122	2.59	274.9	68.3	455.3	280.6	344.9	400.7	345	848.3	365.3
123	2.57	273.5	68.9	452.8	280.8	345.9	401.7	344.4	845.7	365.1
124	2.54	272.7	68.6	447	281.2	342.9	400.6	344.3	843.8	363.2
125	2.5	271.5	68.7	445.1	281.5	341.6	400.3	343.6	842.8	362.4
126	2.49	270.4	68.5	444	281.8	341.6	401.1	344.4	841	362.6
127	2.45	268.8	68.4	446	282.1	341.4	400.4	344.3	838.4	362.8
128	2.44	267.7	68.4	427.9	282.4	341	400.7	344.4	834.2	359.3
129	2.41	266.2	68.7	416.8	282.8	340.7	401.1	343.8	827.5	357
130	2.4	264.7	68.5	418.6	283.1	340.8	399.9	344.3	819.8	357.3
131	2.38	263.2	68.6	415.3	283.3	340	399.4	342.4	813.3	356.1
132	2.35	261.9	69.1	410.9	283.6	340.6	398.9	340.9	807.9	355
133	2.33	260.6	68.7	417.6	283.8	338.3	399.3	340.2	803.2	355.8
134	2.31	258.9	69.4	421.1	284.1	338.4	396.8	339	798.7	355.9
135	2.3	257.5	69	424.7	284.3	337.1	395.7	338.3	794.7	356
136	2.28	255.7	68.3	434.5	284.6	336.7	395.2	338.7	791.5	357.9
137	2.24	254.4	68.2	434.6	284.9	331.2	394.2	338.6	788.8	356.7
138	2.24	252.5	68.4	426.1	285.3	329.6	392.6	335.4	786.8	353.8
139	2.22	250.2	68.7	428	285.6	333.7	390.1	334.8	785	354.4
140	2.21	248.9	68.7	426.6	285.8	333.5	392.7	333.2	783.4	354.4
141	2.18	247.6	68.9	424.1	286.4	331.5	389.5	332.9	782.3	352.9
142	2.17	246	68.5	415.8	286.7	329.7	390.2	333.1	783.2	351.1
143	2.14	244.8	68.7	412.4	287.1	327.9	390.7	334.1	784.7	350.4
144	2.14	243.7	68.6	409.4	287.4	326.5	389.8	330.4	785.9	348.7
145	2.11	242.8	69	408.5	287.8	327.4	388.4	333.4	786.6	349.1
146	2.08	241.8	68.3	407.3	288	323.9	388.5	333.7	783.3	348.3
147	2.07	240.8	68.4	404.8	288	322.3	387.9	328.6	775.4	346.3
148	2.05	240.4	68.8	403.5	288.2	321	387.5	332.1	767.5	346.4
149	2.02	238.9	69	401.7	288.4	319	386.6	330.5	761.3	345.2
150	2.01	237.4	68.5	399.3	288.5	318	386.1	331.3	754.7	344.6
151	1.98	235.6	68.2	397.5	288.6	316.2	385.7	329.9	747.8	343.6
152	1.98	234.2	68.5	396.5	288.7	315.4	385.2	329.7	742.3	343.1
153	1.95	233.2	68.8	394.7	288.8	314.9	384	327.8	738.4	342
154	1.94	232.1	68.8	392.6	289	313.1	385	326.7	735.2	341.3
155	1.92	230.9	68.6	390.3	289.2	311.7	383.8	330.5	732.5	341.1
156	1.89	229.9	68.2	388.1	289.3	309.3	384.1	329.7	730.3	340.1
157	1.87	228.8	68.8	386.4	289.5	308.9	383.3	327.4	728.7	339.1
158	1.86	228.3	69.5	384.1	289.7	308.2	383	332.2	727.6	339.4
159	1.84	228.6	69	383	289.9	306.5	383.9	332.5	726.9	339.2
160	1.82	228.3	68.8	381.8	290	305.4	385	334.8	726.3	339.4
161	1.82	228.2	69	380.2	290	304.8	380.6	327.9	725.9	336.7
162	1.79	227.3	69.5	378.9	290.3	304.3	382.2	330.7	725.8	337.3
163	1.78	226.6	69.8	377.7	290.4	301.9	382	331.4	725.8	336.7
164	1.76	226.5	70.1	376.1	290.3	302	381.8	330.5	726	336.2
165	1.75	226.3	70.5	374.9	290.4	300.8	379.4	330.4	726.7	335.2
166	1.75	225.9	70.2	373.3	290.3	298.7	378.9	330.3	727.2	334.3

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167	1.7	225.4	70.6	373.2	290.3	298.9	380.5	330.5	727.5	334.7
168	1.69	225.1	69.9	371.9	290.2	297.8	381.4	330.9	727.5	334.4
169	1.68	225	70	371.4	290.1	297	379.8	331.2	727.3	333.9
170	1.66	224.4	70	370.8	290.1	295.9	381	329.6	727.1	333.5
171	1.64	224.2	70.5	369.9	290	294.8	377.4	329.3	727	332.3
172	1.62	223.6	70.3	369	289.9	294.3	378.9	329.2	725.5	332.3
173	1.6	223.3	70.2	368.5	289.9	294	376.2	329.8	722.8	331.7
174	1.6	223.2	70.4	368	289.7	292.5	377.9	327.8	720.3	331.2
175	1.56	222.3	70.3	366.3	289.6	292.1	376.4	326	718.6	330.1
176	1.54	222	70.6	365.4	289.5	291	376.2	327.5	717.6	329.9
177	1.54	221.6	70	365	289.4	291.6	375	325.5	717	329.3
178	1.52	220.6	70.2	363.8	289.2	290.1	373.3	325.7	716.6	328.4
179	1.49	220.7	70	363.3	289	289.2	374.9	324.6	716.2	328.2
180	1.48	220.2	70.3	362.4	288.9	288.6	372.4	324.9	715.7	327.5
181	1.47	219.7	70.6	362.2	288.7	287.7	373.8	325	715.3	327.5
182	1.45	219.4	70.4	361.4	288.5	286.8	373.1	326.3	715	327.2
183	1.43	219.2	70.8	361.1	288.3	286.5	371.7	323.7	714.9	326.3
184	1.42	219	70.6	360.6	288.1	286.9	370.2	323.2	715.1	325.8
185	1.4	218.4	70.6	359.7	287.7	286.1	371.9	322.4	715.5	325.6
186	1.37	218.1	70.9	359.2	287.7	283.8	369.9	323.4	715.9	324.8
187	1.36	217.9	71.1	358.6	287.4	283	370.2	322.6	716.2	324.4
188	1.35	217.3	70.7	357.9	287.2	282.8	369.5	322.5	716	324
189	1.33	217.2	70.6	357.9	287	282.1	369.3	321.6	715.8	323.6
190	1.31	217.1	70.7	357.3	286.8	281.2	368.4	322.4	715.8	323.2
191	1.3	216.7	70.7	356.8	286.6	281	367.8	321.5	715.8	322.8
192	1.29	216.6	70.5	355.8	286.2	279.7	365.8	320.5	715.9	321.6
193	1.27	216.3	70.5	355.9	286	279.1	366.4	319.6	716	321.4
194	1.25	215.9	70.8	355.3	285.8	279.1	366	320.3	716.1	321.3
195	1.24	215.9	70.4	354.8	285.3	277	366.3	317.4	716	320.2
196	1.22	215.3	70.5	354.3	285.1	276.3	364.6	317.4	715.5	319.5
197	1.21	214.8	70.7	353.6	284.7	276.6	365	318.8	713.7	319.8
198	1.2	214.9	71.1	352.9	284.5	276	363.6	318.6	711.7	319.1
199	1.18	214.1	70.5	352.4	284.1	275.5	363.9	318.6	710.1	318.9
200	1.16	213.6	70.7	352.1	283.8	275.9	363.1	315.7	709.3	318.1
201	1.13	213.3	71	351.3	283.5	275.4	362.8	315.9	709.4	317.8
202	1.12	213.5	70.4	350.7	283.2	274	361.7	316.2	709.6	317.2
203	1.12	213.1	70.6	350.2	282.9	273.2	359.9	312.6	709.9	315.8
204	1.09	212.8	70.8	349.9	282.7	272.6	360.5	314.2	710.4	316
205	1.09	212.5	71.1	349.6	282.4	272.2	359.5	313.6	711.2	315.4
206	1.06	212.3	70.9	349.2	282.2	271.5	357.5	315.4	711.9	315.2
207	1.06	212.2	71	348.4	281.8	271.3	357.5	314.3	712.3	315.2
208	1.04	212.1	70.7	347.5	281.6	271.4	356.9	314.5	712.5	314.4
209	1.01	211.9	70.7	347.4	281.4	271.5	356.1	313	712.6	313.9
210	1.01	211.5	70.9	347	281.1	270.8	355.8	312.8	712.7	313.5
211	0.98	211.1	71.2	347	280.7	270.3	356.5	311.1	712.9	313.1
212	0.97	211	70.7	346.8	280.6	270.6	355.6	310.1	713.1	312.7
213	0.95	210.5	70.8	346	280.3	270.8	353.5	309.1	713.2	311.9
214	0.94	210.7	71.1	345.9	280	270.4	352.7	307.7	713.3	311.3
215	0.92	210.3	70.9	345.5	279.5	270.3	352.9	310.9	712.5	311.8
216	0.92	210.3	71.2	344.9	279.2	270.6	351	308.6	710.8	310.9
217	0.89	209.9	71.3	344.4	278.9	269.9	350.7	310.6	709.3	310.9
218	0.87	209.3	70.9	343.9	278.6	268.8	351.5	306.8	708.4	309.9
219	0.87	209.4	70.9	343.1	278.2	269.7	349.9	308.8	708.4	310
220	0.86	208.9	70.9	342.9	277.9	269.9	349.2	307.7	709.4	309.5
221	0.84	208.4	71	342.4	277.6	268.9	348.9	308.9	710.1	309.3
222	0.81	208.3	71.7	342.2	277.3	267.9	349.3	305.4	710.3	308.4
223	0.8	208.4	71.4	341.8	277	268.2	347.8	305.6	710	308.1
224	0.79	208.1	70.7	341.3	276.7	266.9	346.6	305.3	707.4	307.4
225	0.78	207.3	70.8	340.9	276.4	266.5	345.3	306.5	704.1	307.1
226	0.75	207	71.2	340.3	276.1	266.2	346.3	305.1	701.7	306.8
227	0.74	206.7	71.2	339.5	275.9	265.3	344.5	306.2	700.1	306.3
228	0.73	206.6	70.5	338.7	275.5	264.4	342.8	305.5	699.3	305.4
229	0.73	206.2	70.9	338.5	275.3	264.4	341.7	304.5	699.1	304.9
230	0.71	205.8	70.8	337.9	275	263	343	304	699.2	304.6
231	0.69	205.6	70.5	336.9	274.8	263.4	342.1	301.9	699.3	303.8
232	0.67	205.4	70.9	336.4	274.5	263.6	340.9	303.8	699.6	303.8
233	0.66	205.5	70.7	336.1	274.4	262.5	341.5	302.1	699.7	303.3
234	0.64	205.3	70.4	335.9	274.1	260.9	340.3	302.5	699.4	302.7
235	0.63	205.2	70.8	335.4	274	261.4	339.5	302.2	699.2	302.5
236	0.61	205	70.7	334.4	273.6	261.6	339.3	303.7	699.1	302.5
237	0.6	204.9	70.8	333.8	273.4	261.3	338.2	300.6	699	301.5
238	0.59	204.7	70.3	333.8	273.1	260.9	336.4	302.1	698.8	301.3
239	0.58	204.3	70.8	333.2	273	261.1	336.9	303	698.3	301.4
240	0.56	204.3	70.6	331.7	272.6	260	333.8	301.5	697.8	299.9
241	0.54	204.4	70.6	330.3	272.4	257.7	335.8	301	697.2	299.4
242	0.53	204.1	70.5	327.5	272.1	256.9	334.3	301.3	696.8	298.4
243	0.51	203.9	70.8	324	271.9	255	334.2	301.1	696.4	297.3
244	0.51	203.7	70.8	320.5	271.7	253.7	333.5	301	695.7	296.1
245	0.49	203.8	70.6	311.6	271.3	252.1	333.2	300.4	694.6	293.7
246	0.48	203.2	70.3	302.4	271.1	250.5	331.7	299.1	692.7	291
247	0.46	203	70.4	301.5	270.6	250.9	331	300	691.6	290.8
248	0.45	203.1	70.4	307	270.3	251.8	329.6	297.4	692	291.2
249	0.44	203	70.4	317.3	270.2	251.8	328.7	295.2	692.7	292.6
250	0.42	202.8	70.7	322.1	269.7	249.6	327.6	297.9	692.8	293.4

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## 6/2/23 - 6/5/23

251	0.4	202.4	70.4	322.7	269.3	248.4	326.9	297.1	692.5	292.9
252	0.4	202.5	70.4	319.5	268.9	246.9	326.5	297.5	692.2	291.9
253	0.37	202.4	70.3	320.2	268.6	247.1	325.7	296.7	692.2	291.7
254	0.38	202	70.3	326.1	268.1	248	324.2	296.9	692.3	292.7
255	0.36	202.2	70.6	322.1	268.1	248.3	322.3	295.4	692.1	291.2
256	0.35	201.8	70.5	324.9	267.6	248	322.6	295.4	691.6	291.7
257	0.33	201.7	70.4	325	267.2	248.4	321.5	294.7	691	291.3
258	0.33	201	70.4	324.4	267	249.7	320.8	295.3	689.9	291.4
259	0.29	201.3	70.3	323.5	266.6	248.9	320.1	296.1	689	291
260	0.29	201.3	70.3	323.9	266.3	249.4	319	293	688.9	290.3
261	0.28	201.2	70.5	322.6	265.8	248.5	317.6	294.5	689.7	289.8
262	0.26	201.5	70.4	322.4	265.5	249.1	317.3	292.8	690.3	289.4
263	0.26	201	70.3	322.3	265.1	249.6	316.5	293.4	690.1	289.4
264	0.24	200.6	70.5	321.9	265	248.9	315.1	292.8	689.4	288.7
265	0.22	200.4	70.2	320.5	264.7	249.5	314.2	292.6	689	288.3
266	0.22	200.1	70.6	320.8	264.3	247.8	313.1	290.7	689	287.4
267	0.21	200	70.6	320.7	263.9	247.1	312.1	292.6	688.8	287.3
268	0.19	199.8	70.5	320.7	263.5	246.2	310.5	291	688.5	286.4
269	0.18	199.9	70.6	319.5	263.3	246.6	310.4	290.8	687.8	286.1
270	0.17	199.8	70.7	318.5	263.2	245.2	309.6	290.1	686.2	285.3
271	0.15	199.5	70.4	318.5	262.8	245.6	308.5	290.7	684.3	285.2
272	0.14	199.3	70.5	317.6	262.5	244.5	308.3	289.9	682.7	284.6
273	0.13	199.2	70.4	317.4	262.1	244.5	308.1	289.3	681.7	284.3
274	0.12	198.6	70.4	316.9	261.9	244.2	307.6	288.9	679.9	283.9
275	0.1	198.2	70.5	316.5	261.6	243.6	305.5	288.7	676	283.2
276	0.09	197.8	70.6	315.9	261.3	243.5	304.7	288.5	670.2	282.8
277	0.08	197.5	70.4	315.1	261.1	242.7	303.6	288.9	664.9	282.3
278	0	196.8	70.8	314	260.9	243.3	303.5	286.7	661.1	281.7

Tests were done at a medium low air setting

Test load average moisture content 20.1%

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## 6/2/23 - 6/5/23

Elapsed Time (m)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	13.19	293.4	72.7	369.7	339.6	348.7	414.2	351.4	710.2	364.7
1	13.15	305.5	72.7	366.2	342.3	359	413.1	348.9	623.3	365.9
2	13.08	305.2	72.7	379.7	345.5	361.6	409.2	348.4	641.4	368.9
3	13.01	306.4	73.1	379.8	349	361.9	407.8	346.3	712.4	369
4	12.93	313.7	72.5	382.9	352.4	359.9	405.9	344.8	772.6	369.2
5	12.85	323.3	71.9	385.2	355.8	362.3	402.1	341	812.1	369.3
6	12.77	302.9	72.5	392.1	359.1	361.7	395.9	340.8	807.9	369.9
7	12.71	288.9	72.8	397.8	362.2	362.7	393.1	339.8	828	371.1
8	12.63	281.9	72.7	404.1	364.9	362.1	390.8	336.4	850.3	371.7
9	12.56	278.5	72.8	408.1	367.5	361.4	387.4	333.9	867.6	371.7
10	12.49	276.6	72.6	414.2	369.7	356.3	384.3	332.8	888.6	371.5
11	12.42	276.2	72.8	417.8	371.7	355.1	380.9	331.7	907.5	371.5
12	12.33	277.3	72.5	423.3	373.4	354.2	379.7	328.7	924.5	371.9
13	12.25	278.7	73.1	430.1	374.8	356.4	375.6	328.1	937.5	373
14	12.16	280.3	73.1	436.5	376	359.3	372.9	326.4	954.6	374.2
15	12.09	282.3	72.8	442.1	376.9	360.3	371.6	323	965.7	374.8
16	11.98	285.4	73	449.1	377.7	361.5	366.5	321.1	974.8	375.2
17	11.88	289.2	72.6	455.2	378.3	359.8	366.1	320.9	988.5	376
18	11.76	293.6	72.9	462.3	378.7	359.1	364.4	317.2	1009.1	376.3
19	11.67	298.3	72.8	469.2	378.9	359.6	359.5	315.6	1027.3	376.6
20	11.54	302.4	73	477.1	379.1	360.3	357.7	315	1039.6	377.9
21	11.42	306.5	73.2	483.3	379.1	362.1	356.4	314.1	1049.5	379
22	11.28	310.4	71.8	490.5	379	360.7	353.4	313	1056.1	379.3
23	11.16	314.3	71.9	499	378.9	359.8	352.1	310.5	1062.6	380
24	11.05	317.8	72.4	506.2	378.6	362.2	352.3	310.4	1071.8	381.9
25	10.91	320.9	72	510.9	378.3	363.3	350.6	311.2	1075.6	382.9
26	10.78	322.4	72.2	514.2	377.8	363.2	347.4	309	1077.1	382.3
27	10.65	325.2	72.4	519.8	377.4	364.7	347.2	309	1082.2	383.6
28	10.51	326.8	72.2	524.3	376.8	365.8	346.5	309.3	1081.4	384.5
29	10.38	329.5	72.5	530.3	376.2	368.3	344	308.7	1074.2	385.5
30	10.25	330.9	72.4	533.4	374.8	358.2	345.3	309.1	1062.9	384.2
31	10.12	331.3	72.4	526.8	371.9	349.6	345.2	305.6	1054.1	379.8
32	9.98	331.1	72.3	526.7	368.5	343.7	343.5	304.3	1044.9	377.3
33	9.86	330.1	72.5	524.5	364.7	338.3	341.6	302.5	1039.5	374.3
34	9.7	329.5	72.9	513.9	360.7	332.8	340.7	302.9	1035.8	370.2
35	9.56	328.7	72.4	509.9	356.5	327.9	339	302.7	1033.5	367.2
36	9.42	328.1	72.2	506.9	352.3	324.2	338.8	303.3	1033.2	365.1
37	9.28	327.3	72.5	508	348.5	322.1	341.7	301.3	1033	364.3
38	9.15	326.8	72.5	511.4	344.8	319.9	339.7	302.1	1034.2	363.6
39	9.04	326.7	72.2	509.9	341.2	317.9	339.8	302	1037	362.2
40	8.87	326.3	72.6	509.3	337.9	315.9	340.2	300.4	1036.7	360.8
41	8.73	326	73.4	506	334.7	313.1	340.2	302.9	1038.3	359.4
42	8.59	326	72.6	497.6	331.8	305.1	341.3	299.3	1039.9	355
43	8.47	325.8	72.2	498.1	329	302.4	339.6	301.3	1036.6	354.1
44	8.34	325	72.6	498.4	326.5	298.9	342.2	300.8	1034.4	353.3
45	8.2	324.9	72.4	498	324	294.2	341.4	303.6	1034.6	352.3
46	8.08	325.3	72.4	497.2	321.7	297.8	342.7	303.9	1035	352.6
47	7.93	325.8	72.6	499.1	319.7	298.7	343.4	300.4	1039.4	352.2
48	7.81	325.8	72.5	496.7	317.7	300.3	344.7	301.6	1039.3	352.2
49	7.68	326.4	72.8	497.8	316.1	302.2	343.9	303.5	1042	352.7
50	7.55	325.9	72.9	502.6	314.3	305.1	344.5	303.6	1038	354
51	7.44	324.1	72.9	509.8	312.8	308	345.1	302.8	1034.4	355.7
52	7.32	322.9	72.6	514.7	311.3	307.7	345.9	303.5	1031.8	356.6
53	7.22	321.8	72.8	515.1	309.9	309.9	347.1	302.6	1031.2	356.9
54	7.11	320.2	72.9	510.5	308.6	314.2	347.1	305.1	1028.6	357.1
55	7.01	319.1	72.6	507.9	307.2	317.9	347.6	304.5	1027.1	357
56	6.88	317.8	72.5	509.9	305.9	321.6	349.4	305.8	1024	358.5
57	6.78	317.3	72.9	509.3	304.8	328.4	349.3	304.3	1022.7	359.2
58	6.67	317.1	73.1	506.8	303.7	326.8	352.2	306	1022.9	359.1
59	6.58	317	73.1	503.6	302.5	326.4	354.8	310.6	1021.6	359.6
60	6.48	317	73.3	503.6	301.4	331.9	353.4	309	1025.2	359.9
61	6.36	317.9	73	507.7	300.5	339.2	354.2	305.9	1029.3	361.5
62	6.27	318.3	73.1	508.5	299.7	343.2	354.5	305.2	1030.3	362.2
63	6.15	318.3	72.9	500.5	298.8	349.5	352.6	307.9	1034	361.9
64	6.04	318.5	72.8	501.3	297.8	358.2	354.3	308.3	1036.6	364
65	5.95	318.7	73.1	500.5	297.1	358.6	353.4	308.1	1036.5	363.5
66	5.85	318.9	73.1	501.3	296.3	361.9	355.3	307.7	1034.9	364.5
67	5.75	318	73.3	501.9	295.6	363.2	354.8	309.4	1033.3	365
68	5.65	317.4	73.8	502.4	294.9	364.8	355	309.4	1031.8	365.3
69	5.56	316.8	73.1	500.2	294.4	366.6	355.3	308.4	1031.9	365
70	5.47	316	73.2	496.8	293.8	369.3	355.8	308.7	1033.5	364.9
71	5.4	315.2	74.1	496	293.2	374.1	354.5	310	1034.9	365.6
72	5.31	314.9	73.7	498.4	292.6	376.6	356.5	311.5	1033.3	367.1
73	5.21	314.1	74.1	502.3	292.3	377.8	356	309.8	1029.9	367.6
74	5.14	313.3	74.1	503.5	291.8	379.4	357.6	310	1029.8	368.5
75	5.06	313	73.5	502.8	291.2	380.2	357.2	309	1029.6	368.1
76	4.97	312.4	73.5	495.8	290.7	378.7	357.4	313.5	1026.1	367.2
77	4.9	311.5	73.8	487.4	290.3	380.7	357.5	310.8	1023	365.3
78	4.82	311	73.5	475.9	289.9	382	357.1	314.3	1019.7	363.8
79	4.75	311.3	73.2	473.2	289.6	383.1	358.6	314.1	1017.3	363.7
80	4.66	310.4	73.4	470.2	289.1	381.2	360.6	317	1013.2	363.6
81	4.6	310	73.5	479.3	288.7	379	359.7	317.7	1007.5	364.9
82	4.52	309.5	73.7	484.4	288.4	377.6	360.3	317	999.7	365.6
83	4.45	308.5	73.7	476.5	288.2	379.5	361	321.3	992.2	365.3
84	4.39	307.8	73.9	466.9	287.8	380.5	364.5	323.7	985.3	364.7
85	4.32	306.6	73.8	460.6	287.6	381	364.4	322.5	979.3	363.2
86	4.26	305.8	74	459.8	287.4	381.4	366.6	325	973.4	364
87	4.19	305.1	74.5	459.3	287.2	381.8	364	324.7	966.4	363.4
88	4.12	304	74.5	459.9	286.9	380	367	324.5	960.7	363.7
89	4.05	303.2	74.4	461.7	286.7	382.2	366	324.7	956.8	364.3
90	3.99	302.2	74.3	460.8	286.7	380.9	367.4	326.5	955.1	364.4
91	3.92	301.5	74.4	468	286.5	380.2	366	325.6	954.3	365.2
92	3.88	301.4	74.4	474	286.5	379.9	368.8	328.1	955.1	367.5
93	3.81	300.8	74.4	474.8	286.4	379.9	368.6	327.9	957.2	367.5
94	3.73	300.3	74.5	470.9	286.3	380.7	371.5	328	959.1	367.5
95	3.67	300.4	74.3	469.7	286.2	380.9	369.2	329.8	961.5	367.2
96	3.62	299.4	74.5	470.5	286.2	380.3	372.1	328.9	961	367.6
97	3.56	298.2	74.4	472	286.2	379.7	368.2	329.1	956.3	367.1
98	3.5	297.2	74	461.4	286.2	379.7	368.9	326.5	950.3	364.5
99	3.45	296.4	73.1	450.5	286.2	379.3	369.5	330.2	945.1	363.1
100	3.4	295.5	73.6	456.5	286.3	378.9	374	330	940	365.1
101	3.34	294.2	74.5	457.9	286.3	379.8	375	333.2	934.6	366.4
102	3.28	292.4	74.7	456	286.4	378.3	374.6	334	929.6	365.7
103	3.24	292.4	74.8	454	286.5	378.4	371.7	332.8	921.5	364.7

# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

104	3.19	291.3	74.8	449.3	286.5	379.6	375.3	334.1	915.1	365
105	3.13	289.5	74.8	458	286.6	378.5	372.9	334.3	910.3	366.1
106	3.07	287.8	75.1	465.7	286.7	379.8	374.6	334.4	906.1	368.1
107	3.05	285.8	74.7	457.1	286.8	380.1	375.2	335.1	898.6	366.8
108	3.01	284.2	74.9	453.4	286.9	381.2	374.6	336.8	889.4	366.6
109	2.97	282.3	74.7	443.7	287.3	380.4	376.8	336.7	878.9	365
110	2.94	279.9	74.9	440.6	287.4	380.8	379.4	336.8	866.5	365
111	2.91	277.9	75.3	432.9	287.6	380.3	378.8	338.3	856.1	363.6
112	2.86	275.8	75.3	433.1	287.7	381.9	378	337.2	848.3	363.6
113	2.83	274.1	75.4	431.7	287.9	380.7	379	338.9	842.1	363.7
114	2.81	272.1	75.2	425.7	288.2	382.9	380.2	339.7	837.2	363.3
115	2.78	270.5	75.5	423.8	288.2	381.3	381.8	338.9	832.8	362.8
116	2.74	268.9	75.7	423.2	288.6	380.4	381.4	339.5	828.8	362.6
117	2.71	267.6	75.4	421.2	288.7	380.5	380.1	339.7	825.3	362
118	2.69	266.1	75.4	433.7	288.9	380.4	379.9	339	822.3	364.4
119	2.66	265.2	75.6	423.6	289.3	380.2	383.9	338.2	818.9	363
120	2.64	263.7	75.3	427.4	289.5	379.4	382.7	336.3	815.6	363
121	2.6	262.5	75.4	425.4	289.8	379.5	382.8	339.1	813.1	363.3
122	2.58	261.1	75.5	423.3	290	379.5	380.6	339.1	810.8	362.5
123	2.55	259.9	75.7	416.4	290.3	376.8	380.2	339.7	808.8	360.7
124	2.52	258.7	75.4	421.6	290.5	375.8	383.2	338.6	807.2	361.9
125	2.49	257.6	75.5	425.6	290.8	376.2	381.7	338.6	805.6	362.6
126	2.47	256.1	75.6	426.1	291	376.5	382.2	337.9	804.1	362.7
127	2.45	254.9	75.6	416.6	291.2	374.9	381.6	336.4	802.8	360.1
128	2.41	253.5	75.6	416.5	291.3	376.4	382.3	336.3	801.3	360.6
129	2.4	252.6	75.9	407.3	291.5	377.9	382.1	337.6	800.1	359.3
130	2.38	251.8	75.4	404.5	291.7	378.3	381.3	337.4	799.2	358.6
131	2.36	250.7	75.6	404	291.9	377.4	381.1	337.8	797.7	358.4
132	2.31	249.9	75.7	404.7	292.1	376.3	382.1	336.9	796	358.4
133	2.3	248.3	75.6	406.5	292.1	372.2	382.9	334.6	793.8	357.7
134	2.28	247.5	76	405.9	292.4	356.5	382.5	334.9	788.8	354.4
135	2.24	246.5	75.7	405.5	292.4	345.2	383	334.9	781.5	352.2
136	2.23	245.2	75.8	407.8	292.6	346.8	382.4	334.8	774.8	352.9
137	2.22	244	75.7	404.2	292.8	353.2	382.3	334.8	770.2	353.4
138	2.2	242.6	75.8	400.1	292.8	348.8	382.7	335.6	767.1	352
139	2.17	241.7	76	399.5	293	347.1	383.5	335.7	764.5	351.8
140	2.17	240.7	75.8	399.2	293	339.5	382.6	333.9	762	349.6
141	2.14	239.9	76	397	293.1	332.6	381	335.1	759.6	347.8
142	2.12	239	75.7	395.4	293.1	329.1	380.4	332.3	758.1	346.1
143	2.1	237.9	75.9	392.7	293.3	324.5	380.8	332.8	757.2	344.8
144	2.09	237.3	75.8	391.1	293.3	327.7	380.6	332.9	755.7	345.1
145	2.08	236.3	75.8	388.9	293.3	334.6	380.2	330.9	753.7	345.6
146	2.05	235.5	76.2	386.8	293.4	344.3	380.6	332.3	751.6	347.5
147	2.03	234.9	75.8	385.2	293.4	348	379.7	332.8	749.6	347.8
148	2.01	234.2	75.6	383.8	293.5	353.8	379.8	331.9	747.7	348.5
149	2.01	233.1	76.1	380.6	293.4	352.4	381.1	330.7	746	347.6
150	1.98	232.6	76	380	293.5	352.5	378.9	329.3	744.4	346.8
151	1.96	231.9	75.8	380.1	293.5	351.7	378.5	329.2	742.9	346.6
152	1.94	231.6	75.8	379	293.6	350.8	378.8	327.9	741.7	346
153	1.93	230.1	75.9	377.3	293.6	350.3	378	327.3	740.6	345.3
154	1.91	229.5	76	376.6	293.7	350.7	378.2	328.1	739.6	345.4
155	1.89	229	76.1	374.9	293.7	346.6	379.3	327.8	738.7	344.5
156	1.88	228.5	76	373.3	293.8	346.6	375.4	327.4	737.7	343.3
157	1.86	227.9	75.9	372.8	293.8	344.5	374.6	327.9	736.8	342.7
158	1.83	227.2	76.1	370.9	293.8	340	373.7	327.2	735.7	341.1
159	1.82	226.2	75.7	369.5	293.8	339	374.3	325	734.6	340.3
160	1.79	225.9	75.9	368.6	293.8	340.6	374.3	325.9	729.6	340.6
161	1.79	225.4	76.1	367	293.8	341.1	373.2	323.9	721.1	339.8
162	1.77	224.6	76	366.2	293.9	340.8	371.3	325.5	713.5	339.5
163	1.75	223.9	76.2	365.1	293.9	340	373.2	324.3	708	339.3
164	1.73	223.1	76	363.7	294	339.1	370.7	324	704.3	338.3
165	1.72	222.5	76	363.1	294	337.3	371.1	321.7	701.8	337.4
166	1.7	221.7	76	361.6	294	338.1	369.2	322.3	699.8	337
167	1.68	221	75.8	359.9	294.1	337	368.7	321.3	698.2	336.2
168	1.66	220.5	75.7	358.8	294.1	335	370.7	321.4	697.2	336
169	1.66	219.9	76	357	294.1	333.1	369.1	321.9	696.3	335
170	1.64	219.3	75.9	356.2	294	332.6	368.5	318.7	695.4	334
171	1.61	218.7	76.3	353.9	294.1	333.1	367.5	317.5	694.7	333.2
172	1.6	218	76.2	352.9	294.2	330.8	365.7	320.2	694.2	332.7
173	1.58	217.7	76.3	352.1	294.2	329.2	366.7	318.8	693.7	332.2
174	1.57	217.4	75.9	350.8	294.4	327.5	366.5	318.4	693.3	331.5
175	1.55	216.9	75.9	348.6	294.3	328	365.6	316.7	692.9	330.7
176	1.53	215.9	76.2	347.4	294.4	328.1	364.5	318	692.7	330.5
177	1.52	215.6	76	347.2	294.4	330.3	365.3	317.4	692.5	330.9
178	1.5	215.1	76.1	346.3	294.6	331.7	364.7	314.7	692.5	330.4
179	1.49	214.8	76	345.1	294.4	331.2	363	315	692.3	329.7
180	1.48	214.5	76.1	344.6	294.5	331.2	362.8	314.1	692	329.4
181	1.45	214.2	75.8	344.2	294.4	330.4	363	313.3	691.9	329.1
182	1.42	213.5	75.8	343.8	294.5	329.8	362.2	313.2	692	328.7
183	1.42	213.3	76	342.7	294.6	328.6	362.7	312.5	692.4	328.2
184	1.4	213	76	342	294.5	328.1	362.8	313.5	692.6	328.2
185	1.39	212.3	75.9	341.7	294.5	327.7	359	309.6	692.9	326.5
186	1.38	212.2	76	341.5	294.5	326.5	361.3	312.6	693.2	327.3
187	1.36	211.7	76	340.8	294.4	326	360.7	310.6	693.3	326.5
188	1.35	211.5	76	340.2	294.5	325.8	359.2	310.4	693.4	326
189	1.33	211.1	75.7	339.4	294.4	323.4	357.9	307.9	693.6	324.6
190	1.31	210.8	76	339.3	294.5	323.3	358.6	311.9	693.8	325.5
191	1.3	210.6	76.3	338.8	294.4	321.3	357.9	306.7	694	323.8
192	1.29	210.3	75.9	338.3	294.3	319.8	357	307.2	694.1	323.3
193	1.27	209.5	76.1	338.1	294.3	320.9	356.2	306.5	694.3	323.2
194	1.25	209.4	75.9	338	294.1	318.3	355.6	308.3	695.1	322.9
195	1.24	209.1	76	337.9	294	318.4	357.2	308	696.2	323.1
196	1.23	208.9	76	337.3	293.8	316.6	355.4	305.4	697	321.7
197	1.21	208.8	75.9	336.9	293.8	317.3	354.6	306.6	697.7	321.8
198	1.19	208.4	75.9	336.7	293.7	316	353.4	302.8	697.9	320.5
199	1.18	208.1	76	336.4	293.5	316.4	352.3	303.5	698.1	320.4
200	1.17	208	76	335.9	293.4	316.8	352.9	303.8	698.2	320.6
201	1.17	207.8	76.2	335.5	293.2	317	352.3	304.8	698.2	320.6
202	1.14	207.5	76	335.2	293	316.6	352	303.3	697.9	320
203	1.12	207	76	334.3	292.9	315.7	350.4	302.6	697.3	319.2
204	1.12	206.8	76	334.7	292.7	316.1	350.4	303.6	696.7	319.5
205	1.1	206.8	76	334.7	292.6	314.1	350.7	301.8	696.1	318.8
206	1.08	206.6	76.2	334.9	292.4	314.4	349.4	302.3	695.7	318.7
207	1.06	206.2	76.2	334.6	292.2	312.6	349	302.2	695.6	318.3
208	1.05	206	76.1	334.7	292.1	311.9	348	300.5	695.5	317.4

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209	1.04	205.8	76.2	335.1	291.8	311.8	348	298.9	691.5	317.1
210	1.03	205.4	76.1	334.2	291.6	310.4	346.7	298.3	685.2	316.2
211	1	205.1	76	333.7	291.4	310.2	346.3	299.5	679.8	316.2
212	0.99	204.8	76.2	333.2	291.2	309.3	345.7	299.1	676.1	315.7
213	0.96	204.6	76.2	332.2	291.1	309.1	346.4	296.8	673.4	315.1
214	0.96	204	76.1	331.1	291	308.2	343.9	297.6	671.6	314.4
215	0.94	203.3	76.1	330	291.1	309.5	344.6	298.1	670.4	314.7
216	0.92	203	76	329.1	291.1	307.8	345.2	299.7	669.6	314.6
217	0.91	203	76.1	327.7	291.2	307.1	344.4	297.2	668.9	313.5
218	0.9	202.6	76	326.9	291.1	305.9	343	295.4	667.5	312.5
219	0.88	202.1	76.5	326.4	291.2	305.9	341.9	295.8	666	312.2
220	0.88	201.6	76.3	325.4	291.3	305.3	341	296	664.7	311.8
221	0.84	200.9	76.2	324.5	291.4	305.3	342	295.8	664	311.8
222	0.84	200.7	76.3	324	291.5	305.2	340.9	296.9	663.8	311.7
223	0.81	200.5	76.4	323.1	291.5	304.1	340.6	296.7	663.8	311.2
224	0.81	199.9	76	322.8	291.7	303.4	339.2	296.5	663.8	310.7
225	0.79	199.8	76.1	322.2	291.8	302.9	338.4	297.8	663.9	310.6
226	0.78	199.7	76	321.7	291.9	301.7	338.4	297.4	659.5	310.2
227	0.76	199	76	321.1	291.9	300.3	337.3	294.7	651.8	309
228	0.75	198.5	76.2	320.1	292	298.1	336.9	296.6	645.7	308.7
229	0.74	198.2	76.1	319.4	292	297.2	335.2	294.3	641.8	307.6
230	0.72	197.5	76.2	318.3	292	298.1	335.2	296.2	640.4	308
231	0.73	196.7	76	317	292.2	296.1	335.9	296.3	640.3	307.5
232	0.7	196.3	76.4	316.4	292.3	297.2	332.7	293.8	640.9	306.5
233	0.68	196.1	76.2	315.6	292.4	296	334.1	293.9	641.4	306.4
234	0.66	195.6	76.2	314.5	292.6	294.5	331.9	293.3	641.8	305.4
235	0.65	195	76.1	313.6	292.7	294.6	331.1	291.8	642.2	304.7
236	0.64	194.8	76.2	313	292.8	294.1	330.2	291.8	642.5	304.4
237	0.61	194.2	76	312.2	292.8	292.8	329.4	292.4	642.6	303.9
238	0.6	193.6	76.4	312	292.9	292.8	327.9	292.9	642.5	303.7
239	0.6	193.2	76.2	311.5	292.9	291.5	327.1	291.9	642.6	303
240	0.58	192.8	76.3	310.5	293.1	291.9	327.9	291.4	643	303
241	0.57	192.5	76.3	309.9	293	290.4	326	290.6	643.3	302
242	0.56	192.2	76	309.4	293.1	289	324.8	290.5	643.2	301.4
243	0.53	192	76.3	309.1	293	288.2	326.1	290.4	643.1	301.4
244	0.53	191.5	76.4	308.8	293.2	287.5	324.2	290.3	642.8	300.8
245	0.51	191.4	76.3	308.3	293.1	287.1	325	292.2	642.4	301.2
246	0.5	190.8	76.6	308.1	293.1	286.8	323.1	291	642	300.4
247	0.5	190.7	76.1	307	293.1	285.9	322.8	290.7	641.8	299.9
248	0.48	190.4	76.4	306.7	293.1	286.2	321.7	288.7	641.8	299.3
249	0.47	190.3	76.2	306.7	293.1	284.6	320.5	289.4	642	298.9
250	0.44	190.1	76.4	306.3	293	283.5	321.2	288.8	642.1	298.6
251	0.43	189.7	76.2	306	292.9	283.3	320	289.1	642.1	298.3
252	0.43	189.6	76.4	305.4	292.9	283.7	319.6	288	642.2	297.9
253	0.4	189.3	76.5	305.3	292.8	283.5	317.5	287.8	642.3	297.4
254	0.4	189.1	76.6	304.7	292.7	281.5	318.5	285.6	642.3	296.6
255	0.39	188.9	76.8	304.5	292.6	282	317.8	286.2	642.3	296.6
256	0.37	188.6	76.5	304.1	292.5	281.5	316.5	285.8	642.3	296.1
257	0.36	188.3	76.6	304.1	292.4	282	316.5	285.2	642.4	296
258	0.35	188.3	76.5	303.1	292.2	281.7	316.1	285.8	642.2	295.8
259	0.33	188.1	76.9	302.9	292.1	282.8	315.4	285.4	641.8	295.7
260	0.32	187.7	77.2	302.6	292	281.7	315.1	284.8	641.6	295.2
261	0.31	187.8	77	302.2	291.9	281.4	314.3	285.1	641.1	295
262	0.3	187.6	76.7	302.2	291.6	279.3	313.6	283.5	639.8	294
263	0.28	187.7	76.8	302.1	291.5	280.6	313.5	283.2	638.9	294.2
264	0.26	187.3	76.5	301.4	291.4	281.1	312.8	284	638.9	294.1
265	0.26	187.3	76.8	301.2	291.1	280.7	311.8	285.4	639.4	294
266	0.23	187.2	77.2	300.8	291	279.5	312.1	284.2	639.6	293.5
267	0.23	187.3	76.4	300.8	290.7	278.9	311	282.7	640.2	292.8
268	0.22	187.4	77.3	300.8	290.6	278.5	310.9	282.1	641.4	292.6
269	0.2	187.2	77.1	300.3	290.4	278.7	309.6	283.2	642.7	292.5
270	0.18	187.3	77.6	300.2	290.2	277.3	308.5	280.8	643.9	291.4
271	0.18	187	77	299.9	289.9	277.2	309.1	281.1	644.9	291.4
272	0.16	187	76.6	300.1	289.8	277.2	308.2	281.3	645.7	291.3
273	0.16	187.1	76.9	299.9	289.5	276.3	307.2	281	646.7	290.8
274	0.14	186.9	77.3	299.8	289.1	275.7	307.3	280.3	647.6	290.4
275	0.12	186.9	77	299.8	288.9	274.6	306.2	280.8	648.3	290
276	0.11	186.6	76.7	299.2	288.7	274.9	305.4	280.2	648.4	289.7
277	0.11	186.4	77.1	298.8	288.4	274.6	304.6	280.2	646.4	289.3
278	0.09	186.5	77.1	299	288	273.4	304.5	280.1	642.1	289
279	0.06	186.2	77.1	298.8	287.8	273.5	304.1	279.6	638.2	288.8
280	0.01	186	77	298.5	287.6	272.8	303.9	278.3	635.8	288.2

Tests were done at a medium low air setting

Test load average moisture content - 19.6%

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Elapsed Time (min)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	12.68	277	69.6	367.3	290.9	285.8	398.3	335.2	742.4	335.5
1	12.43	298.7	70.3	356.1	292.8	295.5	396.5	334.9	611.6	335.2
2	12.38	292.2	70.3	376.2	295.1	297	395.1	333.5	611.4	339.4
3	12.3	295.8	70.5	376.1	297.8	302.4	391.4	330.1	656.4	339.5
4	12.22	302.2	70.7	373.3	300.6	324.5	389.5	325.9	696.6	342.8
5	12.12	311.6	70.6	372.7	303.4	327.4	381.2	324.8	747.8	341.9
6	12.06	288.3	70.3	374.4	306.2	331.5	379.1	323	753.1	342.8
7	12.02	272.6	70.8	374.4	308.9	335.7	372.7	320.8	751.7	342.5
8	11.99	262	69.8	374	311.4	336.6	369	316.6	734.4	341.5
9	11.97	254	70.1	372.4	313.7	334.9	367.5	315.3	714.9	340.8
10	11.93	248.4	70.7	371.8	315.7	339.6	363.4	312.3	701.4	340.6
11	11.9	244.1	70.4	371.3	317.6	340.5	363	309.7	695.7	340.4
12	11.86	241.6	70.1	370	319.3	341.6	358.4	307.2	697.9	339.3
13	11.81	240.1	70.1	369.5	320.8	340.2	354	303.4	706.8	337.6
14	11.75	239.5	70.3	368.4	322.1	342	354.1	302.3	724.3	337.8
15	11.69	239	70.5	367.8	323.2	341.9	349.4	300	743.9	336.5
16	11.63	238.9	70.5	368.3	324.2	341.1	347.4	298.3	752.6	335.9
17	11.55	242.4	70.8	369.6	325	342.9	345.9	297.9	761.4	336.3
18	11.43	248.6	70.3	374	325.7	343.3	341.7	293.5	831.9	335.6
19	11.3	255.2	70.3	378.7	326.2	346.9	338	292.5	925.1	336.5
20	11.17	261.4	70.3	384.9	326.7	345.4	339	290.6	960.3	337.3
21	11.09	265.6	70.6	393.7	327.1	347.7	334.2	289.7	954.7	338.5
22	11	266.3	70.5	403.2	327.3	349.7	335.1	287.9	940.5	340.6
23	10.93	267.3	70.7	411.2	327.5	349.7	331.6	286.7	928.3	341.3
24	10.85	267.9	71	418.2	327.6	348.6	331.1	286.3	918.7	342.4
25	10.78	267.2	70.8	423	327.6	350.1	332	285	908.8	343.6
26	10.7	266.4	70.7	427.7	327.6	349.6	329.7	285.1	896.3	343.9
27	10.62	265.8	70.3	431.1	327.6	349.8	329.1	283.8	888.5	344.3
28	10.54	265.7	70.1	432.8	327.5	348.5	327.9	282.8	885.8	343.9
29	10.45	265.9	70.1	435.4	327.3	348.7	327	282.2	884.5	344.1
30	10.36	267.2	70.1	439.3	327.1	350	326.3	280.1	890.1	344.6
31	10.27	268.9	70.1	441.7	326.9	349.9	326.7	280.5	896.9	345.1
32	10.18	270.3	70.1	444.7	326.2	336.8	325.1	281.2	908.8	342.8
33	10.07	270.9	70.3	434.8	324.1	322.3	322.8	282.7	918.9	337.3
34	9.98	272.5	70.4	414.8	321.4	314.4	325.9	281.4	935.6	331.6
35	9.87	275.2	70.5	402.7	318.4	307.6	323.1	281.8	973.4	326.7
36	9.75	277.6	69.4	400.1	314.9	302.5	321.9	279.2	987.5	323.8
37	9.66	278	68.8	399.7	311.5	299.1	322.2	280.1	997.1	322.5
38	9.58	279.1	68.8	398.9	307.8	295.6	321.2	278.5	1008	320.4
39	9.46	281.3	69.1	402.3	304.5	285.5	321	278.9	996.2	318.5
40	9.35	283.5	69.6	399.4	301.1	280.2	321	278	993.4	315.9
41	9.25	284.8	69.6	406	298.1	276	322.8	276.6	986.9	315.9
42	9.15	285.8	69.9	429.2	295	274.4	321.4	276	981.6	319.2
43	9.02	285.9	70.1	431.4	292.3	273.5	322.3	276.4	978.3	319.2
44	8.91	286	70.1	437.1	289.6	271.5	321.7	276.7	978.4	319.3
45	8.81	286.5	69.8	435.7	287	271.1	321.9	274.8	974.6	318.1
46	8.7	286.5	69.9	448.6	284.7	269.7	323	275.3	974.1	320.3
47	8.63	285.4	70.1	451.9	282.3	268.3	323.2	274.9	963.4	320.1
48	8.51	284.7	70.2	459.1	280.4	269.5	323.8	275.6	963.3	321.7
49	8.42	283.4	70.3	462.3	278.5	268.8	325.8	274.6	966.9	322
50	8.33	282.5	70.3	465.7	276.5	267.6	325.4	274.2	975.7	321.9
51	8.23	282	70.3	467.9	274.7	265.7	325.8	274.7	979.9	321.8
52	8.16	282.4	70.3	468.1	273.1	267.1	327	273.8	986	321.8
53	8.06	282.4	70.6	470.5	271.5	265.5	326.8	272.9	987.9	321.4
54	7.97	283	70.7	472.7	270	263.8	325.5	274.4	990.6	321.3
55	7.89	282.7	70.3	477.3	268.7	263.3	328	274.1	990.1	322.3
56	7.79	283	70.5	470	267.4	263.1	328.1	273.5	981.6	320.4
57	7.71	282.9	70	478.2	266	262.7	327.1	273.4	977.1	321.5
58	7.61	281.8	69.8	481.6	264.9	261.8	329.7	274.4	974	322.5
59	7.53	281.4	69.8	480.3	263.7	260.6	329.4	273.7	972	321.5
60	7.46	281.9	69.7	481.7	262.6	259.9	329.6	274.6	973.5	321.7
61	7.37	281	69.6	484	261.6	260.1	330.5	273.3	963.5	321.9
62	7.29	279.3	69.2	481.3	260.5	259.6	329.7	273.7	942.8	321
63	7.21	277.7	69.5	473.8	259.7	260	331.7	274.1	927.8	319.9
64	7.15	275.6	68.8	470.3	258.8	261.3	330	273.9	915	318.9
65	7.08	272.9	68.4	482.1	258	260.1	334.8	275.6	904	322.1
66	7.03	270.7	68	491.8	257.2	259.9	332.8	273.3	897	323
67	6.96	268.6	67.7	485.8	256.3	259.9	334.6	274.7	891.9	322.3
68	6.9	266.7	67.5	489.6	255.4	259.7	334.3	273.7	888.6	322.5
69	6.83	265.3	67.5	487.2	254.6	258.5	334.9	274	886.8	321.8
70	6.75	263.9	67.9	484.9	253.9	258.1	337.7	275.4	886.1	322
71	6.68	262.8	68.2	485.1	253.2	258.3	336.9	275.8	886	321.8
72	6.63	262.4	68.1	490.3	252.4	258.3	336.6	275.4	886.1	322.6
73	6.55	261.7	68.2	492.6	251.7	257.3	339.1	274.9	886.1	323.1
74	6.48	261.6	68	489.2	251.2	257.1	339.4	275.3	887.1	322.5
75	6.39	261.4	68.5	480.4	250.5	256.4	337.7	275.6	887.2	320.1

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76	6.35	261	68.7	488	250	256.2	336	276.1	887	321.3
77	6.27	261.3	68.8	487.6	249.4	250.6	339.7	278.2	898.7	321.1
78	6.18	262.7	68.5	488.4	248.9	238.2	341.2	276.9	929.1	318.7
79	6.08	264.9	68.5	488.3	248.4	234	342.2	277.9	950.9	318.2
80	6.02	267	67.9	482.3	247.9	231.7	340.7	277.9	959	316.1
81	5.93	268	67.9	485.7	247.5	227.1	341.6	278.1	963.6	316
82	5.84	269.2	67.7	481.6	247.1	223.8	342.9	278.2	965.9	314.7
83	5.75	270.8	68.9	482	246.6	225.1	343	277.8	968.4	314.9
84	5.67	271.9	67.8	476.6	246	227.4	341.9	278.5	971.3	314.1
85	5.58	272.7	68	481.3	245.8	227.3	342.7	277.8	973.7	315
86	5.49	274.1	67.7	481.3	245.2	230.1	343.4	279.1	978.5	315.8
87	5.42	276.1	69.9	477.6	244.9	234	344	279.3	984	316
88	5.33	277.9	71.1	464.4	244.6	235.2	347	278.4	983.5	313.9
89	5.22	279.7	71.3	468.6	244.3	236.7	346.5	278.8	981.8	315
90	5.13	281.1	71.4	462.4	244.1	238.8	348.9	278.4	978	314.5
91	5.03	282	71.3	463.7	243.9	241.6	349	278.7	971.9	315.4
92	4.95	282.3	71.3	465.5	243.6	241.8	349.9	278.4	968.4	315.9
93	4.88	282.5	71.8	466	243.4	244.5	352.7	278.8	974.4	317.1
94	4.79	282.8	71.6	466.4	243.3	245.7	353.9	277.8	983.3	317.4
95	4.71	283.8	71.3	466.6	243	248.9	355.6	279.7	983.8	318.8
96	4.61	284.2	71.4	467	243.1	250.3	357.2	280.5	976.2	319.6
97	4.53	284.1	72.1	467.6	243	253	357.5	280.9	970.9	320.4
98	4.47	284.1	71.8	467.1	242.9	255.2	359	279.7	972	320.8
99	4.38	284.1	71.8	466.8	242.8	258.5	361.4	281.1	973.5	322.1
100	4.33	283.4	72	466.4	242.7	261.2	364.9	281.1	976.9	323.2
101	4.24	282.8	72	466.1	242.7	261.5	364.3	282.1	978.8	323.4
102	4.19	282.1	71.8	467.2	242.7	262.5	366	281.7	978.5	324
103	4.12	281.9	71.6	466.2	242.6	261	370.2	282.1	977.9	324.4
104	4.05	281.3	72.3	462.8	242.7	262	371.6	283.9	971.6	324.6
105	3.99	280.3	71.7	460.4	242.7	263.6	373.3	284.5	963.1	324.9
106	3.93	279.4	71.8	444.9	242.8	264	375.3	285.4	956.5	322.5
107	3.88	278.2	71.9	444.1	242.8	264.2	375.9	283.9	952.3	322.2
108	3.82	277.3	72.1	438.5	243	264.3	379.5	283.7	947.8	321.8
109	3.78	275.5	72.2	435.1	242.9	265.2	376	283	940.8	320.4
110	3.73	274	71.6	430.6	243.2	265.4	381.7	283.4	933.8	320.9
111	3.69	272.9	72.5	430.6	243.3	265.3	383.2	286.1	926.9	321.7
112	3.63	271.6	72.5	441.9	243.4	265.9	385.7	286.9	917.4	324.8
113	3.57	270.5	72.2	432.4	243.7	265.8	389.9	288.5	908.6	324.1
114	3.56	269.6	72.1	429.1	243.9	266	391.1	288.4	901.8	323.7
115	3.49	267.8	72.9	443.5	244	267.2	392.3	291.2	898.1	327.7
116	3.44	266.6	73.3	454	244.3	266.4	395.8	291	898	330.3
117	3.4	266.4	73.3	447.1	244.5	264.1	397	292	901.8	328.9
118	3.33	266.2	73.1	450	244.9	260.6	397.9	292.3	901.9	329.2
119	3.29	265.6	72.7	441.3	245.3	258.2	400.1	292.1	900.3	327.4
120	3.26	265.5	73.1	439.2	245.7	256.3	401.5	294.9	898.6	327.5
121	3.19	265.2	73	431.4	246.1	254.2	401.4	294.3	897.8	325.4
122	3.14	264.7	73.3	442.7	246.6	255.4	400.4	293.5	900.3	327.7
123	3.1	264	73.1	442.5	247.1	257	400.9	293.7	905.5	328.3
124	3.05	263.8	73.4	446.6	247.8	255.8	402.2	295.6	911	329.6
125	3.01	263.7	73.5	446.7	248.3	253.9	401.3	298.8	914.9	329.8
126	2.96	263.7	73.2	445.6	249.1	250.7	403.3	298.4	916.2	329.4
127	2.9	263.3	73	446.4	249.7	250.7	402	299.6	917.8	329.7
128	2.88	263.3	73.5	445.7	250.5	252.6	403.4	299.5	920.1	330.3
129	2.81	262.9	73.4	446.8	251.3	253.9	401.5	302.1	921.5	331.1
130	2.79	262.3	73.2	445.7	252.1	254.2	402.3	303.7	922.2	331.6
131	2.75	261.7	73.5	445.6	252.8	254	403.8	303.7	919.4	332
132	2.71	261.4	73.6	446	253.7	254.4	402.9	302.8	918.3	332
133	2.67	261.6	73.3	445.7	254.4	254.1	404.7	306.3	913.2	333
134	2.63	260.8	73.5	447.6	255.2	253.4	402.5	307.5	903.1	333.2
135	2.6	259.6	73.7	448.4	255.9	252.7	403.9	307.6	895.2	333.7
136	2.55	259.2	73.4	453	256.6	252.4	402.8	308.9	890.4	334.7
137	2.51	258.2	73	454.3	257.4	252.4	400.8	309.9	886.5	334.9
138	2.48	257.1	73.1	446.1	258.1	252.2	402.2	310.5	884.4	333.8
139	2.44	255.9	73.2	444.3	258.7	252.3	403.2	311	884	333.9
140	2.4	255.5	72.8	436.1	259.5	252.7	401.5	312.9	886.6	332.5
141	2.37	255.1	73.2	435.9	260.1	253.2	401.7	315.1	890.3	333.2
142	2.34	254.9	72.9	436.2	260.9	252.8	401.4	313.6	891.6	333
143	2.3	253.6	73.4	446.6	261.5	252.8	401.1	314.5	887.2	335.3
144	2.29	252.3	72.6	439.2	262.2	252	401.4	315.1	877	334
145	2.27	250.8	73	420.9	262.8	251.6	399.4	313.9	862	329.7
146	2.23	249	72.7	415.3	263.4	253.8	400.3	317	845.4	329.9
147	2.21	247.2	72.7	420.5	264	253.1	400.5	317.1	831.1	331
148	2.2	245.4	73	429.6	264.6	251.8	400.3	317.4	819.4	332.8
149	2.18	243.5	72.8	428.6	265.1	251.3	400.1	317.8	809.2	332.6
150	2.14	241.4	73	422.5	265.7	251.1	399	317.6	800.9	331.1
151	2.13	239.7	72.3	420.1	266.2	249.8	398.7	319.9	794.3	330.9
152	2.11	238.2	72.5	416	266.6	248.6	400.5	320.7	789.7	330.5



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153	2.07	236.7	72.7	410.6	267.1	249.6	396.5	320.1	786.8	328.8
154	2.05	235.2	72.7	406.1	267.6	249.7	398.7	321.3	784.4	328.7
155	2.05	233.5	72.8	405.3	268	248.7	399.8	320.5	782.1	328.5
156	2.01	232.4	72.9	404.4	268.3	249	398.3	321.6	780	328.4
157	1.99	231.4	73	401.4	268.6	250.2	396.1	322.6	778.4	327.8
158	1.98	230.2	73	400.5	269.1	251.4	395.6	319.5	776.8	327.2
159	1.94	228.8	73.1	399.6	269.5	250.6	394.7	321.1	775.2	327.1
160	1.93	227.4	73	397.5	269.8	250.5	395.9	318.9	773.7	326.5
161	1.9	226.4	73	395.4	270.1	251.5	394.2	321.7	772.3	326.6
162	1.9	225.8	72.7	394.2	270.6	251.2	395.6	322.1	771.2	326.7
163	1.87	225	72.6	392.4	270.8	249.8	395.8	320.9	770.3	326
164	1.85	224.2	72.1	390.7	271	250.1	397.2	322	769.7	326.2
165	1.82	223.5	72.4	390.5	271.3	248.9	395.8	321.9	769	325.7
166	1.81	223	73.1	389.8	271.5	247.2	394	321.8	768.6	324.9
167	1.79	221.9	73.1	389.9	271.7	246	395.1	321.6	768.2	324.9
168	1.77	220.8	72.6	389.1	272	245.5	395.5	321.1	767.8	324.7
169	1.75	220.4	72.9	388.8	272.2	245.6	393.8	321	767.5	324.3
170	1.74	220.4	72.6	387.7	272.4	244.8	394.6	322.9	766.7	324.5
171	1.72	219.6	73.2	386.5	272.6	245.8	394.2	321.7	765.5	324.2
172	1.7	218.6	73	386.1	272.7	246.1	394.5	321.8	764	324.2
173	1.68	217.6	73.6	386	272.8	246.4	392.9	321.4	762.7	323.9
174	1.67	217.2	72.8	384.8	273.1	244.8	391.6	321.9	762.8	323.2
175	1.65	217.1	73	385.7	273.2	244.6	393.8	320.6	762.9	323.6
176	1.63	216.8	72.6	385.2	273.3	242.9	397	323.3	762.5	324.4
177	1.62	216.5	72.4	383.5	273.5	243.9	392.8	320	761.5	322.7
178	1.6	216.1	72.5	383	273.7	243.1	393.8	319.3	760.4	322.6
179	1.58	215.8	72.7	382.8	273.7	244.4	392.3	321.4	759.1	322.9
180	1.56	215.2	73	381.6	273.7	242.9	392.9	320	758	322.2
181	1.54	214.6	73	381.3	273.9	242.8	391.3	318.7	756.9	321.6
182	1.52	214.2	73.2	379.7	274	241.1	393.8	319.7	755.4	321.7
183	1.5	213.5	72.5	378.6	274.1	240.8	391.5	317.6	754	320.5
184	1.49	212.8	73.2	377.4	274.2	240.7	391.6	319.3	752.5	320.6
185	1.46	212.2	72.8	376.1	274.2	241.2	392.3	319.8	750.5	320.7
186	1.45	212.1	73.1	375.5	274.2	241.1	391.4	316.8	748.8	319.8
187	1.43	211.3	73.5	374.5	274.3	241.3	391.1	318	747.4	319.8
188	1.43	210.7	73.2	373.8	274.3	239.1	391.1	317.8	746.1	319.2
189	1.4	210.5	72.9	372.6	274.3	238.8	390.1	317.2	745.1	318.6
190	1.37	209.5	73.1	371.9	274.4	237.2	389.6	317.3	744.2	318.1
191	1.35	209.5	72.5	371.3	274.4	237.9	388.4	318.4	743.3	318.1
192	1.34	209	72.8	370.4	274.5	239.3	390.3	319	742.3	318.7
193	1.33	208.8	73.2	369.4	274.4	237.9	390	316.5	741.3	317.7
194	1.32	208.1	72.4	368.9	274.5	238	386.5	316	740.5	316.8
195	1.29	207.7	72.8	368.2	274.5	237.9	387.7	315.5	739.5	316.8
196	1.27	207.3	73.2	367.7	274.6	238.2	388.9	315.6	738.4	317
197	1.27	206.7	72.9	366.9	274.6	239.2	389	315.7	737	317.1
198	1.25	206.6	72.3	366	274.6	239.4	386.7	315.8	735.2	316.5
199	1.24	205.9	72.4	365.1	274.7	238.7	387.8	315.1	733	316.3
200	1.21	205.7	72.7	363.8	274.7	239.2	386.5	313.6	729.6	315.6
201	1.21	205.4	73	362.8	274.7	240.1	386	313.9	726.6	315.5
202	1.17	204.8	72.1	361.7	274.7	240.3	385.7	316.5	724.1	315.8
203	1.17	204.9	72.5	360.7	274.7	239.7	385.7	314.2	722.3	315
204	1.14	204.4	72.9	359.7	274.7	240.4	385.5	314.5	720.9	315
205	1.13	204	72.8	358.8	274.7	241.7	383.2	314.1	719.7	314.5
206	1.12	203.8	71.8	357.3	274.7	241	385.5	312.6	718.6	314.2
207	1.11	203.7	72.5	356.6	274.7	239.7	384.2	313.8	717.8	313.8
208	1.08	203.2	71.9	355.3	274.8	239.7	383.4	313.7	716.9	313.4
209	1.07	202.8	72.5	354.8	274.8	240.5	382	314.2	716	313.3
210	1.06	202.8	73.1	354.1	274.8	238.7	382.2	312	715.1	312.3
211	1.04	202.2	71.7	352.8	274.8	238.9	381.6	312.8	714.1	312.2
212	1.03	201.8	72.5	352.5	274.7	241.5	379.3	311.6	713.3	311.9
213	1	201.3	72.4	351.6	274.6	243.5	380.6	311.5	712.6	312.4
214	0.99	201.2	71.7	351	274.7	244.9	381.3	311.1	712	312.6
215	0.99	200.9	72.4	350.7	274.6	243.7	379.8	310.5	711.3	311.9
216	0.96	200.4	72.9	349.8	274.5	245.6	378.6	309.6	710.6	311.6
217	0.94	200	72.7	349.5	274.4	246.3	377.2	309.1	709.5	311.3
218	0.93	199.6	72.3	348.8	274.3	247.1	377.5	308.1	708.1	311.2
219	0.9	199.6	72.5	348.1	274.3	247.8	376.3	308	709.1	310.9
220	0.89	199.4	71.9	347.6	274.2	252.6	374.9	309.4	711.8	311.7
221	0.9	199.3	71.9	346.9	274.2	255.8	374.6	308.2	713.9	311.9
222	0.87	199	71.7	346.8	274	258.5	374.8	308.2	715	312.5
223	0.85	199.1	72	346.4	273.9	261.6	373	307.3	715.3	312.4
224	0.85	198.6	72.1	346	273.8	262.7	372.9	304.9	714.9	312.1
225	0.83	198.2	72.3	345.8	273.7	264.2	371.2	307.2	714.1	312.4
226	0.81	198.1	71.7	345.4	273.6	264.8	370.7	305.4	713.3	312
227	0.79	198	72.5	345	273.6	265.8	370.7	307.6	712.6	312.5
228	0.77	197.7	72.3	345	273.3	269.2	370.2	305.8	712	312.7
229	0.76	197.5	72.2	344.2	273.3	271.9	368.1	302.1	711.2	311.9

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230	0.74	197	72.7	343.9	273.2	273.2	371.2	304.1	710.2	313.1
231	0.73	196.7	71.7	343.5	273	272.6	370	304	707.5	312.6
232	0.7	196.3	73.1	342.5	272.9	274.4	369.3	302.6	704.1	312.3
233	0.7	195.8	72.2	341.8	272.8	274.5	367.7	304.8	700.9	312.3
234	0.67	195.8	71.7	341.2	272.7	276.3	367.8	302.6	698.3	312.1
235	0.67	195.4	71.8	340.5	272.5	274.7	366.9	306.5	696.1	312.2
236	0.65	195.3	71.9	339.7	272.5	273.5	365.7	302.8	693.7	310.8
237	0.64	194.8	72.7	338.6	272.3	274.6	365.4	303.4	691.1	310.9
238	0.62	194.7	72.2	337.9	272.3	273.1	363	305.1	688.7	310.3
239	0.61	194.8	72.2	336.8	272.2	272.3	363	304.9	686.6	309.8
240	0.59	194.2	72.3	336.2	272.2	271.6	360.3	304.2	684.6	308.9
241	0.58	193.9	71.9	334.8	272.3	269	361.7	302.1	683	308
242	0.56	193.6	71.8	333.8	272.3	267.7	361	302.4	681.6	307.4
243	0.55	193.4	72.4	332.8	272.4	266.6	358.5	304	679.9	306.9
244	0.55	193.2	71.8	331.8	272.4	266.8	357.5	302.3	677.7	306.2
245	0.52	192.9	71.3	331	272.7	264.8	357.1	302.7	675.6	305.6
246	0.52	192.7	72.1	330.1	272.7	265	356.6	302.3	673.9	305.3
247	0.48	191.9	71.8	329	272.8	263.3	357.1	302.5	672.9	305
248	0.47	191.6	71.2	328.1	272.9	263.2	355.5	303.2	672.3	304.6
249	0.47	191.4	71.2	327.3	272.9	263.3	354.7	304.3	671.9	304.5
250	0.45	191	71.1	326.2	273	261.8	353.3	301.1	671.7	303.1
251	0.43	190.9	71.5	325.6	273	261.2	353.1	301.9	671.5	303
252	0.41	190.5	72.2	325.1	273.1	260.7	352.5	300.7	671	302.4
253	0.41	189.9	72	324.3	273.2	260.3	350.4	301.7	670.5	302
254	0.39	189.5	71	323.5	273.2	259.8	351	302.7	669.9	302
255	0.37	189.5	71.7	322.9	273.1	258.6	350.5	302	669.2	301.4
256	0.36	189.5	72.5	322.2	273.2	259.1	349.9	298.5	668.6	300.6
257	0.36	188.8	71.5	321.8	273.2	257.9	348.7	300.6	668.1	300.4
258	0.34	188.3	71.6	321.1	273.2	256.7	348.1	299.8	667.6	299.8
259	0.32	187.9	71	320.6	273.1	257.6	347.6	299	667.3	299.6
260	0.31	187.8	71.4	319.7	273.1	256.3	346.6	301.2	667.1	299.4
261	0.3	187.7	71.1	318.9	273.1	256.9	346.3	298.2	666.9	298.7
262	0.29	187.4	71	318.4	273	256.8	345.6	299.1	666.6	298.6
263	0.26	186.8	70.6	317.7	273	256.9	345.7	297.1	666.7	298.1
264	0.26	186.7	72.1	317.2	272.8	255.7	346.1	300.2	666.9	298.4
265	0.24	186.1	72.2	316.4	272.8	256.9	344.4	299.5	667	298
266	0.23	186.1	71.8	316.4	272.6	256.6	342.7	301.1	667.2	297.9
267	0.21	186.3	71.7	316	272.6	256.9	343.6	297.7	667.5	297.4
268	0.19	185.9	72.1	315.9	272.5	255.7	343	298.2	667.7	297.1
269	0.18	185.7	71.7	315.9	272.3	256.1	342.1	298.8	667.8	297
270	0.17	185.4	71.5	315.3	272.1	256.2	342.2	299.5	667.7	297
271	0.17	185.4	70.9	315.2	272	255.6	339.9	298.4	667.1	296.2
272	0.13	184.8	71.9	314.4	271.9	256.2	340	297	666.2	295.9
273	0.12	184.7	71	314.3	271.8	256.5	340.4	297.5	665.2	296.1
274	0.11	184.5	71.1	313.5	271.5	255.6	337.8	295.9	664.4	294.9
275	0.09	184.4	71	313.5	271.3	255.8	338.5	294.8	663.7	294.8
276	0.08	184.4	71.3	312.8	271.2	256.4	338.9	297	663.3	295.2
277	0.08	184.3	70.8	312.4	271.1	255.6	337.4	296.2	662.9	294.5
278	0	184	71.6	311.7	270.9	253.8	336.9	295	662.8	293.7

Tests were done at a medium low air setting

Test load average moisture content - 22.1%

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## 6/2/23 - 6/5/23

Elapsed Time (min)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	13.13	295	68.7	392	309.4	331	399.2	356.9	736.2	357.7
1	13.09	310.3	68.9	395.8	312.1	341.6	398.1	356.4	646.2	360.8
2	12.96	312.2	69	411.5	315.1	342.7	397.4	356.7	734.1	364.7
3	12.81	328.3	69.1	422.6	318.3	336.6	393.5	356.9	884	365.6
4	12.65	348.9	68.9	420.6	321.5	340.5	390.6	354.3	983.1	365.5
5	12.48	367	68.7	428.1	324.6	354.5	387.6	350.5	1032.2	369
6	12.37	344.9	68.9	441.8	327.7	351.5	380.7	345.6	995.2	369.4
7	12.27	329.6	68.9	452.2	330.6	359.3	380	344.4	994.5	373.3
8	12.17	321.2	68.7	461.6	333.1	364.3	375.5	342.4	993	375.4
9	12.07	315.6	68.8	468.1	335.5	361.6	371.8	341.8	995.2	375.7
10	11.96	313.3	68.9	475.6	337.7	367.2	371.4	338.6	1003.7	378.1
11	11.86	312.7	69.5	480.8	339.7	375.5	368.1	337.2	1016.2	380.3
12	11.73	313.3	68.9	485.5	341.5	376.6	367.2	335.7	1026.2	381.3
13	11.6	314.8	68.9	491.1	343.1	371.4	364.9	333.1	1031.6	380.7
14	11.47	316.9	68.9	495.4	344.5	377.2	363.5	331.9	1034.5	382.5
15	11.33	318.3	69.4	500.7	345.7	380.5	360.4	328.7	1036.1	383.2
16	11.2	320.2	69	504.8	346.8	383.1	357.7	327.9	1034.5	384.1
17	11.05	321.7	68.9	510.3	347.7	389.8	356.2	326.2	1035.7	386
18	10.92	323.7	68.8	512.8	348.5	389.3	355	325.5	1037.7	386.2
19	10.77	325.8	69.1	518.5	349.2	392.8	352.5	323.6	1039.3	387.3
20	10.63	327.3	68.8	523.2	349.8	396.2	352.9	321.7	1040.9	388.8
21	10.5	328.4	68.9	527.8	350.3	396.7	351.9	322.1	1038.3	389.8
22	10.36	330.2	69.4	532.4	350.7	404.1	349.3	320.2	1035.2	391.3
23	10.22	331.6	69.3	534.9	351	405.7	349.3	319	1036.9	392
24	10.07	332.9	68.9	538	351.2	408.5	348.6	318.7	1037.5	393
25	9.91	334.3	69.5	539.8	351.4	409	345.8	317	1035.6	392.6
26	9.77	334.8	69.1	542.8	351.6	417.3	346.4	317.3	1035.6	395.1
27	9.63	336	69.4	547.5	351.8	413.9	346.1	316.3	1035.8	395.1
28	9.48	337.2	69.6	551.9	351.9	420.2	346	315.7	1035.7	397.1
29	9.33	338.1	69.9	553.9	352	413.8	346.5	315.1	1035.9	396.3
30	9.19	338.2	69.7	555.4	352	423.9	345.9	314.9	1032.1	398.4
31	9.05	338	69.8	551.4	352.1	434.1	345.7	312.7	1031.7	399.2
32	8.91	337.2	69.7	552.7	352.2	434.4	345.9	315	1034.2	400
33	8.77	337.3	69.5	553	352.3	438	345.1	314.1	1033.6	400.5
34	8.65	337	69.7	545.1	349.6	408.2	348.2	317.4	1034.2	393.7
35	8.52	336.3	69.9	529.8	346.9	395.2	349.2	315.8	1032.6	387.4
36	8.39	335.5	69.7	528.4	343.8	382.7	348.5	314.9	1030.3	383.6
37	8.25	334.3	69.9	525.7	340.2	372.2	349.2	315.9	1032.7	380.6
38	8.15	333.1	70.2	522.5	336.8	368	345.5	314.2	1034.9	377.4
39	8.02	330.9	70.1	514.2	333.6	363.8	345.9	308.5	1035.8	373.2
40	7.88	329	70	509.6	330.2	357	344.4	312.4	1033.8	370.8
41	7.78	327.6	70.2	489.7	327.3	347.1	343.5	308.3	1034.7	363.2
42	7.66	324.4	70	476.6	324.6	341	343.9	307.6	1037.5	358.7
43	7.53	323.2	70	473.9	321.8	335.5	340.9	308.8	1048.7	356.2
44	7.42	321.9	70.1	472.5	319.4	327.5	343.8	308.5	1074.6	354.3
45	7.31	320.5	70.3	473.3	317.1	325.7	344	308.3	1086.3	353.7
46	7.21	319.2	69.7	473.8	315.2	322.3	344.2	309.6	1090.7	353
47	7.1	318.1	70.4	476.3	313.1	319.3	342.9	308.1	1092	351.9
48	7.01	316.7	69.9	480.2	311.2	317.8	345.7	308.8	1093.3	352.7
49	6.91	316.3	69.7	484.7	309.7	315.5	343.8	306	1094.1	351.9
50	6.81	316.1	70.3	485.2	308	314.5	340.1	305.1	1094.3	350.6
51	6.69	315.4	70.2	488.3	306.7	312.9	342	306.3	1093.9	351.3
52	6.58	315.1	69.9	487.7	305.2	310.1	343.1	306.8	1094	350.6
53	6.48	314.6	70.1	487.7	303.9	307.2	343.2	306	1094.2	349.6
54	6.37	314.7	70.3	487	302.7	304.8	344.4	307.4	1093.7	349.3
55	6.28	314.2	70.3	485.9	301.6	303.1	342.7	307	1094.6	348
56	6.18	313.3	70.5	485.5	300.6	300.3	342.9	307.7	1094	347.4
57	6.08	313.1	70	482.6	299.6	298.4	344.2	306.9	1093	346.3
58	5.99	312.7	70	485.2	298.5	295.9	341.5	304.8	1089.5	345.2
59	5.89	312.6	70.5	484.9	297.6	294.7	342.2	305.8	1089.2	345.1
60	5.81	311.8	69.9	485	296.9	291	342.7	306	1089.1	344.3
61	5.71	312	70.3	487.1	296	284.6	343.2	305	1089.5	343.2
62	5.62	311.4	69.9	485.7	295.3	279.1	344.6	305.9	1061.7	342.1
63	5.52	310.9	69.8	483.8	294.4	281.6	343.6	309.3	1043.1	342.5
64	5.42	310.1	69.9	480.2	293.7	285.3	343.8	307.9	1036.5	342.2
65	5.34	309.1	70.1	476.2	293	285.3	342.6	307.4	1034	340.9
66	5.26	307.1	70.4	472.3	292.3	286.8	343.7	306.3	1032.1	340.3
67	5.17	305.1	70.1	468.9	291.7	285	344	309	1029.4	339.7
68	5.08	303.8	70.1	464.7	291.2	282.8	344.9	309.2	1026.2	338.6
69	5.01	302.5	70	461.4	290.6	281	346.8	309.7	1022.5	337.9
70	4.94	300.4	70.3	459	290.1	281.4	347	309.9	1016	337.5
71	4.87	298.5	70.8	455.6	289.7	281.8	347.9	311.7	1005.3	337.3
72	4.8	296.4	70.3	454	289.2	281.8	347.9	312.1	995.6	337
73	4.75	295.2	70.4	451.1	288.9	280.9	347.5	314.5	986	336.6
74	4.67	293.2	70	450.9	288.4	280.1	348.8	313.1	974.6	336.3
75	4.61	291.9	70.5	455.3	288.1	279.8	349.1	316	966.5	337.7

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76	4.55	290.6	70.1	456.1	287.8	278.7	352.9	312.8	962.4	337.6
77	4.47	289	70.3	452.9	287.6	277.5	350.9	314.2	959.3	336.6
78	4.42	287.2	70.4	450.7	287.4	275.9	351.9	314.7	955.9	336.1
79	4.35	285.7	70.2	453.1	287.1	275.1	351.9	317.6	954.3	337
80	4.29	284.8	70.5	450.6	287	274.4	351.1	314.7	956.7	335.6
81	4.23	284	70.4	451.1	286.7	273.6	352.7	318	960.8	336.4
82	4.16	282.9	70.3	449.8	286.6	273.3	352.1	317.3	961.3	335.8
83	4.11	282.1	70.6	448.2	286.5	271.7	353.4	317.6	961.4	335.5
84	4.04	281.5	70.7	448.3	286.3	270.8	357.9	324	961.1	337.4
85	3.98	282.2	70.6	449.5	286	270.1	360.4	325.5	959.8	338.3
86	3.93	282.7	71	449.9	285.7	269.7	361	326.7	957.9	338.6
87	3.86	283.1	70.9	454.5	285.7	269.2	362.5	327.8	956.3	340
88	3.78	283.1	70.9	455.3	285.4	268.9	362.5	328.5	953.2	340.1
89	3.75	283.1	70.9	453.2	285.3	268.9	364.4	329.6	949.7	340.3
90	3.69	282.6	70.9	456.6	285.3	269.4	364.6	331	944.8	341.4
91	3.63	282	71.4	459	285.1	270.2	365.3	331.5	938.3	342.2
92	3.59	281.2	71.3	453.1	285.1	271.1	365.1	330.3	933.8	340.9
93	3.54	280.2	71.2	454.8	284.8	272.1	366.5	333	934.1	342.2
94	3.49	280	70.8	452.8	284.7	272.2	366.6	334.3	932.8	342.1
95	3.44	279.2	71.3	446.6	284.8	272.8	367.8	332.3	932.3	340.8
96	3.39	279.1	71	447.8	284.6	271.7	369.3	333.5	932.4	341.4
97	3.33	278.6	71.3	445.5	284.6	271.6	369.3	333.8	932.8	341
98	3.28	278.4	71.2	444.4	284.5	271.3	369.1	335.2	934	340.9
99	3.24	277.7	71.4	441.2	284.4	271.4	370.5	335.6	936.9	340.6
100	3.19	277.6	71.1	437	284.4	272.2	367.7	333.4	933.8	338.9
101	3.14	277.5	70.9	435.6	284.3	270.8	370.9	335	925.7	339.3
102	3.08	276.9	70.9	436	284.2	272.1	370.4	336.4	920.5	339.8
103	3.05	276.2	70.7	440.4	284.2	271.7	370.4	336.8	919.5	340.7
104	3	275.8	71	438.1	284.1	273.2	371.2	336.8	916.3	340.7
105	2.96	275.2	71	436.9	284.1	275.6	371.6	336.5	910.7	340.9
106	2.91	274.4	71.1	433.8	284.2	276.5	370.4	336.5	903.8	340.3
107	2.88	273.3	71.2	428.8	284.2	277.1	371.9	337.8	898.4	340
108	2.83	272.2	70.8	422.9	284.2	277.4	371.6	338.1	893.3	338.8
109	2.81	271.4	70.7	417.8	284.2	276.4	372.1	338.3	888.1	337.8
110	2.76	270.1	70.6	414.4	284.2	277.2	374.1	337.7	880.5	337.5
111	2.74	268.8	70.8	413.7	284.2	276.4	372.3	337.8	870.6	336.9
112	2.71	267.3	70.9	412.4	284.3	276.7	373.8	337.8	860.6	337
113	2.68	265.5	71	409.8	284.3	276.2	374.4	337.8	853	336.5
114	2.64	263.9	70.9	406.8	284.4	275.3	373.3	337.3	847.2	335.4
115	2.62	262.2	71.2	404.3	284.5	275.1	373.2	337.9	842.7	335
116	2.59	260.4	71.2	402.2	284.6	273.7	373.8	337.4	839.3	334.3
117	2.55	259	71.2	402.4	284.6	272.6	373.6	338.2	836.7	334.3
118	2.53	257.7	71.2	416.8	284.8	273.6	372.7	338.1	833	337.2
119	2.51	256.3	71.2	422.1	285	276.4	373.7	337.6	829	339
120	2.5	254.8	71	417.2	285.1	277.5	374.4	337.5	823.9	338.3
121	2.46	253.2	71.3	418	285.2	276.7	372.3	337	816.2	337.8
122	2.45	251.4	71.5	427.5	285.3	275.1	373.4	335.4	808	339.3
123	2.43	249.9	71.4	414.8	285.5	273.3	373	336.3	800.6	336.6
124	2.41	248.2	71.7	410.2	285.6	274	374	337.1	794.2	336.2
125	2.39	247	71.6	405.2	285.8	274.3	371.3	335.6	787.6	334.4
126	2.38	244.9	71.7	400.2	285.8	274.7	372.5	334.4	778.6	333.5
127	2.36	242.7	71.9	392.6	285.9	274.7	370.4	330.4	769.8	330.8
128	2.34	240.5	71.9	388.7	286	275.6	369.7	329.5	763	329.9
129	2.32	238.1	71.9	384.5	286.3	275.5	370	330.4	758.1	329.4
130	2.31	236.5	71.8	381.5	286.3	277	368.5	329.2	754.6	328.5
131	2.28	235.3	72.1	377.9	286.6	277.3	367.4	328.8	752	327.6
132	2.26	233.7	72.1	373.1	286.5	278.4	368.4	327.8	750.5	326.8
133	2.25	232.5	72.3	370.2	286.7	279.2	367.5	330.4	749.5	326.8
134	2.24	231	72.2	367.7	286.8	281	367.5	326.9	748.5	326
135	2.21	229.9	72.3	366.4	287	283.6	366.1	329.2	747.5	326.4
136	2.19	228.8	72.2	363.8	286.9	287.7	366.7	326.9	746.6	326.4
137	2.17	227.8	72.3	360	287.1	290.1	366.5	326.2	745.9	326
138	2.15	226.5	72.6	354.5	287.1	289.2	366.1	327	745.4	324.8
139	2.14	225.7	72.4	351.3	287.1	291.5	366.1	327.4	745.2	324.7
140	2.12	224.6	72.3	352.6	287.1	288.9	365.5	325.2	745.1	323.9
141	2.11	224	72.4	350.7	287.2	288.6	365.3	326.3	745.3	323.6
142	2.1	223.4	72.6	349.3	287.3	283.9	365.5	325.5	745.5	322.3
143	2.07	222.6	72.6	352.2	287.2	282.7	364.9	322.5	745.1	321.9
144	2.06	221.8	72.4	352.8	287.2	282	363.9	322.4	744.1	321.6
145	2.05	220.7	72.6	351.8	287.1	280.6	363.7	322.3	742.7	321.1
146	2.03	220	72.6	351.9	287	280.4	361.6	320.7	741.4	320.3
147	2.01	219.3	72.7	351.5	287	281.3	363	320.8	740.1	320.7
148	2	218.7	72.7	348	286.8	278.9	361.2	317.6	738.9	318.5
149	1.98	218	72.7	347	286.7	276.3	361.8	317.8	737.6	317.9
150	1.97	217.4	72.9	345.2	286.5	276.8	361.6	318.6	736.2	317.7
151	1.94	216.8	72.8	344.6	286.5	276.8	360	319.6	734.8	317.5
152	1.94	215.6	72.8	342.5	286.4	277.6	360.1	315.7	733.3	316.4

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153	1.92	215	73	340.7	286.2	278.1	358.5	313.8	732.1	315.5
154	1.91	214.7	72.7	339.2	286	276.7	359.3	315.1	730.9	315.3
155	1.89	213.8	73	337.6	286	274.6	357	313.7	729.6	313.8
156	1.88	213.2	72.9	336.5	285.6	272.4	356.5	310.6	728.4	312.3
157	1.86	212.2	73	335.3	285.4	269.6	356.2	312.5	727.2	311.8
158	1.84	211.4	72.9	334.6	285.3	266.9	356.1	309.6	725.7	310.5
159	1.84	210.7	73.1	333.3	285	264.7	356.2	311.7	724.2	310.2
160	1.82	210	72.9	331.3	284.7	266.3	353.9	310.1	722.5	309.3
161	1.8	209.8	73.1	329.8	284.5	265.8	353.4	307.3	720.9	308.2
162	1.78	209.5	73.1	325.6	284.3	268.8	352.7	308.6	719.3	308
163	1.78	208.7	73.2	321.7	284	270.6	352.1	309.3	717.6	307.6
164	1.76	207.6	73.1	320.8	283.7	274.5	351	305.8	715.7	307.1
165	1.75	207	73.1	320.1	283.6	280.1	351.4	307.7	714.2	308.6
166	1.73	206.5	73.1	317.1	283.3	288.3	350.5	305.1	712.6	308.9
167	1.72	205.6	73.4	316.1	283	293.3	349.3	304.6	711	309.3
168	1.71	204.6	73.3	315	282.7	295	347.2	301.3	709.3	308.2
169	1.68	204.1	73.4	314	282.3	294.5	348.6	305	707.6	308.9
170	1.68	203.5	73.2	312.7	282.2	294	346.8	302.9	706.2	307.7
171	1.66	203.4	73.3	311.9	281.8	291.6	347.1	301.9	706.1	306.9
172	1.65	203.1	73.3	310.4	281.5	289.7	347.1	302.9	706.4	306.3
173	1.62	202.4	73.4	310.2	281.3	289.8	344	299.9	706.1	305
174	1.61	202.1	73.3	310	281	290.1	345	301	704.4	305.4
175	1.57	201.5	73.6	309.5	280.7	290.7	345.1	300.2	701.3	305.2
176	1.57	201.1	73.4	308.2	280.4	289.5	342.5	301.4	698.3	304.4
177	1.56	200.8	73.2	307.5	280.2	286	343.6	300.8	696.3	303.6
178	1.53	200.2	73.4	306.6	279.9	284.6	342.9	300	694.9	302.8
179	1.51	199.7	73.5	305.4	279.9	283	343.5	300.2	693.8	302.4
180	1.49	199.4	73.4	304.6	279.7	284.1	341.6	300.6	692.8	302.1
181	1.5	198.9	73.5	303.9	279.6	289.4	339.6	300.8	692.1	302.7
182	1.46	198.4	73.4	302.8	279.6	290.3	338.6	299.7	691.8	302.2
183	1.45	197.7	73.4	301.6	279.6	291.7	340	298	691.4	302.2
184	1.43	197.3	73.2	301.6	279.6	291.8	341.2	300.3	690.8	302.9
185	1.43	197.1	73.4	300.5	279.7	291.3	340	300.5	689.9	302.4
186	1.4	196.6	73.4	300.2	279.8	292.6	339.3	300.7	688.9	302.5
187	1.39	196.4	73.4	299.8	279.7	292.3	339.8	300.9	688.2	302.5
188	1.37	196.1	73.7	300.1	279.9	291.3	338.6	301.6	687.4	302.3
189	1.35	195.8	73.8	300.2	280.1	291.2	339.6	300.4	686.5	302.3
190	1.33	195.7	73.5	300	280	288.8	338.8	301.2	684.2	301.8
191	1.31	195.3	73.5	298.8	280.1	289.9	336.6	302.6	681	301.6
192	1.3	195	73.5	298	280.3	291	336	302.6	678.3	301.6
193	1.29	194.5	73.7	297.2	280.5	290.9	335.8	302	676.9	301.3
194	1.28	193.8	73.7	296.7	280.9	291.2	338.2	301	676.3	301.6
195	1.25	193.5	73.6	298.5	281.1	290.7	336.8	299.9	676.1	301.4
196	1.23	193.9	73.8	297.7	281.6	291.2	335.2	302.3	675.9	301.6
197	1.23	193.5	73.7	300.1	282.1	288.7	335.2	300.7	675.8	301.4
198	1.21	192.6	73.5	300	282.4	288.6	335	301.4	676.1	301.5
199	1.2	192.4	73.7	299	282.9	287.2	335	302.4	677	301.3
200	1.18	192.2	73.7	298	283.3	286.5	335	300.9	679.5	300.7
201	1.17	192.2	73.7	297.1	283.9	287.1	333.8	302.3	682	300.8
202	1.14	192.2	73.7	296.1	284.2	287.1	333.5	301.5	684	300.5
203	1.14	191.6	73.7	293.9	284.5	287.1	332.5	300.6	685.3	299.7
204	1.13	191.3	73.9	290.3	284.9	285.5	333.1	299.7	685.8	298.7
205	1.11	191.2	74	283	285.3	285.1	331.5	300.4	685.6	297.1
206	1.09	191	73.6	282.4	285.7	284.8	332.8	300.6	684.5	297.2
207	1.08	190.7	73.8	280.2	286	283.6	330.9	299.4	682.9	296
208	1.06	190.2	73.8	279.5	286.1	284.2	329.7	300.1	681.5	295.9
209	1.06	190.2	73.7	280.6	286.5	282.9	331.1	298.6	680.3	295.9
210	1.04	189.5	73.7	280.9	286.6	282.6	330.8	300.3	679.1	296.2
211	1.02	189.2	73.7	284	286.7	281.7	330.7	299.4	678.6	296.5
212	1.01	188.9	73.7	289.4	286.9	281.4	329.1	296.9	679.1	296.7
213	1	188.6	74	294.4	286.9	279.4	327.8	298.8	679.7	297.5
214	0.99	188.3	73.9	301	286.8	278.6	327	297.8	680.3	298.3
215	0.98	188	73.9	304.6	286.9	278.1	326.7	297.2	680.1	298.7
216	0.96	187.4	73.9	312.2	286.8	276.3	327.8	297.6	678.4	300.2
217	0.95	187.1	74.1	314.3	286.7	275.1	326.8	298.1	676.3	300.2
218	0.93	187	74	312.8	286.6	274.1	326.6	297.9	674.6	299.6
219	0.92	187.2	74	311.3	286.4	273.1	324.9	299.1	673.3	299
220	0.91	186.9	74	313.7	286.3	271.5	323.4	297.3	672.5	298.5
221	0.88	186.5	74.1	318.1	286.1	271.5	323.6	297.2	672.4	299.3
222	0.86	186.4	74	317.4	285.9	271	324.7	297.7	672.9	299.3
223	0.86	186.5	74.1	317.6	285.7	269	323	296.2	673.2	298.3
224	0.85	186.1	74.3	315	285.6	267.9	324.3	297.2	672.9	298
225	0.83	186.1	74.3	314.4	285.5	268.1	322.6	295.4	672.4	297.2
226	0.82	186	74.4	318.2	285.1	267	322	295.9	671.5	297.7
227	0.82	185.9	74.3	318	285	266.2	322.5	295.5	670.2	297.4
228	0.79	185.8	74.4	317.7	284.9	265.5	322.4	295.1	668.4	297.1
229	0.78	185.9	74.4	316.9	284.6	264.9	321.6	293.2	667.1	296.2

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230	0.77	185.7	74.1	316.5	284.4	265.1	321.1	293.6	666.3	296.1
231	0.75	185.3	74.2	313.7	284	263.3	320.7	295.2	665.5	295.4
232	0.74	185.1	74.2	309	283.6	263.7	319.5	292.5	664.4	293.7
233	0.72	184.3	74.3	309.2	283.4	262.3	319.7	293	662.9	293.5
234	0.72	183.4	74.2	308.5	283.1	262.1	318.9	293.1	661	293.1
235	0.71	183	74.2	304.7	282.8	262.2	319.3	292.5	659.3	292.3
236	0.69	182.6	74.4	301.7	282.4	262.2	318.4	291	657.7	291.1
237	0.68	182.5	74.4	302.8	282.2	261.3	317.5	290.9	656.7	290.9
238	0.66	182.3	74.4	303.3	281.8	260.4	317.3	292.2	655.9	291
239	0.64	182.1	74.7	306	281.5	260	317.2	290.5	655	291
240	0.63	181.8	74.4	308.6	281	259.1	314.9	292.2	654.2	291.2
241	0.63	181.7	74.5	307.4	280.6	258	315.3	290.2	653.2	290.3
242	0.61	181.4	74.4	306.2	280.3	258.1	315.9	291.5	652.1	290.4
243	0.6	181.4	74.7	306.5	279.9	256.5	315.3	289.7	650.9	289.6
244	0.59	180.7	74.3	303.9	279.5	256.7	314.8	291.7	649.8	289.3
245	0.58	180.3	74.6	303.8	279.2	256.7	313.2	291.1	649	288.8
246	0.57	179.8	74.4	301.3	278.7	256.3	311.3	290.1	648.2	287.5
247	0.56	179.1	74.4	302.1	278.3	255.5	311.9	288.8	647.5	287.3
248	0.54	179.3	74.6	300.6	278	254.7	312.2	289.9	646.7	287.1
249	0.53	179.2	74.4	300	277.6	254.9	312.3	288.6	645.9	286.7
250	0.51	178.9	74.8	299.4	277.2	254.3	311.3	288	645.1	286.1
251	0.5	179	74.6	298.3	276.9	253.6	310.6	287.1	644.2	285.3
252	0.48	178.6	74.8	297.6	276.3	252.9	309	287.8	643.3	284.7
253	0.48	177.8	74.4	295.5	275.9	252.8	309.8	289.7	642.6	284.7
254	0.47	177.1	74.5	292	275.5	252.3	309.4	287.5	642	283.3
255	0.46	176.5	74.9	292	275.1	252.2	308.5	286	641.3	282.8
256	0.45	176.8	74.8	292.5	274.8	251.8	308.6	285.6	640.3	282.7
257	0.44	176.7	74.6	293.5	274.5	251	307.1	286.1	639.3	282.4
258	0.42	176.6	74.4	294	274.1	250.9	307.3	285.9	638.3	282.4
259	0.42	176.7	74.6	293.5	273.8	250.2	307	284	637	281.7
260	0.4	176.4	74.7	290.8	273.3	249.1	305.8	284	635.2	280.6
261	0.39	176	74.8	290.1	272.9	249.4	305.2	284.7	633.1	280.5
262	0.38	175.8	74.9	289.5	272.6	249.4	305	282.2	630.7	279.8
263	0.37	175.4	74.7	290.4	272.3	249.1	305.5	281.9	628.1	279.8
264	0.36	175.4	74.8	289.5	272.1	248.3	304.4	283.9	625.9	279.6
265	0.34	175.1	74.5	287.5	271.5	248.2	301.7	281.7	624.1	278.1
266	0.34	174.5	74.6	285.6	271.2	247.8	302.7	279.4	622.9	277.3
267	0.33	174.2	74.6	282.3	270.9	246.7	301.4	280.3	621.5	276.3
268	0.32	173.6	74.7	280.7	270.5	246.6	300.4	280.4	620.9	275.7
269	0.31	173.7	74.6	280.2	270.3	246.1	301.9	279.7	618.9	275.7
270	0.29	173.3	74.6	279.1	269.9	245.6	300.6	279.3	616.2	274.9
271	0.28	172.8	74.7	276.9	269.4	244.9	299.8	279	614.2	274
272	0.28	172.6	74.8	276.5	269.1	245.6	299.4	279.8	613.6	274.1
273	0.26	172.2	74.7	275.1	268.7	243.6	298.6	278.6	614.3	272.9
274	0.26	171.9	74.8	274.3	268.4	243.2	296.4	276.5	615.2	271.8
275	0.25	171.5	74.7	274.2	267.9	242.8	295.3	276.1	615.8	271.3
276	0.23	171.2	74.8	275	267.7	241.8	297.4	275.8	615.9	271.5
277	0.22	171.1	74.6	274.9	267.2	241.2	295.9	274.6	615.7	270.8
278	0.21	170.7	74.7	275.6	266.9	240.2	295.4	273.7	615.2	270.4
279	0.19	170.6	74.7	275	266.5	239.9	294.8	274	614.3	270
280	0.2	170.2	74.9	277	266.2	238.2	293.2	274.1	613.5	269.7
281	0.19	169.7	74.7	276	265.9	238.5	293	272.5	612.3	269.2
282	0.18	169.4	74.7	277.7	265.5	237.8	293.6	273.5	611.5	269.6
283	0.16	169	74.6	277.8	265.3	237.5	292.4	272.8	610.6	269.1
284	0.16	168.9	74.8	277.3	265	236.8	292.4	270.7	610	268.4
285	0.15	168.7	74.8	276.2	264.7	236.8	291.3	270	609.1	267.8
286	0.14	168.3	74.9	278.5	264.2	236.8	290.3	270.3	608.2	268
287	0.13	168.3	74.8	278.7	263.9	235.5	288.5	270.3	607.4	267.4
288	0.11	168	74.8	278.2	263.6	235	288.9	270.3	606.5	267.2
289	0.1	167.8	74.6	278.2	263.4	234.3	287.4	269.6	605.7	266.6
290	0.1	167.5	74.5	277.6	263.1	234.4	287.8	269.3	604.7	266.4
291	0.09	167	74.7	276.8	262.7	233.9	287.9	268.9	603.5	266.1
292	0.08	167	74.6	276.6	262.5	233.2	287.8	268.1	602.2	265.7
293	0	166.6	74.5	275.9	262.1	232.7	285.7	268.3	600.8	264.9

Tests were done at a medium low air setting

Test load average moisture content - 20.2%

# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

Elapsed Time (min)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	13.32	303.4	63.2	566.1	307.8	377.4	406.8	374.2	832.2	406.5
1	12.87	326.8	63.7	517.8	310.6	386.1	405.1	368.5	719.8	397.6
2	12.04	326.6	63.4	505.4	313.7	392.6	402.4	367.8	749.6	396.4
3	12.87	341.1	63.5	500.2	317	401.1	402.1	362.9	760.6	396.7
4	12.74	347	62.8	498.5	320.3	398.9	398.5	364.9	822.4	396.2
5	12.62	356.9	62.9	500	323.6	403.3	396.7	359.1	875.4	396.6
6	12.51	340.7	62.6	502.6	327	405.9	392.5	355.7	883.1	396.7
7	12.43	325.9	62.6	506.4	330.2	402.5	387.9	352.5	899.4	395.9
8	12.37	317.6	62.5	511.6	333.2	389.7	385.9	352	911.2	394.5
9	12.26	312.2	62.3	521.2	335.9	393.2	385.1	353.9	917.7	397.9
10	12.18	308.9	62.3	525.3	338.4	395.8	379.9	349.4	924.5	397.7
11	12.07	307.2	62.7	531.9	340.7	389.9	379	348	933.4	397.9
12	11.98	307	62.7	541.5	342.9	383.8	377.1	347.6	944.5	398.6
13	11.88	307.1	62.4	546.8	344.7	377.5	374	342.9	957.3	397.2
14	11.75	308.6	62.6	560.4	346.4	377.9	370	342.2	973.2	399.4
15	11.64	310	62.5	578.1	347.9	368.5	368.6	336.8	987.4	400
16	11.53	312.3	62.5	592.3	349.2	375.2	366.7	338.5	995.6	404.4
17	11.43	314	62.5	602.5	350.3	376.1	363.6	337.1	999.1	405.9
18	11.31	315.5	62.4	614.2	351.3	378.2	362.6	332.7	1001	407.8
19	11.17	317.1	62.4	606.1	352.1	372.8	359.4	331.7	1003.7	404.4
20	11.07	318.1	62.8	617.8	352.8	374.3	360.5	333.5	1005.7	407.8
21	10.94	319.3	62.3	672.5	353.3	377.1	357.4	328.1	1004	417.7
22	10.81	320.6	62.7	688.3	353.8	374.8	355.1	325.9	1004.5	419.6
23	10.68	322.2	63	699.3	354.1	373.3	354.1	326.1	1007.2	421.4
24	10.55	323.3	62.9	706.8	354.4	378.6	352.7	323.1	1004.5	423.1
25	10.42	324.1	62.8	725.4	354.6	377.5	350.6	321.5	1002.1	425.9
26	10.28	325.8	62.7	732	354.8	381.2	350.6	319.7	1008.1	427.6
27	10.15	327.6	62.3	735.2	354.8	380.4	348.5	318.1	1013.8	427.4
28	10.01	329.1	62.5	742.3	354.9	384.1	348.1	312	1014	430.3
29	9.86	330	62.9	748.6	354.9	386.6	348	327.7	1014.2	431.4
30	9.82	331.4	62.8	766.8	354.8	388.2	347	321.6	1016.2	435.7
31	9.58	332.4	62.8	729.5	350.9	372	350.5	323.2	1016.8	425.2
32	9.44	333.1	62.5	731.7	347.7	358.6	349.9	323.9	1017	422.4
33	9.28	333.8	62.6	751.2	344	354.4	349.7	321.3	1019.3	424.1
34	9.13	334.6	63.1	751.7	340.6	349.3	348.9	321.8	1017.9	422.5
35	8.99	334.7	63.3	759.8	336.5	345.7	345.7	319.6	1018.6	421.5
36	8.88	334.7	63.3	759.7	332.7	346.2	347	321.8	1017	421.5
37	8.75	334.2	63	754.6	329.2	344.7	346.1	319.2	1016.8	418.8
38	8.63	333.2	62.9	750.9	325.9	344.4	345.6	323.6	1018.5	418.1
39	8.51	333.1	62.9	750.6	322.6	340.1	348.2	320.4	1018.5	416.4
40	8.39	333.1	62.7	749.2	319.7	339.9	348	320.8	1019	415.5
41	8.26	332.9	63	751.9	317	335.8	349.7	321.3	1019	415.1
42	8.11	332.7	63.3	753.1	314.5	341	347.4	318.4	1019.6	414.9
43	7.98	332.9	63.2	755.7	312	344.7	348.8	322.3	1020.9	416.7
44	7.86	332.4	62.9	761.1	309.7	345.6	348.5	321.6	1021.7	417.3
45	7.73	331.7	63.1	758.8	307.5	350.7	348.1	316.6	1021.4	416.3
46	7.6	330.8	63	759.4	305.4	356.9	349	320.7	1020	418.3
47	7.49	330.1	63.1	759.4	303.7	353.8	348.1	318.8	1019.7	416.8
48	7.36	330.7	63	764.1	302	360.7	349.4	320.5	1020	419.3
49	7.24	330.6	63	758.4	300.1	358.3	349.4	319.6	1020.5	417.2
50	7.11	330.6	62.8	758.5	298.8	361	347.9	321	1022.7	417.4
51	7	329.8	63	760.6	297.3	363.1	348.2	319.5	1021.3	417.7
52	6.9	329.6	63.7	757.5	296	365.1	347	318.2	1020.6	416.8
53	6.78	329.5	63.1	760.2	294.6	359.8	347.7	320.9	1020.2	416.7
54	6.65	329.6	62.9	760	293.2	359	348.3	321.6	1019.5	416.4
55	6.54	329.5	63.1	759	292.4	358.5	348.2	317.8	1019.3	415.2
56	6.43	329	63.9	759.1	291.2	355.5	347.7	319.4	1020.4	414.6
57	6.31	328.5	63.3	757.4	290.1	364.3	348.9	321.1	1021.6	416.3
58	6.2	328.3	63.4	754.3	289.3	364.5	345.8	318.6	1022.8	414.5
59	6.09	328	63.1	754.3	288.4	365	347.9	320.7	1023.4	415.3
60	5.99	328	62.9	757.5	287.4	367.5	348.2	322.7	1023	416.7
61	5.87	327.6	63.5	763.3	286.7	369.9	348.1	324.8	1023.2	418.6
62	5.76	326.9	63.1	755.3	285.9	372.2	347.9	322.4	1026.1	416.7
63	5.66	325.9	63.2	742.8	285.1	371.5	349.4	321.7	1031.6	414.1
64	5.58	325.1	63.6	734.3	284.4	369.1	349.7	320.5	1034	411.6
65	5.48	324.5	63.3	725.4	283.9	367.9	349.8	322.7	1032.8	409.9
66	5.4	323.8	63.5	711.3	283.2	368.3	350.5	323.1	1029.7	407.3
67	5.3	323.1	63.2	702.5	282.7	367.4	349.1	322.3	1026.4	404.8
68	5.19	321.9	63	695	282.2	367.6	349.7	322.3	1022.6	403.4
69	5.11	320.9	63.2	689.7	281.6	368.1	348.5	321.2	1018.9	401.8
70	5.03	320	63.6	687.1	281.1	372.1	351.6	321.8	1015.3	402.7
71	4.94	319.3	63.3	684.4	280.6	374.1	351.2	327.3	1011.3	403.5
72	4.86	317.5	63.1	683.1	280	375.6	351.4	324	1007.2	402.8
73	4.77	315.8	63.3	675.3	279.6	375.1	351.5	324.7	1002.8	401.3
74	4.71	314.4	63.6	673.1	279	373.1	349.6	327	997.8	400.4
75	4.63	312.7	63.6	669.6	278.6	372.7	353.1	325.1	991.2	399.8

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76	4.57	311	63.4	663.2	278.2	372.5	352.6	328.1	985	398.9
77	4.48	308.8	63.8	662.5	277.8	371.6	352.3	327.9	979.9	398.4
78	4.43	306.8	63.5	660.6	277.2	369.7	354.4	328.1	974.9	398
79	4.38	304.6	63.6	656.6	277	369.8	354.1	325.9	970.3	396.7
80	4.3	303.1	63.4	649.6	276.6	368.7	353.8	329.1	965.8	395.6
81	4.23	301.7	63.7	644.1	276.3	366.4	354	330.7	960.4	394.3
82	4.16	300.2	63.2	638.7	275.9	366.8	355.2	331.3	956.8	393.6
83	4.1	298.6	63.4	633.8	275.6	362.4	355.5	328.8	954.4	391.2
84	4.04	297.1	63.3	631.3	275.3	363.3	352.6	326.7	952.2	389.8
85	3.97	296	63.4	629.8	275	363.8	355.2	333.4	949.5	391.5
86	3.91	295.1	63.5	626.3	274.7	361	354.2	334.7	947.2	390.2
87	3.87	294.1	63.9	625.4	274.2	362.4	352.7	337.4	946.4	390.4
88	3.78	293.4	63.6	623.4	274.3	361.4	353.4	334.7	945.7	389.4
89	3.73	292.6	63.7	620.7	274	360.2	352.8	336.9	945.2	388.9
90	3.66	291.6	63.8	617.1	273.8	359	353	339.3	945	388.4
91	3.61	290.6	63.6	614.2	273.7	357.9	352.8	337.2	945.2	387.2
92	3.56	290.1	64	613.8	273.4	356.9	354.4	339	945.1	387.5
93	3.48	289.3	63.8	611.3	273.3	356.8	354.4	339.2	944.1	387
94	3.44	288.4	63.9	609.2	273.3	357	355	340.8	943.7	387
95	3.38	287.7	63.9	608.1	273.2	357.7	357.4	340.9	944.8	387.4
96	3.31	287.4	63.7	607.5	272.7	357.7	355.1	342.4	946.5	387.1
97	3.27	287.4	63.9	608	272.9	357.2	354.5	340.3	947.5	386.6
98	3.19	287	64	606.6	272.8	356.4	354.9	343.2	948.6	386.8
99	3.14	286.6	64.3	612.5	272.6	355.2	356.1	344.6	949.6	388.2
100	3.06	286.2	63.9	616.6	272.6	355	355.6	346.1	948.9	389.2
101	3.02	285.4	64.1	623.2	272.5	356.5	357.9	346.1	948.7	391.2
102	2.97	284.4	63.9	629	272.4	354.5	357.2	346.6	948.1	391.9
103	2.93	283.3	63.8	645.9	272.3	355.5	356.5	346.6	945.1	395.4
104	2.87	282.1	64	648.6	272.3	351.9	356.3	347.4	935.5	395.3
105	2.84	280.7	63.9	652	272.3	354.2	356.9	349.9	927.6	397.1
106	2.78	279	64	651.7	272.4	350.9	357.3	350.6	921.5	396.6
107	2.76	277.3	64.2	654	272.3	352	358.3	350.8	917.9	397.5
108	2.7	275.9	63.9	654.3	272.2	350.5	357.1	351.2	912.4	397
109	2.66	274.4	64.3	656.4	272.4	347.6	358.4	351.6	907.9	397.3
110	2.62	273.1	64.3	650.9	272.3	349.1	358.7	353.7	902	397
111	2.59	271.8	64.2	631.7	272.5	350.1	359.2	353.8	894.3	393.5
112	2.55	270.1	64.2	621.7	272.5	348.8	358.7	355	886.9	391.4
113	2.51	268.7	64	612.9	272.5	348.1	359.5	354.3	881.5	389.5
114	2.48	267.4	64.3	606.1	272.6	348.8	359.3	354.2	878	388.2
115	2.43	265.8	64.2	601.9	272.9	348.9	359.7	355.9	874.8	387.8
116	2.4	264.2	64.1	597.2	272.7	347.7	359.9	356.3	871.1	386.8
117	2.38	263	64.3	593.8	272.7	348.2	360.8	358.3	867.9	386.8
118	2.36	261.3	64.3	591.1	273.1	349.2	360.1	358.1	863.5	386.3
119	2.31	259.9	64.3	585.6	273.1	348.3	360.3	357.6	857.7	385
120	2.28	258.7	64.2	582.4	273.2	348.8	361	357.4	852.2	384.6
121	2.25	257	64.3	578.2	273.6	349.5	360.2	358.9	847.3	384.1
122	2.21	255.4	64.2	572.6	273.5	349.7	359.9	359	843.5	383
123	2.2	254.2	64.3	567.7	273.9	346.8	360.1	357.1	840.1	381.1
124	2.16	252.7	64.2	564.2	274	346.8	360	357.6	837.1	380.5
125	2.14	251.2	64.7	559.6	274.2	345.5	360.4	358.7	834.5	379.6
126	2.12	250	64.3	556.3	274.3	349	360.6	360.3	832.4	380.1
127	2.1	248.5	64.6	553.7	274.7	346	360.7	356.7	830.9	378.4
128	2.09	247.1	64.2	550.3	274.9	345.3	360.2	357.8	829	377.7
129	2.04	245.9	64.4	548.3	274.9	345.1	359.6	359.5	826.2	377.5
130	2.03	244.9	64.7	545.4	275.2	344.7	359.8	359.6	822.6	376.9
131	2.01	243.8	64.2	541.5	275.4	342.3	358.9	360.7	818.9	375.8
132	1.99	242.5	64.3	538.2	275.6	342.5	359	360.7	815.8	375.2
133	1.97	241.4	64.5	536.6	275.7	343.9	358.8	360.3	813	375.1
134	1.95	240.3	64.3	533.6	275.8	343.1	359	357.5	810.4	373.8
135	1.93	239.3	64.3	529.1	276.1	343.3	358	359	807.6	373.1
136	1.9	238.4	64.2	526.4	276.3	344.4	359.7	360	804.9	373.4
137	1.9	237.4	64.4	524.9	276.4	335.2	357.9	359.7	802.3	370.8
138	1.87	236.2	64.3	521.9	276.7	327.2	358.5	357.8	799.7	368.4
139	1.86	235.1	64.5	518.8	276.7	319.5	358.3	360.4	797.4	366.8
140	1.83	234.4	64.3	514.8	277	317.2	358.1	358	795.5	365.1
141	1.8	233.6	64.4	515.4	277.2	308.9	357.5	360.4	793.9	363.9
142	1.79	232.2	64.5	512.1	277.3	308.1	357.2	358.5	792.2	362.6
143	1.78	231.7	64.2	509.8	277.5	309.7	357.2	359.6	790.6	362.7
144	1.76	230.8	64.3	508	277.5	314.6	357.2	358.9	788.2	363.3
145	1.73	230.2	64.3	505.4	277.7	311.8	357.3	360	785.8	362.4
146	1.71	229.3	64.1	504.6	277.7	309.4	357.3	358.2	781.1	361.5
147	1.69	228.5	64.5	501.3	278.1	321.4	357.4	359.3	776.4	363.5
148	1.68	227.8	64.3	499.6	278	330.8	358	358.1	774.2	364.9
149	1.65	226.8	64.2	496.8	278.2	330.2	356.8	356.5	773.2	363.7
150	1.63	226.2	64.3	495.1	278.4	327.5	359.5	357.8	772.4	363.7
151	1.61	225.8	64.3	493.4	278.3	327.1	359.7	357.6	771.7	363.2
152	1.6	224.7	64.1	492.3	278.7	326.3	360.8	357	771	363



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153	1.57	224.2	64.3	488.6	278.9	323.1	361.8	353.5	770.3	361.2
154	1.55	223.2	64.2	488.6	278.9	320.7	361.5	355.1	769.6	361
155	1.53	222.9	64.2	488.1	279.4	321	361.8	354.1	768.7	360.8
156	1.51	222.2	64	486.2	279.5	322	363	353.5	767.7	360.8
157	1.49	221.6	64	485.9	279.4	321.5	362.9	351.2	766.7	360.2
158	1.47	221.7	64.3	482	279.6	318.9	364.9	352.7	765.6	359.6
159	1.47	221.3	64.5	482.3	279.7	319.6	364.5	352.2	764.6	359.7
160	1.45	220.7	64.6	482.1	279.8	319.5	363	353.6	763.5	359.6
161	1.42	220.2	64.7	479.8	279.8	319.9	364.9	351.7	762.3	359.2
162	1.4	219.3	64.8	478.7	280	315.7	365.8	350.9	761.2	358.2
163	1.39	218.5	65.1	476.9	279.9	316.2	365.9	350.3	760.3	357.8
164	1.37	217.7	64.8	475	279.9	315	365.6	349.2	759.2	357
165	1.35	217	64.7	475.3	280	310.5	365.8	349.5	758.1	356.2
166	1.33	216.5	64.7	473.2	280.1	308.4	365	349.3	757.1	355.2
167	1.31	215.9	64.9	472	279.9	307.4	366.7	348.1	756.1	354.8
168	1.29	215.2	65	470.4	280	306.5	366.5	347.1	755.1	354.1
169	1.27	214.8	65	469.3	280.1	307.3	366.4	347	754	354
170	1.25	214.2	64.9	467.8	280	308.5	366.7	348.1	752.6	354.2
171	1.24	213.8	64.9	468	280.1	305.3	365.3	349.2	751.2	353.6
172	1.23	213.4	65.5	465.5	280.1	305.8	364.4	344.7	749.8	352.1
173	1.22	213.1	65.3	464.2	280.1	302.1	364.9	344.6	748.4	351.2
174	1.2	212.6	65.1	462.8	280	301.8	365.5	342.6	747.1	350.5
175	1.18	212.2	65.1	462.5	280	301.3	365.1	344.9	745.8	350.8
176	1.16	212.2	65.2	461.1	280	301.5	364.7	345.2	744.8	350.5
177	1.14	211.9	65.4	461	280.1	299.8	364.5	343.2	744	349.7
178	1.12	211.6	65.3	459.7	280	298.3	364.8	344	743.1	349.3
179	1.11	211.2	65.3	459	280	297.3	364	342.9	742.1	348.6
180	1.11	210.8	65.4	457.3	279.9	296.9	363.8	344.6	741.2	348.5
181	1.07	210.4	65.3	457.4	279.8	294.1	363.2	343	740	347.5
182	1.06	210	65.5	456.9	279.8	294	362.6	341.6	738.9	347
183	1.04	209.8	65.4	454.9	279.8	293.3	362.5	339.5	737.6	346
184	1.03	209.4	65.8	453.4	279.6	292.2	362.3	341.5	736.7	345.8
185	1.02	209	65.5	452.2	279.7	293.1	361.1	341.4	736.3	345.5
186	0.99	208.5	65.5	452.3	279.4	292.1	360.8	338.8	736	344.7
187	0.98	208.1	65.7	449.7	279.4	291.6	359.7	339.1	735.3	343.9
188	0.96	207.9	65.9	450.1	279.4	290	359.8	339.2	734.1	343.7
189	0.94	207.6	65.7	449	279.3	289.7	358.7	339.7	732.8	343.3
190	0.93	207.2	65.8	448.2	279.1	289.1	358.1	339.2	731.4	342.7
191	0.91	206.5	65.5	446.4	278.9	288.8	357	338.7	729.9	342
192	0.91	206.2	65.7	444.9	279	287.5	356.9	336.3	728.5	340.9
193	0.89	205.6	65.9	444.4	278.7	287.7	356.3	340	726.8	341.4
194	0.88	205.4	65.8	443.6	278.5	287.2	355.7	338.7	725.3	340.7
195	0.85	204.9	65.7	443	278.3	287.4	355	338.9	723.8	340.5
196	0.85	204.6	65.9	441	278.2	286.6	354.2	335.4	722.6	339.1
197	0.83	204	65.7	441	278	287.3	354	336.8	721.2	339.4
198	0.79	203.5	66	439.7	277.7	286.1	353.6	334.9	719.8	338.4
199	0.79	203.2	65.7	439.1	277.5	285.8	352.6	336	718.4	338.2
200	0.79	202.9	65.7	437.6	277.3	284.4	351.8	336.6	717.1	337.5
201	0.77	202.6	65.9	436.4	277.2	285.4	350.4	335.4	716.5	337
202	0.75	202	65.8	435.2	276.9	284.3	349.7	335.4	716.3	336.3
203	0.73	201.9	66.2	434	276.8	284.5	349.1	334	716.2	335.7
204	0.71	201.7	65.9	434.3	276.7	284.6	349.1	332.1	715.8	335.4
205	0.7	201.4	66.1	433.1	276.4	284.9	348.4	332.3	715	335
206	0.68	201.2	66.1	431.6	276.3	285	346.8	330	714.1	333.9
207	0.67	200.8	66.4	431	276.1	283.7	347.4	330.9	713	333.8
208	0.65	200.5	66.4	430.1	275.9	283.3	346.9	333.3	712.3	333.9
209	0.63	200.3	66.6	430.1	275.7	283.5	345.6	331.4	711.7	333.3
210	0.62	200.2	66.1	428.4	275.6	282.5	344.7	328.7	711.5	332
211	0.59	199.8	66.6	428.1	275.3	282.3	343.8	329.1	711.4	331.7
212	0.58	199.4	66.2	426	275.2	282.8	343.9	329.5	711.2	331.5
213	0.55	199.3	66.6	426.3	275.1	282.4	341.9	327.3	710.7	330.6
214	0.54	199	66.4	425.6	274.8	281.8	342.8	326.9	709.9	330.4
215	0.52	198.8	66.3	425.7	274.7	281.3	342	327.2	709.1	330.2
216	0.51	198.5	66.2	423.5	274.5	282	341.7	326.9	707.9	329.7
217	0.5	198.2	66.5	422.3	274.3	281.8	340.7	325.9	707	329
218	0.48	198.4	66.2	421.4	274.1	281.3	340.6	326.2	706	328.7
219	0.46	198	66.6	419.4	274.1	279.6	339.6	326	705.2	327.8
220	0.44	197.9	66.2	418	274	280	338.5	326.1	704.3	327.3
221	0.43	197.5	66.3	417.6	273.9	279.5	338.4	325.2	703.4	326.9
222	0.41	197.4	66.7	416.3	273.7	278.6	339.1	324.9	702.9	326.5
223	0.39	196.9	66.3	414.8	273.6	278.2	337.7	322	702.3	325.3
224	0.39	197	66.2	416.3	273.5	276.9	337.4	323.6	701.7	325.5
225	0.36	196.8	66.2	414.1	273.3	277.4	337.5	323.1	700.7	325.1
226	0.35	196.3	66.6	412.1	273.2	275.9	336.6	322	699.2	324
227	0.34	196.1	66.5	411.5	273.3	275.3	336.2	320.4	697.6	323.3
228	0.33	196	66.6	410	273.3	274.9	335.1	320.8	696	322.8
229	0.29	195.6	66.6	409.7	273	274.3	335	321	694.9	322.6

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## 6/2/23 - 6/5/23

230	0.29	195.4	66.5	408.9	273.1	272.9	334.5	321.3	694	322.1
231	0.27	195.3	66.2	406.8	273	272.7	334.7	320.5	693.2	321.5
232	0.26	194.9	66.2	405.9	272.8	272.9	333.2	318.8	692.5	320.7
233	0.24	194.5	66.6	404.9	272.8	272.9	333.1	317.8	691.8	320.3
234	0.23	194.3	66.5	404.6	272.8	271.4	331.9	317.7	690.9	319.7
235	0.21	194.2	66.7	404.6	272.9	271.3	332.3	316.9	689.8	319.6
236	0.2	193.9	66.4	402.9	272.8	270.7	331.1	317.8	688.9	319.1
237	0.18	193.7	66.6	403.3	272.8	270.1	331.5	317.6	688.2	319.1
238	0.17	193.3	66.8	401.3	272.7	269.4	331.4	317.5	687.2	318.5
239	0.16	193	66.5	401.7	272.8	268.7	330.8	316.6	685.7	318.1
240	0.13	192.8	66.7	400.2	272.8	268.8	329.5	317.1	684.2	317.7
241	0.12	192.6	66.8	399.3	272.8	267.5	329.2	315.8	683	316.9
242	0.11	192.3	66.7	396.8	272.7	267.2	329.1	314.9	682	316.2
243	0.09	191.9	66.9	396.7	272.7	266.7	329	314.6	681.1	315.9
244	0.09	191.5	67.1	394.1	272.5	266.8	326.7	312.3	680.5	314.5
245	0	191.1	66.9	396.4	272.6	266.6	327.4	314.2	679.8	315.4

Tests were done at a medium low air setting

Test load average moisture content - 21.3%

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## 6/2/23 - 6/5/23

Elapsed Time (min)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	13.38	338.3	65	556.2	116.8	453	476.5	459.9	783	412.5
1	13.71	350.9	65.4	551.6	116.2	452.8	473.2	453.3	743.3	409.4
2	13.59	348.3	65.2	547.7	116	449.7	467.7	448.6	754.2	405.9
3	13.49	359.1	65.1	544.7	116.7	447.1	462	443.7	790.8	402.8
4	13.39	370.9	65.2	543.3	116.8	445.7	455.5	437.9	814.9	399.8
5	13.27	383	65	547.2	117	445.3	449.5	432.9	841.8	398.4
6	13.18	353.6	65.3	552.1	117.5	446	443.8	427.7	841.2	397.4
7	13.09	336.7	65.1	558.5	118.1	447.7	440.1	422.8	834.1	397.4
8	13.02	329.7	65.2	565.4	119.1	451.1	434.8	417.2	839	397.5
9	12.91	327.7	65	574.4	117.7	455.1	429	412.8	851.3	397.8
10	12.8	328.4	65.3	583.7	119.7	459.9	424.1	409	864.4	399.3
11	12.69	330.1	64.8	595.9	120.1	465.1	419.2	405	876.1	401.1
12	12.59	332.5	64.6	610.9	120.4	471.4	414.1	400.7	884.7	403.5
13	12.47	334.6	65.2	623.6	120.6	477.9	411.2	397.4	890.5	406.2
14	12.35	337.1	64.9	639.1	120.5	484.8	407.1	393.9	895.6	409.1
15	12.24	340.2	64.9	653.2	121.4	491.7	403.5	389.9	901.8	412
16	12.14	343.4	64.8	673.4	120.2	498.8	400	387.5	905.7	416
17	12.01	346.2	64.7	685.7	120.4	505.4	397.3	384.8	909.6	418.7
18	11.89	348.6	64.9	695.7	119.2	512.5	395.3	382.3	914.3	421
19	11.74	350.9	64.9	707.6	119.9	519	393.5	379.8	918.1	423.9
20	11.63	353	65	717.2	118.2	525.5	391.8	377.8	922.6	426.1
21	11.53	355.3	65	725.7	119.1	533	389.6	375.9	928.1	428.7
22	11.38	357.4	65.1	735.3	120	539.3	387.8	373.6	934.3	431.2
23	11.26	359.3	65.1	748.2	117.9	545.1	386.7	372.8	938.5	434.1
24	11.13	360.8	65.1	757.2	119.4	551.6	385.8	371.4	941.6	437.1
25	11.02	363.6	64.7	767	119.3	557	385.5	370.1	946.2	439.8
26	10.86	365.3	65	775.2	118.2	563.3	385.3	369.2	955.8	442.2
27	10.71	369.1	64.9	784.4	119.3	569.7	384.4	368	966.9	445.2
28	10.54	372.9	65.3	795.3	119.1	574.8	384.3	367.8	974.5	448.2
29	10.43	374.4	65.3	801.1	138.9	582.2	382	367.5	968.8	454.4
30	10.29	374.5	64.9	813.8	130.9	580.4	376.7	366.4	964.1	453.6
31	10.13	374.5	65.2	820.4	126.4	576.7	375.1	366.3	966.5	453
32	10.01	375.7	64.7	826.7	123.9	574.4	374.9	366.8	969.2	453.3
33	9.87	376.1	65.1	832.5	122.7	572	375.2	366.6	967.6	453.8
34	9.73	376	64.7	834.6	121.7	569.6	375.2	366.7	964.6	453.6
35	9.59	375.8	64.9	835.5	120.5	567.4	376.2	367.2	962.9	453.4
36	9.46	374.5	65.1	832.8	119.3	564.8	376	368	961	452.2
37	9.32	373.5	65.2	830.1	118.8	562.1	377.6	368.7	959.6	451.4
38	9.25	371.1	65.1	828.2	118.1	560.3	377.4	368.8	955.6	450.5
39	9.12	370.4	64.7	826.9	117.8	559.5	378.4	368.6	959.4	450.3
40	9.01	370.7	65.1	825.3	116.8	559	378.9	369.3	964	449.9
41	8.9	369.4	65.2	832.1	116.6	558.6	378.2	368.9	966.7	450.9
42	8.78	369.5	65.1	829.4	116	559.1	378	369.4	975	450.4
43	8.67	369.2	65.6	830.3	115.2	558.9	378.4	368.8	980.5	450.3
44	8.56	369.4	65.2	830.9	115.1	559.8	377.8	369.2	977.1	450.5
45	8.42	369.6	65.4	832.9	114.8	560	377.5	369.4	977.1	450.9
46	8.35	368.7	65.2	834.6	114	560.6	377.8	369.7	976.1	451.4
47	8.19	368.1	65	834.9	114	560.6	377.3	369.7	974.4	451.3
48	8.11	367.8	65	837	113.6	560.8	378.5	370.9	971.7	452.2
49	8.01	368.3	65.5	837.6	113.5	560.8	379.3	370.8	969.3	452.4
50	7.88	367.9	64.9	837.7	113.2	560.6	379.6	372.1	968.7	452.7
51	7.75	367.2	65	836.8	113	559.9	379.7	372.4	968.6	452.4
52	7.67	367	64.5	836.7	113.2	559.3	380.6	373.1	970.4	452.6
53	7.55	366	65	836.3	112.4	558.8	381.5	373.6	969.7	452.5
54	7.43	366	65.1	832.9	112.4	557.5	381.6	374.8	968	451.8
55	7.34	365.1	64.9	830	111.9	556.7	381.9	376.1	966.3	451.3
56	7.24	364.8	64.9	820.1	111.8	556.5	383.4	376.8	967.1	449.7
57	7.09	365.1	64.8	818.5	111.5	556.6	383.7	378	969	449.6
58	6.99	364.5	64.9	819.4	111.5	556.7	384.3	379	970.7	450.2
59	6.89	364	65	828.9	111.5	556.7	386.3	379.7	972.5	452.6
60	6.78	363	65	826.1	111.4	557	387.1	380.6	973.4	452.5
61	6.67	362.4	64.8	829	111.1	556.9	388.9	381.3	975.9	453.5
62	6.56	362.7	65.2	825.7	110.8	557	391.1	382.9	977.2	453.5
63	6.46	363.2	65	830.3	111.3	556.1	391.4	384	977.5	454.6
64	6.35	363.3	65.3	830.3	111	555.1	392.8	385	978.8	454.8
65	6.28	363	65.6	831.4	111.1	554.3	394.3	386.2	978.2	455.5
66	6.18	362.5	65.5	828.3	110.7	553.2	394.9	387	977.3	454.8
67	6.08	362	65.5	829.3	111.2	552.2	395.6	388.8	976.1	455.4
68	5.97	361.1	65.2	836.4	111.3	551.3	397.5	390.3	976.1	457.3
69	5.88	361.4	65.2	824.8	110.9	550.4	399.5	391.8	976	455.5
70	5.79	361.1	65.1	824	111.1	549.7	401.2	392.9	976.5	455.8
71	5.69	360.8	65.1	835.9	111.1	549.4	403.3	394.8	976.5	458.9
72	5.59	360.9	65.2	833.3	111.3	549.4	403.6	395.8	976.1	458.7
73	5.5	359.3	65.8	831.9	111	549.8	405	397	975.7	459
74	5.39	358.8	65.5	828.9	111.1	549.7	406.3	398.2	975.7	458.8
75	5.33	357.6	65.3	826	111.1	550.1	408.4	399.4	974.3	459

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76	5.24	356	65.4	823.7	110.9	550.8	410.2	399.9	972.8	459.1
77	5.18	355.7	65.8	820.5	111.2	551.5	412.6	402.4	971.3	459.6
78	5.1	354.8	65.8	817.4	110.6	552.4	415	402.8	969.7	459.6
79	5	354.2	65.7	813.8	111.2	552.9	415.9	404	968.2	459.5
80	4.94	353.5	65.8	810.2	111.2	553.5	417.7	405.1	966.1	459.6
81	4.86	352.9	65.4	806.4	111.5	553.3	418.6	406.9	963.6	459.3
82	4.78	351.9	65.9	803.8	111.9	553.2	420	408.1	961.4	459.4
83	4.71	350.7	65.9	799.8	111.6	552.8	421.3	408.1	958.8	458.7
84	4.64	350.1	66	795.3	111.6	552	422.6	410	956	458.3
85	4.57	348.4	66.8	791.1	111.9	551.3	423.3	410.4	953.1	457.6
86	4.49	346.6	66.4	787.9	111.7	550.7	425.2	412.2	950.3	457.5
87	4.45	344.8	66.7	784.9	111.8	549.7	426.3	413.3	947.8	457.2
88	4.37	344.1	66.6	782.2	111.9	549.5	427.5	414.7	946.8	457.2
89	4.3	342.9	66.6	779.9	111.8	549.3	429	416.4	945.9	457.3
90	4.24	342.2	66.5	777.6	112.1	548.9	430.3	417.4	945.5	457.3
91	4.18	341	66.3	775.7	112.1	549.3	431.6	418.3	945.7	457.4
92	4.1	340.2	66.3	774.5	112.2	549.6	433.7	419.6	945.8	457.9
93	4.04	339.6	66.3	773.4	112.1	550.5	435.2	420.7	946	458.4
94	3.96	339.7	66.7	771.4	112.1	551.9	436.3	421.7	946.2	458.7
95	3.9	338.7	66.8	770.7	112.7	553.3	437.9	422.8	946.8	459.5
96	3.84	337.6	66.7	768.1	112.4	554.5	439.8	423.1	946.3	459.6
97	3.79	336.3	66.8	768.5	112.7	554.9	440.5	423.8	944.4	460.1
98	3.73	334.6	66.7	769	113.1	553.7	442.2	424.6	940.8	460.5
99	3.68	333.6	66.9	770	113	552.1	443	425.6	936.4	460.7
100	3.63	332.2	66.8	767.8	113.3	551.1	443.8	426.8	932.7	460.6
101	3.58	331.3	67.1	766.5	113.2	549.6	444.6	428	930.9	460.4
102	3.51	330.2	67.1	765.4	113.4	548.2	445.4	429.2	930	460.3
103	3.48	329	67.1	764.2	113.6	546.9	446.1	430	930.3	460.2
104	3.44	327.4	66.6	760.8	113.6	546.1	447.6	430.6	929.1	459.8
105	3.38	326.8	66.8	753.5	113.8	545.1	448.4	431.2	929.8	458.4
106	3.33	326	67	750.7	114	543.8	448.5	432.5	929.7	457.9
107	3.29	324.8	66.7	742.9	114.2	542.1	449.4	432.7	927.2	456.3
108	3.25	323.7	67.2	735.6	114.2	541	450.3	433.8	922.6	455
109	3.22	322.2	67	727.1	114.5	539.6	451	434.7	916.7	453.4
110	3.18	320.4	67	721.2	114.1	538.4	450.6	435.2	910.3	451.9
111	3.14	318.4	67.1	714.2	114.6	537	451.3	436.3	903.9	450.7
112	3.11	316.6	66.8	708.7	114.6	535.8	452.3	436.7	897.4	449.6
113	3.08	314.5	67.1	702.2	114.5	534.7	452.3	437.3	890.3	448.2
114	3.05	312.1	67.1	696.2	115.2	533.4	452.8	438.6	882.6	447.2
115	3.01	309.5	66.8	688.6	114.9	532.5	453.2	438.9	875.1	445.6
116	2.99	306.9	67.3	681.7	114.8	531	451.8	439	868.8	443.7
117	2.97	304.9	67.3	674.5	115.1	529.5	453	439.3	862.9	442.3
118	2.94	303.3	66.8	666.8	115.2	528.6	452.8	439.6	856.6	440.6
119	2.93	300.5	67.3	659.1	115.4	527	453	439.8	849.3	438.9
120	2.89	297.7	67.6	651.4	115.5	525.2	452.4	440.1	841.9	436.9
121	2.87	294.8	67.7	647.1	115.5	523.4	452.5	439.9	835.3	435.7
122	2.85	292.2	67.4	642	115.4	522.2	451.9	439.6	829.5	434.2
123	2.83	290.1	67.2	636.5	115.8	520.4	451.6	439.6	824.5	432.8
124	2.8	288.1	67.6	627	115.8	519.5	450.6	439.5	820.1	430.5
125	2.78	285.8	67.4	620.1	115.5	517.7	450.5	439.3	815.9	428.6
126	2.77	283.6	67.4	614.4	115.4	516.4	451.4	439	812	427.3
127	2.74	281.6	67.3	607.3	115.8	514.8	449.6	438.6	808.3	425.2
128	2.72	280	67.1	601.1	115.4	513.5	450.2	438.4	804.7	423.7
129	2.7	277.9	67.4	597.4	115.6	512.5	449.9	437.5	801.3	422.6
130	2.68	276.5	67.3	591.9	115.6	511	449.3	437.2	798.1	421
131	2.65	274.9	67.3	586.9	115.6	509.7	449.2	436.6	795.2	419.6
132	2.64	273.3	67.6	582.4	115.6	508.1	447.9	436.5	792.4	418.1
133	2.61	271.6	67.4	577.6	115.6	506.6	447.3	435.6	789.8	416.5
134	2.6	270.3	67.2	573.9	115.4	504.9	446.6	435	787.4	415.2
135	2.58	268.9	67.2	569.9	115.5	503.3	445.5	434.2	785	413.7
136	2.56	267.4	67.6	562.2	115.5	501.2	443.7	434.1	782.7	411.3
137	2.54	266.3	67.3	556.9	115.3	499.3	443.3	433.4	780.8	409.6
138	2.53	265.3	67.2	551.1	115.5	497.7	443.3	433.2	779	408.1
139	2.49	263.6	67.5	548.1	115.4	495.9	442.4	432.3	777.3	406.8
140	2.48	262.7	67.1	545	115.4	494.1	442.1	431.1	775.6	405.5
141	2.45	261.3	67.4	542.8	115.3	492.3	440.7	430.5	773.8	404.3
142	2.44	261	67	540	115.4	490.4	439.9	430	772.2	403.1
143	2.41	259.9	67.3	538.4	115.2	488.7	438.6	429.3	770.5	402
144	2.41	258.9	67.6	535.9	115.1	487.2	437.4	428.7	768.9	400.9
145	2.38	258.1	67.5	534.2	115.1	485.1	436	428	767.2	399.7
146	2.37	257.3	67.2	532.5	115	483.2	435.8	427.4	765.4	398.8
147	2.35	256.5	67.4	530.7	114.7	482	435.3	426.6	763.8	397.9
148	2.35	255.6	67.9	529.4	114.9	480	433.8	425.6	762.4	396.7
149	2.31	254.7	67.7	528	114.9	478.4	433.3	425	761.1	395.9
150	2.29	254.1	67.4	526.5	114.5	476.3	431.6	424.2	760	394.6
151	2.27	253.7	67.3	525.3	114.8	474.7	431.6	423.2	759.2	393.9
152	2.26	253	67.5	524.2	114.9	472.7	431.4	422.2	758.2	393.1

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153	2.24	252.5	67.3	523.5	114.4	471.4	430.1	421.6	757.2	392.2
154	2.23	252.1	67.6	521.9	114.4	469.7	428.5	420.6	756	391
155	2.22	252	67.7	521.3	114.7	468	427.2	419.5	754.8	390.1
156	2.19	250.7	67.2	519.1	114.4	466.3	426.6	418.7	753.5	389
157	2.17	250.3	67.3	518.3	114.4	464.6	425.6	417.6	752.1	388.1
158	2.17	249.7	67	517	114	463	424.5	417	750.8	387.1
159	2.13	249.2	67.3	516	113.7	461.5	423.3	416.4	749.4	386.2
160	2.12	248.6	67.5	515	113.9	459.6	421.4	415.2	747.8	385
161	2.12	247.8	67.7	513.7	113.8	457.7	420.9	414.4	745.6	384.1
162	2.09	247.5	67.5	512.7	113.7	456.2	419.8	413.6	743.3	383.2
163	2.08	246.5	67.7	510.9	113.8	454.8	419.4	412.9	741.3	382.4
164	2.06	245.8	67.1	509.8	113.5	453.5	417.8	412.1	739.6	381.3
165	2.04	245.5	67.5	507.8	113.3	451.6	417	410.9	738	380.1
166	2.03	244.5	67.3	506.6	113.4	449.8	416.3	410.2	736.5	379.2
167	2.01	243.9	67.5	505.6	112.9	447.5	416.4	409.1	735.3	378.3
168	1.99	243.4	67.5	504	113.1	445	415	408.1	734	377
169	1.96	242.9	68	502.9	112.7	442.9	413.9	407.4	732.8	376
170	1.95	242.1	67.3	501.5	112.6	441.2	413.5	406.3	731.6	375
171	1.93	241.4	67.8	500.3	112.6	439.2	412.2	405.1	730.6	373.9
172	1.92	241.2	67.4	499.3	112.5	437.5	411	404.1	729.9	372.9
173	1.9	240.8	67.4	498.9	111.9	435.6	409.9	403.6	729.1	372
174	1.88	240.2	67.7	497.8	112.2	433.9	409.5	402.7	728.3	371.2
175	1.87	240.3	67.8	497.3	111.8	432.4	409.5	401.3	727.3	370.5
176	1.87	239.8	67.5	496.2	111.9	430.6	407.9	401	726.3	369.5
177	1.84	239	67.8	491.8	111.8	428.9	407	399.7	725.2	367.8
178	1.84	238.8	67.8	491.4	111.8	427.2	406.6	399.1	724.3	367.2
179	1.81	238.2	68.1	490.5	111.4	425.7	405.8	397.9	723.3	366.3
180	1.8	237.7	67.7	489.7	111.5	424.3	404.5	397.5	722.3	365.5
181	1.78	236.6	67.8	486.6	111.2	422.7	404.9	396.5	721.1	364.4
182	1.76	236.3	67.7	484.7	111.1	420.9	403.7	395.4	720	363.2
183	1.74	236.1	67.8	484.2	111.2	419.2	403.2	394.7	719.5	362.5
184	1.73	235.9	67.6	483.6	110.8	417.7	403.2	393.8	719.2	361.8
185	1.71	235.8	67.7	482.8	110.7	416	401.6	393	718.7	360.8
186	1.71	235.4	67.6	482.4	110.6	414.4	400.6	391.9	718	360
187	1.68	234.8	67.7	481.6	110.3	412.8	401.1	390.9	717.1	359.3
188	1.68	235	67.5	480.9	110.2	411	399.7	390.1	716.2	358.4
189	1.65	234.8	67.8	480.5	109.9	409.7	399.2	389.4	715.1	357.8
190	1.64	234.5	67.9	478.7	109.9	407.9	398.4	388.4	714.3	356.7
191	1.61	233.9	68	476.7	109.9	406	397.6	387.6	713.3	355.6
192	1.6	233.8	68	475.3	110.1	404.6	396.4	387.4	710.7	354.8
193	1.58	233.3	67.8	473.5	109.6	404.4	394.6	386.8	704.8	353.8
194	1.56	232.3	67.9	471.4	109.6	404.6	394.1	386.4	698.4	353.2
195	1.55	231.2	68	468.7	109.5	404.3	393.3	385.3	693.7	352.2
196	1.53	230.7	67.7	466.1	109.5	403.9	392.4	385	690.7	351.4
197	1.52	229.6	67.7	463.8	109.2	403.2	391.1	384.4	688.9	350.3
198	1.49	229	67.8	460.9	109.1	402.5	389.9	384.4	687.5	349.4
199	1.47	228.3	68.1	458.4	109	401.8	389.7	383.9	686.3	348.5
200	1.46	228.3	67.8	456.6	108.9	400.9	388.5	383.7	685.3	347.7
201	1.46	228	67.9	454.3	109.1	400	386.5	382.9	684	346.6
202	1.42	227.2	68.1	452.3	108.7	398.7	386.7	382.8	682.7	345.8
203	1.42	227	68.1	450.4	108.7	397	385.1	382.3	681.7	344.7
204	1.4	226.6	67.7	449.1	108.8	395.1	383.9	382.4	681	343.9
205	1.38	226	68.2	447.5	108.7	393.4	383.8	381.5	680.4	343
206	1.37	225.5	68.1	445.7	108.4	391.6	383	381.7	679.9	342.1
207	1.35	225.2	68.1	444.1	108.3	389.4	381.4	381.2	679.8	340.9
208	1.36	225	67.9	443.2	108.3	387.5	382.1	380.8	679.7	340.4
209	1.32	224.7	68	441.9	108.1	385.4	380.7	380.4	679.7	339.3
210	1.32	224.5	68	441.2	108.1	383.5	380.2	379.7	680	338.5
211	1.3	224.4	68.1	440.4	108.1	381.5	380.1	379.4	680.2	337.9
212	1.28	224.1	68	440.1	108	379.7	379.9	378.7	680.6	337.3
213	1.27	223.8	68.1	439.4	108	377.9	378.9	378.3	680.9	336.5
214	1.26	223.7	68	438.8	107.9	376.1	378.6	377.8	681.3	335.9
215	1.25	223.4	68	438.7	107.9	374.3	378.4	377.3	681.7	335.3
216	1.22	223.2	68.2	438.4	107.8	372.4	378.1	376.5	682	334.6
217	1.21	223	68.1	438	107.7	370.7	377.8	376.3	682.3	334.1
218	1.19	223.3	67.9	438.5	107.8	368.9	375.9	375.9	682.3	333.4
219	1.17	223.4	68.1	438.3	107.5	367.2	376.8	375	682.2	332.9
220	1.16	223.4	68.2	438.8	107.4	365.6	376.3	374.4	682.3	332.5
221	1.15	223	68.2	438.5	107.7	364.2	376.7	373.7	682.1	332.1
222	1.13	223.2	67.9	438.5	107.6	362.5	375.4	372.9	682.1	331.4
223	1.12	223.2	68.2	438.4	107.1	361.2	375	372.5	682.3	330.9
224	1.1	223.2	68.2	438.5	107.2	360.8	375.2	372	681.7	330.7
225	1.09	222.9	68.2	437.8	107.3	360.4	374.2	371.1	679.9	330.2
226	1.07	222.6	68.1	437.7	107.2	360.1	373.5	370.5	678	329.8
227	1.06	222.4	68.2	437.7	106.9	359.6	373.9	370.2	676.4	329.6
228	1.04	222.2	67.9	437.9	107.1	358.9	373.1	369.5	675	329.3
229	1.05	221.7	68.2	437.1	106.8	358.3	372.3	369.5	673.7	328.8

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230	1.03	221.3	68.2	435.6	106.7	357.7	371.2	368.9	672.7	328
231	1	221	68.3	436	107	357	370.4	368.5	672.3	327.8
232	0.99	220.8	68.3	434.6	106.9	356.3	370.4	367.6	671.8	327.2
233	0.97	220.7	68.3	434.3	106.9	355.4	369.3	366.8	671.4	326.5
234	0.96	220.5	68.4	433.8	106.6	354.3	367.9	366.2	670.9	325.8
235	0.95	220	68.2	433.4	106.8	353.3	367.4	365.6	670.2	325.3
236	0.94	220.1	68.1	433.6	106.8	352.4	366.8	364.8	669.6	324.9
237	0.91	219.5	68.4	432.8	106.4	351.3	366.3	364.3	669.1	324.2
238	0.91	219.5	68.1	433.2	106.7	350.5	364.8	363.6	668.7	323.8
239	0.89	219.4	68.3	432.1	106.5	349.5	364.3	363.5	668.5	323.2
240	0.87	219.4	68.3	431.6	106.5	348.4	363.9	362.2	668.5	322.5
241	0.87	219.3	68.3	431.5	106.3	347.4	363.1	361.7	668.2	322
242	0.86	219.1	68.1	431.2	106.5	346.2	363.1	361.3	667.8	321.6
243	0.83	219.1	68.4	430.9	106.5	345.2	361.7	360.6	667.3	321
244	0.83	218.7	68.4	431.1	106.1	344	361	360.2	667	320.5
245	0.82	218.4	68.6	431.2	106.2	342.9	360.4	359.2	666.7	320
246	0.8	218.1	68.3	430	105.9	341.9	360	359.2	666.3	319.4
247	0.78	218.2	68.5	430.1	106	341.4	358.1	359.1	665.6	318.9
248	0.75	218.2	68.4	429.8	105.7	340.8	358.1	358.4	664.9	318.5
249	0.75	217.9	68.2	429.7	105.5	340	356.9	357.9	664.1	318
250	0.74	217.9	68.2	429.1	105.7	339.1	356.6	357.9	663	317.7
251	0.72	218	68.4	428.4	105.6	338.3	356.2	357.9	661.9	317.3
252	0.7	217.5	68.1	428	105.3	337.6	355.5	357.3	660.8	316.7
253	0.68	217	68.6	427.4	105.6	336.8	354.7	357	659.7	316.3
254	0.68	216.6	68.3	426.1	105.7	336.3	354.4	356.3	658.7	315.7
255	0.67	216.6	68.4	425.6	105.1	335.5	353.2	356.5	657.9	315.2
256	0.66	216.1	68.1	425.1	105.1	335	352.9	355.5	657.2	314.7
257	0.64	215.9	68.3	424.2	105.1	334.4	352.4	355.5	656.6	314.3
258	0.62	215.4	68.4	423.8	105	333.7	351.9	355	656.3	313.9
259	0.6	214.9	68.3	422.7	105.1	333.2	351.6	354.4	656.2	313.4
260	0.6	215	68.2	422.4	104.9	332.3	351	353.9	656	312.9
261	0.6	214.9	68.3	421.9	104.8	331.4	350.4	353.3	655.9	312.4
262	0.56	215	68.4	421.6	104.6	330.3	350.6	352.7	655.4	311.9
263	0.55	214.7	68.4	420.9	104.8	329.7	350	351.9	654.4	311.5
264	0.54	214.7	68.5	420.1	104.5	329.2	349.6	351.3	651.9	310.9
265	0.54	214.5	68.1	419.7	104.5	328.7	349	350.9	648.9	310.6
266	0.53	214	68.3	418.4	104.4	328	348.2	350.2	646.6	309.9
267	0.49	213.3	68.2	417.1	104.3	327.3	347.9	349.6	645.5	309.2
268	0.5	213	68.4	416.2	104	326.3	347.4	349.3	645.3	308.6
269	0.49	212.7	68.4	415.8	104.2	325.3	347.2	348	645.4	308.1
270	0.46	212.3	68.4	414.7	104.2	324.4	346.2	347.5	645	307.4
271	0.46	212.8	68.3	413.9	104.1	323.5	345.7	346.5	644.5	306.7
272	0.45	212.4	68.5	413.8	104.1	322.4	345.7	346	643.7	306.4
273	0.42	211.8	68.3	413.3	104	321.4	345	345.6	642.9	305.9
274	0.43	211.8	68.4	413.1	103.8	320.3	345	344.6	642.5	305.3
275	0.4	211.3	68.4	412.3	104	319.2	344.5	344.1	641.2	304.8
276	0.39	210.7	68.4	411.1	103.6	318	344.8	343.7	639.1	304.2
277	0.39	210.7	68.1	410.5	103.6	316.9	343.8	343.1	637.5	303.6
278	0.37	210.1	68.4	409.3	103.6	315.5	343.3	342.4	636.2	302.8
279	0.37	209.6	68.5	409.3	103.2	314.4	342.6	341.6	634.9	302.2
280	0.33	209.4	68.5	409.9	103.1	313.3	341.8	340.9	634.1	301.8
281	0.34	209	68.5	409.5	103.3	312.3	341.2	340.1	633.1	301.3
282	0.32	208.4	68.3	408.6	103.2	311.4	341	339.5	631.7	300.7
283	0.31	207.9	68.4	407.9	103.3	310.6	340.5	339	630	300.3
284	0.31	207.4	68.4	406.3	103	309.7	340.5	338.4	628.3	299.6
285	0.28	207.2	68.4	405.3	102.8	308.8	339.5	338	626.9	298.9
286	0.27	206.5	68.2	404	102.8	307.9	339.2	337.6	625.6	298.3
287	0.26	206.1	68.4	404.5	102.8	307	339.2	336.5	624.6	298
288	0.24	205.8	68.3	403.8	102.7	305.9	338.5	336.2	623.9	297.4
289	0.24	205.7	68.4	403.1	102.4	305	338.9	335.7	623.4	297
290	0.23	205.3	68.3	402.1	102.6	303.8	337.6	334.8	622.6	296.2
291	0.21	204.9	68.3	400.8	102.3	302.4	337.6	334.4	621.6	295.5
292	0.19	204.9	68.3	399.7	102.2	301.1	336.8	333.8	620.6	294.7
293	0.19	204.4	68.1	399.2	102.1	299.9	336.6	333.6	619.6	294.3
294	0.18	204	68.3	398.2	102.1	298.6	336.9	333	618.7	293.7
295	0.17	203.9	67.9	397.4	102.2	297.2	336.2	332.9	618	293.2
296	0.16	203.7	68.2	396.6	101.8	296.2	335.6	332.5	617.1	292.6
297	0.15	203.5	68.2	396.3	101.9	295.1	335.6	331.9	616.3	292.1
298	0.13	202.8	68.4	395	101.7	294.1	334.9	331.1	615.3	291.4
299	0.12	202.3	68.1	395.9	101.7	293	334.4	331.2	614.4	291.2
300	0.1	202.1	68.2	394.3	101.6	292	334.4	330.3	613.6	290.5
301	0.09	201.8	68.1	393.4	101.6	290.9	333.9	329.9	612.5	289.9
302	0.07	201.7	67.9	392.4	101.4	289.7	333	329.1	611.2	289.1
303	0.01	201.2	68.2	391.6	101.6	288.6	332.5	329.2	610.1	288.7

Tests were done at a medium low air setting  
 Test load average moisture content - 19.8%

# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

Elapsed Time (min)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	13.56	332.3	82.2	581.8	369.1	386.7	458.6	431.2	783.1	445.5
1	13.64	348.6	82.4	577.1	371.6	393.7	456	425	688.6	444.7
2	13.55	351.2	82.4	571.5	374.3	398.7	448.4	420.9	706.4	442.7
3	13.43	360.5	82.4	567.6	377.2	400	443.4	413.8	805.9	440.4
4	13.33	373	82	565.7	380	402.6	439.3	410.4	881.9	439.6
5	12.87	386.2	81.6	566.9	382.8	405.4	434.8	404.6	940.6	438.9
6	13.11	371	82	570.9	385.4	407.2	432.2	401.3	929.7	439.4
7	13.03	362	82	576.9	387.8	407.4	426	396.1	930.6	438.8
8	12.94	356.9	82	583.6	389.8	408.1	421	393	929.6	439.1
9	12.84	354.4	82	590.7	391.5	410.6	416.1	388.3	942.4	439.5
10	12.75	353.1	82	598.6	393	411.8	411.4	384.6	959.9	439.9
11	12.64	353.4	82	607.2	394.3	412.2	407.9	381.1	977	440.6
12	12.52	354.3	82.2	616	395.4	415.7	404.4	377.8	988.4	441.9
13	12.4	355.4	82.4	625.3	396.3	416.3	402.8	375.6	999.6	443.3
14	12.3	357	82.4	634.8	397	418.7	398.8	372.3	1016.1	444.3
15	12.17	358.8	82.2	645	397.5	420.7	395	370.2	1033.4	445.7
16	12.05	360.6	82.2	655.2	397.9	423.4	393	369.2	1046.4	447.7
17	11.9	363.2	82.2	665.9	398.2	425.9	390.8	364.3	1060.1	449
18	11.79	366.4	82.4	677	398.3	427.8	388.1	362.5	1075.9	450.8
19	11.63	369.8	82.3	688.3	398.4	431.4	386.5	361.7	1091.5	453.3
20	11.52	373.4	82.4	700.4	398.4	433.9	383.4	359.5	1101.6	455.1
21	11.38	376.1	82.5	712.9	398.3	437.2	381.9	358.3	1108.6	457.7
22	11.22	378.7	82.5	725.3	398.2	439.9	381.4	358	1112.9	460.6
23	11.1	380.3	82.7	738.6	398	443	381.7	356.8	1104.2	463.6
24	10.98	382.3	82.3	751.2	397.8	446.3	379.8	355.6	1110.5	466.2
25	10.81	383.9	82.5	763.5	397.6	449.3	380.8	355	1105	469.2
26	10.66	385.5	82.3	775.1	397.4	455.8	379.8	355	1113.9	472.6
27	10.53	387.6	82.2	788	397.1	458	379.3	355	1106.3	475.5
28	10.39	389.3	82.3	799.8	396.9	459.9	378.7	356.2	1098.7	478.3
29	10.25	390.7	82.5	809.7	396.6	461.8	379.9	354.9	1088.7	480.6
30	10.09	391.1	82.7	817.2	396.4	466.9	381.5	353.8	1087.7	483.2
31	9.94	390.8	82.6	810.9	393.4	443.2	384.8	353.7	1087.7	477.2
32	9.8	391	82.4	811.3	390.6	431.3	386	355.3	1086.5	474.9
33	9.67	392	82.8	812	387.6	423.9	389.7	357.6	1085.7	474.2
34	9.51	392.3	82.5	813.4	384.2	418.3	390.3	358	1081.8	472.8
35	9.38	392.7	82.5	814.1	380.9	413.6	393.1	359.6	1078.9	472.2
36	9.23	393.7	82.6	814.3	377.5	410.4	394.8	359.9	1075.2	471.4
37	9.07	393.9	82.4	814.1	374.2	407.5	397.4	359.8	1074.2	470.6
38	8.95	393.8	82.7	813.8	371.3	406	398.7	360.1	1072.4	470
39	8.8	393.2	83	812.8	368.3	404.9	401.8	363.2	1069.7	470.2
40	8.65	392.9	82.9	812	365.5	404.7	403.5	362.4	1068.6	469.6
41	8.53	392.8	82.9	812	363	404.5	405.6	364.1	1068.3	469.8
42	8.36	392.4	83	810.6	360.4	404	409	364.8	1066	469.8
43	8.23	392.2	83.5	809.5	358.4	404.5	410.7	364.8	1065.3	469.6
44	8.11	391.6	83.5	808.9	356.2	404.3	412.9	367.7	1065	470
45	7.97	390.1	83.1	809.9	354.4	405.4	416.1	365.7	1067.1	470.3
46	7.84	389.3	83.6	810.9	352.5	406	417.3	366.8	1065.1	470.7
47	7.72	388.3	83.2	812	350.8	407.5	418.9	365.4	1063.2	470.9
48	7.59	388	83	813.4	349	409.2	422	367.4	1063.4	472.2
49	7.47	387.5	83.1	813.7	347.6	410.4	423	367.7	1063.8	472.5
50	7.35	387.5	83	813.7	346.4	411.8	425.7	367.2	1062.5	473
51	7.23	387.2	83.2	813.1	345.2	414.5	427	368.8	1062	473.7
52	7.11	387	82.8	813.6	343.8	416	428.7	368.8	1063.6	474.2
53	6.99	386.8	82.8	814.3	342.9	418.3	430.7	369.1	1064.8	475.1
54	6.87	386.6	82.7	816.3	341.7	420.2	432	369.9	1064.3	476
55	6.76	386	82.7	817.7	340.7	422.7	433.7	370.5	1065.6	477.1
56	6.64	386	82.6	819.9	339.7	425.3	435.3	371.3	1067.6	478.3
57	6.53	385.9	83	821.9	338.7	427.7	434.8	372.3	1067.9	479.1
58	6.42	385.8	83.3	824.1	337.9	430.4	436	372.9	1066.6	480.3
59	6.32	385.4	82.9	827.4	337.2	432.7	437.2	374	1057.9	481.7
60	6.21	384.7	82.7	828	336.6	434.9	437.2	373.7	1057	482.1
61	6.11	384.3	82.8	828.6	335.9	437.3	437.8	374.9	1066.1	482.9
62	6	383.9	82.7	829.7	335.3	439.6	437.7	375.4	1061.5	483.5
63	5.91	383.7	83	831	334.7	441.6	437.9	376.9	1055.4	484.4
64	5.8	383.2	83.1	831.9	334	444.4	438.6	376.9	1057.5	485.2
65	5.7	383.2	82.9	831	333.4	446.8	438	378.9	1063.7	485.6
66	5.59	383.4	82.9	829.3	333	448.9	439.4	382.4	1069.8	486.6
67	5.49	383.6	83	827.8	332.5	451.5	439.9	381.6	1069.6	486.7
68	5.39	383.5	83	826.8	332	453.3	440.3	380.6	1069.6	486.6
69	5.28	383.6	82.9	825.6	331.8	456.4	441.4	382	1068.2	487.5
70	5.19	382.9	82.9	825.5	331.4	458.5	441.2	385	1067.9	488.3
71	5.1	383.3	82.6	824.6	330.9	460.9	441.4	387.2	1066	489
72	4.98	383.2	82.8	823.9	330.7	463.3	443.1	389.5	1064.1	490.1
73	4.91	382.3	82.8	823.6	330.3	465.7	443.9	388.9	1062.6	490.5
74	4.8	381.6	82.8	823	330	468.6	444.5	391.3	1061.9	491.5
75	4.72	381.5	83.2	821.6	329.8	471.1	445.2	393	1060.2	492.1

# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

76	4.63	381	83.2	821.4	329.7	474.3	445.3	394.1	1056.6	492.9
77	4.54	379.9	82.9	820	329.4	477.4	445	395.1	1055.5	493.4
78	4.44	379.9	83	817.9	329.2	480.1	444.2	395.4	1055.3	493.4
79	4.37	379.6	83.2	816.2	328.8	483.4	443.6	397.7	1053.4	493.9
80	4.29	379.7	83.4	813.1	328.8	486.1	445.4	396.9	1055	494.1
81	4.21	379.8	83	808.7	328.7	488	444.8	398	1058.8	493.6
82	4.14	379.3	82.6	804.7	328.6	489.3	448.1	400.3	1061.4	494.2
83	4.07	378.8	83.4	800.9	328.4	491.5	447.4	401.2	1063.6	493.9
84	3.99	378.6	83.1	797	328.2	493.3	448.9	400.2	1060.5	493.5
85	3.94	377.7	83.2	792.6	328.1	496.1	448.6	402.9	1049.6	493.7
86	3.87	376.7	83.2	787.8	328	497.7	449.6	404.5	1040	493.5
87	3.81	375.3	83.3	782.5	327.8	497.1	452.2	405.5	1026.8	493
88	3.75	373.8	83.4	776.9	327.7	499.4	452.6	407	1011	492.7
89	3.69	372.2	83.3	770.7	327.5	500.8	454.3	407.3	998.4	492.1
90	3.63	369.9	83.4	764.8	327.6	509.5	457.9	409.2	988.8	493.8
91	3.59	367.2	83.2	758.9	327.3	515.4	456.8	409.7	980	493.6
92	3.53	365.9	83.3	753.2	327.2	516.9	457.5	411.4	971	493.2
93	3.48	364.6	83	747.9	327.2	513.8	460.2	411	964.6	492
94	3.41	363	83.3	741.5	327.2	516.1	461	414	959.3	492
95	3.36	361.1	83.6	737.6	327	514.9	463.4	411.9	954.6	491
96	3.33	358.7	83.1	733.4	327.1	515.2	464.2	414.6	947	490.9
97	3.27	356.6	83	729.8	327.1	517.3	465.5	413.7	940.4	490.7
98	3.21	354.8	83.2	725.9	327.2	516.8	466.8	414.8	935.6	490.3
99	3.16	353	83.1	723	327.1	518	466.3	417.5	932.8	490.4
100	3.12	351.4	83.5	719.7	327.2	515.9	465.8	418.4	928.2	489.4
101	3.07	350	83.3	716.7	327.4	517.5	466.2	418.2	924.2	489.2
102	3.02	348.3	83.7	713.6	327.4	515.6	467.8	418.6	920.3	488.6
103	2.99	346.7	83.5	710.1	327.7	517.2	467.8	419.4	913.4	488.4
104	2.95	345.1	83.6	706.1	327.7	514.4	468.3	420.5	906	487.4
105	2.91	343.4	83.7	702	327.9	512.8	468.5	421.3	898.5	486.5
106	2.89	341.4	83.6	697.5	328.2	511.1	469.6	420.8	891	485.4
107	2.84	339.8	83.5	692.3	328.4	507.6	469.4	421.6	882.8	483.9
108	2.82	338.2	83.7	686.7	328.5	508.7	470	421.3	874.8	483.1
109	2.75	335.9	83.7	680.8	328.7	505.3	469.3	421.2	868.6	481
110	2.72	334	83.9	675.6	328.8	505.8	468	422.2	864.4	480.1
111	2.71	332.2	83.7	669.8	329	503.2	469.2	422.4	861.1	478.7
112	2.68	330.4	83.8	664.6	329.2	501.5	467.3	422.4	857.6	477
113	2.64	329.2	84	659.4	329.4	499.2	468.3	421.3	853.6	475.5
114	2.62	327.8	83.9	653.9	329.8	497.9	468	422.1	847.9	474.3
115	2.6	326.1	83.8	648.8	329.9	496.3	468.1	421.7	840.1	473
116	2.58	324.2	84.2	643.2	330.1	492.6	467.8	422.4	829.8	471.2
117	2.55	322.5	83.9	637.1	330.3	492.2	467.2	421.9	819.1	469.8
118	2.56	320.9	83.8	631.5	330.5	489.3	465.2	421.1	810.6	467.5
119	2.51	318.5	83.8	626	330.7	485.6	464.5	419.8	803.9	465.3
120	2.49	316.7	84	620.7	331	483.3	464.6	419.2	798.5	463.7
121	2.48	314.9	84.1	615.3	331	484.5	465.3	419	793.7	463
122	2.46	313.2	83.9	610.3	331.3	481.4	462.5	419.3	789.4	461
123	2.44	311.6	84.2	606	331.5	478.1	463.3	419.1	785.3	459.6
124	2.42	310.1	84.2	601.4	331.6	477.9	461.5	418	781.5	458.1
125	2.38	308.3	84	596.8	331.6	476.2	461.2	417.8	777.9	456.7
126	2.38	306.8	83.9	592.7	331.9	462.6	459.6	417.7	774.5	452.9
127	2.35	305.3	84	588.9	332	444.4	459.9	416	771.2	448.2
128	2.34	303.5	84.3	584.9	332.2	435.7	457.7	416	768.2	445.3
129	2.32	301.9	84.1	581.2	332.4	431.1	457.2	417	765.2	443.8
130	2.3	300.4	84.1	577.5	332.5	427.2	455.1	416.2	762.3	441.7
131	2.29	298.7	84.1	574.3	332.7	423.6	456	415.5	759.7	440.4
132	2.26	297.2	84.1	570.6	332.6	421.1	454.3	415.9	756.9	438.9
133	2.25	295.9	84.4	567.3	332.9	417.9	453.6	414.1	754.1	437.2
134	2.23	294.9	84.3	564	333	415.1	451.7	413.6	751.5	435.5
135	2.21	293.5	84.1	560.8	332.9	412.8	450.4	412.8	749	433.9
136	2.19	291.9	84.2	558	333	410.6	449.9	412.3	746.7	432.8
137	2.18	290.7	84.3	555	332.9	408.2	450.3	411.4	744.7	431.6
138	2.16	289.4	84.5	552.7	333.1	406.4	449.7	413	743	431
139	2.15	288.4	84.4	549.6	333.1	404.1	446.3	411.8	741.4	429
140	2.12	286.9	84.4	547.5	332.8	402.3	445.6	409.6	739.7	427.6
141	2.1	285.5	84.3	545.1	332.8	400.1	445.6	410.3	738	426.8
142	2.09	284.4	84.5	542.9	332.9	397.9	445.4	408.7	736.4	425.5
143	2.08	283.6	84.4	540.7	332.6	396.2	443.9	408.8	735	424.5
144	2.06	282.4	84.5	538.7	332.6	394.6	442.9	408.6	733.9	423.5
145	2.04	281.3	84.5	536.6	332.6	392.8	442.5	408.1	733.2	422.5
146	2.02	280.7	84.5	535	332.3	391	443.1	406.9	733	421.7
147	2	280.2	84.6	533.5	332.3	390.1	443.5	406.3	733.9	421.1
148	1.98	279.9	84.7	532.2	332.2	388.8	443.4	405.9	735.2	420.5
149	1.96	279.7	84.4	530.5	332.1	386.8	443.9	404.9	734.2	419.6
150	1.94	279.2	84.5	529.4	332.1	385.2	445.9	404.1	731	419.3
151	1.93	278.5	84.7	528.1	332.5	383.9	444.5	402.8	726.6	418.4
152	1.92	278	84.7	526.6	332.7	381.7	444.2	402.6	722.5	417.6



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## 6/2/23 - 6/5/23

153	1.88	277.6	84.8	525	333.1	380.1	445.8	401.5	719.5	417.1
154	1.87	276.8	84.5	523.5	333.7	378.3	446.6	399.6	717.4	416.3
155	1.87	276	84.5	521.4	334.2	376.1	445.1	399.2	715.8	415.2
156	1.83	275.2	84.8	520.1	334.8	374.4	446.2	399.9	714.7	415.1
157	1.83	274.6	84.8	518.9	335.2	372.8	446	398	713.9	414.2
158	1.81	274.3	84.7	517.7	335.9	370.8	447.2	397.7	713.8	413.9
159	1.8	273.7	84.6	516.1	336.5	368.9	447.1	396	713.9	412.9
160	1.77	273	84.6	515	336.9	367	446.2	393.8	713.7	411.8
161	1.77	272.5	84.7	514.1	337.3	365.3	445.5	394.9	713.5	411.4
162	1.77	271.8	84.8	513.1	337.5	363.3	444.3	394.2	713.4	410.5
163	1.72	271.4	84.8	511.9	337.9	361.8	446.8	393.4	713.1	410.4
164	1.71	271	84.7	511.1	338.3	360.6	446.4	391.7	713	409.6
165	1.69	270.5	84.9	510.5	338.5	359.2	445.8	391	712.9	409
166	1.67	270	84.8	509.5	338.7	358	446.1	391	712.8	408.7
167	1.65	269.5	84.9	508.7	339.1	356.8	445.5	388.9	712.6	407.8
168	1.65	268.8	84.8	508.2	339.2	355.7	445.8	387.6	712.1	407.3
169	1.63	268	84.8	507.2	339.3	354.9	445.3	386.8	711.5	406.7
170	1.62	267.3	84.8	506.7	339.3	353.5	444.8	386.2	710.8	406.1
171	1.6	266.7	84.8	505.7	339.3	352.6	444.5	385.4	710.1	405.5
172	1.58	266.2	84.8	504.6	339.2	351.7	444.6	385.3	708.3	405.1
173	1.57	265.5	84.9	503.5	339.2	351	445	383.2	705.7	404.4
174	1.54	265.3	84.8	502.5	339.1	350.2	444.2	383.5	703.2	403.9
175	1.55	264.8	84.9	501	339.1	349.3	444.5	382.4	701.4	403.3
176	1.52	264.1	84.9	500.5	339.1	348.8	441.7	381.2	700	402.3
177	1.51	263.7	85.1	499.4	339.1	348.2	442.8	380.7	699.3	402
178	1.49	263.6	84.9	498.3	339	347.5	442.5	380.4	698.9	401.5
179	1.48	262.9	84.8	497.3	338.8	356.9	441	379	698.6	402.6
180	1.46	262.3	85.1	496.7	338.7	356	440.6	377.9	698.5	402
181	1.44	262.1	84.9	495.9	338.5	354.6	440.8	376.2	698.7	401.2
182	1.44	261.8	84.7	494.8	338.5	353.8	440.2	376	699	400.6
183	1.42	261.4	84.7	494.5	338.3	353.2	438.3	375.3	699.6	399.9
184	1.4	260.6	84.7	493.6	338	354.2	440.6	374.9	699.9	400.3
185	1.39	260.3	84.8	493.2	337.8	353.4	439.4	373.9	700.5	399.5
186	1.37	260.1	85	492.6	337.6	353.7	439	373.4	701	399.3
187	1.35	259.9	84.9	492	337.4	353.3	437.5	372.7	701.4	398.6
188	1.34	259.5	84.9	492	337.1	352.6	437.8	372.4	702	398.4
189	1.32	259.5	85	491.9	336.7	352	437.5	371.9	702.5	398
190	1.3	259.1	84.9	491	336.5	351.5	435.9	371.1	702.6	397.2
191	1.29	258.7	85	490.9	336.3	350.6	436	370.6	702.4	396.9
192	1.28	258.5	84.8	490.4	336	350.4	435.4	369.2	702.4	396.3
193	1.26	258.3	85	490.2	335.8	349.8	435	368.2	702.6	395.8
194	1.25	257.8	84.9	489.7	335.4	350.1	434.6	369.3	702.8	395.8
195	1.23	257.8	85	489.6	335	349.6	432.9	367	703.3	394.8
196	1.2	257.5	85.1	489.4	334.7	348.8	432.6	366.8	703.9	394.5
197	1.2	257.2	85	488.9	334.5	348.1	431.3	366.1	703	393.8
198	1.19	256.6	85	488.5	334	347.4	431.3	366.2	701.5	393.5
199	1.17	256.1	85	488.1	333.8	346.9	430.9	365.1	700.5	392.9
200	1.16	256.1	85	487.6	333.5	346.3	429.2	366	699.8	392.5
201	1.15	255.9	85.1	487.1	333.1	345.4	429.2	364.6	699	391.9
202	1.13	255.8	84.9	486.9	332.8	345	427.9	363.2	698	391.2
203	1.12	255.5	85	485.9	332.4	344.7	428.2	364.4	696.6	391.1
204	1.1	255.3	85	485.2	332.1	343.9	427.1	363.8	695.8	390.4
205	1.08	254.7	85.2	484.7	331.7	343	425.4	363	695.7	389.6
206	1.07	254.1	85.1	484.3	331.3	342.1	425.7	362.8	696	389.3
207	1.06	253.9	85.1	483.7	331	341.2	424.1	361.8	696.5	388.4
208	1.05	253.7	85	483.6	330.8	340.1	423.5	361.1	696.9	387.8
209	1.03	253.2	85	482.8	330.5	339	422.9	361.5	697.2	387.3
210	1.02	252.9	84.9	482.4	330.2	337.5	422.1	361.5	697.1	386.8
211	0.99	252.6	84.8	481.9	329.9	336.6	420.7	359.9	696.9	385.8
212	0.99	252.5	85.1	481.2	329.6	335.6	419.8	358.6	696.5	385
213	0.97	252.3	85	480.8	329.2	334.5	419.4	358	696.3	384.4
214	0.96	252.4	84.9	480.7	329.1	333.4	418.4	359.4	696.4	384.2
215	0.94	252.2	85.1	480.1	328.8	332.5	416.9	358.5	696.2	383.4
216	0.92	251.9	85	479.6	328.6	331.6	415.1	358.5	695.6	382.7
217	0.92	251.6	85.1	478.8	328.3	330.7	415.2	358.1	695.2	382.2
218	0.88	251.1	85.3	478.7	328	329.7	414	357.6	694.7	381.6
219	0.88	251	85.1	478.2	327.7	329	412.3	356.9	694.8	380.8
220	0.87	250.9	85	477.8	327.3	328.1	411.9	357.8	694.6	380.6
221	0.85	250.5	85	477.3	327.2	327.3	411.6	356.8	694.1	380
222	0.84	250	85.1	477	326.8	326.5	410.5	356.1	693.4	379.4
223	0.83	250	85.2	476.6	326.6	325.9	408.3	355.9	692.5	378.7
224	0.8	249.7	85	476.2	326.4	325.1	407.9	356.6	691.9	378.5
225	0.78	249.3	85	476	326	324.5	407.5	355	692.3	377.8
226	0.78	249	84.8	475.6	325.8	323.8	405.5	355.3	692.2	377.2
227	0.76	248.6	84.8	475	325.5	323.2	404.9	355.1	692.5	376.7
228	0.74	248.3	85.1	475	325.1	322.4	405.2	355	693.6	376.5
229	0.74	248.1	84.9	474.8	324.7	321.8	403	355	693.9	375.9

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## 6/2/23 - 6/5/23

230	0.72	247.9	85.1	474.3	324.5	321.3	403.4	355.6	692.8	375.8
231	0.71	248.2	85	473.9	324.3	320.7	401.4	355.5	691.5	375.2
232	0.69	248.1	85.1	473.7	323.9	320.3	400.5	354.5	690.3	374.6
233	0.68	247.9	85	473.4	323.6	319.8	398.9	353.7	689.4	373.9
234	0.66	247.7	85.1	472.8	323.3	319.3	398.9	355.1	689	373.9
235	0.64	247.4	85.1	472.8	323	318.8	397.1	355.3	689	373.4
236	0.63	247.1	85.1	472.1	322.7	318.3	395.6	354.5	688.2	372.6
237	0.62	247.1	85	471.6	322.5	317.7	396.3	354.6	687	372.6
238	0.61	247	85	471	322.3	317.2	396.2	352.9	686	371.9
239	0.6	246.6	85	470.4	322.1	316.8	394	353.6	684.9	371.4
240	0.58	246.3	85	470.1	321.9	316.3	393.7	354.7	684.3	371.4
241	0.57	246.6	85	469.3	321.6	315.8	393	352.4	684.3	370.4
242	0.55	246.4	85	468.8	321.5	315.3	392	352.5	684	370
243	0.54	246.5	85.3	468.3	321.2	314.7	391	352.1	683.1	369.5
244	0.52	246.5	84.9	467.8	321	314.1	390.1	352.5	682.6	369.1
245	0.5	246.5	84.9	467.1	320.8	313.6	389.6	354.2	682.3	369.1
246	0.49	246.5	85.1	466.8	320.5	313.2	388.4	352.4	682.4	368.3
247	0.49	246.2	84.9	466.3	320.4	312.7	388.7	352.3	683.1	368.1
248	0.47	246	85	465.7	320.2	312.1	386.7	352.5	683.5	367.5
249	0.46	245.9	85	465.6	320.2	311.5	386.3	352.6	683.4	367.2
250	0.44	245.3	85.3	465.1	320	310.8	384.3	353.8	682.8	366.8
251	0.41	245.3	85	464.3	319.8	310.2	383.9	352	681.5	366.1
252	0.41	245.1	85.1	464.4	319.7	309.6	382.1	352.6	679.3	365.7
253	0.4	244.9	85.1	463.3	319.5	308.9	381.2	351	677.4	364.8
254	0.39	245	84.9	462.6	319.4	308.3	379.7	351.8	676.3	364.4
255	0.37	244.6	85.2	462.1	319.2	307.5	377.6	352.2	675.8	363.7
256	0.36	244.2	84.9	461.5	319.3	306.9	377.1	352	675.8	363.4
257	0.36	244	84.9	460.8	319	306.1	375	352.3	676	362.7
258	0.33	243.6	84.9	460.5	318.8	305.5	374.1	351.3	676	362
259	0.31	243.2	85	459.6	318.7	304.6	373.3	350.9	675.8	361.4
260	0.31	242.9	85.1	459	318.5	303.9	372.1	351.8	676.3	361.1
261	0.29	242.7	84.9	458.5	318.2	302.9	370.6	351.1	677.7	360.3
262	0.27	242.4	84.9	457.7	317.9	302	370.2	350.9	679.1	359.7
263	0.27	242.1	84.9	457.1	317.6	301.2	368.8	350.8	679.5	359.1
264	0.25	241.8	84.8	456.7	317.3	300.4	367.8	352.2	679.6	358.9
265	0.24	241.7	84.7	456.6	317.2	299.9	367.3	351	679.3	358.4
266	0.23	241.5	85	456.5	316.8	299.3	365.1	350.8	678.8	357.7
267	0.22	241.2	84.9	455.6	316.4	298.4	365.1	351.3	678.3	357.4
268	0.2	240.9	84.7	455.2	316.1	297.8	364.1	351.3	677.7	356.9
269	0.19	240.4	84.7	454.4	315.9	297.3	364.1	352.1	676.9	356.8
270	0.17	240.2	84.8	454	315.5	296.8	362.3	351.9	676.2	356.1
271	0.16	240.3	84.7	453.5	315.1	296.3	362	351.1	674.4	355.6
272	0.13	239.9	84.9	452.8	314.9	295.9	360.6	351.7	671.3	355.2
273	0.14	239.4	84.9	452.3	314.4	295.5	359.7	349.8	668.7	354.3
274	0.12	238.8	84.8	450.9	314.1	295	357.8	351.1	666.9	353.8
275	0.11	238.4	84.6	450.1	313.7	294.6	358.3	351.8	665.7	353.7
276	0.09	238	84.7	449.4	313.5	294.2	356.9	352.5	664.3	353.3
277	0.08	237.3	84.8	448.6	313.2	293.7	356.4	352.3	663	352.9
278	0.06	237	84.9	447.9	312.9	293.3	354.5	350.9	661.8	351.9
279	0	236.6	84.8	446.9	312.5	292.9	355.2	352.6	660.9	352

Tests were done at a medium low air setting

Test load average moisture content - 20.7%

# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

Elapd Time (min)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	13.4	317.6	72.6	575.2	326.9	389	452.9	412.5	773.6	431.3
1	13.27	337.4	72.4	570.7	330.6	397.6	449.1	408.2	684.4	431.3
2	13.19	345.5	72.2	566.1	334.4	398.6	444.9	407.4	747.2	430.3
3	13.1	356.7	72	562.6	338.3	403.4	438.9	402.6	808.5	429.2
4	13.02	367	72	560.2	342.1	405	432.6	399.2	839.5	427.8
5	12.93	377	72.7	558.8	345.8	404.6	428.3	393.2	870.6	426.1
6	12.84	366.8	72.5	559.1	349.2	405.5	422.6	390.8	861.1	425.5
7	12.76	351.8	72.1	560.3	352.4	407.8	417.7	385.9	851.1	424.8
8	12.71	342.1	72.5	562.3	355.3	407.9	411.6	381.5	851.1	423.7
9	12.63	336	72.4	564.6	357.9	409.1	408.9	377.1	854.8	423.5
10	12.54	332.1	72.2	566.8	360.2	411.1	404	375.8	862.3	423.6
11	12.44	330.3	71.9	570	362.4	413.4	399.5	371.8	872.1	423.4
12	12.36	328.9	72.2	574.1	364.2	413.1	394.5	369.7	885.9	423.1
13	12.25	328.7	72.4	578.2	365.8	416.3	391.6	367.3	901.8	423.8
14	12.15	329	72.4	583.1	367.3	418	387.7	361.2	919.5	423.4
15	12.04	330.3	71.8	588.8	368.4	419.2	383.8	361.1	934.9	424.3
16	11.98	331.2	71.8	594.6	369.5	421.2	379.8	356.6	943.8	424.3
17	11.87	332.7	71.7	600.7	370.4	423.7	378.4	355.8	950.6	425.8
18	11.76	334.7	72	606.7	371.1	424.1	375.1	353.8	957.8	426.2
19	11.64	336.6	72.2	612.7	371.7	427.9	372	352.5	965.9	427.4
20	11.54	338.3	72.1	619.5	372.2	429.9	369.3	349.2	975.7	428
21	11.43	340.1	72	626.3	372.5	431.1	366.9	347.2	990.1	428.8
22	11.3	342.3	71.9	634.2	372.8	433.5	364.6	346.4	1004.6	430.3
23	11.18	345	72	642.6	373	435.9	362.5	342.4	1016.2	431.3
24	11.06	347.2	71.9	652.1	373.2	438.3	359.8	343.9	1026.5	433.4
25	10.95	348.8	72.2	661.7	373.3	439.2	360.1	344.5	1031	435.7
26	10.84	351.2	72.1	671	373.3	440.6	358.7	341.9	1039	437.1
27	10.71	353.1	71.8	680.4	373.3	445.1	357.7	341.4	1045.4	439.6
28	10.59	354.7	71.9	690.3	373.3	446.7	357.6	341.5	1050.1	441.9
29	10.46	356.9	71.8	700.6	373.2	447.7	356.1	342.7	1054.8	444.1
30	10.34	358.6	71.5	712.3	373.2	448.5	355.9	338.5	1055.3	445.7
31	10.21	359.6	71.7	712.1	370.3	414.4	356.9	341.6	1054.7	439
32	10.09	360.5	71.9	718.5	367.7	403.6	358.3	339.3	1056.4	437.5
33	9.97	361.4	72.3	724.9	365	395.4	359.3	339.3	1057.6	436.8
34	9.84	362.4	72.3	731.3	362	390.7	358.8	341.7	1055	436.9
35	9.72	362.6	72.2	737.9	358.7	398.8	359.7	342.4	1051.9	439.5
36	9.59	362.8	72.8	743	356	395.6	360.3	343	1053.2	439.6
37	9.47	363.5	72.9	747.9	353	394.8	361.1	343.8	1052	440.1
38	9.35	364.3	72.8	751.5	349.9	392.9	362.6	341.9	1052.5	439.8
39	9.23	365.1	73.1	754.4	347.2	391.3	361.2	343	1054.9	439.4
40	9.08	365.5	73	757.9	344.4	389.6	364.6	342.8	1054.8	439.9
41	8.95	365.8	72.8	760.8	342	388.8	365.4	345.5	1056.8	440.5
42	8.82	366.3	72.7	763.7	339.9	389	366.3	344.2	1059	440.6
43	8.7	366.7	72.3	766.5	337.6	390.1	368.3	346.1	1057.7	441.7
44	8.57	367.1	72.4	768.7	335.6	391.8	367.9	347.7	1058.9	442.3
45	8.45	367.5	72.3	770.6	333.5	394.2	370.6	348.2	1064.2	443.4
46	8.31	367.9	72.6	772.4	331.6	397.2	371.5	346.8	1065.8	443.9
47	8.18	368.4	72.9	772.5	329.8	400.3	373.4	348.6	1066.4	444.9
48	8.04	369.2	72.5	773.6	328.3	403.6	375.5	349.2	1066.1	446.1
49	7.92	369.7	72.6	774	326.6	407.2	377.3	351	1067.2	447.2
50	7.78	370.3	72.8	775.1	325	410.4	379.4	349.9	1065.6	448
51	7.66	370.9	72.6	775.7	323.6	414.1	381.3	350.3	1063.4	449
52	7.52	370.8	72.7	776.4	322.5	417.5	382.7	353.5	1061.1	450.5
53	7.39	370.7	72.7	777.2	321.1	420.2	385.5	353.6	1059.5	451.5
54	7.26	370.4	72.1	779.2	319.9	422.8	387.3	353.7	1058	452.6
55	7.16	370.2	72.6	781.4	318.7	425.6	388.9	355	1053.6	453.9
56	7.02	369.9	72.4	784.2	317.8	427.7	391.3	358	1050.8	455.8
57	6.9	369.9	72.6	787.8	316.8	430.6	391.4	358.3	1049.1	457
58	6.79	370.2	72.6	789.7	315.8	432.8	393.8	358.4	1049.5	458.1
59	6.66	370.1	72.2	792.1	315	434.4	394.8	360	1048.6	459.2
60	6.53	370.4	72.5	794.2	314.3	435.8	396.6	360.5	1047.6	460.3
61	6.4	370.2	72.6	796.2	313.4	436.3	395.9	359.5	1046.8	460.3
62	6.29	369.8	72.4	797.9	312.7	437.3	399.7	361.5	1045.4	461.8
63	6.17	369.9	72.7	799	312.1	438.2	401.1	360.9	1047.1	462.3
64	6.03	369.4	72.6	799.9	311.7	439.3	402	362.6	1047.1	463.1
65	5.94	369.5	72.8	800.4	310.7	440.4	402.7	363	1043.1	463.4
66	5.83	369.9	72.7	800.5	310.3	442	404.9	365.6	1036.7	464.6
67	5.73	369.9	72.8	801.1	309.9	443.2	405.2	364.2	1033.4	464.7
68	5.62	370.3	72.6	801	309.4	444.5	407.2	365.7	1033	465.5
69	5.52	371.6	73.1	800.3	308.8	445.6	407.5	368.3	1033.2	466.1
70	5.43	372.5	72.7	799.9	308.5	446.7	409.4	368	1032.8	466.5
71	5.33	373.3	72.8	799.3	308.3	447.4	411.1	370.6	1030.6	467.3
72	5.23	373.7	72.6	798.1	308.1	448.4	411.1	371.5	1028.9	467.4
73	5.14	373.4	72.7	797.6	307.9	449.3	412.3	372.5	1027	467.9
74	5.04	373.6	72.6	796.1	307.7	450.4	414.8	372.6	1025.8	468.3

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75	4.96	372.8	73.1	793.5	307.6	451.3	416.5	375.1	1025.4	468.8
76	4.87	371.5	72.7	791.3	307.7	452.8	418.1	374	1025.2	468.8
77	4.79	369.7	73	788	307.6	454.3	418.4	374.3	1027.7	468.5
78	4.71	368.2	72.3	783.5	307.3	455.2	419.6	374.4	1030.5	468
79	4.63	367.2	72.9	778.5	307.2	456.2	419.4	375.8	1030.1	467.4
80	4.57	366.4	72.8	773.8	307	457.4	420.6	376.8	1026	467.1
81	4.49	365.4	72.8	768.6	307.2	459.1	421.7	374.4	1021.3	466.2
82	4.42	363.7	72.9	764.1	307.4	460.2	421.6	378.4	1015.5	466.3
83	4.35	362	73.6	759.9	307.3	461.8	421.9	375.4	1010.5	465.3
84	4.28	360.9	73	755.3	307.5	462.6	423.5	376.5	1007.7	465.1
85	4.21	359.5	73.1	751.3	307.3	464.2	424.9	377.9	1007	465.1
86	4.14	358.1	73.2	748.3	307.4	465.6	426.3	378.5	1008.7	465.2
87	4.06	356.5	73.1	746.4	307.4	466.5	425.3	378.3	1012.1	464.8
88	3.99	355.4	73.4	744	307.5	467.3	426.8	379.1	1009.8	464.9
89	3.93	354.3	73.2	742.2	307.6	467.5	427.6	379.8	1005.4	464.9
90	3.87	353.6	73.1	740.1	307.7	468.6	428	383.6	1002.2	465.6
91	3.81	352.8	73.4	738.7	308.1	471.1	430.9	384.4	1000.8	466.6
92	3.74	351.9	73.4	737.1	308	473.4	431.7	382.7	998.6	466.6
93	3.68	350.9	73.2	735.3	308.3	475.1	432.8	383.9	995.5	467.1
94	3.62	349.4	73.7	732.6	308.3	477.6	432.7	385.3	987.9	467.3
95	3.58	347.3	73.8	729.8	308.7	479.1	434.5	383.8	972.2	467.2
96	3.54	344.5	73.4	724.9	308.8	479.1	434.8	385	950.8	466.5
97	3.49	341.5	73.2	719.2	309	479.6	433.4	385.4	931	465.3
98	3.45	338.8	73.9	713.1	309.3	478.1	435.1	384.5	918	464
99	3.4	336.3	73.4	706.5	309.4	476.8	437.3	385.3	909.8	463.1
100	3.36	334.1	73.7	700.3	309.7	475	436.7	385	904.7	461.3
101	3.32	332.5	73.3	694.4	309.8	474.5	438.2	386	900.7	460.6
102	3.27	330.7	73.7	688.8	310	473.6	439.1	387.5	896.8	459.8
103	3.23	329.4	73.7	683.7	310.4	472	440.1	387.6	893.2	458.8
104	3.19	328	74.1	679.4	310.5	470.9	439.1	386.1	891.7	457.2
105	3.16	326.8	74	675	310.9	469.4	441.3	388.6	890.4	457
106	3.12	326.4	74.3	671.5	310.8	467.4	441.7	391.7	890.3	456.6
107	3.07	326.3	74.2	668.1	311.2	465.1	440.4	392.5	889.2	455.4
108	3.02	326	74.3	666.3	311.4	463.6	442	393	888.1	455.2
109	2.99	325.3	74.5	665.3	311.6	461.8	442.3	392.6	885.3	454.7
110	2.94	325	74.7	663.7	311.7	461.1	444.1	395.3	882.8	455.2
111	2.9	324.4	74.6	662.9	312	459.9	443.2	394.4	881.6	454.5
112	2.86	323.9	74.6	662.2	312.2	458.4	443.3	394.3	882.7	454.1
113	2.82	323.5	74.4	662	312.4	457.1	444.4	394.6	883.9	454.1
114	2.76	322.8	74.9	661	312.6	455.2	444.3	395	884.6	453.6
115	2.73	321.8	74.7	659.7	312.8	453.7	444.7	392.7	880.7	452.7
116	2.69	320.8	74.6	657	313	451.8	444.9	395.4	872.3	452.4
117	2.66	319.1	75	653.7	313.2	451.5	445.4	395.4	860.8	451.8
118	2.63	317.7	75	649	313.4	448.5	445.4	394	848.2	450.1
119	2.61	316.5	74.8	643.5	313.3	446.7	445.8	393.1	838	448.5
120	2.59	315.2	74.7	637.5	313.3	445.7	444.9	394.9	829.9	447.3
121	2.54	313.6	74.9	631.7	313.7	444.2	445.5	395.7	823.4	446.2
122	2.52	311.7	74.8	625.9	313.6	443.5	447.1	394.8	813.6	445
123	2.49	310.2	74.8	619.6	313.7	442.1	447.6	393.2	801.6	443.3
124	2.47	308.9	75	613.6	314	441.3	447.1	395.6	793	442.3
125	2.45	306.9	74.8	607.6	314.2	440.5	446.9	395.5	787.1	440.9
126	2.42	305.3	75.1	602.4	314.3	439.5	446.5	394.6	782.9	439.5
127	2.39	303.7	75.2	597.3	314.4	437.9	445.7	394.8	779.7	438
128	2.36	302.1	75	592.3	314.4	436.6	445.5	392.7	776.9	436.3
129	2.32	300.6	75	587.6	314.6	435.4	444.2	395	774.1	435.4
130	2.31	298.8	74.8	583	314.7	434.1	444.8	394.2	770.5	434.2
131	2.29	297.2	75.3	578.7	314.9	432.4	443.7	393	765.9	432.5
132	2.27	295.9	75.2	574.4	315	430.7	443.7	394.4	761.3	431.6
133	2.26	294.4	75.1	570.5	315.1	428.5	441.8	392.8	756.4	429.7
134	2.24	293.3	75.1	567	315.2	426.4	441.2	392.6	751.9	428.5
135	2.21	291.7	75.2	563.3	315.4	424.8	441.1	392.2	747.9	427.4
136	2.18	290.6	75.2	559.4	315.6	422.9	440.9	392.2	744.7	426.2
137	2.18	289.3	75.2	556.1	315.7	420.9	440.4	388.3	743	424.3
138	2.16	288	75.2	552.7	315.8	419.4	439.9	389.6	741.9	423.5
139	2.14	286.7	75.1	549.5	316	417.9	438.6	390.7	740.5	422.6
140	2.12	285.3	75.1	546.7	316	416	437.5	389.4	738.9	421.1
141	2.11	284.2	75.1	544.1	316.1	414.6	437.3	387.3	737.4	419.9
142	2.08	283.3	75.2	541.5	316.3	412.7	436.7	387	735.7	418.9
143	2.06	282.1	75.2	538.3	316.2	411.6	435.8	387.4	730.5	417.9
144	2.05	280.9	75.2	535.8	316.5	409.9	436.5	387.6	724.6	417.2
145	2.03	279.7	75.3	532.9	316.5	408.7	435.9	387.1	721.2	416.2
146	2.02	278.3	75.1	530.5	316.5	407.2	433.9	387.1	719.3	415
147	2	277.1	75.2	527.8	316.5	405.4	432.6	386.6	718.3	413.8
148	1.98	276.4	75.3	525.2	316.7	403.4	432	383.7	717.6	412.2
149	1.96	275.4	75.2	523	316.6	402	431.3	386.2	717.2	411.8
150	1.94	274.5	74.9	521	316.8	399.7	430.9	383.1	716.9	410.3
151	1.93	273.8	75.4	519.1	316.9	398.2	430.3	383.4	716.7	409.6

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152	1.91	273	75.4	517.2	317.1	396.6	428.7	381.5	716.6	408.2
153	1.89	272.2	75.3	515.3	317.1	394.1	428.2	381.8	717.4	407.3
154	1.87	271.4	75.4	514	317.3	392.5	427.7	378.4	718.4	406
155	1.87	270.5	75.3	512.1	317.3	390.5	427.4	380.9	718.8	405.6
156	1.84	269.7	75.2	511.1	317.3	389.1	426.6	375.8	718.8	404
157	1.84	269.2	75.4	509.8	317.5	387	425.7	377.4	718.2	403.5
158	1.81	268.5	75.4	508.5	317.5	385	425.3	377.4	717.5	402.8
159	1.79	267.5	75.5	507.5	317.5	383.9	425.4	375.8	714.7	402
160	1.78	266.8	75.1	505.9	317.4	381.9	423.4	376.1	711.7	401
161	1.77	265.9	75	504.5	317.5	380.6	423.2	374.9	709.5	400.1
162	1.75	265.1	75.4	503	317.5	379	423.2	374.5	706.9	399.4
163	1.74	264.1	75.1	501.6	317.8	378	423.9	373.1	703.3	398.9
164	1.72	263.2	75.3	499.7	317.8	376.8	422.4	371.7	699	397.7
165	1.7	262.5	75.4	498	318.2	375.8	421.3	370.9	695.4	396.8
166	1.7	261.9	75.3	496	318.6	374.5	421.7	370.5	693.3	396.3
167	1.68	261.1	75.5	494.7	318.8	373	420.6	370.9	693.1	395.6
168	1.67	260.3	75.2	493	318.9	371.6	420.1	367.8	694.1	394.3
169	1.64	259.7	75.5	491.8	319.4	370.2	418.9	367.3	695.4	393.5
170	1.63	259.1	75.5	490.6	319.5	368.4	418.9	368.8	696.6	393.2
171	1.6	258.6	75.4	489.6	319.4	367.2	418.1	367	697.7	392.3
172	1.6	257.9	75.3	488.7	319.5	366.7	417	364.3	698.9	391.3
173	1.57	257.4	75.2	487.6	319.5	365.3	416	365.7	699.8	390.8
174	1.57	256.9	75.3	487	319.6	371	414.7	366.1	700.3	391.7
175	1.55	256.4	75.4	486.2	319.4	370.1	412.9	364.4	700.6	390.6
176	1.52	256.1	75.3	485.6	319.3	371.1	413.5	363.4	701	390.6
177	1.51	256	75.3	485.4	319.1	374.6	410.7	362	701.2	390.4
178	1.51	255.4	75.5	484.8	318.9	372.9	410.7	361.1	701.4	389.7
179	1.5	254.9	75.1	484.8	318.7	371.9	409.3	360.8	701.2	389.1
180	1.48	254.5	75.3	484.4	318.4	370.8	407.7	359.3	700	388.1
181	1.46	253.9	75.2	483.9	318.1	370.2	407	357.3	699	387.3
182	1.46	253.4	75.1	483.2	317.6	369.3	405.2	358	698.4	386.7
183	1.43	253.1	75.5	482.6	317.6	368.2	403.9	356.5	697.9	385.8
184	1.42	252.6	75.2	482.3	317	367.3	404	356.3	697.1	385.4
185	1.41	252	75.3	481.4	316.6	366.3	402.2	356.8	696.1	384.7
186	1.4	251.6	75.4	481.1	316.3	365.6	399.8	354.9	695	383.6
187	1.39	251	75.5	480.2	315.9	364.9	398.8	355.1	694.5	383
188	1.37	250.6	75.5	479.3	315.4	364	398.9	354.2	693.9	382.4
189	1.35	250.2	75.5	478.8	315	363	397.4	353.7	693.5	381.6
190	1.35	249.7	75.5	478	314.6	362.3	396.5	354.2	694.1	381.1
191	1.32	249.4	75.4	477.5	314.2	361.8	395.1	351.6	694.9	380
192	1.31	249	75.3	476.9	313.7	360.9	392.6	352.3	695.1	379.3
193	1.31	248.7	75.3	476.5	313.3	360.1	391.7	349.7	694.9	378.3
194	1.28	248.4	75.1	476.1	312.8	359.4	390.5	349.6	694.5	377.7
195	1.26	247.8	75.1	475.6	312.4	358.5	389	350	693.8	377.1
196	1.24	247.4	75.1	474.9	311.8	358.1	388.1	347.2	693.5	376
197	1.24	247	75	474.4	311.3	357.3	387.8	348.5	693.3	375.9
198	1.22	246.8	75.3	474.1	310.7	356.6	384.8	349.2	697	375.1
199	1.2	246.4	75	473.7	310.2	355.6	385.9	346.5	692	374.4
200	1.19	245.9	75.3	473.1	309.8	355.2	384.1	347.1	687.6	373.9
201	1.18	245.3	75.1	472.4	309.2	354.3	383	348.3	685.2	373.4
202	1.16	244.6	75.1	471.6	308.8	353.9	382.5	346.5	683.8	372.7
203	1.15	244.2	75	471.1	308.3	353.2	382.8	347.1	683	372.5
204	1.13	243.9	75	470	308	352.4	382.1	344.5	682.1	371.4
205	1.11	243.6	75	468.9	307.5	351.6	383.1	346.9	681.5	371.6
206	1.09	243	75	468.2	307.3	350.9	383.6	346.7	681.5	371.3
207	1.08	242.5	75	467.1	306.9	350.1	380.8	346.7	681.5	370.3
208	1.06	242	74.9	466.6	306.5	349.5	381.5	346.5	681.5	370.1
209	1.05	241.5	75.2	466	306.2	348.7	381	346.1	681.5	369.6
210	1.04	241.4	74.8	465.3	305.9	348	380.4	346.7	681.7	369.3
211	1.02	241.5	75	465.1	305.5	348.1	380.2	345.8	681.7	368.9
212	1.01	241.3	75.1	464.1	305.3	347.1	379.7	343.9	681.6	368
213	1	240.9	75.1	464.1	305	346.4	379.5	342.8	682	367.6
214	0.98	240.7	75	463.9	304.8	345.6	378.7	343.6	682.6	367.3
215	0.97	240.5	74.8	463.3	304.4	344.8	379.1	344	683.2	367.1
216	0.95	240.4	75	463.2	304	343.9	376.7	343.5	683.7	366.2
217	0.93	240.2	74.9	462.6	303.8	343	378.5	341.5	683.7	365.9
218	0.91	240.1	75.2	462.2	303.4	342.1	378.1	343	683.5	365.8
219	0.91	239.8	74.7	461.6	303.1	341.2	376.5	343.5	683.4	365.2
220	0.89	239.5	74.9	461.5	303	340.2	377.9	342.7	683.2	365.1
221	0.88	239.2	75.2	461.2	302.8	339.5	376.5	342.9	682.9	364.6
222	0.86	239.1	75	460.7	302.4	338.6	376	343	682.6	364.1
223	0.85	239.1	75	460.3	302.1	337.9	376.6	342.5	682.3	363.9
224	0.83	239	75.3	459.9	301.9	336.8	376.5	340.3	681.9	363.1
225	0.82	238.9	75.2	459.9	301.9	336.3	376	338.9	681.6	362.6
226	0.81	238.6	74.9	459	301.4	335.3	374.5	339.9	681.1	362
227	0.79	238.3	75.1	458.6	301.3	334.5	375.7	338.5	680.6	361.7
228	0.77	238.1	74.9	458.1	300.9	333.5	375	339.3	680.3	361.4

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229	0.76	238	75.3	457	300.7	332.7	374.5	341.7	679.8	361.3
230	0.73	237.9	75.4	457.3	300.4	331.9	374.7	339.8	679.6	360.8
231	0.71	237.6	75.2	457	300.2	331.1	373.7	340.5	679.6	360.5
232	0.72	237.2	75.3	456.4	299.9	330.7	374.6	339.8	679.5	360.3
233	0.7	237	75.3	456.6	299.6	329.8	372.7	340.9	679.6	359.9
234	0.69	236.9	75.3	456	299.2	329.1	373.1	339.1	680.1	359.3
235	0.67	236.9	75.3	455.6	299.1	328.4	373.3	339	680.7	359.1
236	0.65	236.7	75.3	454.8	298.7	327.4	372.4	337.8	681.3	358.2
237	0.64	236.5	75.3	455.1	298.6	326.7	371.6	340.9	681.8	358.6
238	0.63	236.4	74.9	455.2	298.3	325.9	368.5	339.9	681.9	357.6
239	0.61	236.3	74.9	455.1	298	325.3	370.5	339.6	681.7	357.7
240	0.6	236.1	75.4	454.4	297.9	324.7	369.2	339.3	681.5	357.1
241	0.57	235.8	75.2	454.2	297.7	323.9	369.4	339.8	681.6	357
242	0.56	235.7	75.5	454.4	297.5	323.2	369.1	339	681.4	356.6
243	0.56	235.5	75.1	453.8	297.1	322.5	368.1	339.1	681.2	356.1
244	0.54	235.3	75.2	453.6	296.8	321.8	368.5	339.4	681.2	356
245	0.53	235.3	74.9	453.9	296.7	320.9	365.8	338.3	681.1	355.1
246	0.52	235.3	75.2	453.4	296.6	320.1	367.6	338.2	679.8	355.2
247	0.49	235	75	453	296.4	319.4	366.5	338.5	677.2	354.7
248	0.47	234.8	75.1	452.4	296.1	318.7	366.5	338.3	673.9	354.4
249	0.45	234.3	74.6	451.2	295.8	318.1	366.4	336.6	670.9	353.6
250	0.44	233.8	74.7	450.6	295.5	317.2	366.1	336.3	668.3	353.2
251	0.43	233.6	75	449.9	295.5	316.4	366.7	337.6	666.5	353.2
252	0.41	233.4	74.8	449	295.1	315.5	363.9	337	664.8	352.1
253	0.39	233.1	75	447.5	295.2	315	365.7	336.1	663.1	351.9
254	0.39	233	75.1	446.6	295.1	314.1	364.2	334.9	660.6	351
255	0.37	232.7	75.3	446	294.9	313.4	364.6	335.5	658.3	350.9
256	0.35	232.4	75.1	444.4	294.9	312.5	364.8	336.4	656.5	350.6
257	0.34	232.1	75.1	443.8	294.7	311.7	364.5	335.4	655	350
258	0.32	231.7	75	442.5	294.6	310.9	363.6	334.8	653.9	349.3
259	0.31	231	74.9	441.5	294.9	310.3	363.7	335.1	652.7	349.1
260	0.3	230.7	75	440.6	294.7	309.5	362.7	333.1	651.1	348.1
261	0.28	230.5	75.2	439.4	294.7	308.7	362.3	335.4	649.8	348.1
262	0.28	230.4	75.1	438.1	294.6	308.3	362	333.2	648.8	347.2
263	0.25	230.3	74.8	437.9	294.7	307.9	360.4	333.5	648.9	346.9
264	0.22	230.4	74.9	436.6	294.7	308.3	361.7	332.3	647.9	346.7
265	0.2	230.1	75.3	435.8	294.8	308.8	360	332.3	643.9	346.3
266	0.2	229.7	75.1	434.2	294.8	309.1	360.4	333.7	639.2	346.4
267	0.18	229.5	74.9	433.3	295	309.5	360	333.4	635.2	346.2
268	0.17	229.1	75.4	431.6	295.3	309.4	359.4	333	631.9	345.7
269	0.16	228.9	75.1	430.6	295.7	309.6	358.6	331.6	629	345.2
270	0.15	228.5	75	428.3	296.3	309.4	358.8	332.8	624.1	345.1
271	0.12	228	74.8	426.5	296.9	309.2	358.7	331.8	618.2	344.6
272	0.12	227.5	74.7	424.3	297.7	308.7	358.4	332.5	614	344.3
273	0.09	226.9	74.6	423	298.4	307.8	357.2	332	611.3	343.7
274	0.09	226	74.9	420.8	299.2	307.1	356.5	330.4	610.4	342.8
275	0.07	225.5	75	419.5	300.3	306.3	355.8	329	610.3	342.2
276	0.01	225.2	74.9	418.3	301	305.8	355.1	330.5	610	342.1

Tests were done at a medium low air setting

Test load average moisture content - 19.6%

# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

Elapsed Time (min)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	13.59	327.1	79.3	578.2	360.2	392.7	458.6	417.9	765	441.5
1	13.45	343.7	79.6	572.6	363.7	399.1	454.7	412.8	666.9	440.6
2	13.35	349.3	79.2	568.1	367.3	400.4	448.9	410.1	733.8	439
3	13.25	360.3	79	566.3	370.9	399.8	445.2	406.2	823.3	437.7
4	13.13	371.5	79.4	567.4	374.5	400.5	439.7	401.2	875.6	436.6
5	13	382.3	78.9	570.8	377.8	402.1	435.1	398.6	924.3	436.9
6	12.93	367.1	79.1	575.7	380.9	404.2	431.1	392.5	904.7	436.9
7	12.86	355.1	79.4	580.4	383.6	406.2	424.9	391.5	885.8	437.3
8	12.79	346.2	79.3	583	386	407.6	417.6	389.5	859.4	436.8
9	12.71	339.8	79.5	584.6	388.1	410.1	418.2	385.7	844.7	437.3
10	12.63	335.5	79.1	586.3	390	413.6	411.6	383	850.9	436.9
11	12.53	333.1	79.4	589.2	391.5	416.1	407.2	380.5	877.1	436.9
12	12.43	332.5	79.7	592.8	392.8	418	405	374	908.5	436.5
13	12.34	332.6	79.3	597.3	393.8	421.8	400.4	375.1	920.3	437.7
14	12.25	332.3	79.4	602.3	394.6	423.3	397	373.2	919.7	438.1
15	12.16	331.3	79.2	606.9	395.2	424.4	393.4	368.1	920.9	437.6
16	12.08	329.3	79.3	610.4	395.5	423.5	390	368.1	912.5	437.5
17	12.01	327.7	79.7	612.8	395.8	423.4	386.8	364.7	899.9	436.7
18	11.94	326	79.2	614.6	395.9	421.7	383.7	364	891.9	436
19	11.87	325.5	79.2	615.9	395.8	423.5	380.6	361.4	892	435.4
20	11.78	326.6	79.6	617.1	395.7	428.4	377.7	360	878.6	435.8
21	11.66	329.1	79.6	619.3	395.4	433.4	375.2	356.4	913.3	435.9
22	11.53	332.5	79.8	625	395	436.7	374.5	356.2	979.7	437.5
23	11.42	336.6	79.5	634.2	394.5	441.4	372	355.4	1023.3	439.5
24	11.3	340.6	79.6	645.9	394.1	447.4	369.7	351	1040.4	441.6
25	11.18	344.1	79.4	658.5	393.6	452.6	368.7	351.4	1045.4	444.9
26	11.07	346.6	79.3	670	393	459.5	366.3	351	1050.6	447.9
27	10.94	348.7	79.4	681.1	392.4	465.9	365.9	350.4	1051.3	451.1
28	10.83	350.3	79.7	690.7	391.7	470.9	364.6	349.8	1046.9	453.5
29	10.71	351.4	80	698.5	391	481.3	364.5	347.8	1041.3	456.6
30	10.61	353	79.8	705.3	390.3	485.2	363.4	344.7	1040.5	457.8
31	10.5	354.7	80	704	387.3	471	364.2	345.3	1043	454.4
32	10.36	357.1	79.9	706.7	384.2	457.3	363.3	344.8	1051.3	451.2
33	10.23	359.8	79.6	713.7	380.5	448.3	363.7	345.4	1066.2	450.3
34	10.1	361.7	79.7	723.6	376.9	441.2	362.3	343.7	1057.3	449.5
35	9.98	362.3	79.6	732.4	373.3	436	363	345.3	1049.9	450
36	9.84	363	80	739.7	369.6	432	363.4	343.8	1049.6	449.7
37	9.73	363.7	79.8	746.4	365.8	429.1	363	342.5	1052.1	449.3
38	9.59	365.4	79.7	753.8	362.1	426	363.4	343.8	1054	449.8
39	9.45	367.2	79.5	758	358.5	421.8	363.5	344.4	1048	449.2
40	9.33	368.1	79.8	761	355.3	418.5	365.3	344.2	1046.1	448.8
41	9.18	368.7	79.7	763.4	352.2	414.1	365.6	346	1045.9	448.2
42	9.04	368.9	79.9	766.9	349.2	411.4	366.1	343.9	1047.6	447.5
43	8.93	368.7	79.8	769.7	346.6	409	367.2	344.7	1047.7	447.4
44	8.8	368.5	79.7	772.9	344	407.3	368	345.5	1045.8	447.5
45	8.68	368.7	79.4	775.3	341.6	406.4	368.4	346.4	1042.9	447.6
46	8.56	368.8	79.5	778.1	339.5	406	368.9	346.1	1042.6	447.7
47	8.44	368.5	79.8	780	337.2	407.2	368.9	345.6	1042.8	447.8
48	8.31	368.5	79.5	782.5	335.4	408.2	369.2	346.2	1044.9	448.3
49	8.2	368.3	80.2	784.1	333.5	410.1	369.8	347.9	1045.6	449.1
50	8.08	368.2	79.7	785.1	331.7	412.2	369.6	346.9	1049.9	449.1
51	7.95	368.5	80.2	786.9	329.9	414.5	370.3	346.8	1053.9	449.7
52	7.84	368.6	79.9	788.1	328.4	417.3	369.5	348	1053	450.3
53	7.72	369.1	80.2	789.2	326.7	419.5	370.6	348.2	1054.1	450.8
54	7.59	369	80.4	789	325.1	422.9	370.6	349.3	1055.2	451.4
55	7.49	369.5	80	788.7	323.9	425.8	370.4	349.6	1059.7	451.7
56	7.37	369.7	79.7	788.5	322.5	428.4	371.6	350.6	1058.6	452.3
57	7.26	369.9	79.9	788	321.2	431.4	370.9	350.1	1057.7	452.3
58	7.16	369.5	80	788.6	319.7	433.6	372.1	350.8	1053.8	453
59	7.04	369	80.3	788	318.5	436.4	371.3	352.2	1050.1	453.3
60	6.95	368.8	79.9	786	317.5	438.6	372.7	351.4	1051.8	453.2
61	6.84	368.9	79.9	785.5	316.3	440.9	372.8	353.1	1056.2	453.7
62	6.74	368.3	80.5	785	315.1	442.6	373.1	352.9	1051.3	453.7
63	6.63	368.7	79.7	784.2	314	444.3	374.2	353.9	1051.9	454.1
64	6.53	368.9	80.3	783.9	313.2	445.1	374.3	353.8	1051.1	454.1
65	6.44	368.7	79.9	783.4	312.3	446.3	375.5	354.8	1044.6	454.4
66	6.33	368.4	80.2	782.5	311.3	447.4	375.9	357.8	1040.5	455
67	6.22	367.8	80	780.2	310.6	447.9	375.6	357.9	1041.6	454.4
68	6.12	367.8	80.4	777.6	309.8	447.8	377.1	357.4	1044.5	453.9
69	6.02	367.9	80.4	776.8	308.9	447.1	377.8	357.9	1040.9	453.7
70	5.92	367.6	80.2	776.6	308.1	446.6	378.8	358.1	1035.8	453.6
71	5.8	367.6	80.4	776.7	307.7	448.2	379.2	360.2	1032.8	454.4
72	5.73	367.6	80.5	776.1	307.2	449.9	379.9	360.7	1034.7	454.7
73	5.63	367.4	80.4	776.1	306.7	451.9	380.1	361.3	1038.6	455.2
74	5.53	367.3	80.5	777.1	306.3	452.8	381.8	362	1033.1	456
75	5.44	366.9	80.3	780	305.9	454.2	382.8	363.8	1026.7	457.3

# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

76	5.32	366.5	80.1	783.2	305.6	455.2	383.4	365.6	1019.3	458.6
77	5.25	365.5	80.5	785.8	305.4	456.5	383.7	366.5	1018.3	459.6
78	5.15	364.7	80.6	786.7	305.1	457.7	385.5	369.6	1017.6	460.9
79	5.07	363.7	80.4	785.1	304.9	459	386.4	371.4	1019	461.4
80	4.98	362.7	80.6	780.2	304.5	460.9	387.4	371.4	1027.6	460.9
81	4.89	361.9	80.6	774.1	304.3	462.6	388	371.9	1030.9	460.2
82	4.83	360.9	80.4	768.3	304.3	464.3	389.3	377	1023.2	460.6
83	4.74	360.4	80.7	762.2	304	466.3	390.6	375.9	1015.1	459.8
84	4.69	359	80.7	756.2	303.8	465.2	390.6	375.4	1006.8	458.2
85	4.62	357.6	80.8	750.6	303.6	467.2	392.6	379.3	1000.9	458.6
86	4.54	356.2	80.8	745.7	303.5	470.2	392.9	379.1	995.7	458.3
87	4.47	355.4	81	740.6	303.3	473.2	392.2	381.4	989.5	458.1
88	4.4	353.9	80.9	735.7	303.1	473.4	394.6	381.6	981.9	457.7
89	4.31	352.6	80.8	731	303	474.8	395.4	384.6	975.2	457.8
90	4.25	351.1	81.1	726.1	302.9	476.8	395.9	383.7	968.9	457.1
91	4.21	350.1	80.8	721.1	302.7	478.5	396.8	387	963.3	457.2
92	4.13	348.8	80.6	716.4	302.8	476.7	397.7	388.5	957.7	456.4
93	4.07	347.4	80.3	711.9	302.4	477.2	395.5	386.1	952.8	454.6
94	4	346.1	80.6	707.7	302.6	477.5	399.4	389.2	948.3	455.3
95	3.93	344.5	80.7	703.4	302.6	479.3	398.3	391.1	945.1	454.9
96	3.88	343.1	81.3	699.6	302.6	479.7	399.9	392.8	943.3	454.9
97	3.81	341.9	81.2	696.2	302.5	479.5	402.2	392.4	941.5	454.6
98	3.76	341.2	80.8	692.1	302.4	481	399.9	395.8	940.6	454.2
99	3.7	340.2	80.8	690	302.4	482.6	401.3	394.7	941.1	454.2
100	3.62	339.4	81.2	687.5	302.6	483.3	402.1	392.6	942.1	453.6
101	3.57	338.3	81.2	685.4	302.7	483.8	403.7	395.1	943.1	454.2
102	3.49	337.9	81.4	684.4	302.8	484.5	404.9	397.7	942.8	454.9
103	3.45	337.2	81.4	683.9	303	485.2	406.4	397.1	943.5	455.1
104	3.38	336.5	81.4	683.4	303	485.7	407.1	398.5	945.7	455.5
105	3.33	335.9	81.5	683.2	302.9	484.1	406.9	398.2	949.9	455
106	3.25	335.4	81.4	683	303.2	484	408.1	398.5	953.6	455.4
107	3.2	335.1	81.3	683.9	303.3	486.7	408.5	399.9	952.9	456.5
108	3.14	334.2	81	684.5	303.4	491.8	409.4	400.5	945	457.9
109	3.09	333.3	80.7	684.1	303.6	495.9	410.7	401.3	933.4	459.1
110	3.04	332.4	80.8	683	303.8	495	411.3	402.2	925.4	459.1
111	2.97	331.8	80.9	682.5	304	499.1	412.6	401.5	920	459.9
112	2.92	330.7	81.4	681.7	304	505.1	411.5	402.6	911.2	461
113	2.88	329.4	80.8	679.6	304.3	509.1	413.8	403.9	900.6	462.1
114	2.81	327.9	80.8	677	304.3	514.1	414.4	403.1	891.1	462.6
115	2.78	326.3	80.9	672.8	304.5	516.8	414.5	404.5	882.4	462.6
116	2.75	324.9	81.2	668.2	304.7	519.7	414.2	406	874.6	462.6
117	2.71	323.1	81.1	664.7	304.7	521.9	415.3	407.1	868.2	462.7
118	2.66	321.8	81.1	660.4	305	521.7	416.2	405.2	863.6	461.7
119	2.6	320.4	81	656.7	305.4	522.2	417	406.9	859.5	461.6
120	2.57	319.2	81.1	653	305.2	521.7	417.9	407.4	856.9	461
121	2.52	317.9	81.2	649.3	305.4	521.2	419	406.8	855.2	460.3
122	2.47	317	80.9	645.5	305.6	520.5	417.5	405.8	853.6	459
123	2.44	316.1	81.3	642.7	305.9	518.8	418.1	405.2	851.2	458.1
124	2.41	314.7	81.3	640	306.2	517.1	421	405.8	846.6	458
125	2.38	313.3	81.3	636.8	306.4	513.9	420.1	405.7	840.2	456.6
126	2.34	312.1	81.2	633	306.5	513.2	420.5	405.5	834.3	455.7
127	2.32	310.6	81.2	629.7	306.8	511.5	421.1	406.7	829	455.2
128	2.29	309	81.7	626.4	306.8	510.9	420.6	406.5	824.6	454.2
129	2.26	307.4	81.5	622.7	307.2	510.6	422.4	406	821.8	453.8
130	2.24	306	81.2	618.9	307.2	510.7	423.3	405.6	819.1	453.1
131	2.21	304.5	81.4	615.1	307.5	506.1	422.5	405.9	816.4	451.4
132	2.17	303.1	81.2	611.8	307.6	506.4	423.8	406.8	812.8	451.3
133	2.16	301.8	81.3	607.3	307.7	501.5	423.7	405.7	806.6	449.2
134	2.14	300.2	81.4	603.6	307.9	501.7	422.5	405.6	798.8	448.3
135	2.12	298.6	81.6	599.5	308.1	498.7	423.4	403.1	791.5	446.6
136	2.12	297	81.4	595.6	308.2	496.9	422.3	403.5	785.3	445.3
137	2.08	295.3	81.4	591.4	308.1	495.2	423.6	403.7	780.2	444.4
138	2.07	294.2	81.5	587.8	308.3	494.6	423.7	403	776.2	443.5
139	2.05	292.6	81.5	584.1	308.5	492.6	423	402.3	773.2	442.1
140	2.04	291.2	81.4	580.3	308.8	484.6	424.3	401.7	770.7	440
141	2	289.8	81.6	577.1	308.8	465.5	421.5	400.8	768.1	434.8
142	1.97	288.3	81.7	573.8	308.8	456.5	421.4	401.6	765.6	432.4
143	1.97	286.9	81.5	570.9	309	450.4	423.6	401.3	763.2	431
144	1.94	285.5	81.9	567.7	309	445.8	420.9	400.2	760.7	428.7
145	1.94	284.5	81.4	564.9	309.1	441.9	422.4	400.7	758.3	427.8
146	1.92	283.5	81.4	562.2	309.2	438.4	421.3	400.2	755.8	426.2
147	1.9	282.2	81.4	559.3	309.2	434.6	419.1	398	753.5	424
148	1.89	281.1	81.4	556.7	309.4	431.7	420.4	397.5	751.1	423.1
149	1.86	280.1	81.5	553.8	309.6	428.8	420.3	397.3	749	421.9
150	1.85	279	81.5	551.3	309.4	426.3	419.4	396.6	746.9	420.6
151	1.83	277.9	81.6	549.1	309.9	423.1	420.8	396.3	744.8	419.8
152	1.81	276.7	81.5	546.8	309.7	420.8	419.2	396.9	743	418.7



# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

153	1.8	275.7	81.4	544.5	309.7	418.1	419.5	395.1	741.4	417.4
154	1.78	274.7	81.5	542.1	309.9	415.7	418.1	393.4	739.9	415.8
155	1.76	273.2	81.7	540.5	309.8	413.1	418.5	391.8	738.3	414.7
156	1.75	272	81.4	538.2	309.7	411.2	418.1	393.9	736.7	414.2
157	1.72	271	81.7	536.4	309.7	408.7	417.2	391.6	735.6	412.7
158	1.71	270	81.7	534.8	309.8	406.7	416.6	391.8	734.7	412
159	1.69	269.2	81.5	532.8	309.8	404.5	414.8	391.2	733.7	410.6
160	1.68	268.4	81.8	530.8	309.8	402.1	416	390.5	732.4	409.8
161	1.66	267.6	81.9	529.2	309.8	400.5	414.5	388	731	408.4
162	1.65	266.5	81.5	527.8	309.7	398.7	414.5	388.9	729.6	407.9
163	1.62	265.6	81.6	526.4	309.6	396.5	415.2	389.7	728.2	407.5
164	1.61	264.6	81.5	524.5	309.8	395.4	414.1	388.2	726.7	406.4
165	1.61	263.5	82	523	309.6	393.4	412.1	389.6	725.4	405.5
166	1.58	262.8	81.6	521.5	309.4	391.8	412.4	386.7	724.1	404.4
167	1.57	262.1	81.6	520.3	309.5	389.5	411.6	385.7	722.8	403.3
168	1.55	261.7	81.6	518.8	309.4	387.9	411.1	385	721.7	402.4
169	1.54	261.4	81.6	517.1	309.5	386.5	409.6	384.1	720.7	401.4
170	1.52	260.8	81.7	515.8	309.3	385.1	409.5	381.8	719.7	400.3
171	1.5	260.1	81.5	514.8	309.2	383.6	409.1	381.6	719.4	399.7
172	1.49	259.5	81.5	513.9	309.2	383.2	409	380.9	720.9	399.2
173	1.47	258.9	81.5	512.9	309.1	382.7	408.6	380.9	721.8	398.9
174	1.45	258.2	81.4	512.2	309	381.7	407.7	380.8	721.4	398.3
175	1.44	257.9	81.6	511.1	309.1	380.6	406.4	379.8	720.7	397.4
176	1.42	257.1	81.7	510.4	308.8	378.8	406.6	378.9	719.2	396.7
177	1.41	256.4	81.8	509.6	308.8	377.5	405.9	378.6	717.8	396.1
178	1.39	255.9	81.7	508.7	308.8	376.1	404.8	376.9	716.7	395
179	1.37	255.4	82.2	507.7	308.7	374.7	404.4	377.9	715.5	394.7
180	1.36	254.7	81.9	506.2	308.6	373.4	402.5	377.3	714.3	393.6
181	1.34	253.9	81.8	505.6	308.5	371.6	402.8	376.8	713.1	393.1
182	1.32	253.5	81.8	504.8	308.3	370.1	402.3	375.7	712.2	392.3
183	1.31	253.1	81.7	503.9	308.3	368.4	402.2	373.4	711.6	391.2
184	1.3	252.7	81.8	503.1	308.4	366.9	400.9	373.7	711.1	390.6
185	1.28	252.1	81.7	502.2	308.2	365.5	400.4	374.5	710.7	390.2
186	1.27	251.5	81.7	501.4	308	364	400.3	373.7	710.3	389.5
187	1.25	251.2	82.2	500.6	308	362.6	398.8	372.9	709.8	388.6
188	1.23	250.7	81.8	499.8	307.7	360.7	398.4	372.9	709.6	387.9
189	1.22	250	82	498.3	307.7	359.8	397.4	372.7	710	387.2
190	1.2	250	82.3	497.9	307.6	358.9	395.4	368.2	708.1	385.6
191	1.18	249.7	82	497	307.4	358.2	395.3	367.1	704.7	385
192	1.17	249.1	81.8	495.6	307.5	357.8	394.5	367.1	702	384.5
193	1.16	248.8	82.1	494.7	307.3	357.4	394	366.5	700.1	384
194	1.14	248.5	82.1	493.6	307.2	357.4	395.1	368.5	697.7	384.4
195	1.13	248.4	81.7	492.4	307.1	357.1	393.7	367.4	694.9	383.5
196	1.11	248	82.1	490.9	307	357.4	393.9	363.8	692.6	382.6
197	1.11	247.7	81.7	489.7	306.9	357	392.8	364.1	691.1	382.1
198	1.08	247.2	82	488.8	306.7	356.2	393.2	364.2	690.1	381.8
199	1.06	246.7	82	487.4	306.7	356	390.6	362.4	689.4	380.6
200	1.05	245.9	81.7	486.7	306.6	355.5	391.5	362.2	688.9	380.5
201	1.03	245.4	81.9	485.5	306.4	355.1	390.8	362.6	688.5	380.1
202	1.03	245	81.8	484.5	306.2	354.8	389.8	361.7	688.1	379.4
203	1.02	244.5	82	483.5	306.1	354	389.2	361.3	687.8	378.8
204	1	244	81.9	482.7	306	353.6	388.9	359.5	687.5	378.1
205	0.98	243.8	82.1	481.5	305.8	352.9	388.7	359.8	687.3	377.8
206	0.97	243.8	82.2	480.4	305.7	352.4	386.7	358.4	686.8	376.7
207	0.96	243.3	82.3	479.8	305.6	351.4	385.9	356.7	685.4	375.9
208	0.94	242.8	81.8	478.5	305.6	351.1	385.8	356.8	683.7	375.5
209	0.94	242.7	82	477.3	305.4	350.1	385.4	356.2	682.4	374.9
210	0.92	242.1	82.2	476.8	305.1	349.8	384.3	354.3	681.2	374
211	0.89	241.6	82.2	475.5	305	349	383.9	355	680	373.7
212	0.9	241.6	82.2	474.4	304.9	348.6	382.9	353.6	679.5	372.9
213	0.86	241.4	81.9	473.3	304.7	348	381.8	353.5	679.2	372.3
214	0.84	240.8	82.5	473.1	304.8	348.5	380.7	351.9	678.7	371.8
215	0.84	240.2	82.2	472.2	304.4	347.8	380.4	350.3	678.5	371
216	0.83	239.9	82	471.3	304.2	346.9	381.1	351.9	678.3	371.1
217	0.81	239.8	82	470.5	304.1	346.3	379.4	349.3	678.3	369.9
218	0.8	239.5	82.4	469.6	303.8	345.8	379.4	350.7	678.1	369.8
219	0.79	239.2	82.1	469	303.8	345.8	378	346.9	677.7	368.7
220	0.76	238.7	82	467.8	303.5	345.4	377.3	349.1	677.2	368.6
221	0.76	238.4	82.4	467.7	303.3	345.1	375.5	346.8	676.6	367.7
222	0.75	237.9	82.3	466.8	303.1	345.1	376.1	346.8	675.2	367.6
223	0.72	237.4	82	466	302.9	344.9	376.4	345.7	673.2	367.2
224	0.72	237.2	82.1	465.5	302.7	345.4	375.2	344.5	671.3	366.7
225	0.69	236.4	82.5	464.7	302.6	344.9	375.2	343.8	669.9	366.2
226	0.69	236.2	81.9	463.8	302.4	356.9	374.3	345.4	669	368.6
227	0.67	235.9	81.9	462.9	302.2	356.4	373.3	343.7	668	367.7
228	0.66	235.6	82.1	461.7	301.9	356.7	372.1	342.6	666.5	367
229	0.65	234.9	82.2	460.4	301.9	355.8	371.4	341.5	666	366.2

# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

230	0.63	234.8	82	459.8	301.7	354.6	371.9	341.6	666.1	365.9
231	0.63	234.6	82.4	459.1	301.5	354.3	371.8	339.6	666.2	365.3
232	0.6	234.4	82	458	301.4	353.6	370.5	339.9	666.1	364.7
233	0.59	234.3	82.2	457	301.1	352.5	370.2	338.2	665.9	363.8
234	0.56	234.2	82.7	456.5	300.7	351.4	369.3	337.9	665.8	363.2
235	0.57	233.9	82	455.7	300.4	350.3	369	337.7	665.7	362.6
236	0.54	233.5	82.3	454.6	300.3	348.8	368.4	336.1	665.1	361.6
237	0.54	233.2	82.3	454	300.1	347.4	367	337.2	664.3	361.1
238	0.52	232.9	82	453	299.8	345.7	367.1	337.2	663	360.6
239	0.51	232.6	82.3	452.5	299.6	344.3	365.4	334.4	661.8	359.2
240	0.49	232.2	82.2	451.8	299.4	342.7	366	335.5	660.4	359.1
241	0.49	231.8	82.2	450.7	299.2	341.4	364.8	334.6	659.2	358.1
242	0.48	231.6	82	449.5	299	340	365	333.6	657.9	357.4
243	0.46	231.3	82.3	448.8	298.6	339	362	332.2	656.3	356.1
244	0.45	230.8	82.4	448.3	298.3	337.6	363.6	331.4	655.4	355.9
245	0.43	230.4	82.5	447.4	298.1	336.7	362	332.2	655	355.3
246	0.42	229.9	82.5	446.5	298	335.5	361.1	330.7	655.2	354.4
247	0.42	229.4	82.4	446.1	297.7	334.2	361.4	329.8	655.7	353.8
248	0.4	229	82.5	445.3	297.5	333.4	361.1	329.1	656.1	353.3
249	0.38	228.6	82.3	444.5	297.2	332.2	360.4	330.7	656	353
250	0.37	228.3	82.2	443.8	297.1	331.2	359	328.1	655.5	351.8
251	0.37	228.1	82.1	442.8	296.8	330.3	358.1	328.9	654.3	351.4
252	0.34	227.8	82.4	442.4	296.7	329.2	358.1	328.4	653.4	351
253	0.33	227.3	82.6	441.8	296.5	328.4	358	327.6	653.1	350.5
254	0.32	226.9	82.1	441.5	296.1	327.4	357.8	325.6	652.9	349.7
255	0.32	226.2	82.2	440.5	296.1	326.4	356	326.9	652.8	349.2
256	0.3	225.8	82.3	440	295.8	325.4	356.7	325.8	653	348.8
257	0.28	225.7	82.5	438.7	295.5	324.7	355.4	325.9	653.3	348
258	0.27	225.5	82.2	439	295.3	323.8	354.9	325.3	653.6	347.6
259	0.24	225.1	82.2	438	295.3	322.9	354	325.1	653.8	347.1
260	0.24	225	82.5	437.9	294.9	322	354.2	324.8	653.4	346.7
261	0.24	224.6	82.4	437.3	294.7	321.2	353.6	324.6	652.8	346.3
262	0.22	224.7	82.4	436.7	294.5	320.5	352	324.5	652.3	345.6
263	0.2	224.2	82.4	436.4	294.3	319.7	351.4	323.4	651.7	345
264	0.19	224.1	82.5	436.2	294	319	349.9	322.6	651	344.4
265	0.17	223.7	82.3	435.6	293.8	318.2	351.6	321.9	650.3	344.2
266	0.17	223.4	81.9	434.8	293.4	317.7	350.5	323	649.7	343.9
267	0.16	223.1	82.4	434.6	293	316.9	349.4	322.2	649	343.2
268	0.15	222.9	82.5	434.2	292.8	316.2	349.6	321.5	648	342.9
269	0.13	222.8	82.4	433.5	292.5	315.6	348.8	321	647.2	342.3
270	0.12	222.7	82.4	432.8	292.2	315	348.7	320.9	646.5	341.9
271	0.11	222.5	82.1	432	291.9	314.4	348.2	322	645.8	341.7
272	0.09	222.4	82.1	431.3	291.6	314	347.9	320.4	645.3	341.1
273	0.08	222.3	82.2	430.9	291.2	313.3	345.9	321.1	644.6	340.5
274	0.07	222.1	81.9	430	291	313	346.8	320.9	644.2	340.3
275	0	222.1	82.1	429.6	290.7	312.4	345.9	319.5	643.9	339.6

Tests were done at a medium low air setting

Test load average moisture content - 21.4%

# CI2700I-1 Conditioning Data

## 6/2/23 - 6/5/23

Elapsed Time (min)	Scale Weight (lbs)	Flue (F)	Ambient (F)	FB Top (F)	FB Bottom (F)	FB Back (F)	FB Left (F)	FB Right (F)	Catalyst (F)	Avg. Surface Temp
0	13.68	365.2	73.5	660.3	403.9	472	477	468.6	846.3	496.4
1	13.63	382.1	73.6	651.9	404.9	467.9	473.9	465.2	719.9	492.8
2	13.57	383.1	74.1	643.6	405.9	466.7	471.4	460.7	741.2	489.6
3	13.5	388.2	73.5	636.2	406.8	459.4	465.9	457.8	790.5	485.2
4	13.43	393.6	73.9	628.9	407.5	452.1	460.5	452.7	812.3	480.4
5	13.34	398.6	73.1	622.9	408	452.4	456.5	447.5	824.9	477.5
6	13.3	381.4	72.7	617.7	408.6	445.3	449.2	442.2	813.9	472.6
7	13.23	367.1	72.9	612.9	408.8	445.3	445	438.2	810.1	470.1
8	13.19	357.3	73	608.4	408.9	442.1	439.1	434	806.3	466.5
9	13.14	350	72.6	604.6	408.8	437.6	434.9	429	802.2	463
10	13.09	344.9	72.8	600.8	408.6	436.2	428.2	424.6	804.4	459.7
11	13.01	340.8	72.7	597.6	408.2	440.3	426	420.4	810.5	458.5
12	12.92	338	72.8	595.6	407.7	440.5	419.3	415.9	821	455.8
13	12.87	336.5	72.5	594.2	407.1	438.7	415.7	410.9	835.6	453.3
14	12.8	335.3	72.4	593	406.4	437.2	410.4	406.7	849.8	450.8
15	12.71	334.7	72.7	593.1	405.6	436.3	408.5	402.6	860.6	449.2
16	12.64	334.7	72.7	593.6	404.7	435.4	405.1	399.9	870	447.8
17	12.55	334.7	72.9	595.4	403.8	434.7	400.2	396	880.5	446
18	12.47	334.5	73.8	597.5	402.9	434.2	396.4	393.8	887.3	445
19	12.4	335.3	73.4	599.9	401.9	433.6	392.6	389.4	889.8	443.5
20	12.29	337	73	602.7	400.8	433.9	391.6	386.3	903	443.1
21	12.21	338.3	72.9	606.3	399.7	433.7	389.5	382.7	924.9	442.4
22	12.11	339.1	73.1	610.6	398.5	432.9	388.1	380.7	933.8	442.2
23	12.03	339.4	73.1	615.1	397.3	431.6	387.5	378.5	929.8	442
24	11.95	339.3	72.6	618.4	396	430.3	386.1	375.6	921	441.3
25	11.89	338.7	72.3	620.3	394.9	429.5	387	373.6	911.5	441
26	11.8	338	72.3	621.9	393.6	429.5	384.2	371	904.5	440
27	11.74	338	72.3	622.9	392.2	430.1	385.5	368.4	899.8	439.8
28	11.66	338.7	72.1	623.2	390.9	431.8	385.5	366.3	899.7	439.5
29	11.57	340.2	72.1	624.3	389.5	434.2	383.9	364.8	916.7	439.3
30	11.44	342.9	72.5	627.8	388.3	436.4	381.9	363.6	949.8	439.6
31	11.35	345.9	72.4	633.2	387.1	438.5	380.4	362.2	974.3	440.3
32	11.22	348.6	72.5	640.9	385.8	440.1	378	361.1	991	441.2
33	11.11	351.1	72.3	647.9	384.6	441.7	377.1	359.5	997.4	442.2
34	11.02	353.5	72.2	654.9	383.4	443.4	374.5	358.1	995.5	442.9
35	10.91	355.2	72.1	660.9	382.3	445.6	375	357.8	994.4	444.3
36	10.8	357.2	72.2	666.8	381.1	447.7	372.7	356.4	999	444.9
37	10.7	358.8	72.1	672.9	380.1	449.9	370.6	355.9	1007.6	445.9
38	10.6	360.2	72.2	679.6	379.1	452.1	371.1	354.3	1017.7	447.2
39	10.46	361.8	72.2	689.3	378	454.3	368.5	354.6	1023.6	448.9
40	10.35	363.3	72.2	701.7	377.1	456.2	368.4	355.1	1019.6	451.7
41	10.24	364.9	72.5	714.5	376.2	457.8	371.3	354.3	1015.3	454.8
42	10.12	366.2	72.4	726.6	375.2	459.2	371.2	354.7	1012.5	457.4
43	9.98	367.8	72.5	736.3	374.4	460.1	371.4	354.7	1019.9	459.4
44	9.88	369.3	73.4	744.9	373.6	461.2	372.1	355.8	1024.4	461.5
45	9.75	370.4	73.8	754.1	372.9	462.1	374.4	356.5	1019.3	464
46	9.64	371.3	73.7	761.5	372	462.8	375.5	356.9	1012.2	465.8
47	9.54	372.1	73.9	767	371.2	463.4	377.2	358.1	1014.2	467.4
48	9.43	373.2	73.3	771.4	370.6	464.1	377.4	358.3	1020.3	468.4
49	9.32	374.5	73.6	778.9	370	464.8	378	359.3	1021	470.2
50	9.21	375.8	73.3	785.6	369.3	465.8	379.1	359.7	1015.3	471.9
51	9.08	376.9	73.7	793.1	368.7	467.3	378.9	360.1	1017	473.6
52	8.96	378.7	73.6	799.8	368.2	469.4	380.2	361.3	1026.9	475.8
53	8.83	380.7	73.1	806.4	367.7	472.1	383	362.5	1036.5	478.3
54	8.68	382.6	73.4	811.7	367.1	475.1	384.8	363.4	1042.7	480.4
55	8.56	384.5	72.8	815.8	366.6	478.7	386.8	364.8	1047	482.5
56	8.42	386.5	73.1	820.9	366.1	482.4	389.8	366.3	1046.6	485.1
57	8.29	387.8	73.5	826.6	365.7	487.9	391.4	367.4	1043.9	487.8
58	8.15	388.6	73.3	831.9	365.2	494	393.5	368.2	1034.7	490.6
59	8.04	388.9	72.9	836.3	364.7	498	395.5	369.3	1030.6	492.8
60	7.92	388.9	73.3	841.8	364.3	503.3	396	371.3	1031	495.3
61	7.79	389.4	73.1	847.4	363.8	509.7	397.5	372	1031.7	498.1
62	7.7	389.8	73.4	852.9	363.4	515.6	399.1	373.8	1033	501
63	7.56	390.6	72.8	856.5	363	520.7	401.3	375	1038.8	503.3
64	7.44	391.6	73.6	861.6	362.6	525.6	401.4	376.4	1044.8	505.5
65	7.32	392.7	74	865.7	362.3	528.4	402.5	378.4	1042.7	507.5
66	7.19	393.2	73.4	869.8	361.9	533.7	405	379.7	1042	510
67	7.09	393.8	73.3	873.2	361.4	538.8	407.4	381	1042.7	512.4
68	6.97	393.9	72.9	876.2	361.1	541.6	408.7	382.1	1041.4	514
69	6.86	394.2	73.1	878.3	360.8	544.7	411	383.2	1040.1	515.6
70	6.74	394.6	72.9	880.3	360.3	550.1	412.8	384.7	1040	517.6
71	6.63	394.9	73.3	883	360.1	554	413.3	386.8	1041.1	519.4
72	6.51	395.4	73.4	882.1	359.8	555.5	415.5	387.6	1048	520.1
73	6.39	396.1	73.1	883.1	359.7	565.6	418	390	1047.6	523.3
74	6.28	396.5	73.4	883.4	359.5	566.4	419.3	390.9	1048.9	523.9
75	6.18	396.8	72.9	883.1	359.4	567.8	421.2	392.2	1047.5	524.7

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76	6.07	396.8	73	883.7	359.2	568.1	422.9	393.5	1046.1	525.5
77	5.95	396.8	72.9	884.1	359.1	576.3	425.6	395.9	1043.7	528.2
78	5.86	397.1	73.1	884.9	359	578.6	427.6	397.7	1041	529.6
79	5.76	396.6	73.4	884.7	359	579	427.1	399.3	1036.6	529.8
80	5.66	396.6	73.2	884.9	359	584.4	431.1	401.7	1033.5	532.2
81	5.55	396	73.9	883.8	358.9	585.2	433.1	402.9	1033.3	532.8
82	5.46	396.3	73.5	881.3	359	589	433.6	404.9	1041.1	533.6
83	5.36	396.8	73.6	878.8	359.1	592	434.1	407.3	1047.3	534.3
84	5.26	397.3	73.7	875.1	359.2	593.9	435.1	409.4	1046.2	534.5
85	5.18	397.4	73.5	872	359.3	598.5	437.8	410	1038.9	535.5
86	5.08	397.2	73.7	869	359.3	599.4	438.6	413.3	1037.6	535.9
87	4.98	397.7	73.5	865.6	359.6	600.9	440.5	415.6	1037.7	536.4
88	4.89	398.1	73.8	863.2	359.9	605.1	441.6	417.3	1038	537.4
89	4.8	398.4	73.6	860.4	359.9	607.3	443.4	419.8	1038.4	538.2
90	4.71	398.4	74.1	857.9	360.3	611.2	443.7	422.3	1036.2	539.1
91	4.61	398.3	73.3	855	360.5	616.2	445.1	423.1	1034.4	540
92	4.53	398.1	73.9	852.6	360.7	618.7	446.6	426.4	1034.5	541
93	4.46	397.6	74.1	849.5	361.1	621.1	447.6	427.9	1033.9	541.4
94	4.36	397.1	73.9	846.2	361.5	622.4	448.2	429.4	1032.9	541.6
95	4.3	396.8	74.4	842.7	361.9	625.9	449.6	432.6	1031.4	542.5
96	4.21	396	73.8	838	362.1	628.6	450.6	435.1	1030.3	542.9
97	4.15	395.2	73.9	831.9	362.5	629.5	452.2	436.1	1028.9	542.4
98	4.07	394	74	826.7	363	632.5	453.4	438.5	1024.9	542.8
99	4	393.4	73.7	822.8	363.3	632.8	454.8	441.1	1022.4	543
100	3.92	393.3	73.3	819.3	363.8	634.6	455.9	442.3	1027.9	543.2
101	3.86	392.7	74.2	816.7	364.2	632.8	456	444.2	1031	542.8
102	3.75	392.4	74.4	815	364.8	637.4	457.6	445.6	1035.6	544.1
103	3.71	392.7	74.7	813.8	365.3	637.5	459.9	447.8	1043.4	544.9
104	3.63	392.7	73.7	813.2	365.8	640.4	462.6	448.4	1048.4	546.1
105	3.56	392.3	73.8	814.1	366.4	643.7	464.2	450.7	1046.9	547.8
106	3.48	391.9	74.4	814.7	367	646.2	465.8	452.5	1040	549.2
107	3.43	391.7	74.6	814.4	367.6	644.3	467.3	453.8	1031.7	549.5
108	3.35	390.5	74.8	812.9	368.2	645.7	470.7	456.3	1025.6	550.8
109	3.29	389.8	74.5	810.9	368.8	646.1	472.5	457.4	1024.4	551.2
110	3.22	389.3	75	808.7	369.5	646.4	474.2	459.6	1019.8	551.7
111	3.17	388.7	75.2	805.8	370.2	647.1	474.9	461.4	1012.3	551.9
112	3.12	387.6	74.5	803	370.7	646.9	477.3	462.8	1005.2	552.2
113	3.06	386.1	74.9	799.7	371.6	646.9	478.1	464.1	1000.6	552.1
114	3	384.4	74.3	796	372.2	647.6	480	465.3	993.4	552.2
115	2.96	382.8	74.4	792.4	373	648.3	481.7	467.5	981.8	552.6
116	2.91	381.1	74.7	788.7	373.7	645.9	482.4	467	969	551.5
117	2.87	378.8	74.6	784.4	374.5	645.6	483.2	469.6	957.3	551.5
118	2.83	376.7	74.7	780.2	375.2	645.4	483.6	470.5	945.1	551
119	2.8	374.6	74.4	775	375.9	641.9	485.7	471.2	929	550
120	2.78	372.3	74.1	769.4	376.7	640	487.6	471.6	913.3	549.1
121	2.73	370	75.1	763.1	377.5	638.5	485.5	473.6	902	547.6
122	2.7	367.4	74.9	757.1	378.3	640.6	489	474.2	893.5	547.8
123	2.68	365	74.9	751.3	379.1	639.2	488	475.4	886.8	546.6
124	2.64	362.7	74.9	745.5	379.7	636.3	490.2	476.1	881.1	545.6
125	2.61	360.9	75.1	739.9	380.7	637.8	491.6	476.6	875.6	545.3
126	2.59	358.8	75.4	734.1	381.5	633.7	491.3	477	870.8	543.5
127	2.57	356.9	75.9	729.4	382	629.9	492.1	478.4	866.4	542.3
128	2.53	355	75.7	724.3	382.9	630.1	491.2	477.5	862.2	541.2
129	2.51	353	75.5	720	383.6	630	492	477.7	858.2	540.7
130	2.48	351	76	715.6	384.5	627	491.1	478.7	855.2	539.4
131	2.47	349	75.5	711.1	385.2	624.7	492.5	478.3	852.6	538.4
132	2.43	347.5	75.5	706.6	385.8	626.8	491.6	478.2	849.6	537.8
133	2.41	345.8	76.2	702.7	386.8	621.9	491.4	478.5	845.5	536.3
134	2.39	344.3	75.5	698.2	387.5	617.3	491.9	478.5	840.6	534.7
135	2.37	342.5	75.8	694.2	388.2	618.3	491.1	478.2	835.9	534
136	2.34	340.3	76	690.1	389	618.3	491.4	477.9	831.7	533.4
137	2.32	337.6	75.8	686	389.6	614.8	490.3	474.6	827.7	531
138	2.3	336	76.2	682.3	390.1	611.3	491.8	475.5	824.1	530.2
139	2.28	334.2	76.3	678.8	390.8	612.9	490.8	476.7	820.8	530
140	2.26	332.8	76	674.8	391.5	611.7	491	474.8	817.7	528.8
141	2.26	331	77	671.9	392.2	606.2	487.7	475.4	814.6	526.7
142	2.22	328.9	77.7	668.4	392.9	600.1	489	475	812.2	525.1
143	2.2	327.2	77.5	665.3	393.5	599.6	485.7	474.8	810.1	523.8
144	2.18	325.6	77.6	662.3	394.1	598	486.8	474.9	807.9	523.2
145	2.16	324	77.6	659.5	394.6	600.7	487	473.8	805.9	523.1
146	2.15	321.9	77.8	656.9	395.2	598.9	484.5	473.8	804.1	521.9
147	2.12	320	77.4	654.2	395.7	598.7	486.9	472.5	802.2	521.6
148	2.1	318.7	77.3	651.7	396.2	591.3	484.6	471.8	800.2	519.1
149	2.08	318.3	77.9	649.4	396.7	590	482.9	471.4	798.5	518.1
150	2.06	318.1	77	646.7	397.2	587.9	485.3	470.1	797.2	517.5
151	2.04	317.4	77	644.5	397.7	593.7	484.2	469.5	795.5	517.9
152	2.02	316.9	77.5	642.5	398.1	586.8	483.8	469	792.6	516

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153	2.01	316	77.7	640.4	398.6	582.2	483.2	468.4	790.1	514.6
154	1.99	315.1	77.5	638.5	398.9	585.7	482.8	467.6	788	514.7
155	1.97	314.6	77.1	636.2	399.3	584.8	481.8	467.5	786.1	513.9
156	1.95	314.2	77.9	634.6	399.8	581.7	481.5	466.5	784.7	512.8
157	1.94	313.5	78.4	632.6	400.1	579.3	480.2	465.9	783.3	511.6
158	1.92	312.6	78.4	631.1	400.4	579.6	479.8	465.5	782	511.3
159	1.9	311.9	78.4	629.4	400.8	576.3	478	464.7	780.7	509.8
160	1.9	311.3	78.5	627.8	401.2	572.7	480	464.4	779.4	509.2
161	1.86	310.7	78.1	626.1	401.4	574.8	478.3	462.9	778.3	508.7
162	1.85	309.9	78.2	624.3	401.7	570.7	477.7	462.2	777.7	507.3
163	1.83	308.9	78.3	622.8	402	568.1	477.8	462.1	776.9	506.6
164	1.82	308.4	78.2	621.4	402.2	566.4	474.3	461.3	776.4	505.1
165	1.79	307.5	78.5	620.1	402.6	567.5	476.4	460.4	775.8	505.4
166	1.76	306.9	77.7	618.8	402.8	569.5	476.1	460.5	775.4	505.6
167	1.75	306.3	77.9	618	403	570.1	476.4	459	775.1	505.3
168	1.73	305.9	78.5	616.6	403.3	560.5	474.3	458.6	774.9	502.7
169	1.71	305.6	78.6	615.7	403.3	566.5	473.6	458.2	774.5	503.5
170	1.69	304.9	78.3	614.7	403.8	564.4	472.2	457.8	774.2	502.6
171	1.67	304.5	78.5	613.5	404	561.1	473.1	456.2	774.2	501.6
172	1.66	303.6	77	612.4	404.2	556.7	472.4	455.7	774.5	500.3
173	1.63	303.2	78.2	611.8	404.2	560.3	471.7	455.5	774.5	500.7
174	1.63	303.1	78.5	610.9	404.5	555.7	471.9	454.9	774.3	499.6
175	1.61	302.6	79	609.9	404.7	552.2	471	454.3	774	498.4
176	1.59	302.3	78.6	609.7	404.9	554.4	469.5	453.1	773.7	498.3
177	1.57	301.9	78.8	608.7	405	556.3	470.9	452.7	773.2	498.7
178	1.56	301.8	78.6	608.5	405.2	548.9	468.4	451.5	772.7	496.5
179	1.53	301.3	79	607.4	405.2	554.4	468.3	451.6	772.6	497.4
180	1.51	300.7	78.6	606.7	405.4	550.3	467.3	450.7	772.6	496.1
181	1.5	300.1	78.9	606.1	405.5	551.4	465.2	450.4	772.4	495.7
182	1.47	299.8	78.5	605.4	405.6	549.9	466.8	449.4	770.3	495.4
183	1.47	299.3	78.4	604.6	405.8	546.8	465.6	448.6	767.3	494.3
184	1.45	299	78.9	603.9	405.9	544.5	465.7	447.5	765	493.5
185	1.43	298.6	78.8	603.1	406.1	546	464.9	447.1	763.3	493.4
186	1.42	298.2	78.5	602.4	406.2	547.7	464.8	446.3	762.1	493.5
187	1.4	297.3	78.9	601	406.2	548.2	463.6	445.9	761.6	493
188	1.36	296.9	77.8	599.8	406.5	546.9	464	444.9	761.3	492.4
189	1.36	296.5	79.2	599	406.7	544.5	462.7	444.4	760.1	491.5
190	1.34	296.2	78.5	597.6	406.8	544.4	461	443.9	758.5	490.7
191	1.31	295.8	79.3	596.8	407.1	536.7	462.9	443	757.5	489.3
192	1.31	295.4	79.2	595.7	407.3	535.2	462.5	442.9	756.9	488.7
193	1.29	295.3	79.2	595.1	407.5	534	461.6	442.3	756.9	488.1
194	1.28	295	79	593.8	407.8	533.9	461.3	441.3	757	487.6
195	1.24	294.9	78.8	593.3	407.7	538.1	460	441.2	757.2	488.1
196	1.22	294.7	78.8	592.7	408.1	532.7	458.8	440.3	757.6	486.5
197	1.22	294.1	78.4	592	408.3	531.7	458.3	439.6	757.8	486
198	1.19	293.5	78.5	591.4	408.5	532	458.9	439.4	758.2	486
199	1.17	293.5	78.3	591	408.7	527.3	457.3	438.5	758.7	484.6
200	1.16	293.3	78.1	590.7	408.9	530.7	456.6	437.8	759	484.9
201	1.15	293.3	78.8	590.2	409	528.1	456.5	437.5	759	484.2
202	1.13	293.1	78.9	590	409.2	527.7	455	437.2	759	483.8
203	1.11	292.8	78.8	589.9	409.3	529.5	454.7	437.6	758.9	484.2
204	1.09	293.2	79.1	589.4	409.5	523.8	454.5	436.8	758.9	482.8
205	1.08	293	78.9	589.2	409.7	522.2	453.1	436	759.3	482
206	1.05	292.9	79.1	588.9	409.9	524.4	452.9	435.1	759.6	482.2
207	1.03	292.5	77.7	588.5	410	527.1	450.3	433.8	759.5	482
208	1.03	291.9	77.8	588.5	410.1	527.4	451.2	434.3	759.1	482.3
209	1.02	291.5	79	588.2	410.3	522	450.5	434	759	481
210	0.99	291.9	79	588.1	410.3	526	451.2	433.6	759.6	481.9
211	0.96	292.1	79.1	587.9	410.5	520.2	450.3	433.4	758.5	480.5
212	0.95	291.8	78.1	587.1	410.6	520.4	449	432.8	755.7	480
213	0.93	291.4	78.6	586.5	410.7	514	449.5	432	752.7	478.6
214	0.93	290.7	78.9	585.9	410.8	512.6	449.4	431.7	750.2	478.1
215	0.91	290.4	79.1	585.3	410.9	515.4	448.3	431.2	748.6	478.2
216	0.89	290	78.8	584.2	411	517.8	447.4	430.6	748.1	478.2
217	0.88	289.7	78.6	583.8	411.2	514	448.3	430.1	748	477.5
218	0.86	289.1	79	582.7	411.3	508.8	448	429.2	748.1	476
219	0.85	288.8	78.9	582.1	411.4	507.7	447.7	428.8	748.1	475.6
220	0.83	288.5	79.1	581.8	411.5	508.7	447.1	428.4	748	475.5
221	0.82	288.4	78.7	581.2	411.6	506.7	446.9	427.8	748.3	474.8
222	0.8	288.1	79.2	580.5	411.7	504.7	447.2	427.1	749.1	474.2
223	0.78	288	79	580.5	411.6	500.7	446	426.3	750.1	473
224	0.76	287.4	78.7	579.9	411.7	501.9	446.1	425.8	751	473.1
225	0.75	286.9	78.4	579.1	411.7	496.9	445.1	425	750.6	471.6
226	0.74	287	78.4	578.6	411.6	496.9	445.2	424.7	749.8	471.4
227	0.72	286.8	78.9	578.3	411.6	494.3	445.7	424.1	749.4	470.8
228	0.7	286.5	78.9	577.8	411.6	493	445.1	423.4	749.2	470.2
229	0.69	285.9	78.9	577.2	411.5	491.5	445.3	422.9	749.1	469.7

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230	0.67	285.8	78.1	576.5	411.4	494	444.2	422.4	749	469.7
231	0.65	285.5	78.1	576.5	411.2	488.2	443.6	421.7	749.4	468.2
232	0.64	285.5	78.7	575.9	411.1	486.8	443.6	420.9	750.4	467.7
233	0.63	285.5	79	575.5	411	485.8	441.8	420.5	751.2	466.9
234	0.61	285.7	79.2	575.5	410.7	491.2	440.4	420.2	751.8	467.6
235	0.59	285.5	78.6	575	410.7	482.8	441.7	419.9	752.3	466
236	0.58	285.3	79.1	575.1	410.5	481	439.9	419	752.4	465.1
237	0.57	285.2	79.3	574.6	410.3	480.8	439.6	418.4	752.4	464.7
238	0.56	284.6	79.1	574.5	410.1	480.2	439.6	418.7	753	464.6
239	0.54	284.3	79.4	574.6	409.8	477.5	438.7	418.2	753.6	463.8
240	0.52	284.3	78.8	574	409.6	477.6	438.2	416.7	754	463.2
241	0.51	284.1	77.9	574.1	409.3	477.6	437.3	416.1	753.9	462.9
242	0.49	283.9	78.5	573.9	409	475.1	436.9	416.1	753.8	462.2
243	0.48	284	79.3	573.8	408.7	477.1	435.7	415.6	753.8	462.2
244	0.47	283.7	79.3	573.8	408.4	474.8	435.8	414.8	752.2	461.5
245	0.45	283.6	79.1	573.5	408.1	471.6	435.3	414.6	750.4	460.6
246	0.43	283.3	78.8	573	407.8	470.9	433.3	413.7	749.1	459.8
247	0.42	283	78.8	572.5	407.5	474.5	434	413.2	748.3	460.3
248	0.42	282.4	79.1	572	407.1	474.2	432.1	413.1	747.5	459.7
249	0.39	282.5	79.2	571.4	406.8	469	432.2	412.6	746.8	458.4
250	0.38	282.1	79.6	571.2	406.4	474.7	430	411.8	746	458.8
251	0.37	281.8	79.3	570.6	406.2	467.1	430.6	412	745.4	457.3
252	0.35	281.6	79.2	569.8	405.8	468.9	429.9	411	744.9	457.1
253	0.33	281.7	79.2	569	405.4	466.7	428.6	410.9	744.7	456.1
254	0.32	281.2	78.3	568.5	405.1	468.4	427.9	410.2	744.3	456
255	0.31	280.8	79.2	568.1	404.7	465.6	428.4	409.8	743.8	455.3
256	0.29	280.4	79.1	567.5	404.4	465.2	427.2	409.5	743.5	454.7
257	0.28	280.2	79.4	566.9	403.9	470	425.5	409.1	742.7	455.1
258	0.25	280.2	79.3	566.6	403.6	463.8	424.5	408.9	743	453.5
259	0.25	279.8	78.9	566.4	403.2	464.9	423.4	407.8	743.5	453.1
260	0.23	279.4	79.2	565.7	402.8	465.6	423.5	407.2	743.5	453
261	0.21	279.1	79	565.5	402.4	463.6	423.3	407.4	743.5	452.5
262	0.2	279	78.8	565.2	402.1	463.6	422	406.8	743.2	451.9
263	0.19	278.8	79.3	564.7	401.7	463.9	421.4	406.1	742.8	451.6
264	0.18	278.7	79.1	564.3	401.3	463.3	420.9	405.9	742.5	451.1
265	0.16	278.4	79.2	563.7	401	463.7	419.6	405.5	742.3	450.7
266	0.14	278.2	78.2	563.3	400.6	463	419.3	404.4	741.6	450.1
267	0.13	278.2	78.9	562.7	400.3	463.2	418.8	404.6	740.1	449.9
268	0.11	278.1	79.2	562.3	399.9	459.5	416.8	403.9	738.7	448.5
269	0.11	277.9	79.1	561.6	399.6	461.3	416.9	404	737.6	448.7
270	0.09	277.7	79.3	560.9	399.3	462.2	417.2	403	736.8	448.5
271	0.07	277.5	79	559.8	399	457.2	416.1	403	736	447
272	0	277.3	79.2	559.5	398.6	456.3	416.8	402.8	734.8	446.8

Tests were done at a medium low air setting

Test load average moisture content - 22.1%

## Regency Ci2700 EPA Test Burn Instructions

### Pre-Test

- Remove ash and charcoals from the firebox with a dustpan and brush.
- Clean the door glass with water, paper towel, and left-over ashes. Use steel wool or a scraping tool to remove difficult build up. Do not use chemical cleaners.
- Ensure the by-pass is open, and the fan is off for the startup period.
- When setting air for Low, Med/Low, and Med/High, set the lever from the right to left

### Kindling

- For all kindling, use pieces that are 10-12" long, and 0.5-1" in diameter. Using larger pieces in the startup may leave unburnt pieces
- Prepare three batches of kindling. The first and second batch are to be around 4lb, with the third batch being around 3lb. (~11lb total)
- Stack the first batch crisscross in the center of the firebox. Start the fire by aiming the torch at the base of the kindling and holding the torch in position until the flames start to grow. Leave the door open until the flames hit and spread across the horizontal baffle, then close.
- When the first batch of kindling reaches 1.8-2lb (Approx. 20min), stir the coals and then load the second batch. Try to stack in a similar fashion to the first batch, placed in the middle.
- When the second batch reaches 1.8-2lb (Approx. 40min), stir the coals and load the third batch.
- When the third batch reaches 2lbs on the scale (Approx. 1hr), remove the coals, zero the scale, and replace the coals. Prepare to load the pre-burn.

### Pre-Burn Load

- The pre-burn should weigh between 11.5-13lb. The pre-burn load is made up of two 15.5" pieces placed east-west with the wide face down, three to five 10" pieces placed north-south with the narrow face down, and two to three 15.5" pieces placed east-west on top with the narrow face down.
- The by-pass can remain closed while loading the pre-load.
- When ready, load the pre-burn. On a high burn, the fan should be put on high after the pre-burn is loaded, and the program started
- For the remaining runs, do the following
  - Low – Burn on high until 6lbs remain. When 6lbs remains, set the draft handle to the low setting, turn the fan on low, and start the pre-burn data collection
  - Med/Low – Burn on high until 6.2lbs remain. When 6.2lbs remain, set the draft handle to the med/low setting, turn the fan on low, and start the pre-burn data collection
  - Med/High – Burn on high for a minimum of 10 minutes, then until 12.0lbs remain. When 12.0lbs remain, set the draft handle to med/high setting (NANANA), turn the fan on high, and start the pre-burn data collection
- For all runs, if the coalbed is more than 0.2lbs above the coalbed limit at 45mins, pull to the front/remove coals. Keep the door open for the least amount of time possible.
- When at least 1 hour at the test air setting has passed, AND the coalbed is in the correct range, rake the coals to ensure a flat surface for the test load (especially against the back wall). Ensure the pilot is not covered or blocked.

## Test Load

- When ready to load the test load, Turn the fan off, and return the air to high. Open the door and place pieces in the following order:
  - 1 x 15.5" 2x4 on the bottom back
  - 1 x 15.5" 4x4 on top
  - 1 x 20" 2x4 on the bottom front
  - 1 x 20" 4x4 on top
- Ensure to press the front 2x4 into the coalbed so the front logs do not fall into the glass
- Close the door after.
- For the different runs, turn on the fan as following
  - **High** – Fan on high at 15 minutes
  - **Med/High** – Fan on high at 15 minutes
  - **Med/Low** – Fan on low at 30 minutes
  - **Low** – Fan on low at 30 minutes



## Sample Calculations – ASTM E2780 & E2515

Client: FPI  
 Model: CI2700-1  
 Run: 1

Equations used to calculate the parameters listed below are described in this appendix. Sample calculations are provided for each equation. The raw data and printout results from a sample run are also provided for comparison to the sample calculations.

$M_{Sdb}$  – Weight of test fuel spacers, dry basis, kg

$M_{Cdb}$  – Weight of test fuel crib, excluding nails and spacers, dry basis, kg

$D_{Cdb}$  - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft<sup>3</sup>

$M_{FTAdb}$  - Total weight of fuel crib excluding nails, dry basis, kg

BR – Dry burn rate, kg/hr

$V_s$  – Average gas velocity in the dilution tunnel, ft/sec

$Q_{sd}$  – Average gas flow rate in dilution tunnel, dscf/hr

$V_{m(std)}$  – Volume of gas sampled, corrected to dry standard conditions, dscf

$m_n$  – Total particulate matter collected, mg

$C_s$  - Concentration of particulate matter in tunnel gas, dry basis, corrected to STP, g/dscf

$E_T$  – Total particulate emissions, g

PR - Proportional rate variation

$PM_R$  – Particulate emissions for test run, g/hr

$PM_F$  – Particulate emission factor for test run, g/dry kg of fuel burned

**M<sub>Sdb</sub> – Weight of test fuel spacers, dry basis, kg**

ASTM E2780 equation (1)

$$M_{Sdb} = (M_{Swb})(100/(100 + FM_S))$$

Where,

FM<sub>S</sub> = average fuel moisture of test fuel spacers, % dry basis

M<sub>Swb</sub> = weight of test fuel spacers, wet basis, kg

Sample Calculation:

$$FM_S = 10.4 \%$$

$$M_{Swb} = 1.3 \text{ lbs}$$

0.4536 = Conversion factor from lbs to kg

$$M_{Sdb} = [(1.3 \times 0.4536) (100/(100 + 10.4))]$$

$$M_{Sdb} = \mathbf{0.53 \text{ kg}}$$

**$M_{Cdb}$  – Weight of test fuel crib, excluding nails and spacers, dry basis, kg**  
ASTM E2780 equation (2)

$$M_{Cdb} = \Sigma[(M_{CPnwb})(100/(100 + FM_{CPn}))]$$

Where,

- $M_{CPnwb}$  = weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis, kg
- $FM_{CPn}$  = Average fuel moisture of test fuel n in fuel crib, % dry basis

Sample Calculation (test fuel piece 1):

$$\begin{aligned} M_{CPnwb} &= 1.74 \\ FM_{CPn} &= 20.0 \\ &= 1.7 (100/(100+ 20.0 ) \\ &= 1.5 \text{ lbs} \end{aligned}$$

Total dry crib weight, excluding spacers = 10.20 lbs  
 $M_{Cdb} = 4.63 \text{ kg}$

**D<sub>Cdb</sub> - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft<sup>3</sup>**  
ASTM E2780 equation (3)

$$D_{Cdb} = M_{Cdb} / V_C$$

Where,

$$V_C = \text{Volume of fuel crib, ft}^3$$

Sample calculation:

$$V_C = 612.5 \text{ in}^3$$

$$1728 = \text{conversion from in}^3 \text{ to ft}^3$$

$$D_{Cdb} = 10.20 / 612.5 * 1728$$

$$= \mathbf{28.77 \text{ lbs/ft}^3}$$

**$M_{FTAdb}$  - Total weight of fuel crib excluding nails, dry basis, kg**  
ASTM E2780 equation (4)

$$M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

Sample calculation:

$$M_{FTAdb} = 0.53 + 4.63$$

$$= \mathbf{5.16 \text{ kg}}$$

**BR – dry burn rate, kg/hr**

ASTM E2780 equation (5)

$$BR = \frac{60 M_{FTAdb}}{\theta}$$

Where,

$$\theta = \text{Total length of test run, min}$$

Sample Calculation:

$$M_{Bdb} = 5.16 \quad \text{kg}$$

$$\theta = 318 \quad \text{min}$$

$$BR = \frac{60 \times 5.16}{318}$$

$$BR = \mathbf{0.97} \quad \text{kg/hr}$$

**V<sub>s</sub> – Average gas velocity in the dilution tunnel, ft/sec**

ASTM E2515 equations (9)

$$V_s = F_p \times k_p \times C_p \times (\sqrt{\Delta P})_{avg} \times \sqrt{\frac{T_{s(avg)}}{P_s \times M_s}}$$

Where:

- $F_p$  = Adjustment factor for pitot tube center point reading =  $\frac{V_{strav}}{V_{scent}}$ , ASTM E2515 Equation (1)
- $V_{scent}$  = Dilution tunnel velocity calculated after the multi-point pitot traverse at the center, ft/sec
- $V_{strav}$  = Dilution tunnel velocity calculated after the multi-point pitot traverse, ft/sec
- $k_p$  = Pitot tube constant, 85.49
- $C_p$  = Pitot tube coefficient: 0.99, unitless
- $\Delta P^*$  = Velocity pressure in the dilution tunnel, in H<sub>2</sub>O
- $T_s$  = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
- $P_s$  = Absolute average gas static pressure in dilution tunnel, =  $P_{bar} + P_g$ , in Hg
- $P_{bar}$  = Barometric pressure at test site, in. Hg
- $P_g$  = Static pressure of tunnel, in. H<sub>2</sub>O; (in Hg = in H<sub>2</sub>O/13.6)
- $M_s$  =

\*\*The dilution tunnel wet molecular weight;  $M_s = 28.78$  assuming a dry weight of 29 lb/lb-mole

Sample calculation:

$$F_p = \frac{7.05}{8.56} = 0.823$$

$$V_s = 0.823 \times 85.49 \times 0.99 \times 0.129 \times \left( \left( \frac{80.0}{29.82} + \frac{460}{13.6} \right) \times 28.78 \right)^{1/2}$$

$$V_s = 7.14 \text{ ft/s}$$

\*The ASTM test standard mistakenly has the square root of the average delta p instead of the average of the square root of delta p. The current EPA Method 2 is also incorrect. This was verified by Mike Toney at EPA.

\*\*The ASTM test standard mistakenly identifies  $M_s$  as the dry molecular weight. It should be the wet molecular weight as indicated in EPA Method 2.

**Q<sub>sd</sub> – Average gas flow rate in dilution tunnel, dscf/hr**

ASTM E2515 equation (3)

$$Q_{sd} = 3600 \times (1 - B_{ws}) \times v_s \times A \times \frac{T_{std}}{T_{s(avg)}} \times \frac{P_s}{P_{std}}$$

Where:

- 3600 = Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
- B<sub>ws</sub> = Water vapor in gas stream, proportion by volume; assume 2%
- A = Cross sectional area of dilution tunnel, ft<sup>2</sup>
- T<sub>std</sub> = Standard absolute temperature, 528 °R
- P<sub>s</sub> = Absolute average gas static pressure in dilution tunnel, = P<sub>bar</sub> + P<sub>g</sub>, in Hg
- T<sub>s(avg)</sub> = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
- P<sub>std</sub> = Standard absolute pressure, 29.92 in Hg

Sample calculation:

$$Q_{sd} = 3600 \times (1 - 0.02) \times 7.14 \times 0.7854 \times \frac{528}{80.0 + 460} \times \frac{29.82 + \frac{-0.08}{13.6}}{29.92}$$

Q<sub>sd</sub> = **19266.8** dscf/hr



**$V_{m(std)}$  – Volume of Gas Sampled Corrected to Dry Standard Conditions, dscf**  
 ASTM E2515 equation (6)

$$V_{m(std)} = K_1 V_m Y \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m}$$

Where:

- $K_1$  = 17.64 °R/in. Hg  
 $V_m$  = Volume of gas sample measured at the dry gas meter, dcf  
 $Y$  = Dry gas meter calibration factor, dimensionless  
 $P_{bar}$  = Barometric pressure at the testing site, in. Hg  
 $\Delta H$  = Average pressure differential across the orifice meter, in. H<sub>2</sub>O  
 $T_m$  = Absolute average dry gas meter temperature, °R

Sample Calculation:

Using equation for Train A:

$$V_{m(std)} = 17.64 \times 49.017 \times 1.01 \times \frac{\left( 29.82 + \frac{2.32}{13.6} \right)}{\left( 91.2 + 460 \right)}$$

$$V_{m(std)} = \mathbf{47.515} \text{ dscf}$$

Using equation for Train B:

$$V_{m(std)} = 17.64 \times 46.746 \times 1.001 \times \frac{\left( 29.82 + \frac{2.15}{13.6} \right)}{\left( 89.8 + 460 \right)}$$

$$V_{m(std)} = \mathbf{45.010} \text{ dscf}$$

Using equation for ambient train:

$$V_{m(std)} = 17.64 \times 148.27 \times 1.024 \times \frac{\left( \underline{29.82} + \frac{0.00}{13.6} \right)}{\left( 65.1 + 460 \right)}$$

$$V_{m(std)} = \mathbf{152.096} \text{ dscf}$$

**$m_n$  – Total Particulate Matter Collected, mg**

ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

- $m_p$  = mass of particulate matter from probe, mg
- $m_f$  = mass of particulate matter from filters, mg
- $m_g$  = mass of particulate matter from filter seals, mg

Sample Calculation:

Using equation for Train A:

$$m_n = 0.0 + 0.8 + 1.7$$

$$m_n = 2.5 \text{ mg}$$

Using equation for Train B:

$$m_n = 0 + 1.3 + 1.2$$

$$m_n = 2.5 \text{ mg}$$

**C<sub>s</sub> - Concentration of particulate matter in tunnel gas, dry basis, corrected to STP, g/dscf**  
ASTM E2515 equation (13)

$$C_s = K_2 \times \frac{m_n}{V_{m(\text{std})}}$$

Where:

- K<sub>2</sub> = Constant, 0.001 g/mg
- m<sub>n</sub> = Total mass of particulate matter collected in the sampling train, mg
- V<sub>m(std)</sub> = Volume of gas sampled corrected to dry standard conditions, dscf

Sample calculation:

For Train A:

$$C_s = 0.001 \times \frac{2.5}{47.52}$$

$$C_s = \mathbf{0.00005} \text{ g/dscf}$$

For Train B

$$C_s = 0.001 \times \frac{2.5}{45.01}$$

$$C_s = \mathbf{0.00006} \text{ g/dscf}$$

For Ambient Train

$$C_r = 0.001 \times \frac{0.0}{152.10}$$

$$C_r = \mathbf{0.000000} \text{ g/dscf}$$

**$E_T$  – Total Particulate Emissions, g**

ASTM E2515 equation (15)

$$E_T = (C_s - C_r) \times Q_{std} \times \theta$$

Where:

- $C_s$  = Concentration of particulate matter in tunnel gas, g/dscf
- $C_r$  = Concentration particulate matter room air, g/dscf
- $Q_{std}$  = Average dilution tunnel gas flow rate, dscf/hr
- $\theta$  = Total time of test run, minutes

Sample calculation:

For Train A

$$E_T = ( 0.000053 - 0.000000 ) \times 19266.8 \times 318 /60$$
$$E_T = \mathbf{5.37} \text{ g}$$

For Train B

$$E_T = ( 0.000056 - 0.000000 ) \times 19266.8 \times 318 /60$$
$$E_T = \mathbf{5.67} \text{ g}$$

Average

$$E = \mathbf{5.52} \text{ g}$$

**PR - Proportional Rate Variation**

ASTM E2515 equation (16)

$$PR = \left[ \frac{\theta \times V_{mi} \times V_s \times T_m \times T_{si}}{\theta_i \times V_m \times V_{si} \times T_{mi} \times T_s} \right] \times 100$$

Where:

- $\theta$  = Total sampling time, min
- $\theta_i$  = Length of recording interval, min
- $V_{mi}$  = Volume of gas sample measured by the dry gas meter during the "ith" time interval, dcf
- $V_m$  = Volume of gas sample as measured by dry gas meter, dcf
- $V_{si}$  = Average gas velocity in the dilution tunnel during the "ith" time interval, ft/sec
- $V_s$  = Average gas velocity in the dilution tunnel, ft/sec
- $T_{mi}$  = Absolute average dry gas meter temperature during the "ith" time interval, °R
- $T_m$  = Absolute average dry gas meter temperature, °R
- $T_{si}$  = Absolute average gas temperature in the dilution tunnel during the "ith" time interval, °R
- $T_s$  = Absolute average gas temperature in the dilution tunnel, °R

Sample calculation (for the first 10-min interval of Train 1):

$$PR = \left( \frac{318 \times 1.394 \times 7.14 \times (80.7 + 460) \times (91.2 + 460)}{10 \times 49.017 \times 7.21 \times (80.0 + 460) \times (71.8 + 460)} \right) \times 100$$

$$PR = \quad \mathbf{93} \quad \%$$

**PM<sub>R</sub> – Particulate emissions for test run, g/hr**

ASTM E2780 equation (6)

$$PM_R = 60 (E_T/\theta)$$

Where,

$E_T$  = Total particulate emissions, grams

$\theta$  = Total length of full integrated test run, min

Sample Calculation:

$$E_T \text{ (Dual train average)} = 5.52 \text{ g}$$

$$\theta = 318 \text{ min}$$

$$PM_R = 60 \times ( 5.52 / 318 )$$

$$PM_R = 1.04 \text{ g/hr}$$

**PM<sub>F</sub> – Particulate emission factor for test run, g/dry kg of fuel burned**  
ASTM E2780 equation (7)

$$PM_F = E_T / M_{FTAdb}$$

Sample Calculation:

$$\begin{aligned} E_T (\text{Dual train average}) &= 5.52 \text{ g} \\ M_{Bdb} &= 5.16 \text{ kg} \\ \\ PM_F &= 5.52 / 5.16 \\ \\ PM_F &= \mathbf{1.07} \text{ g/kg} \end{aligned}$$

**Stack Loss Efficiency and CO emissions calculations are done in accordance with CSA B415.1, using the password protected excel spreadsheet provided with the test standard. No alterations or alternative calculations are used for determining efficiency or CO emissions. The following pages are a sample of the calculations page from the B415.1 Spreadsheet (V2\_4 - Dated April 15, 2010).**



**Manufacturer:** FPI  
**Model:** CI2700-1  
**Date:** 06/19/23  
**Run:** 1  
**Control #:** 23-153  
**Test Duration:** 318 min

	HHV	LHV
Eff	78.66%	85.02%
Comb Eff	96.76%	96.76%
HT Eff	81.30%	87.87%
Output	15,065	kJ/h
Burn Rate	0.97	kg/h
Grams CO	238	g
Input	19,151	kJ/h
MC wet	16.66	
Averages	0.27	10.38

Note: In the "Input data", "Calc. % O<sub>2</sub>", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

Overall Heating Efficiency: 78.66% Air Fuel  
 Combustion Efficiency: 96.76% Dry Molecular W  
 Heat Transfer Efficiency: 81.30% Dry Moles Exhaus  
Air Fuel Ratio

Heat Output: 14,291 Btu/h 15,065 kJ/h  
 Heat Input: 18,167 Btu/h 19,151 kJ/h

Ultimate CO<sub>2</sub>  
 CO<sub>2-ult</sub> 19.64  
 F<sub>0</sub> 1.062  
 Burn Duration: 5.30 h  
 Burn Rate: 2.13 lb/h 0.967 kg/h  
 Stack Temp: 264.0 Deg. F 128.9 Deg. C

INPUT DATA				Oxygen Calculation			Input Data		Combust	Heat	Net	Air	Wet Wt
Elapsed	Weight	%	%	Excess	Total	Calc. %	Flue	Room	Eff	Transfer	Eff	Fuel	Now
Time	Remaining (kg)	CO [e]	CO <sub>2</sub> [d]	Air EA	O <sub>2</sub>	O <sub>2</sub> [g]	Gas (°C)	Temp (°C)	%	%	%	Ratio	Wt
0	6.15	0.04	5.22	273.4%	20.59	15.35	164.7	17.6	100.2%	71.5%	71.7%	22.6	6.15
1	6.13	0.03	3.50	456.5%	20.71	17.19	178.2	17.6	100.7%	60.9%	61.3%	33.7	6.13
2	6.07	0.06	5.34	264.4%	20.58	15.22	180.4	17.3	100.0%	69.9%	69.9%	22.0	6.07
3	5.99	0.14	11.32	71.5%	20.18	8.80	195.4	17.4	99.2%	78.6%	77.9%	10.4	5.99
4	5.92	0.17	12.96	49.7%	20.07	7.03	213.2	17.3	99.1%	78.7%	78.0%	9.1	5.92
5	5.84	0.20	12.95	49.3%	20.07	7.02	225.3	17.3	98.8%	78.0%	77.1%	9.0	5.84
6	5.78	0.76	13.64	36.4%	19.99	5.97	197.2	17.2	95.7%	79.8%	76.4%	8.2	5.78
7	5.74	0.12	13.03	49.4%	20.07	6.98	182.1	17.6	99.4%	80.6%	80.1%	9.0	5.74
8	5.70	0.10	12.83	51.9%	20.09	7.20	175.2	17.6	99.5%	80.9%	80.5%	9.2	5.70
9	5.64	0.09	12.85	51.8%	20.09	7.19	170.8	17.6	99.6%	81.1%	80.8%	9.2	5.64
10	5.59	0.12	13.23	47.2%	20.06	6.78	169.0	17.1	99.4%	81.4%	80.9%	8.9	5.59
11	5.54	0.16	13.06	48.6%	20.07	6.93	169.2	17.2	99.1%	81.3%	80.6%	9.0	5.54
12	5.49	0.17	13.18	47.1%	20.06	6.79	168.9	17.2	99.1%	81.4%	80.6%	8.9	5.49
13	5.43	0.45	13.87	37.2%	19.99	5.90	169.5	16.9	97.5%	81.6%	79.5%	8.3	5.43
14	5.37	0.87	13.99	32.2%	19.96	5.53	170.7	17.1	95.2%	81.4%	77.5%	7.9	5.37
15	5.30	1.29	13.80	30.2%	19.94	5.50	172.4	17.5	92.9%	81.1%	75.4%	7.7	5.30
16	5.25	1.40	13.98	27.7%	19.92	5.24	172.8	17.4	92.5%	81.2%	75.1%	7.6	5.25
17	5.19	1.30	13.70	31.0%	19.95	5.60	173.0	17.4	92.8%	81.0%	75.2%	7.8	5.19
18	5.13	1.35	13.79	29.8%	19.94	5.48	173.7	17.2	92.6%	81.0%	75.0%	7.7	5.13
19	5.06	1.41	13.74	29.7%	19.94	5.49	174.7	17.1	92.3%	80.9%	74.7%	7.7	5.06
20	5.00	1.59	13.68	28.6%	19.93	5.46	175.7	16.9	91.4%	80.8%	73.8%	7.6	5.00
21	4.95	1.70	13.56	28.7%	19.93	5.52	176.3	17.1	90.8%	80.6%	73.2%	7.6	4.95
22	4.88	1.73	13.57	28.4%	19.93	5.49	177.2	16.9	90.7%	80.6%	73.0%	7.6	4.88
23	4.82	1.84	13.50	28.0%	19.93	5.50	177.0	16.8	90.1%	80.5%	72.5%	7.6	4.82
24	4.75	1.91	13.68	26.0%	19.91	5.27	176.9	16.8	89.9%	80.6%	72.4%	7.4	4.75
25	4.69	2.19	13.48	25.3%	19.91	5.33	178.2	16.8	88.4%	80.3%	71.0%	7.4	4.69
26	4.63	2.34	13.45	24.4%	19.90	5.28	178.6	16.8	87.8%	80.2%	70.4%	7.3	4.63
27	4.56	2.34	13.58	23.3%	19.89	5.13	178.7	16.8	87.8%	80.3%	70.5%	7.2	4.56
28	4.50	2.52	13.60	21.9%	19.88	5.02	179.5	16.8	87.1%	80.2%	69.9%	7.1	4.50
29	4.44	2.84	13.58	19.7%	19.86	4.86	180.2	16.8	85.7%	80.1%	68.6%	7.0	4.44
30	4.37	3.01	13.51	18.9%	19.85	4.83	180.4	16.8	85.0%	80.0%	68.0%	6.9	4.37
31	4.31	3.18	13.52	17.7%	19.84	4.73	179.4	16.8	84.3%	80.0%	67.4%	6.8	4.31
32	4.26	3.33	12.33	25.5%	19.91	5.91	178.3	16.7	82.6%	79.2%	65.4%	7.2	4.26
33	4.21	1.86	12.94	32.7%	19.96	6.09	177.1	16.8	89.6%	80.2%	71.8%	7.8	4.21
34	4.17	1.37	13.09	35.9%	19.99	6.21	177.2	16.7	92.2%	80.4%	74.1%	8.1	4.17
35	4.12	1.35	13.20	35.0%	19.98	6.11	178.2	16.9	92.3%	80.4%	74.3%	8.0	4.12
36	4.06	0.65	14.12	33.0%	19.96	5.52	179.1	16.9	96.4%	81.1%	78.2%	8.0	4.06
37	4.01	1.71	14.14	24.0%	19.89	4.91	179.3	16.7	91.1%	80.8%	73.5%	7.3	4.01

Ratio (A/F)	
Weight (M <sub>a</sub> )	30.05
Wet Gas (N <sub>p</sub> )	398.95
Ratio (A/F)	11.48

%HC  
0.88

Combustion Efficiency: 96.76%  
 Total Input (kJ): 101,499 96,267 (Btu)  
 Total Output (kJ): 79,844 75,728 (Btu)  
 Efficiency: 78.66%  
 Total CO (g): 237.75

Moisture of Wood (wet basis): 16.609  
 Initial Dry Weight W<sub>t,do</sub> (kg): 5.12  
 Moisture Content Dry 19.99

Load Weight (kg): **6.15**  
 Fuel Heating Value in kJ/kg - CV: **19,810** HHV **18,329** LHV  
 Btu/lb **8522.5** HHV

74.08	1.42	72.32	101585	4.06	6.87	2.74	19810.00	16.66	79.63	21.12	2.63	8.98	0.02	0.26	40.04
% Wet Consumed	Dry Wt. Now	% Dry Consumed	Total Input	Fuel Properties				Mw Moisture	Mass Balance (moles/100 mole dry flue gas)					kg Wood per 100 mole dfp	
x	W <sub>t,dn</sub>	y	Input	Carbon /12= [a]	Hydrogen /1= [b]	Oxygen /16= [c]	Calorific Value	Fuel Burmt	[h]	[u]	[w]	[j]	[k]	Nk	CO <sub>2</sub>
0.00	5.12	0.00	0	4.06	6.87	2.74	19810.00	16.66	79.39	21.06	1.29	4.47	-0.02	0.13	40.65
0.30	5.11	0.30	824	4.06	6.87	2.74	19810.00	16.66	79.28	21.03	0.86	3.01	-0.02	0.09	40.71
1.33	5.06	1.33	1124	4.06	6.87	2.74	19810.00	16.66	79.39	21.06	1.32	4.58	-0.02	0.13	40.52
2.51	5.00	2.51	1199	4.06	6.87	2.74	19810.00	16.66	79.75	21.15	2.82	9.68	0.01	0.28	40.30
3.69	4.93	3.69	1236	4.06	6.87	2.74	19810.00	16.66	79.84	21.18	3.24	11.09	0.01	0.32	40.25
4.94	4.87	4.94	1124	4.06	6.87	2.74	19810.00	16.66	79.83	21.17	3.24	11.11	0.02	0.32	40.12
5.90	4.82	5.90	861	4.06	6.87	2.74	19810.00	16.66	79.63	21.12	3.57	12.06	0.10	0.36	38.39
6.64	4.78	6.64	712	4.06	6.87	2.74	19810.00	16.66	79.87	21.19	3.24	11.11	0.01	0.32	40.42
7.31	4.75	7.31	824	4.06	6.87	2.74	19810.00	16.66	79.86	21.18	3.19	10.94	0.00	0.32	40.49
8.27	4.70	8.27	899	4.06	6.87	2.74	19810.00	16.66	79.87	21.19	3.19	10.95	0.00	0.32	40.52
9.08	4.66	9.08	824	4.06	6.87	2.74	19810.00	16.66	79.88	21.19	3.29	11.28	0.01	0.33	40.44
9.89	4.62	9.89	861	4.06	6.87	2.74	19810.00	16.66	79.85	21.18	3.26	11.17	0.01	0.32	40.28
10.77	4.57	10.77	899	4.06	6.87	2.74	19810.00	16.66	79.86	21.18	3.29	11.28	0.01	0.33	40.25
11.66	4.53	11.66	974	4.06	6.87	2.74	19810.00	16.66	79.78	21.16	3.54	12.04	0.06	0.35	39.38
12.69	4.47	12.69	1049	4.06	6.87	2.74	19810.00	16.66	79.61	21.12	3.69	12.43	0.12	0.37	38.13
13.73	4.42	13.73	974	4.06	6.87	2.74	19810.00	16.66	79.41	21.06	3.76	12.56	0.18	0.37	36.88
14.61	4.37	14.61	936	4.06	6.87	2.74	19810.00	16.66	79.38	21.05	3.84	12.78	0.20	0.38	36.64
15.57	4.33	15.57	1011	4.06	6.87	2.74	19810.00	16.66	79.40	21.06	3.74	12.48	0.18	0.37	36.82
16.61	4.27	16.61	1049	4.06	6.87	2.74	19810.00	16.66	79.39	21.06	3.77	12.58	0.19	0.38	36.72
17.64	4.22	17.64	1011	4.06	6.87	2.74	19810.00	16.66	79.36	21.05	3.78	12.59	0.20	0.38	36.55
18.60	4.17	18.60	974	4.06	6.87	2.74	19810.00	16.66	79.27	21.03	3.82	12.66	0.22	0.38	36.02
19.56	4.12	19.56	1011	4.06	6.87	2.74	19810.00	16.66	79.22	21.01	3.82	12.63	0.24	0.38	35.70
20.59	4.07	20.59	1049	4.06	6.87	2.74	19810.00	16.66	79.21	21.01	3.83	12.66	0.24	0.38	35.64
21.62	4.02	21.62	1049	4.06	6.87	2.74	19810.00	16.66	79.15	21.00	3.84	12.68	0.26	0.38	35.32
22.66	3.96	22.66	1049	4.06	6.87	2.74	19810.00	16.66	79.13	20.99	3.91	12.88	0.27	0.39	35.20
23.69	3.91	23.69	1049	4.06	6.87	2.74	19810.00	16.66	79.00	20.95	3.94	12.90	0.31	0.39	34.42
24.72	3.86	24.72	1049	4.06	6.87	2.74	19810.00	16.66	78.93	20.94	3.97	12.97	0.33	0.39	34.05
25.76	3.80	25.76	1049	4.06	6.87	2.74	19810.00	16.66	78.94	20.94	4.00	13.09	0.33	0.40	34.10
26.79	3.75	26.79	1049	4.06	6.87	2.74	19810.00	16.66	78.86	20.92	4.06	13.22	0.36	0.40	33.68
27.82	3.70	27.82	1049	4.06	6.87	2.74	19810.00	16.66	78.72	20.88	4.14	13.42	0.41	0.41	32.94
28.86	3.65	28.86	1049	4.06	6.87	2.74	19810.00	16.66	78.65	20.86	4.17	13.48	0.43	0.42	32.53
29.89	3.59	29.89	974	4.06	6.87	2.74	19810.00	16.66	78.57	20.84	4.22	13.60	0.46	0.42	32.17
30.77	3.55	30.77	824	4.06	6.87	2.74	19810.00	16.66	78.43	20.80	3.97	12.69	0.48	0.40	31.19
31.51	3.51	31.51	749	4.06	6.87	2.74	19810.00	16.66	79.11	20.98	3.71	12.22	0.26	0.37	35.06
32.25	3.47	32.25	787	4.06	6.87	2.74	19810.00	16.66	79.33	21.04	3.61	12.01	0.19	0.36	36.47
33.06	3.43	33.06	861	4.06	6.87	2.74	19810.00	16.66	79.34	21.05	3.63	12.09	0.19	0.36	36.55
33.95	3.38	33.95	899	4.06	6.87	2.74	19810.00	16.66	79.71	21.14	3.66	12.39	0.09	0.36	38.81
34.83	3.34	34.83	1011	4.06	6.87	2.74	19810.00	16.66	79.25	21.02	3.96	13.12	0.24	0.39	35.87

Moisture Content  $M_{Cwb}$ : 16.66088

Dry kg : 5.12  
 CA: 49  
 HY: 7  
 OX: 43.9

LHV  
 7885.2

42.42	0.73	0.04	325.22	34.45	11.11	402.12	4395.23	3312.17	3221.93	3185.99	4221.36	3855.90	291.53	55655.87	39503.64	
Moles per kg of Dry Wood						Moisture Present	Stack Temp K	Heat Content Change - Ambient to Stack Temperature Flue Gas Constituent						Room Temp K	CO <sub>2</sub>	O <sub>2</sub>
O <sub>2</sub>	CO	HC	N <sub>2</sub>	H <sub>2</sub> O	CO <sub>2</sub>			O <sub>2</sub>	CO	N <sub>2</sub>	CH <sub>4</sub>	H <sub>2</sub> O				
119.55	0.31	-0.15	618.18	34.82	11.11	437.82	5897.57	4420.58	4294.32	4247.64	5716.22	5137.45	290.76	239.72	528.48	
200.08	0.37	-0.27	922.58	35.06	11.11	451.32	6470.41	4836.15	4694.62	4644.30	6301.67	5615.26	290.76	263.39	967.62	
115.58	0.42	-0.13	602.85	34.77	11.11	453.59	6578.13	4914.59	4770.25	4719.24	6411.11	5705.56	290.48	266.54	568.03	
31.33	0.49	0.02	283.99	34.48	11.11	468.54	7217.30	5375.22	5213.16	5158.29	7071.08	6233.98	290.54	290.88	168.39	
21.85	0.53	0.04	248.04	34.44	11.11	486.37	7995.24	5932.73	5748.43	5689.07	7881.16	6872.34	290.43	321.78	129.64	
21.75	0.63	0.06	247.33	34.41	11.11	498.43	8523.51	6309.02	6109.13	6046.86	8436.26	7302.31	290.43	341.99	137.21	
16.80	2.14	0.28	224.13	33.95	11.11	470.37	7302.74	5436.96	5272.58	5217.18	7158.93	6304.88	290.37	280.34	91.36	
21.67	0.37	0.02	247.80	34.48	11.11	455.26	6640.89	4959.52	4813.37	4761.99	6476.59	5756.98	290.71	268.43	107.46	
22.73	0.32	0.01	251.99	34.50	11.11	448.32	6344.76	4745.29	4607.17	4557.64	6172.62	5510.91	290.71	256.88	107.86	
22.66	0.29	0.01	251.79	34.51	11.11	443.98	6160.69	4611.84	4478.64	4430.27	5984.32	5357.50	290.71	249.63	104.49	
20.72	0.35	0.02	244.25	34.49	11.11	442.15	6099.85	4568.49	4437.09	4389.05	5920.40	5307.97	290.26	246.67	94.64	
21.39	0.50	0.04	246.36	34.45	11.11	442.37	6105.05	4572.06	4440.48	4392.42	5926.15	5311.99	290.37	245.90	97.78	
20.74	0.52	0.04	243.84	34.44	11.11	442.04	6090.93	4561.81	4430.60	4382.63	5911.74	5300.20	290.37	245.19	94.59	
16.77	1.28	0.16	226.57	34.20	11.11	442.65	6127.36	4588.77	4456.71	4408.48	5947.81	5331.41	290.09	241.29	76.94	
15.07	2.37	0.32	216.91	33.88	11.11	443.87	6174.96	4623.12	4489.74	4441.22	5996.87	5370.82	290.21	235.43	69.68	
14.71	3.45	0.48	212.28	33.56	11.11	445.54	6228.82	4661.36	4526.37	4477.56	6053.72	5414.47	290.65	229.73	68.55	
13.74	3.66	0.51	208.00	33.50	11.11	445.98	6249.80	4676.68	4541.15	4492.20	6074.96	5432.12	290.59	228.99	64.25	
15.07	3.50	0.49	213.48	33.55	11.11	446.15	6256.88	4681.81	4546.09	4497.10	6082.20	5438.02	290.59	230.39	70.53	
14.60	3.59	0.50	211.47	33.52	11.11	446.87	6298.11	4712.22	4575.51	4526.22	6123.25	5473.18	290.32	231.28	68.81	
14.61	3.74	0.52	211.06	33.48	11.11	447.87	6342.73	4744.66	4606.78	4557.20	6168.70	5510.51	290.26	231.84	69.33	
14.38	4.20	0.59	208.80	33.34	11.11	448.82	6389.24	4778.67	4639.60	4589.71	6215.64	5549.71	290.09	230.17	68.70	
14.54	4.48	0.63	208.56	33.26	11.11	449.43	6411.03	4794.24	4654.54	4604.53	6238.44	5567.52	290.21	228.86	69.70	
14.43	4.54	0.64	207.98	33.25	11.11	450.37	6457.58	4828.25	4687.37	4637.04	6285.47	5606.72	290.04	230.13	69.65	
14.39	4.82	0.68	207.00	33.16	11.11	450.15	6450.22	4823.03	4682.37	4632.09	6277.69	5600.77	289.98	227.80	69.40	
13.57	4.92	0.69	203.61	33.13	11.11	450.04	6447.60	4821.24	4680.67	4630.40	6274.77	5598.75	289.93	226.96	65.42	
13.60	5.59	0.79	201.71	32.94	11.11	451.37	6504.41	4862.36	4720.25	4669.62	6333.05	5645.99	289.93	223.91	66.14	
13.36	5.92	0.84	199.84	32.84	11.11	451.76	6518.88	4872.72	4730.20	4679.49	6348.13	5657.85	289.98	222.00	65.11	
12.89	5.88	0.84	198.17	32.85	11.11	451.87	6523.62	4876.15	4733.50	4682.76	6353.00	5661.79	289.98	222.45	62.84	
12.43	6.24	0.89	195.34	32.74	11.11	452.65	6558.91	4901.78	4758.20	4707.23	6388.99	5691.27	289.93	220.93	60.92	
11.79	6.89	0.98	190.99	32.55	11.11	453.32	6585.25	4920.72	4776.40	4725.27	6416.29	5712.98	289.98	216.94	57.99	
11.63	7.25	1.04	189.33	32.45	11.11	453.54	6594.74	4927.58	4783.00	4731.81	6426.04	5720.85	289.98	214.52	57.32	
11.26	7.56	1.08	187.01	32.36	11.11	452.59	6556.54	4900.06	4756.55	4705.59	6386.56	5689.30	289.93	210.94	55.19	
14.96	8.42	1.20	198.43	32.12	11.11	451.43	6511.00	4867.34	4725.10	4674.42	6339.33	5651.79	289.82	203.09	72.82	
16.51	5.04	0.71	214.34	33.11	11.11	450.26	6457.06	4828.09	4687.27	4636.93	6284.47	5606.62	289.93	226.39	79.70	
17.30	3.81	0.53	221.03	33.47	11.11	450.37	6466.01	4834.79	4693.77	4643.36	6293.18	5614.39	289.82	235.84	83.65	
16.91	3.74	0.52	219.75	33.49	11.11	451.32	6495.72	4855.75	4713.81	4663.25	6324.83	5638.27	290.09	237.41	82.12	
15.16	1.77	0.23	219.01	34.05	11.11	452.21	6535.73	4884.80	4741.80	4690.99	6365.67	5671.68	290.04	253.63	74.06	
12.45	4.33	0.61	201.13	33.30	11.11	452.48	6553.90	4898.27	4754.85	4703.90	6383.62	5687.28	289.87	235.10	60.99	

SUMS					AVERAGE	SUMS						
66968.21	310397.76	10970.27	525393.55	169443.44	3693.83	21656.00	3290.94	18365.06	79928.60	3290.10	237.75	15.96
Energy Losses (kJ/kg of Dry Fuel)					Total Loss Rate	Total Loss	Chemical Loss 1	Sensible and Latent Loss	Total Output	Chem Loss 2	Grams Produced	
Flue Gas Constituent											CO	HC
CO	N <sub>2</sub>	CH <sub>4</sub>	H <sub>2</sub> O Comb	H <sub>2</sub> O Fuel MC								
89.47	2625.83	-131.64	1709.71	545.40	5606.98	0.00	0	0.00	0	0	0.00	0.00
107.13	4284.73	-239.91	1738.32	550.71	7672.00	319.11	-6	324.63	505	-6	0.43	-0.18
120.18	2844.99	-112.14	1727.32	551.71	5966.65	338.42	0	338.03	785	0	0.66	-0.11
140.60	1464.88	18.59	1731.06	557.58	4371.98	264.51	9	255.04	934	9	0.83	0.02
151.59	1411.10	37.16	1750.97	564.67	4366.91	272.46	12	260.89	964	12	0.92	0.04
182.73	1495.56	51.35	1764.16	569.45	4542.45	257.64	13	244.61	866	13	1.00	0.05
616.63	1169.32	255.54	1706.95	558.37	4678.52	203.44	37	166.10	658	37	2.60	0.20
107.15	1180.02	17.40	1714.74	552.29	3947.49	141.80	4	137.40	570	4	0.37	0.01
90.74	1148.46	8.45	1707.24	549.55	3869.19	160.93	4	156.87	663	4	0.37	0.01
82.47	1115.52	4.81	1702.35	547.85	3807.12	172.75	4	168.85	726	4	0.36	0.00
101.94	1072.01	16.46	1699.36	547.30	3778.39	157.16	5	152.30	667	5	0.41	0.01
142.77	1082.13	34.05	1697.56	547.34	3847.53	167.31	8	159.72	694	8	0.60	0.03
148.32	1068.68	37.51	1696.78	547.21	3838.29	174.16	8	165.85	725	8	0.66	0.03
366.53	998.83	142.39	1686.31	547.56	4059.85	199.57	25	174.88	774	25	1.76	0.12
679.91	963.33	287.22	1671.71	548.00	4455.28	235.85	51	185.32	813	51	3.51	0.27
992.25	950.49	429.64	1657.50	548.48	4876.65	239.72	69	170.73	734	69	4.75	0.38
1052.55	934.36	458.42	1654.92	548.68	4942.17	233.60	70	163.11	703	70	4.84	0.39
1007.38	960.06	435.98	1657.59	548.74	4910.68	250.68	73	177.96	761	73	5.01	0.40
1032.63	957.17	448.09	1657.44	549.13	4944.55	261.75	77	184.40	787	77	5.32	0.42
1075.46	961.85	467.51	1656.55	549.55	5012.08	255.85	78	178.13	755	78	5.34	0.43
1207.64	958.33	527.86	1651.19	549.98	5193.88	255.31	84	171.14	718	84	5.78	0.46
1289.73	960.33	564.90	1647.69	550.18	5311.40	271.13	93	177.72	740	93	6.41	0.51
1305.30	964.40	572.10	1648.21	550.62	5340.40	282.71	98	184.66	766	98	6.73	0.54
1385.81	958.85	608.73	1643.96	550.55	5445.08	288.25	104	184.08	760	104	7.14	0.58
1414.47	942.79	622.93	1642.32	550.53	5465.41	289.33	106	182.92	759	106	7.29	0.59
1609.59	941.93	711.46	1634.09	551.05	5738.17	303.77	121	182.56	745	121	8.29	0.67
1702.38	935.16	753.94	1629.78	551.18	5859.55	310.19	128	181.92	739	128	8.77	0.71
1690.86	927.96	749.38	1630.41	551.23	5835.14	308.90	127	181.47	740	127	8.71	0.71
1795.38	919.52	797.48	1626.06	551.56	5971.83	316.14	135	180.75	733	135	9.25	0.75
1981.29	902.47	882.82	1617.31	551.80	6210.61	328.78	150	179.23	720	150	10.21	0.83
2085.29	895.88	930.26	1612.31	551.88	6347.46	336.02	157	178.57	713	157	10.74	0.88
2174.36	879.98	971.29	1606.74	551.53	6450.03	317.06	153	164.54	657	153	10.40	0.85
2421.80	927.53	1078.40	1593.66	551.12	6848.42	284.85	144	141.24	539	144	9.80	0.80
1450.62	993.89	635.10	1641.23	550.62	5577.56	210.90	78	133.10	538	78	5.34	0.43
1096.50	1026.30	473.10	1659.41	550.70	5125.50	203.50	61	142.02	583	61	4.24	0.34
1077.29	1024.73	464.92	1661.12	550.97	5098.56	221.71	66	155.56	640	66	4.56	0.36
509.91	1027.39	209.73	1690.50	551.34	4316.56	195.86	32	163.66	703	32	2.25	0.17
1245.80	946.09	547.85	1653.58	551.51	5240.91	267.53	90	177.22	744	90	6.19	0.50



LISTED FACTORY BUILT FIREPLACE INSERT  
 CONSTRUITS EN USINE CHEMINÉE INSERT  
 CERTIFIED FOR USE IN CANADA AND U.S.A  
 CERTIFIÉE POUR: CANADA AND U.S.A.  
 MODEL/ MODÈLE: C12700-1/H1500-1  
 TESTED TO: CAN/ULC 628:2022 and UL 1482-2022



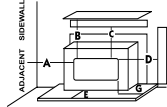
DO NOT REMOVE THIS LABEL  
 NE PAS ENLEVER CETTE ETQUETTE

U.S. ENVIRONMENTAL PROTECTION AGENCY CERTIFIED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CRIB WOOD. TESTED TO METHOD 28R, E2780-10, E2515-11. MODEL REGENCY C12700-1/H1500-1 – 1.1 G/HR. THIS WOOD HEATER NEEDS PERIODIC INSPECTION AND REPAIR FOR PROPER OPERATION. CONSULT THE OWNER'S MANUAL FOR FURTHER INFORMATION. IT IS AGAINST FEDERAL REGULATIONS TO OPERATE THIS WOOD HEATER IN A MANNER INCONSISTENT WITH THE OPERATING INSTRUCTIONS IN THE OWNER'S MANUAL. CERTIFIÉ CONFORME AUX NORMES 2020 DU U.S. ENVIRONMENTAL PROTECTION AGENCY EN MATIÈRE D'ÉMISSION DE PARTICULES DE BOIS AVEC DU BOIS D'ESSAI NORMALISÉ (BOIS CORDÉ). HOMOLOGUÉ SELON LA MÉTHODE 28R, E2780-10, E2515-11. MODÈLE REGENCY C12700-1/H1500-1 – 1.1 G/H. CET APPAREIL DE CHAUFFAGE AU BOIS DOIT ÊTRE INSPECTÉ PÉRIODIQUEMENT ET RÉPARÉ POUR FONCTIONNER CORRECTEMENT. CONSULTER LE MANUEL D'INSTALLATION POUR PLUS D'INFORMATION. LA RÉGLEMENTATION FÉDÉRALE INTERDIT DE FAIRE FONCTIONNER UN TEL APPAREIL SI LES CONSIGNES D'UTILISATION CONTENUES DANS LE PRÉSENT MANUEL NE SONT PAS RESPECTÉES.

INSTALL AND USE ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS. INSTALL AND USE ONLY IN MASONRY FIREPLACE. NOT TO BE INSTALLED IN A FACTORY-BUILT FIREPLACE. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA. INSTALLER ET UTILISER SELON LES INSTRUCTIONS DU FABRICANT. INSTALLER ET UTILISER DANS UN FOYER DE MAÇONNERIE. NE PAS INSTALLER DANS UNE CHEMINÉE PRÉFABRIQUÉE. APPELÉZ VOTRE INSPECTEUR DE BÂTIMENT OU LE DÉPARTEMENT D'INCENDIE LOCAL POUR LES CODES LOCAUX ET POUR INSPECTÉE VOTRE INSTALLATION ET FOYER.

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS (MEASURED FROM TOP/SIDE DOOR)  
 UN MINIMUM DE DÉGAGEMENT DE MATÉRIAUX COMBUSTIBLES (MESURÉE À PARTIR DU HAUT/PORTE LATÉRALE)

ADJACENT SIDEWALL / LATÉRAL ADJACENT A) 12-3/16 in / 310 mm  
 MANTLE / MANTEAU B) 21-5/8 in / 549 mm  
 TOP FACING/FACE SUPÉRIEUR C) 14 in / 356 mm  
 SIDE FACING / FACE CÔTÉ D) 7-3/8 in / 187 mm



INSTALL ONLY ON A NON-COMBUSTIBLE HEARTH. COMBUSTIBLE FLOOR MUST BE PROTECTED BY NON-COMBUSTIBLE MATERIAL EXTENDING (E) 16IN/406MM (USA) 18IN/457MM (CAN ADA) TO FRONT MEASURED FROM FUEL DOOR OPENING AND (G) 8 IN / 205 MM TO SIDES. IN BOTH USA/CANADA, SIDE HEARTH PROTECTION TO BE MEASURED FROM SIDE OF DOOR. FLOOR PROTECTION NEEDS TO BE WITH R VALUE = 2.13. INSTALLER SEULEMENT SUR UN ÂTRE DE MATÉRIAU NON COMBUSTIBLE. LE PLANCHER COMBUSTIBLE DOIT ÊTRE PROTÉGÉ PAR LE MATÉRIAU NON COMBUSTIBLE QUI S'ÉTEND SUR (E) 16 PO/406 MM (É-U) OU 18 PO/457 MM (CANADA) À L'AVANT À PARTIR DE LA PORTE DE CARBURANT ET (G) 8 PO/205 MM SUR LES CÔTÉS. AUX ÉTATS-UNIS ET AU CANADA, LA PROTECTION DE FOYER DE CÔTÉ ÊTRE MESURÉE À PARTIR CÔTÉ DE L'APPAREIL. PROTECTION DE PLANCHER DE VALEUR R = 2,13

COMPONENTS REQUIRED FOR INSTALLATION: 5.5" (140MM) OR 6" (152MM) STAINLESS STEEL LINER - LISTED TO: UL1777, ULCS635 OR ULCS640. OPTIONAL COMPONENT: FAN (PART# 106-917), ELECTRICAL RATING: VOLTS 115, 60 HZ, 0.6 AMPS. CONTEMPORARY FACEPLATE, CONTOUR FACEPLATE, CAST FACEPLATE, OFFSET FLUE COLLAR, OR BACKER PLATE. DANGER: RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING UNIT. DO NOT ROUTE POWER CORD UNDER OR IN FRONT OF APPLIANCE. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE. DO NOT REMOVE BRICKS OR MORTAR IN MASONRY FIREPLACE. FOR USE WITH SOLID WOOD FUEL ONLY. DO NOT USE GRATE OR ELEVATE FIRE. BUILD WOOD FIRE DIRECTLY ON HEARTH. RISK OF SMOKE AND FLAME SPILLAGE, OPERATE ONLY WITH DOORS FULLY CLOSED. OPEN FEED DOOR TO FEED FIRE ONLY. REPLACE GLASS ONLY WITH CERAMIC GLASS (5MM). INSPECT AND CLEAN CHIMNEY FREQUENTLY. UNDER CERTAIN CONDITIONS OF USE CREOSOTE BUILDUP MAY OCCUR RAPIDLY. DO NOT OVERFIRE, IF INSERT GLOWS, YOU ARE OVER-FIRING. CAUTION: THE COMBUSTOR (PART #106-574) IS FRAGILE, HANDLE CAREFULLY. CAUTION: BURNING OF METAL FOILS, COAL, PLASTIC, GARBAGE, SULPHUR AND DIESEL OIL WILL RENDER THE CATALYST IN THE COMBUSTOR INACTIVE. THE PERFORMANCE OF THE CATALYTIC DEVICE OR ITS DURABILITY HAS NOT BEEN EVALUATED AS PART OF THE CERTIFICATION. CAUTION: HOT PARTS-DO NOT OPERATE WITH DOOR REMOVED. WARNING: THE ROOM HEATER SHALL NOT BE INSTALLED IN A FACTORY-BUILT FIREPLACE.

PIÈCES NÉCESSAIRES POUR INSTALLATION: CONDUITS EN ACIER INOXYDABLE DE 5,5 PO (140MM) OU 6 PO (152 MM) HOMOLOGUÉS SELON: UL1777, ULCS635 OU ULCS640. COMPOSANT FACULTATIF: VENTILATEUR (PIÈCE N°106-917); CARACTÉRISTIQUES ÉLECTRIQUES ASSIGNÉES: 115 V, 60 HZ, 0,6 A; FAÇADE CONTEMPORAINE, FAÇADE BISEAUTÉE, FAÇADE EN FONTE, BUSE DE CONDUIT DE CHEMINÉE COUDÉE OU PLAQUE DE FIXATION. ATTENTION: RISQUE DU CHOC ÉLECTRIQUE. AVANT DE L'ENTRETIEN, DÉBRANCHER L'APPAREIL. NE PLACEZ PAS LE CORDON D'ALIMENTATION EN FACE OU EN DESSOUS DE L'APPAREIL. NE PAS ENLEVER DE BRIQUES OU DE MORTIER D'UNE CHEMINÉE DE MAÇONNERIE. N'UTILISER QUE DU COMBUSTIBLE SOLIDE. REMPLACER LA VITRE SEULEMENT PAR DU VERRE EN NEOCERAM. NE PAS SURÉLÉVER LES BŪCHES NI LES PLACER SUR DES GRILLES. LES DÉPOSER DIRECTEMENT SUR L'ÂTRE. RISQUE DE DÉGAGEMENT DE FUMÉE OU DE FLAMMES: TOUJOURS GARDER LES PORTES BIEN FERMÉES LORSQUE L'APPAREIL FONCTIONNE. OUVRIR LA PORTE UNIQUEMENT POUR ALIMENTER LE FEU. INSPECTER ET NETTOYER FRÉQUEMMENT LA CHEMINÉE. SELON LE TYPE D'USAGE, LE CRÉOSOTE PEUT S'ACCUMULER RAPIDEMENT. NE PAS SURCHAUFFER; SI L'ENCASTRABLE SE MET À ROUGIR, IL S'AGIT D'UNE SURCHAUFFE. AVERTISSEMENT: LE CATALYSEUR (PIÈCE N°106-574) EST FRAGILE ET DOIT ÊTRE MANIPULÉ SOIGNEUSEMENT. LA COMBUSTION DE PAPIER D'ALUMINIUM, DE CHARBON, DE PLASTIQUE, DE DÉCHETS, DE SOUFFRE OU D'ESSENCE DIESEL RENDRA LE CATALYSEUR INACTIF. NI LE RENDEMENT NI LA DURABILITÉ DU CATALYSEUR N'ONT ÉTÉ ÉVALUÉS DANS LE CADRE DU PROCESSUS D'HOMOLOGATION. REMARQUE: TEMPÉRATURES ÉLEVÉES. NE JAMAIS FAIRE FONCTIONNER L'APPAREIL SI LA PORTE VITRÉE N'EST PAS BIEN EN PLACE. AVERTISSEMENT: LE CHAUFFAGE DE LA PIÈCE NE DOIT PAS ÊTRE INSTALLÉ DANS UNE CHEMINÉE PRÉFABRIQUÉE.

920-674



**CAUTION**

HOT WHILE IN OPERATION DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. READ NAMEPLATE AND INSTRUCTIONS.

**AVERTISSEMENT**

CHAUD PENDANT LE FONCTIONNEMENT. NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES À L'ÉCART. LE CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRŪLURES. LIRE LA PLAQUE SIGNALÉTIQUE ET LES INSTRUCTIONS.

Manufactured By:  
 FIREPLACE PRODUCTS  
 INTERNATIONAL LTD.  
 6988 VENTURE ST., DELTA,  
 BC V4G 1H4

Serial No./ No de série

592

DATE OF  
 MANUFACTURE

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2023 2024 2025 2026 2027

(Duplicate Serial #) 592

Part #: 920-674

Size: 5.4" H x 10.9" W (file at 100%)

Colour: Black on grey, except for what is indicated as being printed red on grey.

White out signature box.

Material: 2 ml silver matt polyester (DPM SMS)

Jan. 24/19: created draft

July 05/23: Updated draft





# Pro Series Wood Fireplace Insert

## Owners & Installation Manual



French Manual: <https://bit.ly/3vaoKti>  
Manuel en Français : <https://bit.ly/3vaoKti>

[www.regency-fire.com](http://www.regency-fire.com)

**MODEL: Ci2700-1/Hi500-1**



*Installer:* Please complete the details on the back cover  
and leave this manual with the homeowner.  
*Homeowner:* Please keep these instructions for future reference.

Thank-you for purchasing a **REGENCY FIREPLACE PRODUCT**.

The pride of workmanship that goes into each of our products will give you years of trouble-free enjoyment. Should you have any questions about your product that are not covered in this manual, please contact the **REGENCY DEALER** in your area. Keep those **REGENCY FIRES** burning.

"This wood heater has a manufacturer set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual." Failure to follow the manual details can lead to smoke and CO emissions spilling into the home. It is recommended to have monitors in areas that are expected to generate CO such as heater fuelling areas.

"U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using crib wood." Tested to Method 28R, E2780 - 10 E2515 -11. Model Regency Ci2700-1 and Hi500-1 – 1.1 g/hr."

**SAFETY NOTE:** If this wood stove is not properly installed, a house fire may result. For your safety, follow the installation instructions, contact local building, fire officials, or authority having jurisdiction about restrictions and installation inspection requirements in your area.

**The following statements are required by the Environmental Protection Agency:**

"This manual describes the installation and operation of the Regency Ci2700-1 and Hi500-1 catalytic equipped wood heater. This heater meets the 2020 U.S. Environmental Protection Agency's crib wood emission limits for wood heaters. Under specific test conditions this heater has been shown to deliver heat at rates ranging from 14291 BTU/hr to 27168 BTU/hr." Efficiency is determined using the B415 method resulting in lower and higher heat values. This heater generates the best efficiency when operated using well-seasoned wood and installed in the main living areas where the majority of the chimney is within the building envelope and fully lined."

"This wood heater contains a catalytic combustor, which needs periodic inspection and replacement for proper operation. It is against federal regulations to operate this wood heater in a manner inconsistent with operating instructions in this manual, or if the catalytic element is deactivated or removed."

**CAUTION: BURN UNTREATED WOOD ONLY. OTHER MATERIALS SUCH AS WOOD PRESERVATIVES, METAL FOILS, COAL, PLASTIC, GARBAGE, SULPHUR OR OIL MAY DAMAGE THE CATALYST**

The performance of the catalytic device or its durability has not been evaluated as part of this certification.

"This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods."

**DO NOT BURN:**

- Treated wood
- Coal
- Garbage
- Cardboard
- Solvents
- Colored Paper
- Bio Bricks
- Trash
- Lawn clippings or yard waste
- Materials containing rubber including tires
- Materials containing plastic
- Waste petroleum products , paints or paint thinners or asphalt products
- Materials containing asbestos
- Construction or demolition debris
- Railroad ties
- Manure or animal remains
- Saltwater driftwood or other previously salt water saturated materials
- Unseasoned wood
- Paper products, cardboard, plywood or particle board. The prohibition against burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax and similar substances for the purpose of starting a fire in a wood heater

Burning these materials may result in release of toxic fumes or render the heater ineffective and cause smoke.

**The authority having jurisdiction (such as Municipal Building Department, Fire Department, Fire Prevention Bureau, etc.) should be consulted before installation to determine the need to obtain a permit.**

**ULC628-2022 - Canada**

This fireplace insert must be installed with a continuous chimney liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney. The chimney liner must conform to the class 3 requirements of CAN/ULS-S635 Standard for lining systems for existing Masonry or factory built chimneys and vents or to the requirements of CAN/ULC-S640, Standard for lining systems for new masonry chimneys.

**UL1482-2022 - U.S.A**

A chimney complying with the requirement for type HT chimneys in the standard for chimneys, factory built residential and building heating appliance UL103 or a code approved masonry chimney liner with a flue liner.

This fireplace insert must be installed with a continuous chimney liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney. When this room heater is not properly installed, a house fire may result. To reduce the risk of fire follow the installation instructions. Contact local building or fire official as about restrictions and installation requirements in your area.

Ci2700-1/Hi500-1 is tested and certified to CAN/ULC 628:2022 and UL 1482-2022.

**SAVE THESE INSTRUCTIONS**



919-874

Copy of Safety Decal ..... 4  
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**CAUTION:** To avoid burns or wood splinters, when opening/closing the fuel door or adding wood to the fire, You should always wear appropriate protective gloves to protect your hands from the heat being emitted from this fireplace.



**SAFETY LABEL FOR CI2700-1/HI500-1**

This is a copy of the label that accompanies your **Regency Insert**. We have printed the contents here for your review.

**NOTE:** Regency units are constantly being improved. Check the label on the unit and if there is a difference, the label on the unit is the correct one.



QTL  
Regency

LISTED FACTORY BUILT FIREPLACE INSERT  
CONSTRUITS EN USINE CHEMINÉE INSERT  
CERTIFIED FOR USE IN CANADA AND U.S.A  
CERTIFIÉE POUR: CANADA AND U.S.A.  
MODEL / MODÈLE: CI2700-1/HI500-1  
TESTED TO: CANULC E28-2022 and UL 1482-2022



**REGENCY**  
FIREPLACE PRODUCTS  
MADE IN CANADA

DO NOT REMOVE THIS LABEL  
NE PAS ENLEVER CETTE ETIQUETTE

U.S. ENVIRONMENTAL PROTECTION AGENCY CERTIFIED TO COMPLY WITH 2000 PARTICULATE EMISSION STANDARDS USING CRIB WOOD. TESTED TO METHOD 209, E2700-10, E2515-11. MODEL REGENCY CI2700-1/HI500-1 - 1.1 G/HR. THIS WOOD HEATER NEEDS PERIODIC INSPECTION AND REPAIR FOR PROPER OPERATION. CONSULT THE OWNER'S MANUAL FOR FURTHER INFORMATION. IT IS AGAINST FEDERAL REGULATIONS TO OPERATE THIS WOOD HEATER IN A MANNER INCONSISTENT WITH THE OPERATING INSTRUCTIONS IN THE OWNER'S MANUAL. CERTIFIÉE CONFORME AUX NORMES 2020 DU U.S. ENVIRONMENTAL PROTECTION AGENCY EN MATIÈRE D'ÉMISSION DE PARTICULES DE BOIS AVEC DU BOIS D'ESSAI NORMALISÉ (BOIS CORDÉ). HOMOLOGUÉ SELON LA MÉTHODE 209, E2700-10, E2515-11. MODÈLE REGENCY CI2700-1/HI500-1 - 1.1 G/H. CET APPAREIL DE CHAUFFAGE AU BOIS DOIT ÊTRE INSPECTÉ PÉRIODIQUEMENT ET RÉPARÉ POUR FONCTIONNER CORRECTEMENT. CONSULTER LE MANUEL D'INSTALLATION POUR PLUS D'INFORMATION. LA RÉGLEMENTATION FÉDÉRALE INTERDIT DE FAIRE FONCTIONNER UN TEL APPAREIL. SI LES CONSIGNES D'UTILISATION CONTENUES DANS LE PRÉSENT MANUEL NE SONT PAS RESPECTÉES.

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INSTALLER ET UTILISER SELON LES INSTRUCTIONS DU FABRICANT. INSTALLER ET UTILISER DANS UN FOYER DE MAÇONNERIE. NE PAS INSTALLER DANS UNE CHEMINÉE PRÉFABRIQUÉE. APPELÉZ VOTRE INSPECTEUR DE BÂTIMENT OU LE DÉPARTEMENT D'INCENDIE LOCAL POUR LES CODES LOCAUX ET POUR INSPECTER VOTRE INSTALLATION ET FOYER.

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS (MEASURED FROM TOP/SIDE DOOR)  
UN MINIMUM DE DÉGAGEMENT DE MATÉRIAUX COMBUSTIBLES (MESURÉE À PARTIR DU HAUT/PORTE LATÉRALE)

<p>ADJACENT SIDEWALL / LATÉRAL ADJACENT A) 12-3/16 in / 310 mm MANTLE / MANTEAU B) 21-5/8 in / 549 mm TOP FACING/FACE SUPÉRIEUR C) 14 in / 356 mm SIDE FACING / FACE CÔTÉ D) 7-3/8 in / 187 mm</p>	<p>INSTALL ONLY ON A NON-COMBUSTIBLE HEARTH. COMBUSTIBLE FLOOR MUST BE PROTECTED BY NON-COMBUSTIBLE MATERIAL EXTENDING (E) 16IN/406MM (USA) 18IN/457MM (CAN ADA) TO FRONT MEASURED FROM FUEL DOOR OPENING AND (G) 8 IN / 205 MM TO SIDES. IN BOTH USA/CANADA, SIDE HEARTH PROTECTION TO BE MEASURED FROM SIDE OF DOOR. FLOOR PROTECTION NEEDS TO BE WITH R VALUE = 2,13 INSTALLER SEULEMENT SUR UN ÂTRE DE MATÉRIAU NON COMBUSTIBLE. LE PLANCHER COMBUSTIBLE DOIT ÊTRE PROTÉGÉ PAR LE MATÉRIAU NON COMBUSTIBLE QUI S'ÉTEND SUR (E) 16 PO 406 MM (E-U) OU 18 PO 457 MM (CANADA) À L'AVANT À PARTIR DE LA PORTE DE CARBURANT ET (G) 8 PO 205 MM SUR LES CÔTÉS. AUX ÉTATS-UNIS ET AU CANADA, LA PROTECTION DE FOYER DE CÔTÉ ÊTRE MESURÉE À PARTIR CÔTÉ DE L'APPAREIL. PROTECTION DE PLANCHER DE VALEUR R = 2,13</p>
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COMPONENTS REQUIRED FOR INSTALLATION: 3/8" (10MM) OR 6" (152MM) STAINLESS STEEL LINER - LISTED TO: UL 1777, ULCS603 OR ULCS640. OPTIONAL COMPONENT: FAN (PART# 106-917). ELECTRICAL RATING: VOLTS 115, 60 HZ, 8 AMPS. CONTEMPORARY FACEPLATE, CONTOUR FACEPLATE, CAST FACEPLATE, OFFSET FLUE COLLAR, OR BACKER PLATE. DANGER: RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING UNIT. DO NOT ROUTE POWER CORD UNDER OR IN FRONT OF APPLIANCE. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE. DO NOT REMOVE BRICKS OR MORTAR IN MASONRY FIREPLACE. FOR USE WITH SOLID WOOD FUEL ONLY. DO NOT USE GRATE OR ELEVATE FIRE. BUILD WOOD FIRE DIRECTLY ON HEARTH. RISK OF SMOKE AND FLAME SPILLAGE. OPERATE ONLY WITH DOORS FULLY CLOSED. OPEN FEED DOOR TO FEED FIRE ONLY. REPLACE GLASS ONLY WITH CERAMIC GLASS (5MM). INSPECT AND CLEAN CHIMNEY FREQUENTLY. UNDER CERTAIN CONDITIONS OF USE CREOSOTE BUILDUP MAY OCCUR RAPIDLY. DO NOT OVERFIRE. IF INSERT GLOWS, YOU ARE OVER-FIRING. CAUTION: THE COMBUSTOR (PART #106-574) IS FRAGILE, HANDLE CAREFULLY. CAUTION: BURNING OF METAL FOILS, COAL, PLASTIC, GARBAGE, SULPHUR AND DIESEL OIL WILL RENDER THE CATALYST IN THE COMBUSTOR INACTIVE. THE PERFORMANCE OF THE CATALYTIC DEVICE OR ITS DURABILITY HAS NOT BEEN EVALUATED AS PART OF THE CERTIFICATION. CAUTION: HOT PARTS DO NOT OPERATE WITH DOOR REMOVED. WARNING: THE ROOM HEATER SHALL NOT BE INSTALLED IN A FACTORY-BUILT FIREPLACE.

PIÈCES NÉCESSAIRES POUR L'INSTALLATION: CONDUITS EN ACIER INOXYDABLE DE 5,5 PO (140MM) OU 6 PO (152 MM) HOMOLOGUÉS SELON: UL1777, ULCS603 OU ULCS640. COMPOSANT FACULTATIF - VENTILATEUR (PIÈCE N°106-917). CARACTÉRISTIQUES ÉLECTRIQUES ASSIGNÉES: 115 V, 60 HZ, 6,6 A. FAÇADE CONTEMPORAINE, FAÇADE BISEAUTÉE, FAÇADE EN FONTE, BUSE DE CONDUIT DE CHEMINÉE COUDÉE OU PLAQUE DE FIATION, ATTACHEMENT: RISQUE DE CHOC ÉLECTRIQUE, AVANT DE L'ENTRETIEN, DÉBRANCHER L'APPAREIL. NE PLACEZ PAS LE CORDON D'ALIMENTATION EN FACE OU EN DESSOUS DE L'APPAREIL. NE PAS ENLEVER DE BRIQUES OU DE MORTIER D'UNE CHEMINÉE DE MAÇONNERIE. N'UTILISER QUE DU COMBUSTIBLE SOLIDE. REMPLACER LA VITRE SEULEMENT PAR DU VERRE EN NEODERAM® NE PAS SURELÉVER LES BûCHES NI LES PLACER SUR DES GRILLES. LES DÉPOSER DIRECTEMENT SUR L'ÂTRE. RISQUE DE DÉGAGEMENT DE FUMÉE OU DE FLAMMES. TOUJOURS GARDER LES PORTES BIEN FERMÉES LORSQUE L'APPAREIL FONCTIONNE. OUVRIRE LA PORTE UNIQUEMENT POUR ALIMENTER LE FEU. INSPECTER ET NETTOYER FRÉQUEMMENT LA CHEMINÉE. SELON LE TYPE D'USAGE, LE CRÉOSOTE PEUT S'ACCUMULER RAPIDEMENT. NE PAS SURCHAUFFER; SI L'ENCASTREMENT SE MET À ROUGIR, IL S'AGIT D'UNE SURCHAUFFE. AVERTISSEMENT - LE CATALYSEUR (PIÈCE N°106-574) EST FRAGILE ET DOIT ÊTRE MANIPULÉ SOIGNEUSEMENT. LA COMBUSTION DE PAPIER D'ALUMINIUM, DE CHARBON, DE PLASTIQUE, DE DÉCHETS, DE SOUFRE OU D'ESSENCE DIESEL RENDRA LE CATALYSEUR INACTIF. NI LE RENDEMENT NI LA DURABILITÉ DU CATALYSEUR N'ONT ÉTÉ ÉVALUÉS DANS LE CADRE DU PROCESSUS D'HOMOLOGATION. REMARQUE: TEMPÉRATURES ÉLEVÉES. NE JAMAIS FAIRE FONCTIONNER L'APPAREIL SI LA PORTE VITRÉE N'EST PAS BIEN EN PLACE. AVERTISSEMENT: LE CHAUFFAGE DE LA PIÈCE NE DOIT PAS ÊTRE INSTALLÉ DANS UNE CHEMINÉE PRÉFABRIQUÉE.

920-674

Manufactured By: FIREPLACE PRODUCTS INTERNATIONAL LTD.  
6988 VENTURE ST., DELTA, BC V4G 1H4

Serial No. / No de série: 592

DATE OF MANUFACTURE

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2023 2024 2025 2026 2027

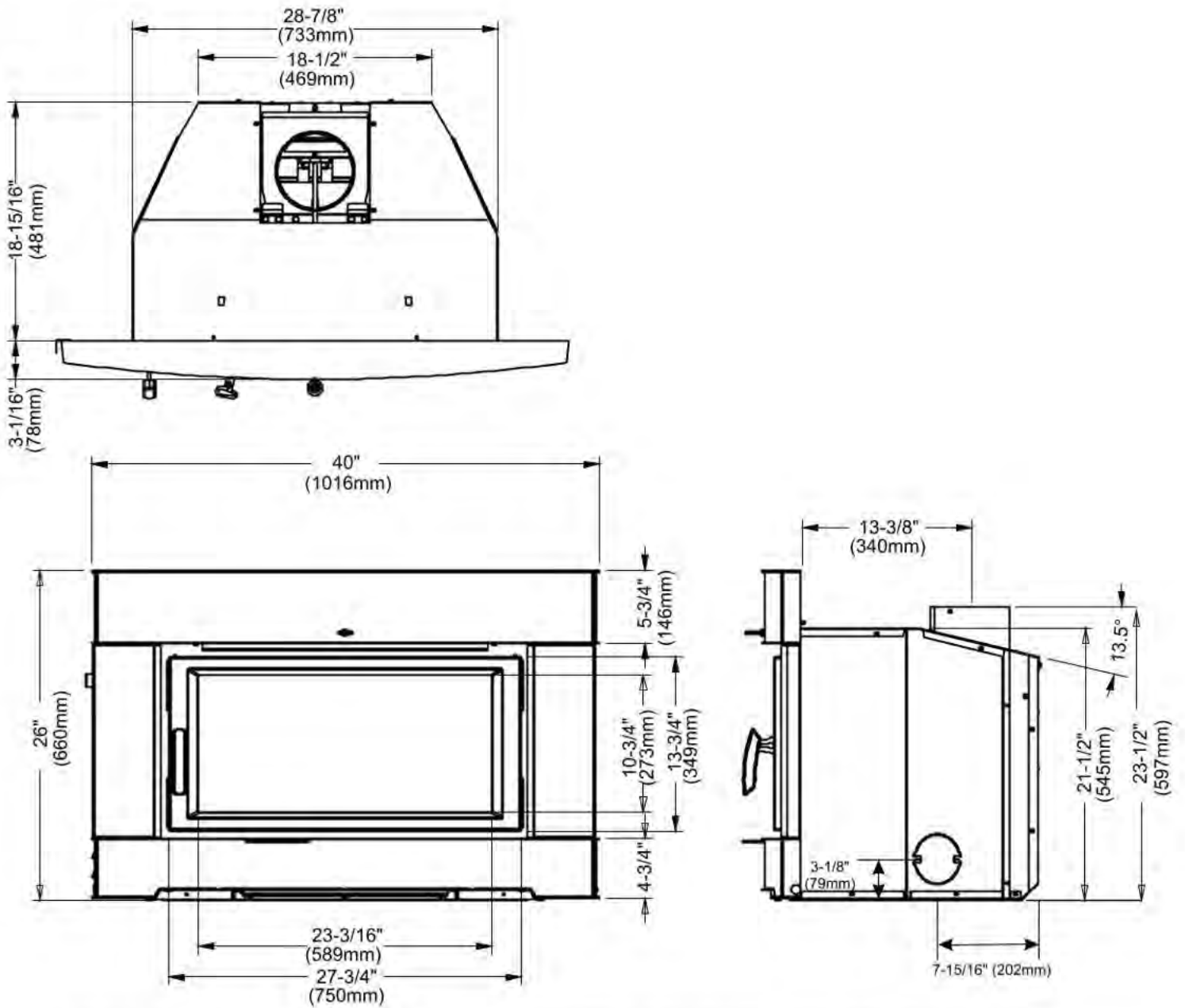
(Duplicate Serial #) 592

**LOCATION OF THE SAFETY LABEL**

1. If low profile faceplate is installed would need to be removed to expose decal.
2. If Contemporary or cast faceplate is installed the bottom drawer would need to be opened up to expose decal
3. If fan assembly is installed would need to be removed to expose decal.

4 | Ci2700-1/HI500-1 Wood Insert

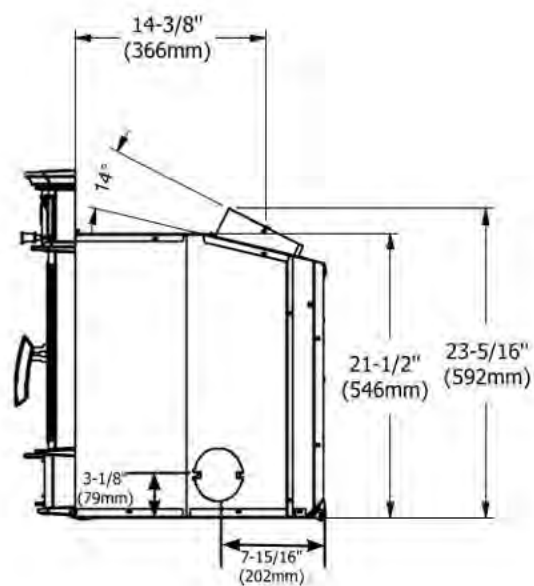
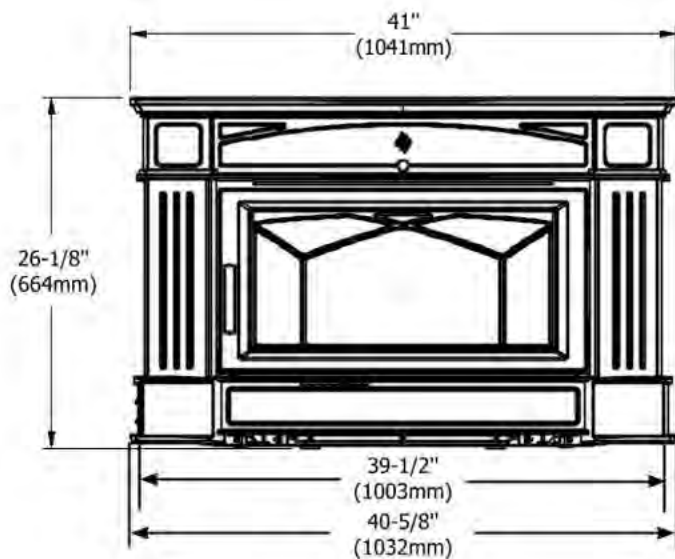
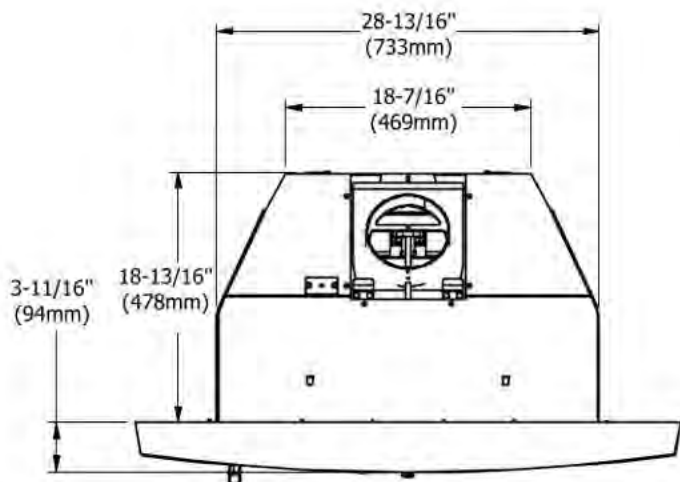
**DIMENSIONS - CONTEMPORARY FACEPLATE**



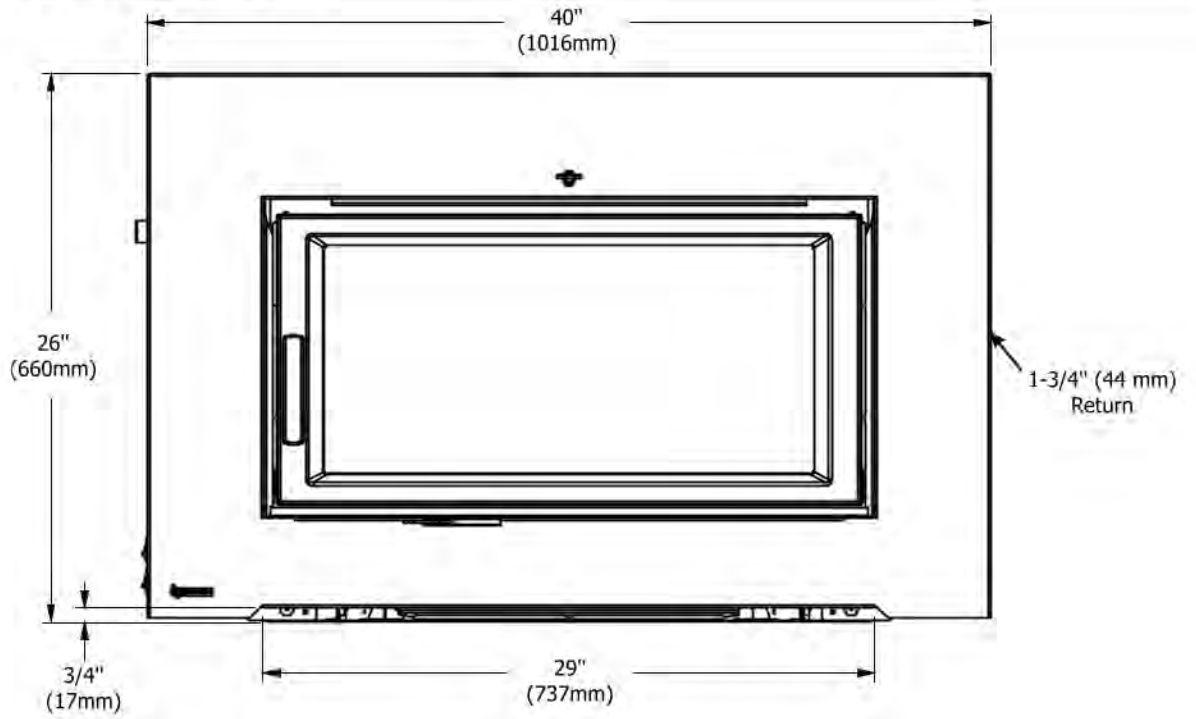
**ALL PICTURES / DIAGRAMS SHOWN THROUGHOUT THIS MANUAL ARE FOR ILLUSTRATION PURPOSES ONLY. ACTUAL PRODUCT MAY VARY DUE TO PRODUCT ENHANCEMENTS.**

## 6 | dimensions

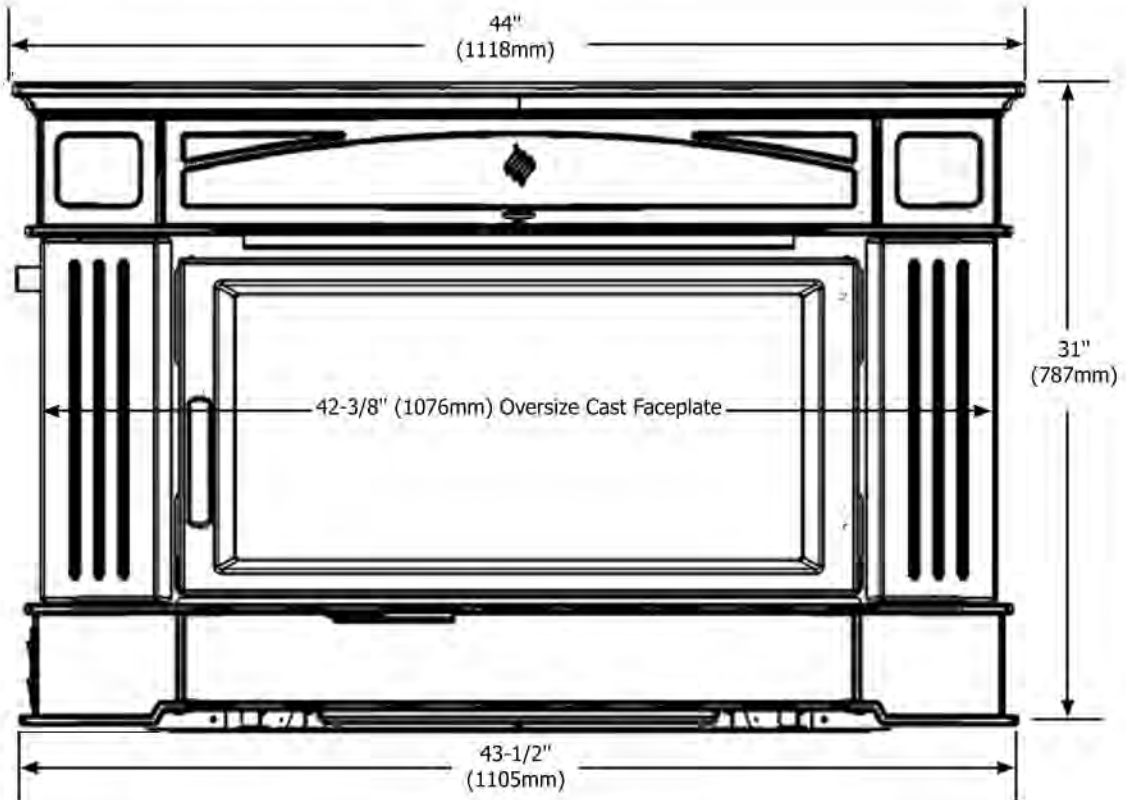
### DIMENSIONS - STANDARD CAST FACEPLATE AND OFFSET FLUE COLLAR



**DIMENSIONS - LOW PROFILE FACEPLATE**

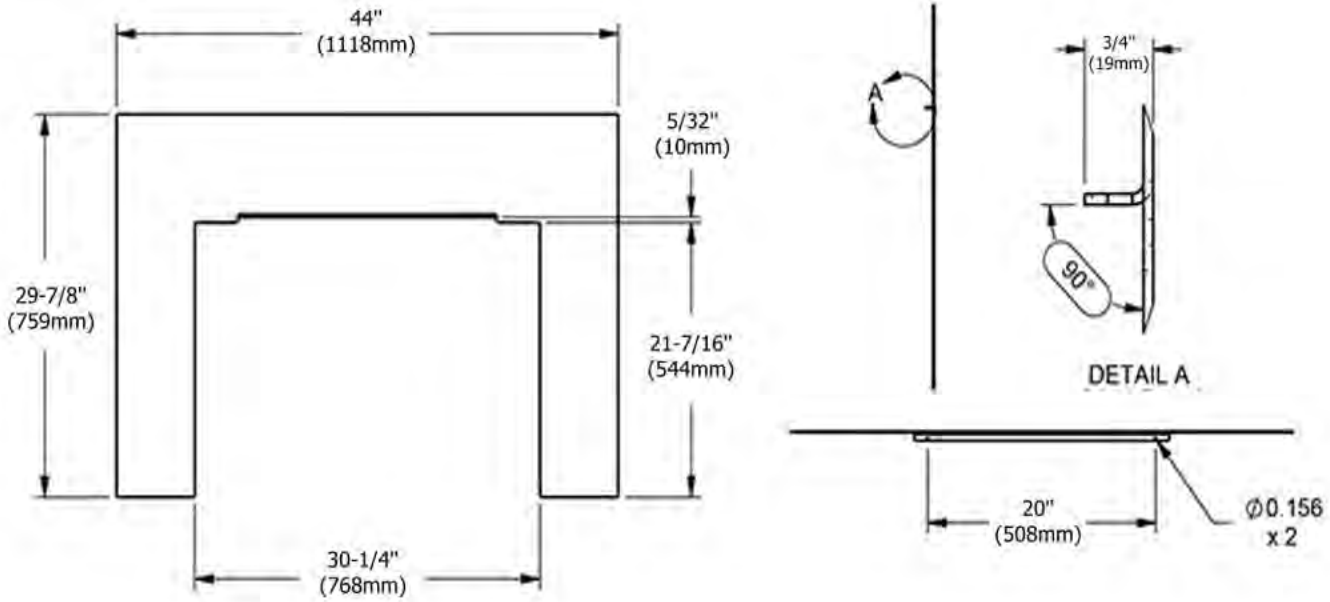


**DIMENSIONS - OVERSIZE CAST FACEPLATE**

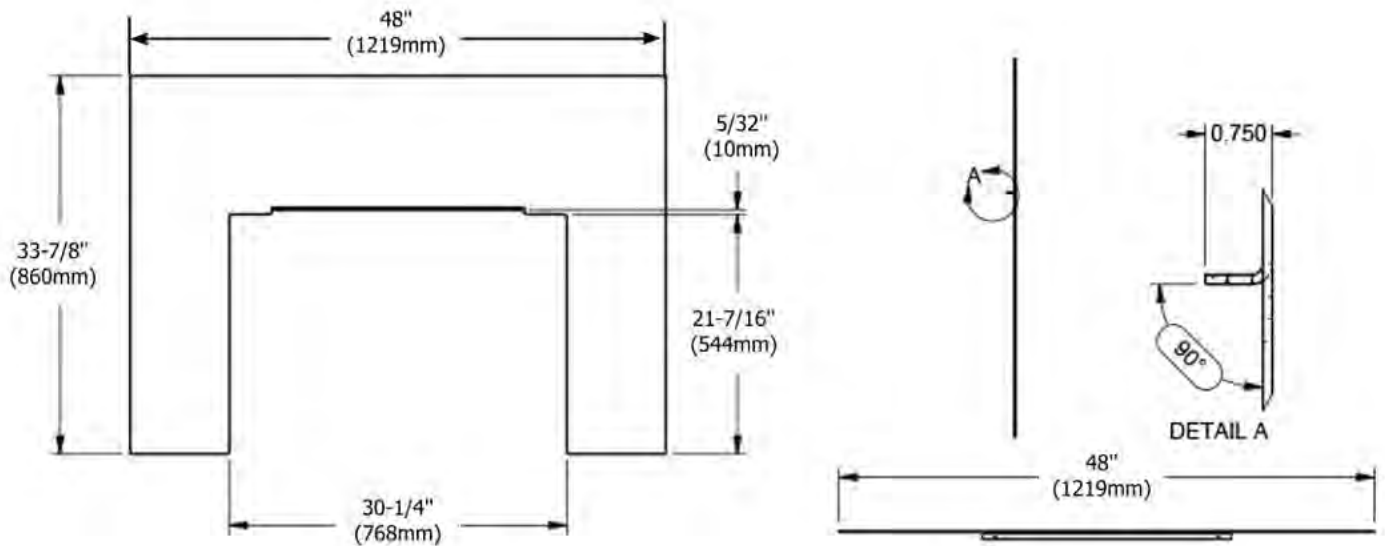


## 8 | dimensions

### DIMENSIONS - STANDARD BACKING PLATE



### DIMENSIONS - OVERSIZED BACKING PLATE





**MASONRY FIREPLACE CLEARANCES**

The minimum required clearances to combustible materials when installed into a masonry fireplace are listed below.

Unit	Adjacent Side Wall (to Side of Door) A	Mantle ** (to Top of Door) B	Top Facing (to Top of Door) C	Side Facing (to Side of Door) D	Minimum Hearth Extension* E	Minimum Hearth Side Extension (to side of door)* F	Base of Unit to Top of Door (Reference Dimension only) G
Ci2700-1/ Hi500-1	12-3/16" (310mm)	21-5/8" (549mm)	14" (356mm)	7-3/8" (187mm)	US 16" (406mm) Canada 18" (450mm)	8" (200mm)	19-1/4" (489mm)

Measurements A,B,C,D are from top/side of door

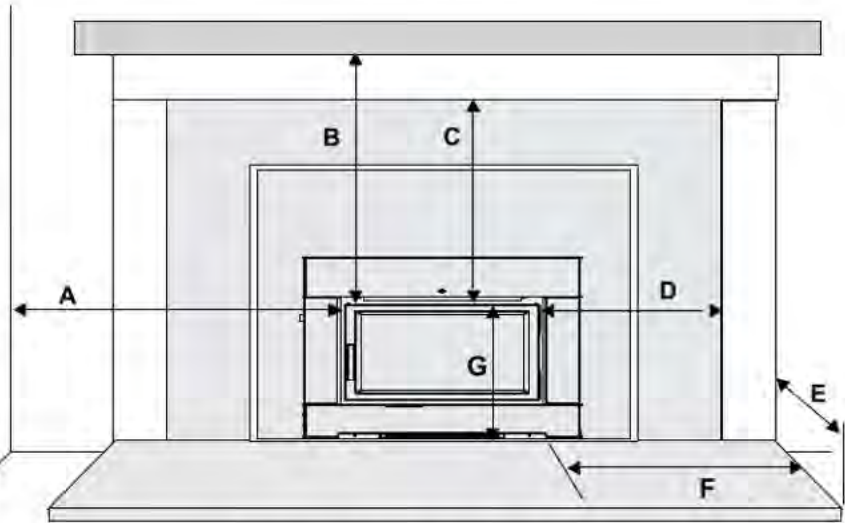
Side and Top facing is a maximum of 1.5" (38mm) thick.

If top/side facing trim protrudes more than 1-1/2"(38 mm) follow mantle (B)\*\* & adjacent side wall (A) for proper clearances.

- \* Side hearth extension for Canada/USA measured from side of door.
- \* Hearth extension to have minimum: R value of 2.13 or greater if the unit is 0-6.5" (0-165mm) (measured from the bottom of the fireplace).
- \*\* A non-combustible mantel may be installed at a lower height if the framing is made of metal studs covered with a non-combustible board.
- \*\* Max. mantle depth is 10" (254mm).

Thermal floor protection is not required if the unit is raised 6.5" (165mm) minimum (measured from the bottom of the stove). However, standard ember floor protection is required. It will need to be a non-combustible material that covers 16" (406 mm) in the US and 18" (450 mm) in Canada to the front of the unit and 8" (200 mm) to the sides.

All floor protection must be non-combustible (i.e., metals, brick, stone, mineral fiber boards, etc.) Any organic materials (i.e. plastics, wood paper products, etc.) are combustible and must not be used. The floor protection specified includes some form of thermal designation similar to R-value (thermal resistance) or k-factor (thermal conductivity).  
Floor protector listed to UL1618.



Clearance diagram for Installations

**Both Canada/USA**  
Minimum Hearth Extension for the front (E) is measured from the fuel door opening.  
F measurement (minimum hearth side extension) is taken from the side of the door.

**HOW TO DETERMINE IF ALTERNATE FLOOR PROTECTION MATERIALS ARE ACCEPTABLE**

The specified floor protector should be 3/8" (18mm) thick material with a K - factor of 0.84.

The proposed alternative is 4" (100mm) brick with a C-factor of 1.25 over 1/8" (3mm) mineral board with a K-factor of 0.29.

**Step (a):**

Use formula above to convert specification to R-value.  
 $R = 1/k \times T = 1/0.84 \times .75 = 0.893.$

**Step (b):**

Calculate R of proposed system.  
 4" brick of C = 1.25, therefore  
 $R_{brick} = 1/C = 1/1.25 = 0.80$   
 1/8" mineral board of k = 0.29, therefore  
 $R_{min.bd.} = 1/0.29 \times 0.125 = 0.431$   
 Total R =  $R_{brick} + R_{mineral\ board} = 0.8 + 0.431 = 1.231.$

**Step (c):**

Compare proposed system R of 1.231 to specified R of 0.893. Since proposed system R is greater than required, the system is acceptable.

**DEFINITIONS**

**Thermal Conductance:**

$$C = \frac{Btu}{(hr)(ft^2)(^{\circ}F)} = \frac{W}{(m^2)(K)}$$

**Thermal Conductivity:**

$$k = \frac{(Btu)(inch)}{(hr)(ft^2)(^{\circ}F)} = \frac{W}{(m)(K)} = \frac{Btu}{(hr)(ft)(^{\circ}F)}$$

**Thermal Resistance:**

$$R = \frac{(ft^2)(hr)(^{\circ}F)}{Btu} = \frac{(m^2)(K)}{W}$$

**WOOD INSERT SPECIFICATIONS**

Your fireplace opening requires the following minimum sizes:

- Height:** 21-3/4" (552 mm)
- Width:** 29" (737 mm)
- Depth:** 19" (483 mm)



**INSTALLATION INTO A MASONRY FIREPLACE**

Regency Inserts are constructed with the highest quality materials and assembled under strict quality control procedures that insure years of trouble free and reliable performance.

It is important that you read this manual thoroughly and fully understand the safe installation and operating procedures. The more you understand the way your Regency Insert operates, the more enjoyment you will experience from knowing that your unit is operating at peak performance.

**WARNING: The room heater shall not be installed in a factory-built fireplace.**

**BEFORE INSTALLING YOUR INSERT**

1. Please read this entire manual before you install and use your new wood insert. Failure to follow instructions may result in property damage, bodily injury or even death. Install and use only in accordance with manufacturer's installation and operating instructions.
2. Check your local building codes - Building Inspection Department. You may require a permit before installing your insert. **Be aware that local codes and regulations may override some items in the manual.**

**WARNING: Careless installation is the major cause of safety hazard. Check all local building and safety codes before installation of unit.**

3. Notify your home insurance company that you plan to install a fireplace insert or hearth heater.
4. Your fireplace insert is heavy and requires two or more people to move it safely. The insert can be badly damaged by mishandling.
5. If your existing fireplace damper control will become inaccessible once you have installed your Regency Insert, you should either remove or secure it in the open position.
6. Inspect your fireplace and chimney prior to installing your insert to determine that it is free from cracks, loose mortar or other signs of damage. If repairs are required, they should be completed before installing your insert. Do not remove bricks or mortar from your masonry fireplace.
7. **Do not connect the insert to a chimney system servicing another appliance or an air distribution duct.**

When referencing installation or connection to masonry fireplaces or chimneys, the masonry construction must or shall be code complying.

**CHIMNEY SPECIFICATIONS**

Before installing, check and clean your chimney system thoroughly. If in doubt about its condition, seek professional advice. Your Regency Insert is designed for installation into a masonry fireplace that is constructed in accordance with the requirements of "The Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliance", N.F.P.A. 211, the National Building Code of Canada, or the applicable local code requirements.

The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70, or the Canadian Electrical code, CSA C22.1.

Regency Inserts are designed to use either a 5.5" (140mm) or 6" (152mm) flue.

**ULC628-2022 - Canada**

This fireplace insert must be installed with a continuous chimney liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney. The chimney liner must conform to the class 3 requirements of CAN/ULS-S635 Standard for lining systems for existing Masonry or factory built chimneys and vents or to the requirements of CAN/ULC-S640, Standard for lining systems for new masonry chimneys

**UL1482-2022 - U.S.A**

A chimney complying with the requirement for type HT chimneys in the standard for chimneys, factory built residential and building heating appliance UL103 or a code approved masonry chimney liner with a flue liner.

This fireplace insert must be installed with a continuous chimney liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney.

When this room heater is not properly installed, a house fire may result. To reduce the risk of fire follow the installation instructions. Contact local building or fire official as about restrictions and installation requirements in your area

Recommended chimney height from top of flue collar: Minimum 15 feet (4.6 meters)

**Note: If the fireplace has been modified to accommodate a fireplace liner, the installer is to attach the metal tag to the fireplace using screws or nails, in a location readily visible should the fireplace insert be removed. A metal tag is supplied with this wood insert.**

**IMPORTANT: Smoke and CO Detectors:**

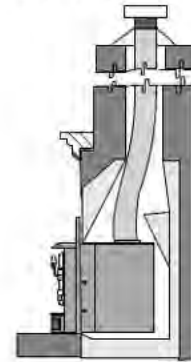
Make sure your home has a working smoke and CO detector, especially near any bedrooms. We recommend having a smoke and CO detector in the same room as the wood appliance for additional safety. Location of both detectors should be chosen wisely to avoid false alarms when reloading the appliance.

**Fire Extinguisher:**

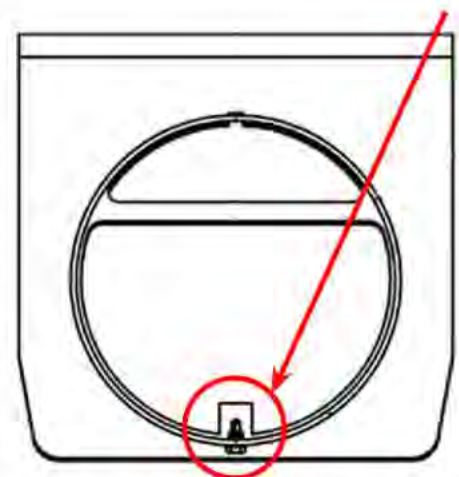
A fire extinguisher should be installed in the home. The location of the fire extinguisher should be known by all family members.

**DRAFT**

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance and may cause damage. An uncontrollable burn or excessive temperature indicates excessive draft. Inadequate draft may cause back puffing into the room and plugging of the chimney. Inadequate draft will cause the appliance to leak smoke into the room through appliance and chimney connector joints. Ensure the heater is installed in areas that are not too close to neighbors or in valleys that would cause unhealthy air quality or nuisance conditions.



**Note:** On this appliance, there is a screw directly above the bypass rod located on the flue collar as shown below. This screw is located in its position to prevent the liner/adaptor from coming into contact with the bypass rod. Please do not remove. This must remain in place at all times.



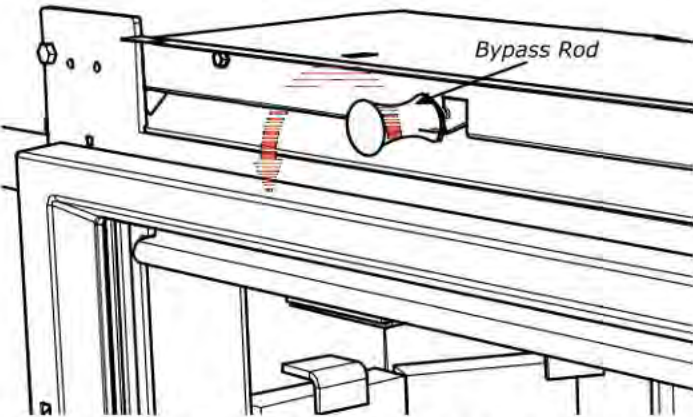


**INSTALLING YOUR INSERT**

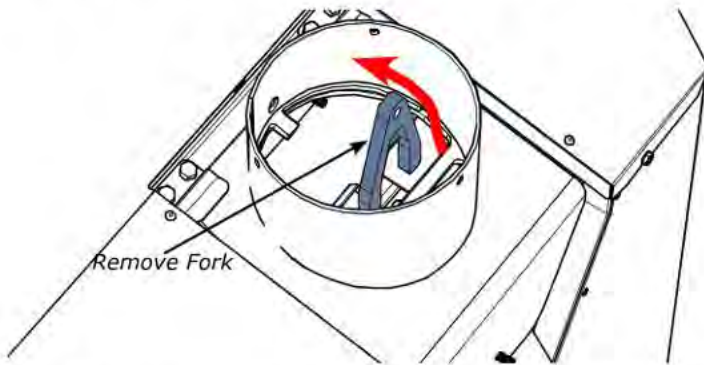
Your insert is very heavy and will require two or three people to move it into position. The insert can be made lighter by removing the cast iron door by opening it and lifting it off its hinges. Be sure to protect your hearth extension with a heavy blanket or carpet scrap during the installation. Evaluate your minimum cavity opening. If the cavity height lends itself to conduct the install without removing the flue collar, then just slide the unit into place and position the liner within the flue collar and secure.

**If the cavity dictates the flue collar needs to be removed or the optional offset flue adaptor is required, please follow the steps below.**

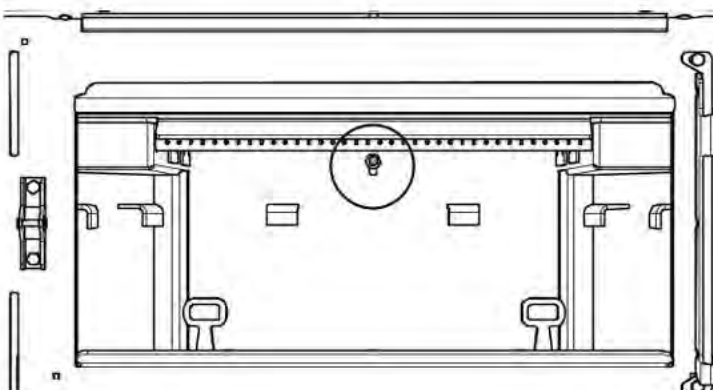
1. Remove door, manual package, and bricks - see instructions in manual.
2. Remove bypass rod - turn counter clockwise.



3. The bypass rod was threaded through a "fork" - access fork through the flue and remove by bringing it through the front of the unit.



4. From inside the firebox - remove 7/16" bolt at back of firebox to remove the flue collar.

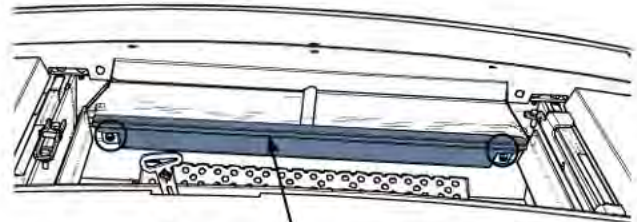


5. Install chimney liner, attach connector from flex kit with band and screws (ensure tabs on connector are positioned so they won't get in the way of the bypass rod - or remove them) attach flue collar with 2 or more screws, to the liner within fireplace cavity. Ensure to position at the proper height and angle to be able to attach the unit.

6. Before sliding the unit into place and attaching the collar - the following parts must be removed to allow access and a positive connection.

- a) Primary Air Shield
- b) Combustor Flame Shield
- c) Combustor
- d) Upper Shield - accessed through combustor opening
- e) Bottom Shield

7. Slide unit into position- ensure to centre with flue collar.



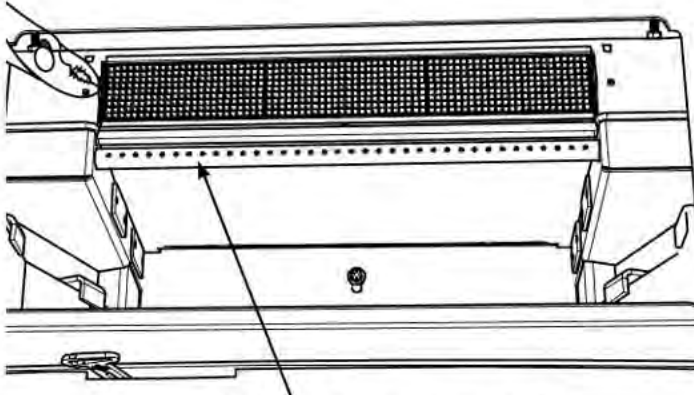
**A- Primary Air Shield - loosen 2 x 7/16" bolts - slide forward to remove.**



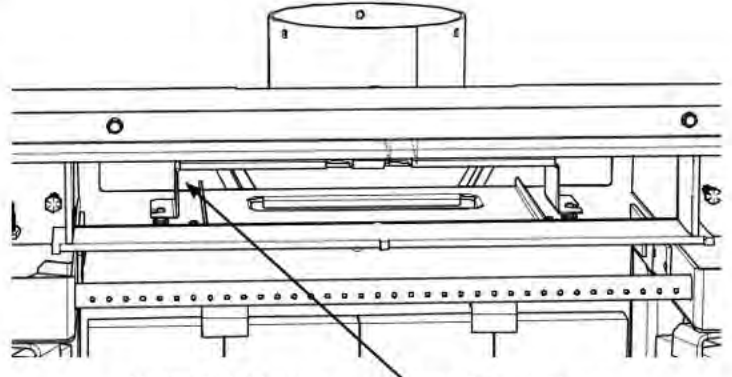
**B- Combustor Flame Shield - loosen 2 x 7/16" bolts to remove.**  
**E- Bottom Shield**



## 12 | installation

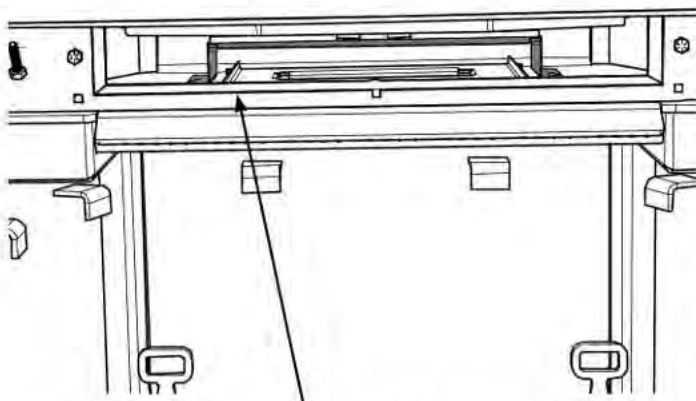


**C- Combustor-** remove with pliers  
Tilt down and forward to ease removal.



*Upper Shield - center between 2 vertical pins*

- 11.** Reinstall bypass rod through flue collar and into "Fork". Ensure bypass rod is screwed in tightly. Test bypass rod to ensure positive connection and review bypass opening.
- 12.** Reinstall Combustor/Flame Combustor Shield / Primary Air Shield /Liner Shield.
- 13.** Reinstall brick liners and door - (see detailed instructions in manual).
- 14.** Center unit and install faceplate (see instructions in manual).
- 15.** Install bypass knob onto bypass rod.



**D- Upper Shield -** slide forward and lift up to remove.

- 8.** From inside the unit - grab the collar by accessing through the bypass opening. Pull the collar down and forward - use hook tool (provided with the unit) to assist removal. Secure with 7/16" bolt (removed in Step 4) while pulling collar down - to ensure positive connection. Ensure bolt is tightly secured and centred.
- 9.** Reinstall the upper shield removed in Step 6e. Ensure upper shield is centered in between 2 (two) vertical pins from front to back. When positioning the upper shield locate the vertical pins by feel. When the shield parts are in place - slide to the back.
- 10.** Reinstall "Fork" (removed in Step 4) on the bypass plate. **Ensure the letter "F" stamped into the Fork is facing towards the front of the unit.** Access through the combustor opening from inside the firebox to reinstall. Bypass plate may need centering before proceeding to next step.

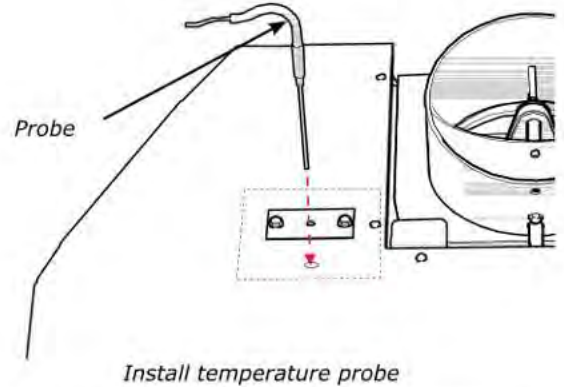


**E- Upper Shield -** orientation for reinstall

**DIGITAL CATALYTIC COMBUSTOR MONITOR**

The Ci2700-1/Hi500-1 is equipped with a provision to accept a catalytic temperature monitoring device. Please follow instructions below for the installation of the probe. Follow the user instructions of the catalytic monitoring device for product set up and details.

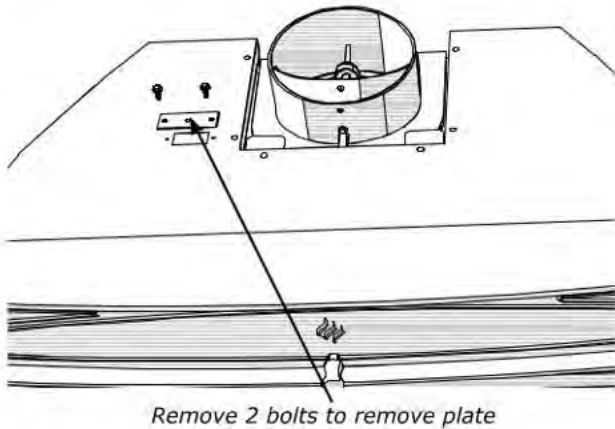
3. Reinstall the plate removed in Step 1 and insert the temperature probe through the plate and into the hole created by removing the bolt in Step 2.



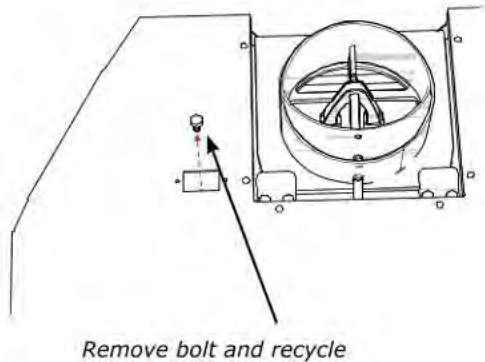
1. Remove two (2) bolts from the top of the unit to remove plate as shown below.

4. Complete the installation of the Ci2700-1/Hi500-1. Ensure temperature probe wire is routed behind the faceplate and to the left side of the unit. Plug in the monitoring device.

5. Monitoring device can be attached to the unit (with supplied Velcro) on the hanger or the hearth beside the fireplace.



2. Locate the 7/16" bolt below the metal and remove.



Monitor on hanger



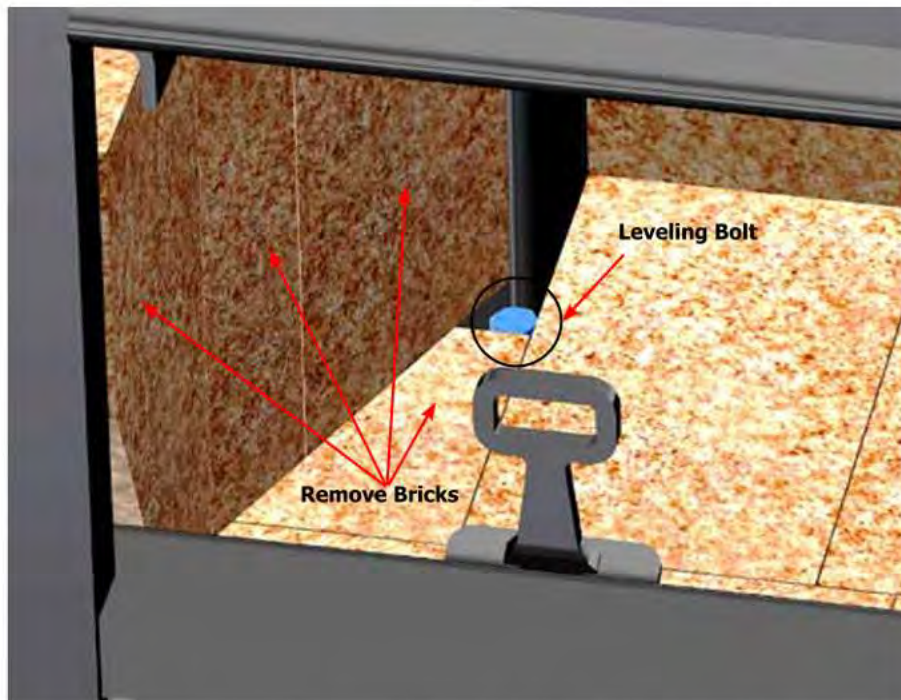
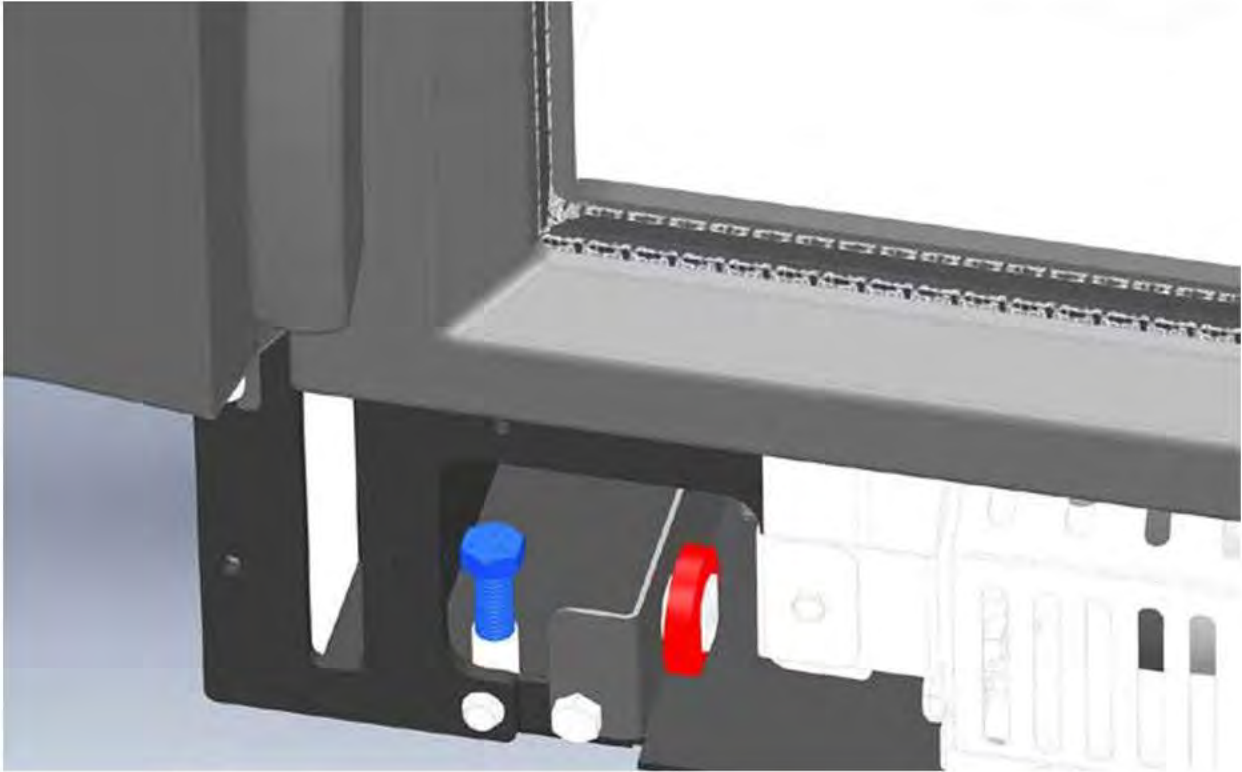
Monitor on hearth

**Important: The catalytic monitor probe which is supplied with this appliance must be installed prior to sliding the unit into final position in the masonry or factory built fireplace.**



## LEVELLING BOLTS

1. Use a 9/16" wrench to adjust the front leveling bolts located on the right and the left side of the firebox.



2. Remove the three side bricks on each side then remove the corner bottom/side cut brick to gain access to the rear leveling bolts. You can adjust using a 9/16" wrench or socket.

**OPTIONAL CAST GRILL INSTALLATION**

**GLASS REMOVAL TO INSTALL  
OPTIONAL DOOR CAST GRILL**

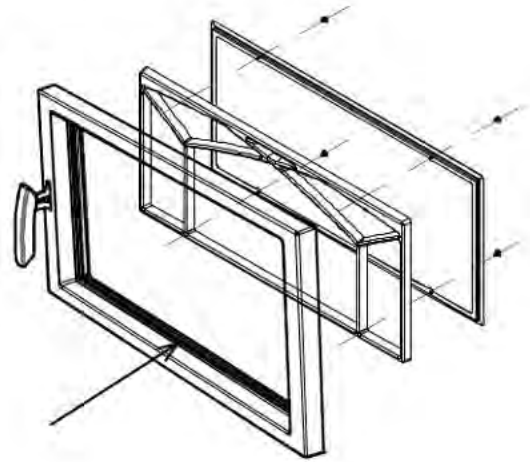
1. To remove the glass, remove the four retainer bolts (two top and two bottom) highlighted in the diagram.
2. Carefully remove the glass and the gasket frame assembly (shown).
3. Place the grill in the door.
4. Carefully install the glass and re-install the gasket frame assembly.
5. Reinstall the four retainer bolts removed in Step 1. Do not over tighten.
6. If the door does not close properly after adding the optional grill, an additional shim (supplied with grill) may be added to the door catch. This will ensure door closes with ease. See manual for details.

After several fires and once the door gasket begins to compress, the additional shim may be removed and saved for future use.



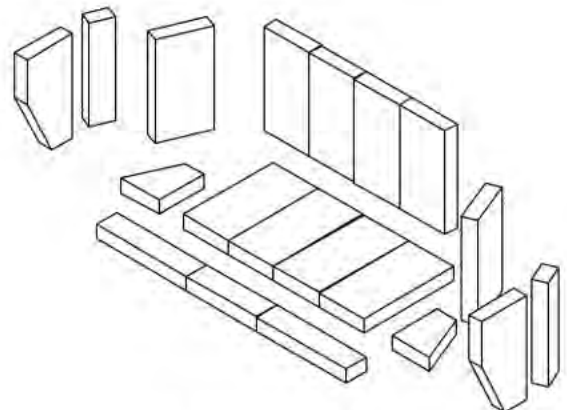
*Remove 4 Bolts*

**Avoid impact on glass doors such as striking or slamming shut.**



**FIREBRICK ASSEMBLY**

Firebrick is included to extend the life of your insert and radiate heat more evenly. Check to see that all firebricks are in their correct positions and have not become misaligned during shipping.



**OPTIONAL BACKING PLATE INSTALLATION**

1. Slide the backing plate over unit. Line up flange on backing plate with flange on unit and secure with 2 screws from the underside as shown below. Proceed with Faceplate install.

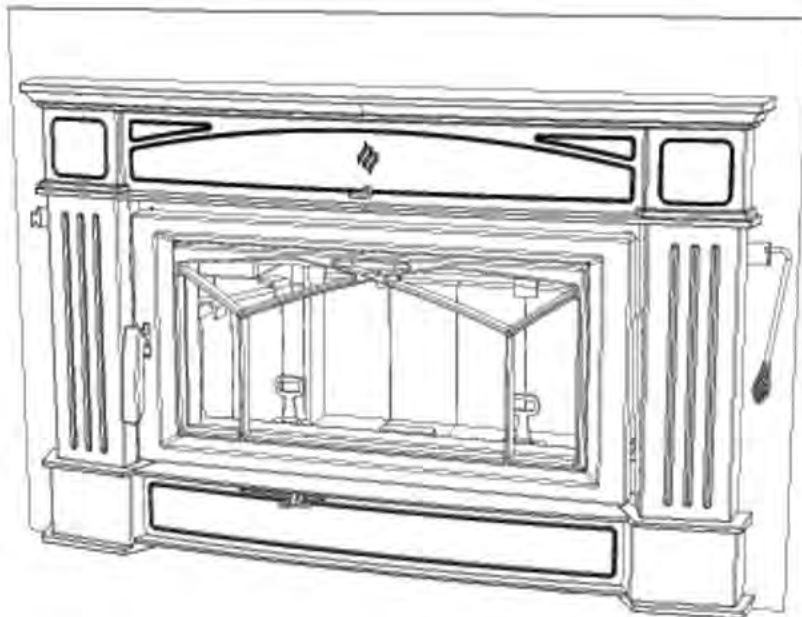
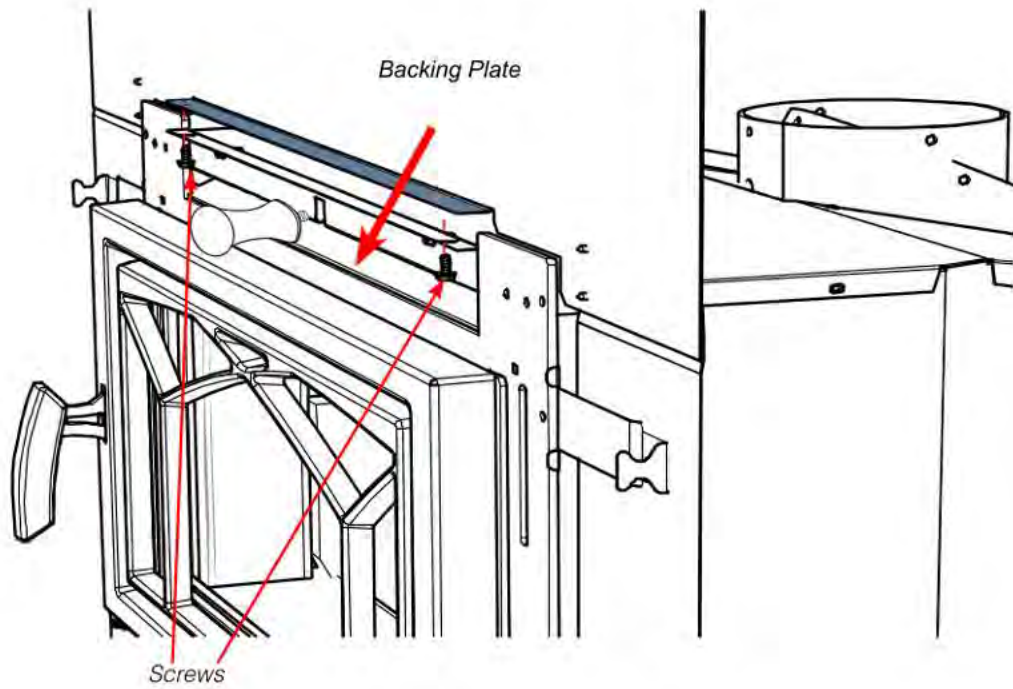


Diagram 4

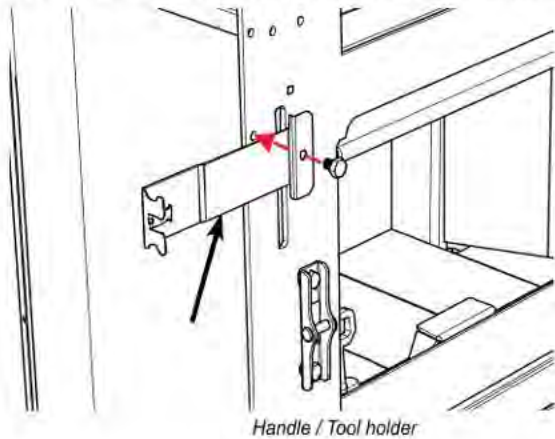


**CONTEMPORARY FACEPLATE INSTALLATION**

Remove unit door prior to installation of faceplate.  
Remove all contents from the package and lay out.

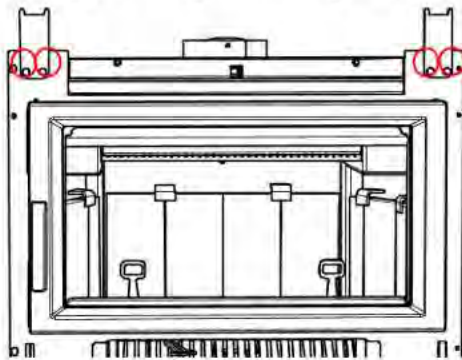
**NOTE:** Bolts may be pre-installed on unit and will need to be removed prior to each step of the noted instructions. As a result, there may be spare bolts.

1. Install tool and handle holder to the left side of the unit with on - 7/16" bolt as shown below. (Note: part is packed with the manual package).



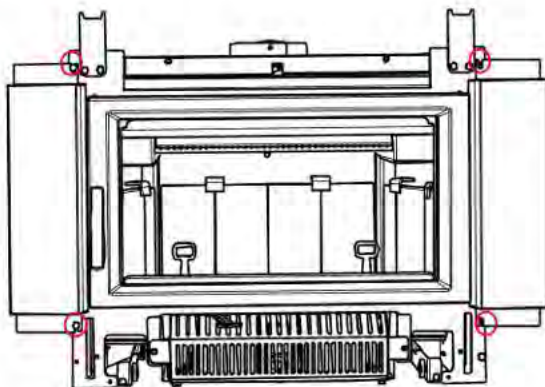
Handle / Tool holder

2. Install the upper left and right brackets using the four 7/16" bolts.



Brackets with Bolts

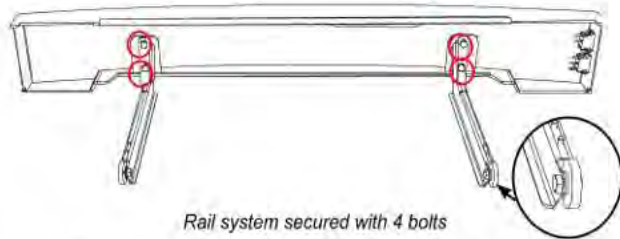
3. Install the left and right of the fascia panels using four 7/16" bolts.



Fascia side panels installed with Bolts

4. Attach the left and right side rails to the back of the bottom fascia panel using four 7/16" bolts, push each rail upwards before tightening.

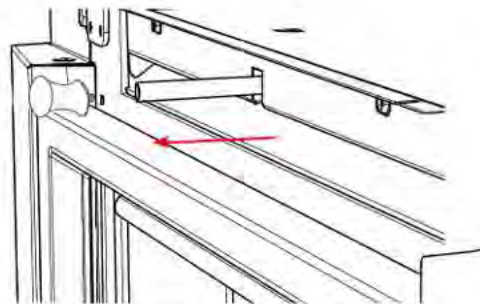
**NOTE:** Wheels should be facing outward when completed.



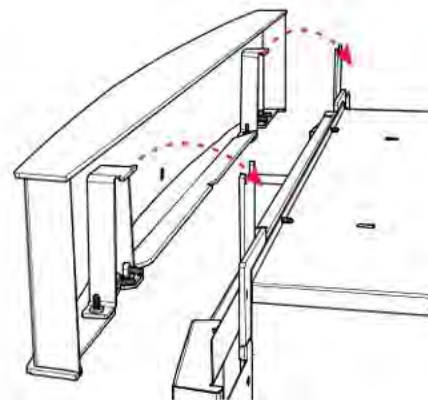
Rail system secured with 4 bolts

**NOTE:** Fan cassette must be installed prior to this step. See fan install instructions.

5. Remove the bypass knob on the bypass rod by turning counter clockwise and pull bypass rod forward to the open position. Then take the top fascia panel and gently slide the bypass rod through the hole in the fascia panel. Lift the fascia panel up slightly - push back to engage the brackets installed on step 1.



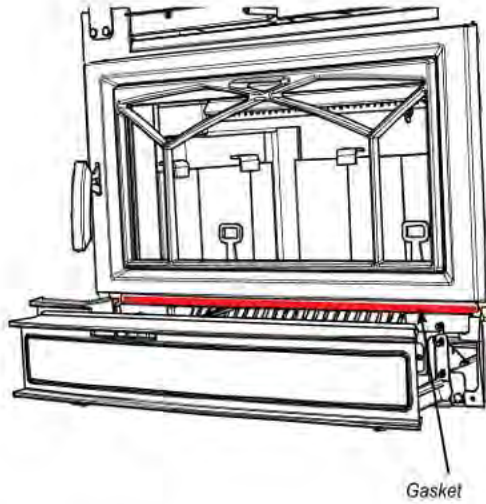
Remove Bypass Knob from Bypass Rod



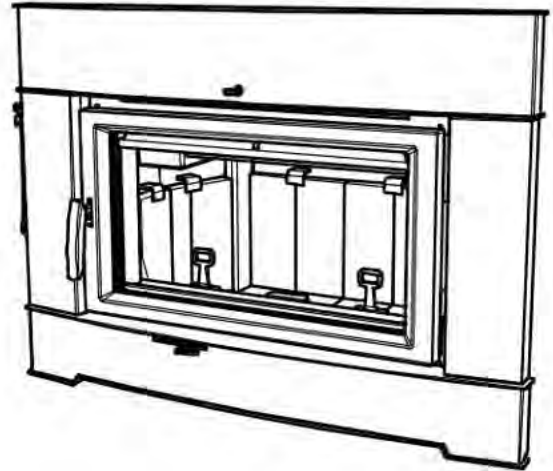
Back view of Top Fascia Panel lining up with the brackets installed in Step 1

## 18 | installation

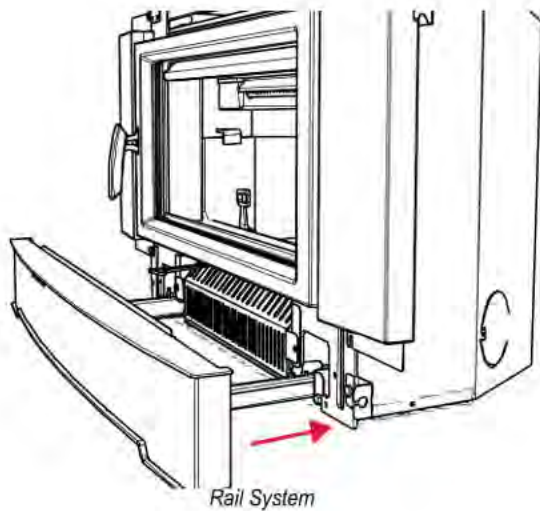
6. Apply the flat self adhesive gasket to the face of the unit just above the fan opening. Install the seal/cushion to line up with the top of the slide out door.



8. Re-install bypass knob and door.



7. With door in closed position, take the bottom fascia and line up the wheels and rails with the rails on the unit. Once lined up lift up and into the rail system and slide into position.

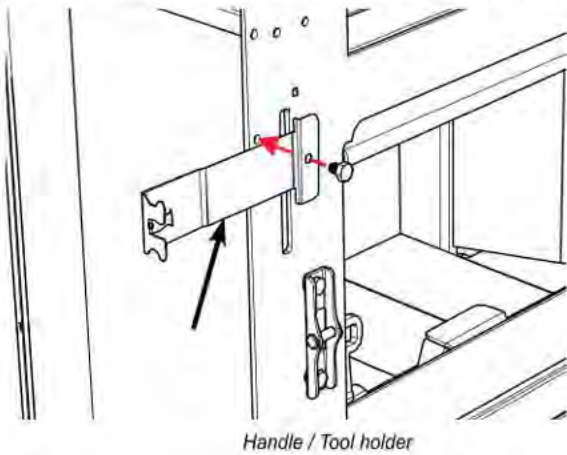


**LOW PROFILE FACEPLATE INSTALLATION**

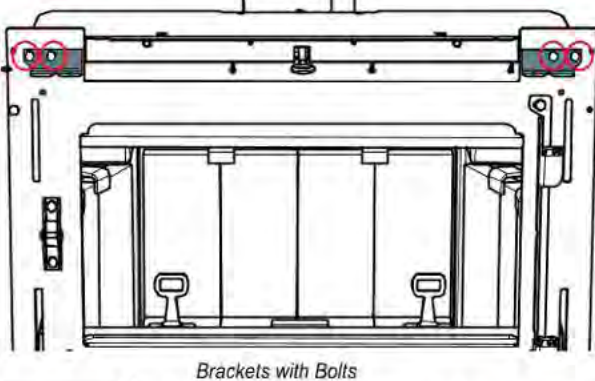
Remove unit door prior to installation of faceplate.  
Remove all contents from the package and lay out.

NOTE: Bolts may be pre-installed on unit and will need to be removed prior to each step of the noted instructions. As a result, there may be spare bolts.

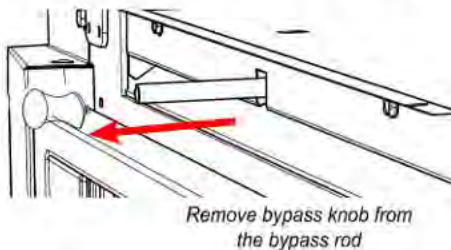
1. Install tool and handle holder to the left side of the unit with an 7/16" bolt as shown below. (Note: part is packed with the manual package).



2. Install the upper left and right brackets using the four 7/16" bolts. Identify proper orientation below before installing.

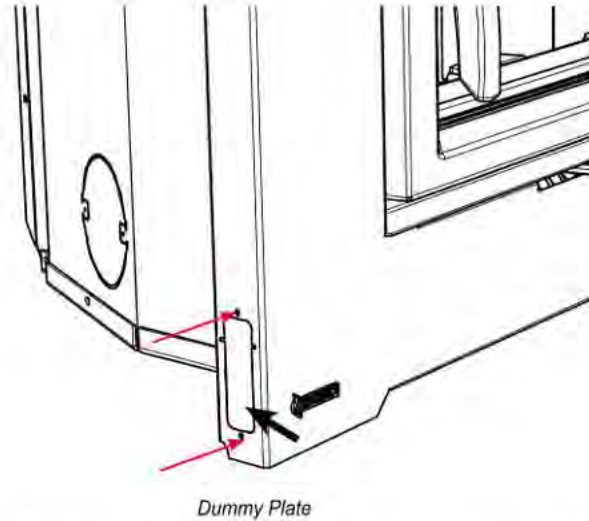


3. Remove the bypass knob on the bypass rod by turning counter clockwise - pull bypass rod forward to the open position.

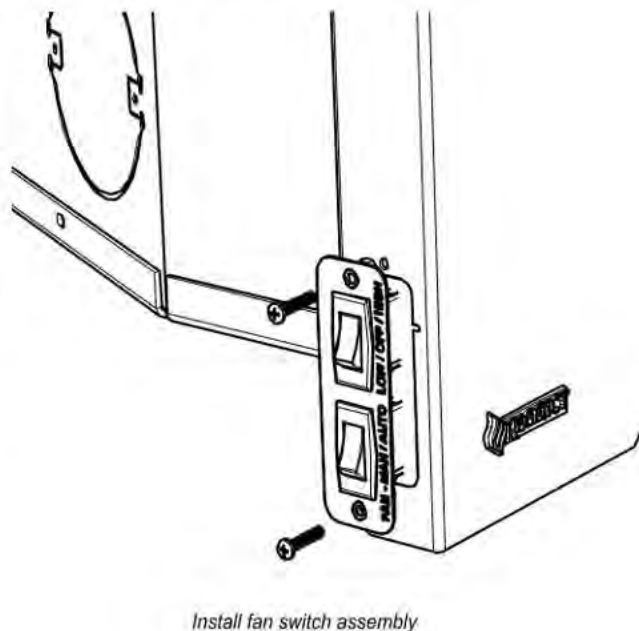


NOTE: If installing blower, optional Fan cassette must be installed prior at this point. See fan installation instructions for details.  
If not installing blower—proceed to Step 6.

4. Remove dummy plate from left side of faceplate by removing 2 screws. Set screws aside, use to secure the fan switch assembly in Step 5.



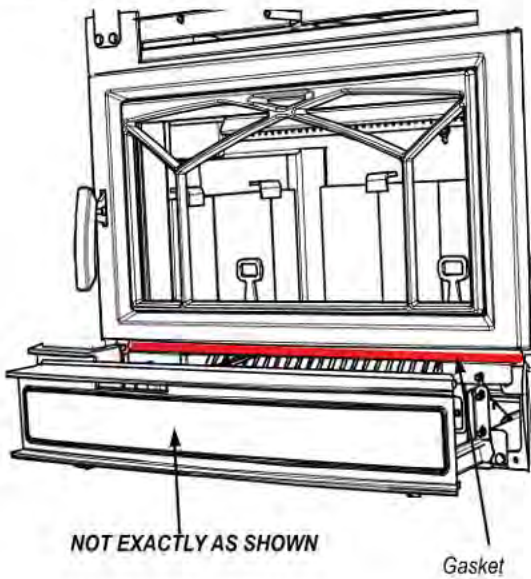
5. With fan cassette in position—take the fan switch assembly (attached to the fan cassette wiring harness) and install into opening created by dummy plate removal. Ensure fan switch assembly is fully seated onto faceplate and secure with 2 screws from Step 4.



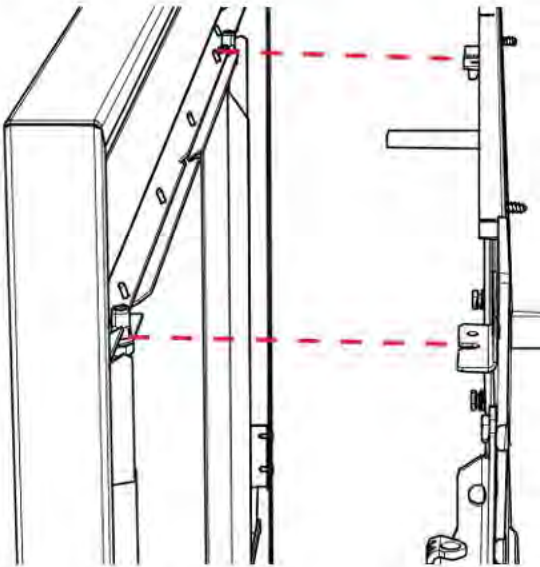


## 20 | installation

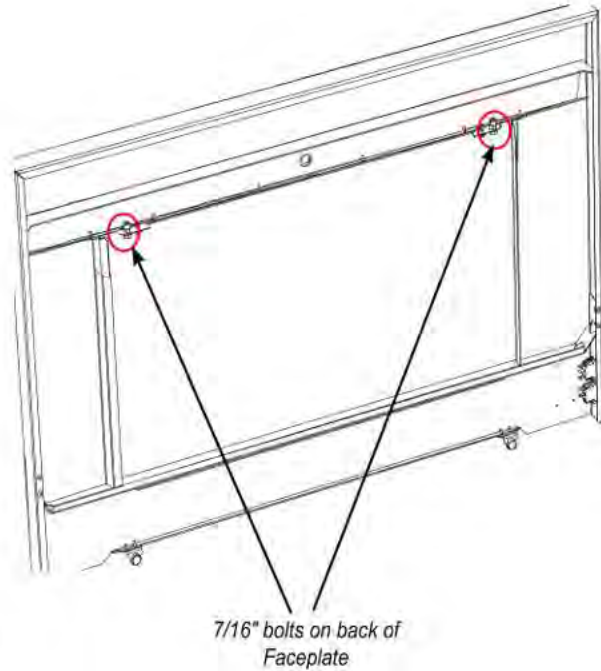
6. Apply the flat self adhesive to the face of the unit just above the fan opening. Install the seal /cushion to line up with the top of the bottom of the low profile faceplate.



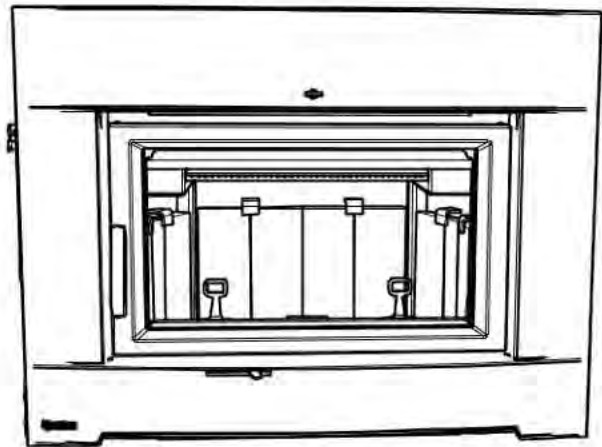
7. Gently slide the bypass rod through the center hole within the fascia and also guide the primary air control through the slot in the bottom of the fascia. Push the faceplate towards the unit, ensuring the bolts in Step 2 slide into the brackets installed in Step 1.



8. Ensure the left and right side bolts on the top of the Low Profile Faceplate are spaced evenly. The spacing of these bolts is critical to ensure the faceplate slides into the brackets installed in Step 1.



9. Tighten the 7/16" bolts on the back of the Flat Faceplate
10. Re-install bypass knob and door.

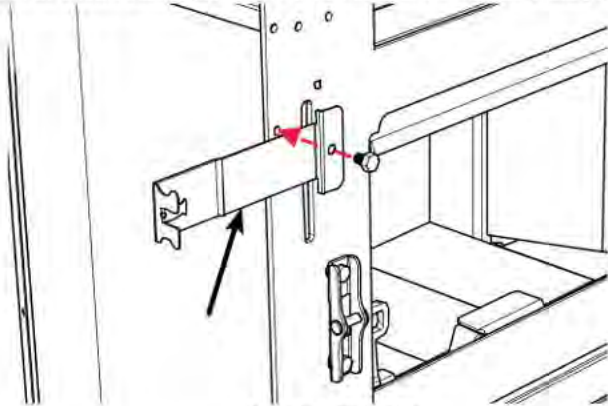


*Final Install*

**CAST FACEPLATE INSTALLATION**

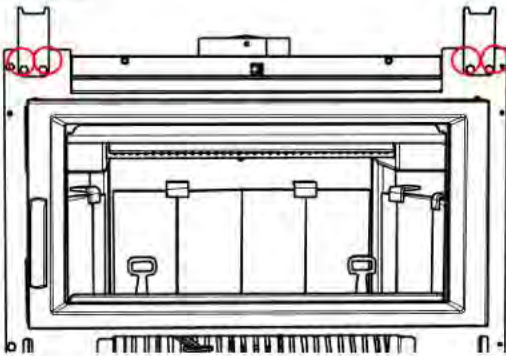
Remove unit door prior to installation of faceplate.  
Remove and lay out all contents from the faceplate package.

1. Install tool and handle holder to the left side of the unit with on - 7/16" bolt as shown below. (Note: part is packed with the manual package).



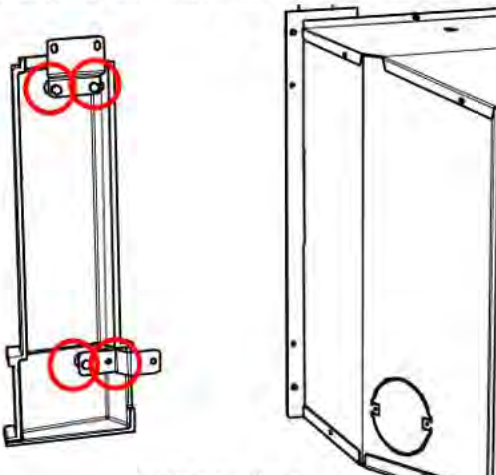
Handle / Tool holder

2. Install the upper left and right brackets using the four 7/16" bolts—as shown below.



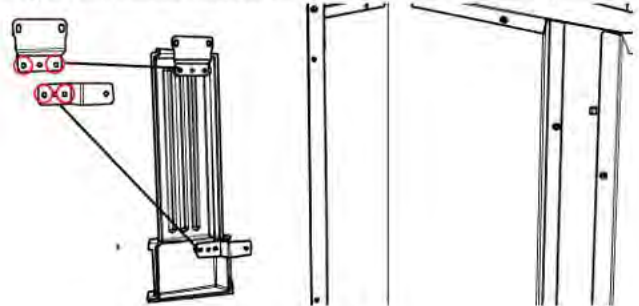
Brackets with Bolts

3. See Step 4 if installing the Enamel Faceplate. Install two brackets (supplied with faceplate) to the back of each side panel with four 7/16" bolts.



Cast Panel Shown

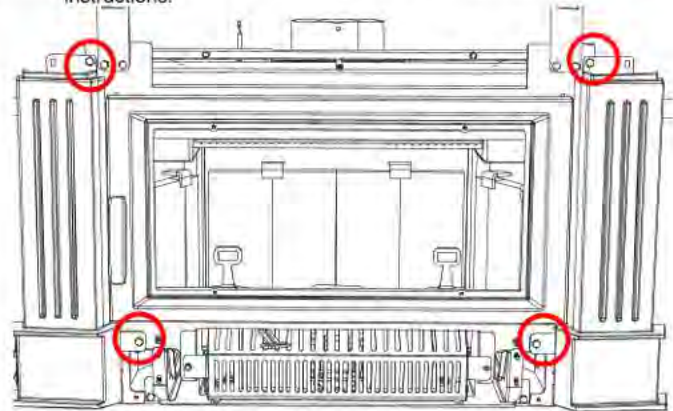
4. Install two brackets (supplied with Faceplate) to the back of each side panel with four 7/16" bolts. The supplied brackets have three holes, use only the two outside holes for installation as shown in close up.



Enamel Panel Brackets

5. Remove 4-7/16" bolts in locations shown below and install the left and right of the fascia panels using four 7/16" bolts.

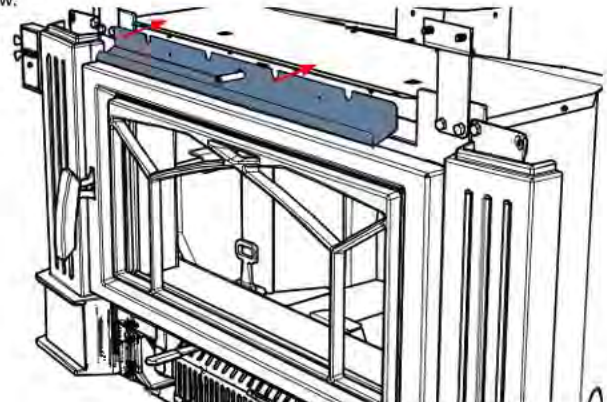
**NOTE:** Fan cassette must be installed prior to this step. See fan install instructions.



Fascia side panels installed with bolts

6. Pull the bypass knob forward to the open position then remove the bypass knob by turning it counter clockwise. Install fan deflector on unit. If screw holes not present on unit, place deflector through bypass rod and ensure deflector is level. Secure with 2 supplied screws in locations shown below.

If screw holes already present on unit, line up deflector with corresponding screw holes and secure with 2 screws on locations shown below.

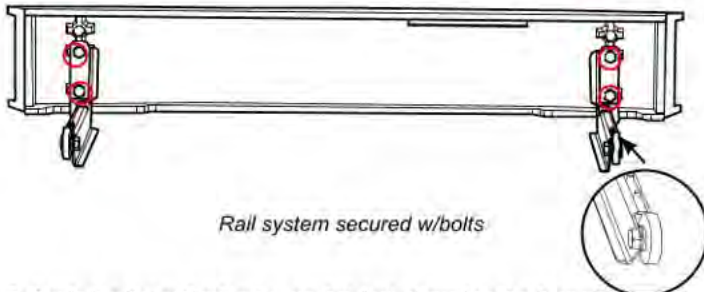


Fan deflector screw locations



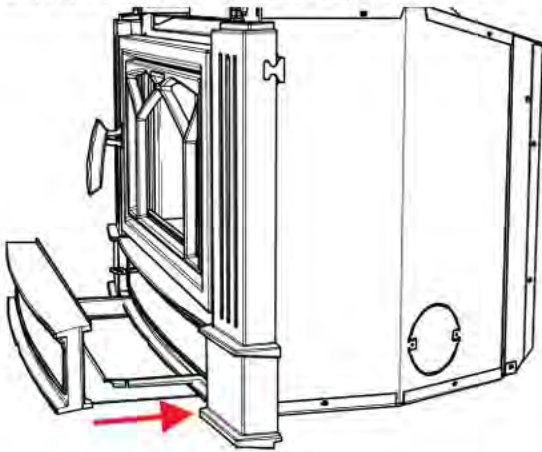
## 22 | installation

7. Reinstall unit door (removed in Step 1), attach the left and right side rails to the back of the bottom fascia panel using four 7/16" bolts, slide each rail upward before tightening. (Rails may need to be bent slightly outward to get a good fit).



*Rail system secured w/bolts*

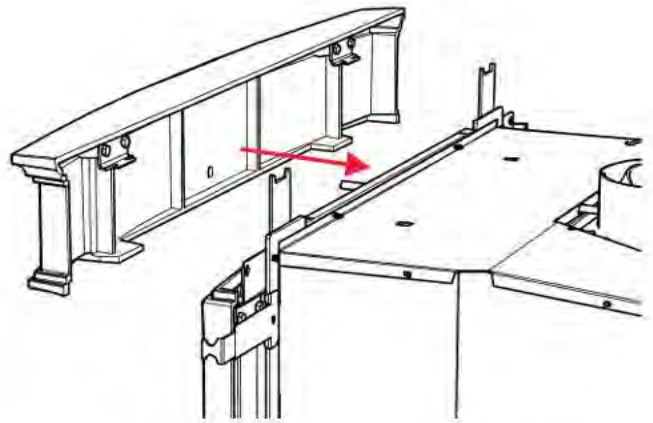
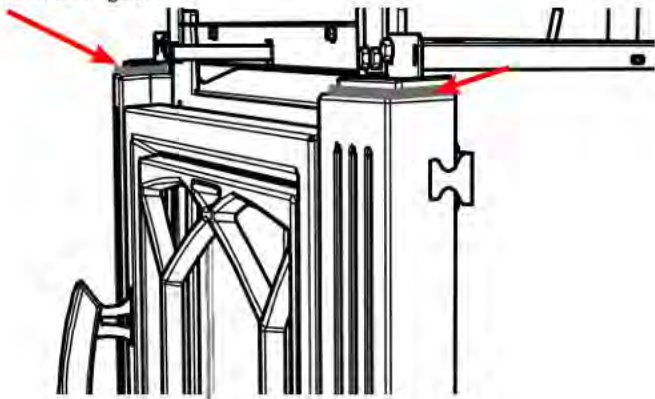
8. Apply the flat self adhesive gasket (not shown) to the face of the unit just above the fan opening. Install the seal/cushion to line up with the top of the slide out door. With the door in closed position, take the bottom fascia and line up the wheels and rails with the rails on the unit. When lined up, lift up and into the rail system and slide into position.



*Rail System*

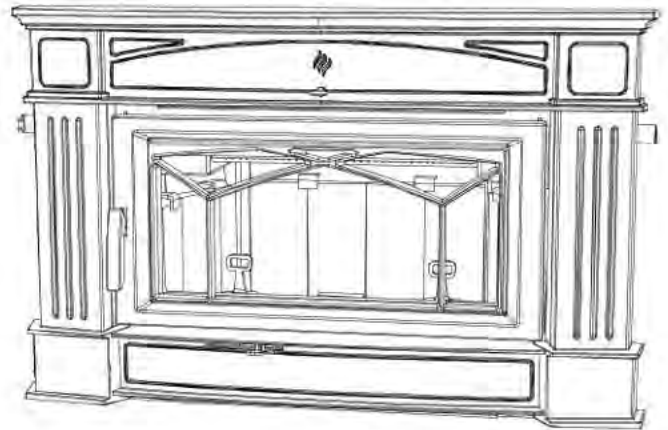
9. Apply self adhesive gasket to protect enamel surfaces from chipping. Take the top fascia panel and gently slide the bypass rod through the hole in the fascia panel, use caution to avoid chipping enamel. Lift the fascia panel up slightly - push back to engage the brackets installed on Step 1.

*Self adhesive gasket*



*Back view of Top Fascia Panel lining up with the brackets installed in Step 1*

10. Re-install bypass knob and door.

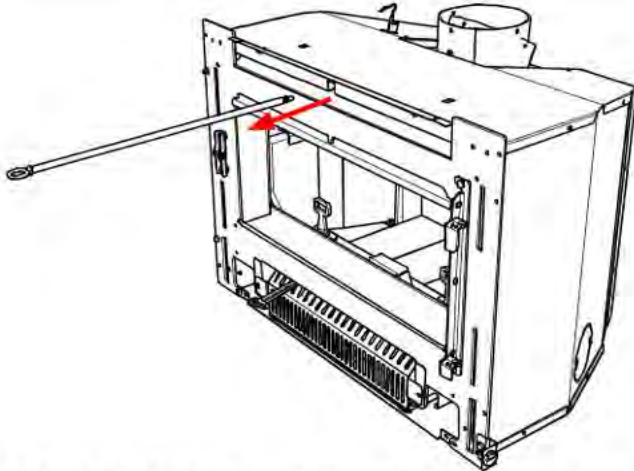


*Completed Optional Hampton Cast Faceplate*

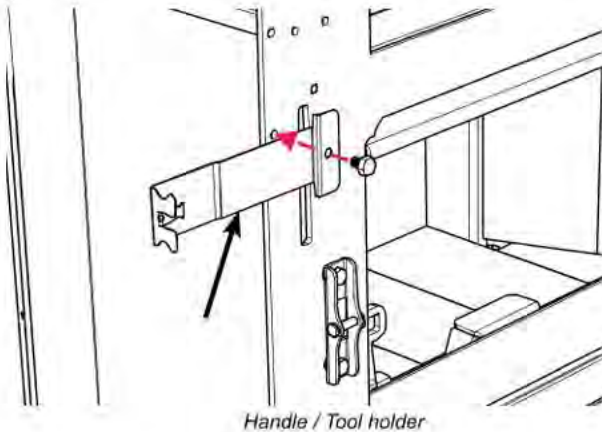
**Note:** If installing optional cast grill - follow installation instructions in this manual.

**OVERSIZE CAST FACEPLATE INSTALLATION**

- Remove unit door prior to installation of faceplate.  
Remove and lay out all contents from the faceplate package.  
1. Remove bypass ring and rod by turning counter clockwise - set aside.



2. Install tool and handle holder (use part packed with Faceplate - not part from Manual pack) to the left side of the unit with one - 7/16" bolt as shown below. (Note: part is packed with the Oversized Faceplate package).



3. Identify left and right side panels

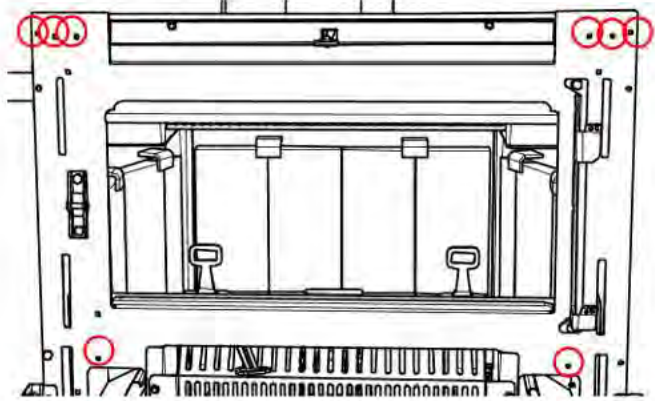


Right Panel/ Back Side

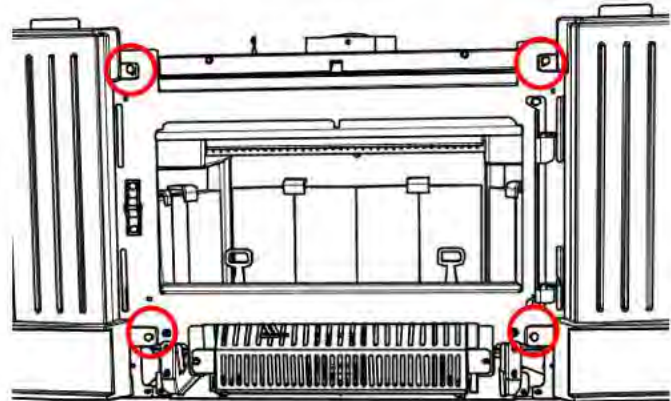


Left Panel/ Back Side

4. Remove 8-7/16" bolts in locations shown below and install the left and right of the fascia panels using four 7/16" bolts.

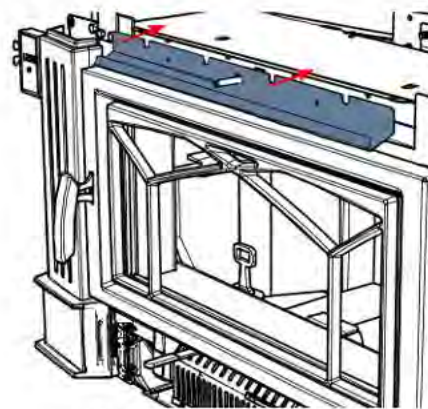


**NOTE:** Fan cassette must be installed prior to this step. See fan install instructions.



Fascia side panels installed with Bolts

5. Install fan deflector on unit. If screw holes not present on unit, lineup deflector with bypass rod opening and ensure deflector is level. Secure with 2 supplied screws in locations shown below. If screw holes already present on unit, line up deflector with corresponding screw holes and secure with 2 screws on locations shown below.

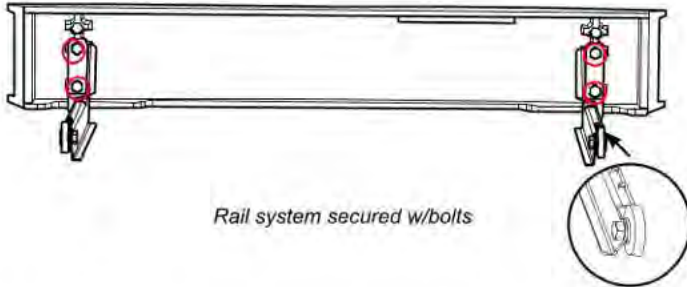


Fan deflector screw locations

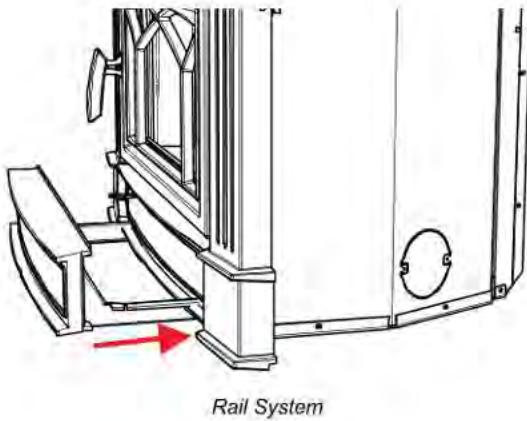
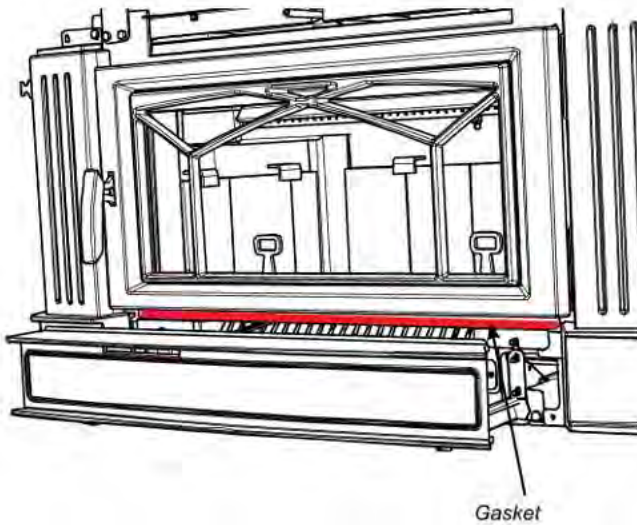


## 24 | installation

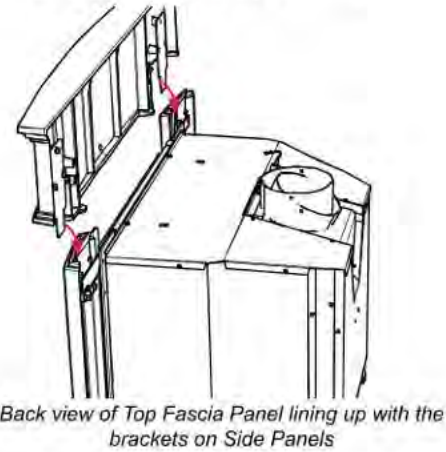
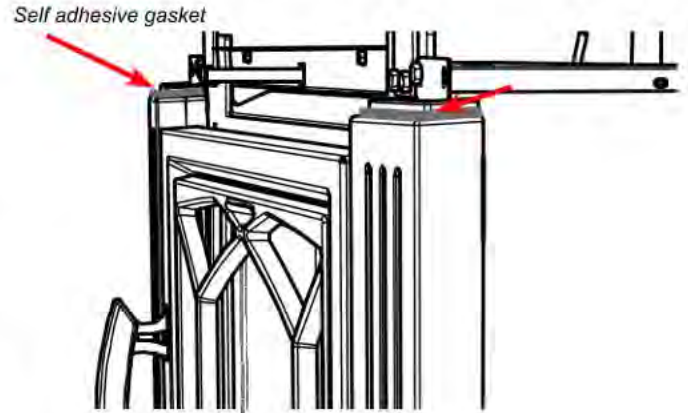
5. Reinstall unit door (removed in Step 1), attach the left and right side rails to the back of the bottom fascia panel using four 7/16" bolts, slide each rail upward before tightening. (Rails may need to be bent slightly outward to get a good fit).



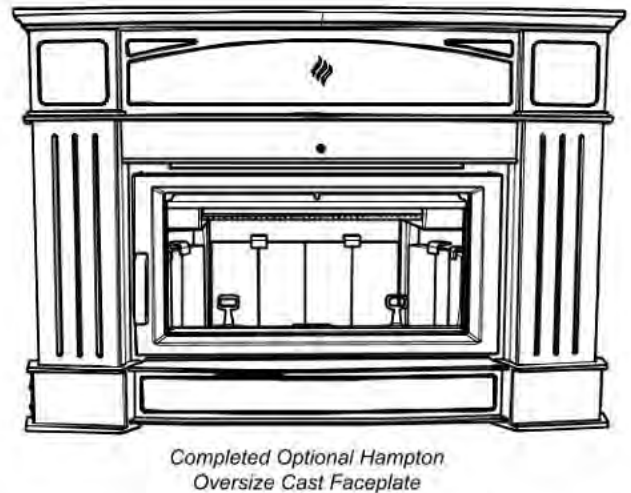
6. Apply the flat self adhesive gasket (not shown) to the face of the unit just above the fan opening. Install the seal/cushion to line up with the top of the slide out door. With the door in closed position, take the bottom fascia and line up the wheels and rails with the rails on the unit. When lined up, lift up and into the rail system and slide into position.



7. Apply self adhesive gasket to protect enamel surfaces from chipping. Lift the top fascia panel up (use care as it is heavy) and slide down into the brackets installed on Step 1.



8. Re-install bypass rod and bypass knob.



**Note:** If installing optional cast grill - follow installation instructions in the manual.

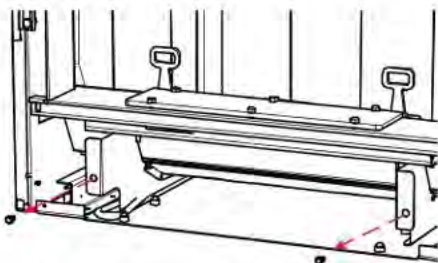
**OPTIONAL FAN/BLOWER INSTALLATION**

**Installer:** Please record unit serial number here before installing blower—serial number will not be visible after blower is installed.

Serial No. \_\_\_\_\_

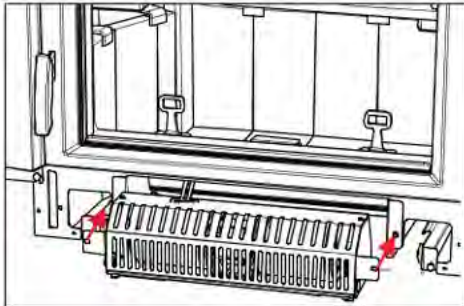
The fan should only be installed once the unit is in place in order to prevent any damage to the fan.

1. Remove 2- 5/16" screws from locations shown below—set aside for installation.



Remove 2 screws from locations shown

2. Slide the fan cassette fully into position.



Line up fan cassette with screw holes.

3. Align screw holes on fan harness bracket with holes in fan cassette mounting bracket on right and left sides.



4. Secure using the two (2) 5/16" screws removed from Step 1.



Secure fan with 2 screws removed in Step 1

5. Remove 7/16" bolts from position shown below.

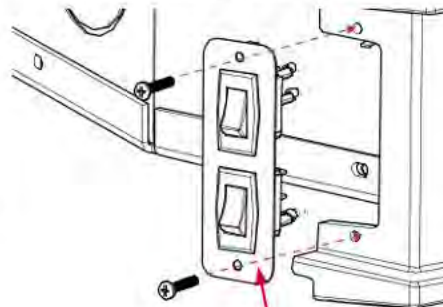
\*\*See specific faceplate installation instructions for detailed instructions of fan switch assembly.

6. Align preset strain relief bracket to bottom right corner of the faceplate, secure with 7/16" bolt removed in Step 5.



Secure preset strain relief

7. Remove the dummy plug from the faceplate being installed, by removing the 2 screws along with washers and nuts. Discard dummy plug, but keep hardware. Install fan switch assembly with 2 screws, or use washers and nuts for Cast Faceplate to lower fascia before sliding faceplate into position.



Fan switch assembly

**NOTE:** Avoid disconnecting wires from switch during installation.

8. Tuck Power Cord to the bottom right hand side of the faceplate as shown.

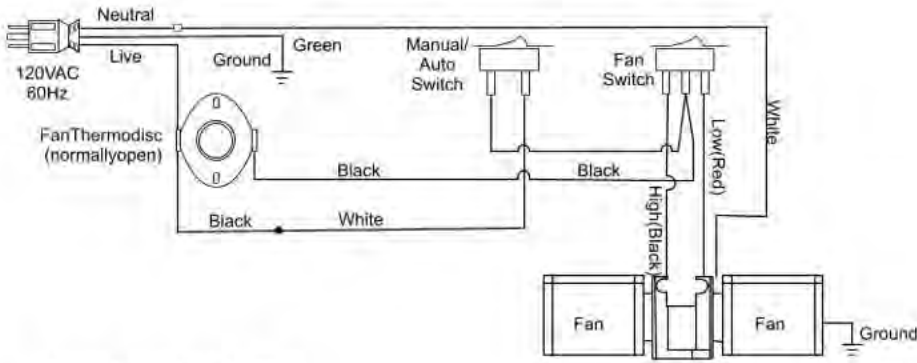


Tuck cord to right side of faceplate

**Do not turn fan ON until your insert has reached operating temperature or at least 30 minutes after starting fire.**

**Important:**

The blower to this appliance must be turned off anytime the fuel door is opened. Prior to turning the blower back on, ensure there are no embers near the blower which may have fallen onto the hearth when the fuel door was opened. Once the fuel door is closed, the blower may be turned back on.



Blower/Fan Wiring Diagram

**CAUTION:** Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.



**WARNING:**  
**Electrical Grounding Instructions**  
 This appliance is equipped with a three pronged (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.

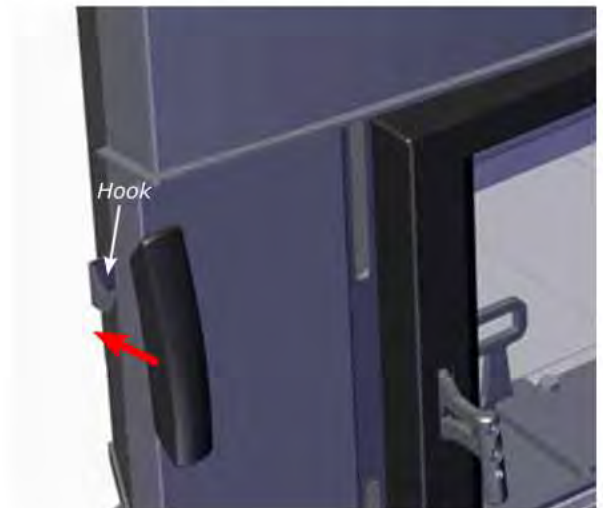


## REMOVABLE DOOR HANDLE

The Ci2700-1/Hi500-1 has a removable door handle that can be stored when not in use. All the faceplates have a storage hook on the left side that accommodates the handle.



The cool to touch door handle is designed to be inserted from the bottom up and slide off when not held in place. Once in position, the door can be opened. After use, store the door handle on the storage hook located on the left side of the faceplate



**WARNING: FAILURE TO USE REMOVABLE HANDLE AS PER INSTRUCTIONS MAY CAUSE SERIOUS BURNS.**

## BYPASS HANDLE

The Ci2700-1/Hi500-1 is supplied with a bypass operating handle. The handle is used to open or close the bypass when re-loading





### SEASONED WOOD

Whether you burn wood in a fireplace, stove or insert, good quality firewood is the key to convenience, efficiency and safety. Wet wood and pieces that are not the right size and shape for your wood burner can be frustrating, burn inefficiently and deposit creosote that can fuel a dangerous chimney fire. Good planning, seasoning and storage of the firewood supply are essential to successful wood burning.

- Stack the wood in separate rows in an open location where the summer sun can warm it and breezes can carry away the moisture. Do not stack unseasoned wood tightly in an unvented storage area.
- Do not allow firewood to lie on the ground for more than a couple of days before stacking. Mould and rot can set in quickly.
- Stack the wood up off the ground on poles, lumber rails or pallets.
- The top of the pile can be covered to keep off rain, but do not cover the sides.

Softer woods like pine, spruce and poplar/aspens that is cut, split and stacked properly in the early spring may be ready for burning in the fall. Extremely hard woods like oak and maple, and large pieces of firewood, may take a minimum of a full year to dry enough. Drying may also take longer in damp climates.

There are a few ways to tell if wood is dry enough to burn efficiently. Use as many indicators as possible to judge the dryness of the firewood you are considering. Here are ways to judge firewood moisture.

- Using a moisture meter, select the species of fuel and then penetrate the pins into a split piece. Ideal moisture and seasoned firewood should be less than 20% moisture content.
- Checks or cracks in the end grain can be an indication of dryness, but may not be a reliable indicator. Some wet wood has checks and some dry wood has no checks.
- The wood tends to darken from white or cream colour to grey or yellow as it dries.
- Two dry pieces banged together sound hollow; wet pieces sound solid and dull.
- Dry wood weighs much less than wet wood.
- Split a piece of wood. If the exposed surface feels damp, the wood is too wet to burn.



## OPERATING INSTRUCTIONS

With your unit now correctly installed and safety inspected by your local authority, you are now ready to start a fire. Before establishing your first fire, it is important that you fully understand the operation of your Catalytic combustor and draft control.

### WARNING

**Fireplace Inserts equipped with doors should be operated only with doors fully closed. If doors are left partly open, gas and flame may be drawn out of the fireplace insert opening, creating risks from both fire and smoke.**

## DRAFT CONTROL

Both the primary and air wash drafts are controlled by the control slide located on the front left side of the unit (when facing the unit). To increase your draft - slide to the left to open, and to decrease - slide to the right to close. The Ci2700-1/Hi500-1 Wood Insert has a secondary draft system that continually allows combustion air to the induction ports at the top of the firebox, just in front of the catalytic combustor.

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance and may damage the catalytic combustor. Inadequate draft may cause back puffing into the room and plugging of the chimney or catalyst.



**WARNING: To build a fire in ignorance or to disregard the information contained in this section can cause serious permanent damage to the unit and void your warranty!!**

## FIRST FIRE

When your installation is completed and inspected you are ready for your first fire.

**THIS UNIT IS DESIGNED TO BURN SEASONED CORDWOOD ONLY. COAL, BRIQUETTES AND ALL OTHERS LISTED ON PAGE 2 ARE NOT APPROVED. SEASONED CORDWOOD SHOULD BE LESS THAN 20% MOISTURE CONTENT.**

### START UP AND OPERATING PROCEDURES:

- For the first few days, the wood insert will give off an odour from the paint. This is to be expected as the high temperature paint becomes seasoned. Windows and/or doors should be left open to provide adequate ventilation while this temporary condition exists. Burning the wood insert at a very high temperature the first few times may damage the paint. During the first few fires, keep the combustion rate at a moderate level and avoid a large fire. Only after 5 or 6 such fires can you operate the wood insert at its maximum setting, and only after the metal has been warmed.
- Do not place anything on the wood insert top during the curing process. This may result in damage to your paint finish.
- When starting the fire, ensure the bypass is in the fully open position (pulled out) and air control is in the fully open position (far left). To start a good and clean fire you will need approx. 10-11 lb kindling in three batches of 3-4 lb each, pieces that are 10"-12" long and 0.5"-1" in diameter. Load 5-6 pieces of crumpled paper in the center of the firebox and the first batch of kindling on top, stacked in a manner that allows air flow on the firebrick hearth (Tee pee style or other). DO NOT USE A GRATE TO ELEVATE THE FIRE. Light crumpled newspaper and leave the door cracked approx. 1 in to establish fire and for less smoke roll out. Keep the door in that position for approx. 4 minutes to establish a good fire. Once the door is closed, close the bypass

- Once most of the kindling has burned down but there are still flames, load the second batch of kindling on top. When a good fire is established close the door to keep the catalyst from cooling down.

**CAUTION: Never leave unit unattended if door is left open. This procedure is for fire start-up only, as unit may overheat if door is left open for too long.**

- Once flame has been established, open the door and add another 2lbs of start up cordwood. Hold door slightly ajar for 30-60 sec to establish flame, and then close the door and bypass.
- After approx. 20 minutes when the kindling burned down open the door and load the last batch of kindling. When the kindling has burned down to half add 9-10 larger pieces of wood 1.5"-3" diameter and approx. 10-15" long in a criss-cross pattern and burn them for at least 1 hour.

**NOTE:** These steps are crucial to ensure proper charcoalization and coal bed prior to loading High, Med and Low fire loads.

- Once a nice coal bed is established and there are still good sized flames, open the door and the

bypass, and rake the coals to create a uniform charcoal bed. Load 2 pieces of 15-16" long cord wood in the back, left to right, East/West orientation and 2-3 pieces 20" long in front. Once loaded, and strong flames are established, close the door and the bypass. Burn on high setting (air control to the far left when facing the unit) for 10-15 minutes.

After the 10-15 minutes, adjust the air control to your desired position.

After 20 minutes, the fan can be turned on.

High Fire: Air control to far left.

Low Fire: Air control to far right.

Med Low Fire: Air control slightly left of low fire setting.

Med High fire: Approx. 1" from low air setting.

For low and medium fire, adjust the air gradually from high to the desired position.

- IMPORTANT:** The temperature in the wood insert and the gases entering the combustor must reach between 5000F - 7000F for catalytic activity to start. From the start up of a cold wood insert, a medium to high firing rate must be maintained for 30 min. This ensures that the wood insert, catalyst and fuel are all stabilized at proper operating temperatures. Even though it is possible to have temperatures at 6000F within minutes after a fire has been started, if the fire is allowed to die down immediately it may go out or the combustor may stop working. Once the combustor starts working, heat generated in it by burning the smoke will keep it working. During re-fueling and rekindling of the cool fire, or a fire that has burned down to the charcoal phase, operate the wood insert at a medium to high firing rate for about 10 minutes to ensure that the catalyst reaches operating temperatures.

**WARNING: Never build a roaring fire in a cold wood insert. Always warm your wood insert up slowly!**

- When re-fueling, always open by-pass control, and primary air damper, load fuel, then wait for at least 10-15 minutes before closing the by-pass. Reason for the 10-15 min. is the fresh fuel and the opening of the door will cause the catalyst to drop in temperature as well as the moisture within the wood which is the first thing to be released. This will also minimize any smoking (spilling) back into the room.
- During the first few days it may be more difficult to start the fire. As you dry out your firebrick and your masonry flue, your draft will increase.
- For those units installed at higher elevations or into sub-standard masonry fireplaces, drafting problems may occur. Consult an experienced dealer or mason on methods of increasing your draft.
- Some cracking and popping noises may be experienced during the heating up process. These noises will be minimal when your unit reaches temperature.
- All fuel burning appliances consume oxygen during operation. It is important that you supply a source of fresh air to your unit while burning. A slightly opened window is sufficient for the purpose. If you also have another fireplace in your home, a downdraft may be created by your Regency wood insert causing a draft down your chimney. If this occurs, slightly open a window near your unit.



**CAUTION: If the body of your wood insert, or any part of the chimney connector starts to glow, you are overfiring. Stop loading fuel immediately and close the draft control until the glow has completely subsided.**

- Green or wet wood is not recommended for your unit. If you must add wet or green fuel, open the draft control fully until all moisture has been dispersed by the intense fire. Once all moisture has been removed, the draft control may be adjusted to maintain the fire.
- If you have been burning your stove on a low draft, use caution when opening the door. After opening the damper, open the door a crack, and allow the fire to adjust before fully opening the door.
- The controls of your unit or the air supply passages should not be altered to increase firing for any reason.
- If you burn the unit too slowly or at too low a setting your unit will not be operating as efficiently as it can. An easy rule of thumb says that if your glass is clean, catalytic thermostat is active, then your flue is clean and your exhaust is clean. Burn the stove hot enough to keep your glass clean and catalytic combustor, you won't need to clean your flue as often.

**HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS.**

### ASH DISPOSAL

During constant use, ashes should be removed every few days. Please take care to prevent the build-up of ash around the start-up air housing located inside the firebox, under the loading door lip.

#### **DO NOT ALLOW ASHES TO BUILD UP TO THE LOADING DOORS.**

Only remove ashes when the fire has died down. Even then, expect to find a few hot embers. Always leave 1 to 2 inches of ash in the bottom of the firebox. This helps in easier starting and a more uniform burn of your fire.

Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled. Other waste should not be placed in the ash container.

### FAN OPERATION

The fan unit must not be turned on until a fire has been burning for at least 30 minutes and the unit is hot enough. As well, after each fuel loading the fan must be shut off until 30 minutes has elapsed.

To operate fan automatically, push switch on side of fan housing to "Auto" and second switch to either "High" or "Low" for fan speed. The automatic temperature sensor will engage the blower when the unit is at temperature and will shut off the blower once the fire has gone out and the unit has cooled to below a useful heat output range.

To manually operate the fan system, push the first switch to "Man" and second switch to either "high" or "Low". This will bypass the sensing device and allow full control of the fan. Switching from "Auto" to "Manual" or "High" to "Low" may be done at any time.

For low and medium low burn operate the fan on low speed and for medium high and high burn operate the fan on high speed.

To achieve maximum efficiency and performance, operate the fan in the low speed when the air control is not more than ¼" open from its lowest setting. See draft control instructions for operation of air control.

When the appliance is cool it is important to clean in and around the fan. Always ensure areas on the hearth are clean and ashes, debris etc. are not pushed towards the bottom of the fascia. Always brush and clean debris away from the unit, not towards.

### CREOSOTE

When wood is burned slowly, it produces tar and other organic vapors, which form creosote when combined with moisture. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote can make an extremely hot fire.

For wood-burning heaters, reference to the formation and removal of creosote buildup in the chimney connector and chimney as follows (the inspection frequency "once every two months" stated below may be a shorter time period at the manufacturer's or private labeler's options):

"Creosote - Formation and Need for Removal

The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred.

If creosote has accumulated it should be removed to reduce the risk of chimney fire.

### REMOVAL FOR CLEANING

Removal of your insert for cleaning purposes is usually not required if a proper installation has been done. In the event that removal is required, be sure not to damage any parts needed for re-installation. In most cases removal and replacement of the baffle system should allow full access for cleaning.

#### **WARNING: In case of chimney fire:**

- Close draft control
- Call the Fire Department

### WAYS TO PREVENT AND KEEP UNIT FREE OF CREOSOTE

- Burn insert with draft control wide open for about 45 minutes every morning during burning season. This helps to prevent creosote deposits within the heating system.
- Burn insert with draft control wide open for about 10 - 15 minutes every time you add fresh wood. This allows the wood to achieve the charcoal stage faster and burns up any wood vapors which might otherwise be deposited within the system.
- Only burn seasoned wood!** Do not burn wet

or green wood. Seasoned wood that has been dried at least one year must be used.

- A small hot fire is preferable to a large smouldering one that can deposit creosote within the system.
- Check the chimney at least twice a month during the burning season for creosote build-up.
- Have chimney system and unit cleaned by competent chimney sweeps twice a year during the first year of use and at least once a year thereafter or when a significant layer of creosote has accumulated (3mm / 1/8" or more) it should be removed to reduce the risk of a chimney fire.**

### WOOD STORAGE

Store wood under cover, such as in a shed, or covered with a tarp, plastic, tar paper, sheets of scrap plywood etc., as uncovered wood can absorb water from rain or snow, delaying the seasoning process.

### SAFETY GUIDELINES & WARNINGS

**DO NOT USE CHEMICALS FOR FLUIDS TO START FIRE.**

#### **CAUTION**

- Never use gasoline, gasoline type lantern fuels, kerosene, charcoal lighter fuel, or similar liquids to start or 'freshen up' a fire in your heater. Keep all such liquids well away from the heater while it is in use.
- Keep the door closed during operation and maintain all seals in good condition.
- Do not burn any quantities of paper, garbage, and never burn flammable fluids such as gasoline, naphtha or engine oil in your stove.
- If you have smoke detectors, prevent smoke spillage as this may set off a false alarm.
- Do not overfire heater. If the chimney connector, flue baffle or the stove top begin to glow, you are over firing. Stop adding fuel and close the draft control. Over firing can cause extensive damage to your stove including warping and premature steel corrosion. Over firing will void your warranty.
- Do not permit creosote or soot build-up in the chimney system. Check and clean chimney at regular intervals. Failure to do so can result in a serious chimney fire.
- Your Regency stove can be very hot. You may be seriously burned if you touch any radiant surfaces on this stove while it is operating, keep children, clothing and furniture away. Warn children of the burn hazard.
- The stove consumes air while operating, provide adequate ventilation with an air duct or open a window while the stove is in use.
- Do not connect this unit to a chimney flue serving another appliance.
- Do not use grates, andirons or other methods for supporting fuel. Burn directly on the bricks.
- Open the draft control fully for 10 to 15 seconds prior to slowly opening the door when refuelling

**SAFETY GUIDELINES & WARNINGS**

the fire.

- 12. Do not connect your unit to any air distribution duct.
- 13. This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods.
- 14. Do not store any fuel closer than 2 feet from your unit. Do not place wood, paper, furniture, drapes or other combustibles near the appliance.
- 15. Do not operate with cracked/broken, plugged, or glazing catalyst.

**DO NOT BURN:**

- Treated wood
- Coal
- Garbage
- Cardboard
- Solvents
- Colored Paper
- Trash
- Salt drift wood
- Cut lumber, plywood, mill ends.

Burning treated wood, garbage, solvents, colored paper or trash may result in release of toxic fumes and may poison or render ineffective the catalytic combustor. Burning coal, cardboard, or loose paper can produce soot, or large flakes of char or fly ash that can coat the combustor, causing smoke spillage into the room, and rendering the combustor ineffective.

**IMPORTANT : It is against federal regulation to operate this wood heater in a manner inconsistent with operating instructions in this manual, or if the catalytic element is deactivated or removed.**

- 16. The controls of your unit or the air supply passages should not be altered to increase firing for any reason.
- 17. If you burn the unit too slowly or at too low a setting your unit will not be operating as efficiently as it can. An easy rule of thumb says that if your glass is clean, catalytic thermostat is active, then your flue is clean and your exhaust is clean. Burn the stove hot enough to keep your glass clean and catalytic combustor, you won't need to clean your flue as often.

**DO NOT BURN GARBAGE OR FLAMMABLE LIQUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL. SOME FUELS COULD GENERATE CARBON MONOXIDE AND ARE VERY DANGEROUS.**

**CAUTION: DO NOT CONNECT TO, OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCT WORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATION.**

<b>Troubleshooting Guide</b>		
<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>SOLUTION</b>
Crumbling Substrate	Extreme Thermal Shock Refueling with Wet Wood High Draft	Bypass combustor when the stove is running Use seasoned, dried wood. Do not exceed .06" of water draft. Install a manual damper and draft gauge or a barometric damper.
Fly-Ash Build-up Fly-Ash Masking Fly-ash Plugging	Combustor has not maintained light-off temperature. Combustor has not maintained light-off temperature. Burning materials that produce a lot of char and fly-ash. Closing the bypass too soon	Brush cold combustor with a soft bristled brush or vacuum lightly. Brush cold combustor with a soft bristled brush or vacuum lightly. Do not burn cardboard, gift wrap or garbage. Follow instructions for proper light-off.
Thermal Cracking	Uneven temperatures, flame impingement and heat spikes.	If cracking causes large pieces to fall out, replace combustor.
Mechanical Cracks	Combustor mishandled or abused. Distortion of combustor holder.	Handle combustor with care. Replace if necessary. Replace combustor is large pieces are missing, replace any warped stove parts as well.
Plugging (Creosote)	Burning wet, pitchy woods or burning large loads of small diameter wood with the combustor in the operating position without light-off ever occurring.	Burn dried seasoned wood. Make sure combustor has light-off before closing the bypass damper. It may be possible to burn off the soot or creosote accumulation by putting the combustor in a partially open and partially closed position after a hot fire has been started.
Masking (Soot)	Combustor has not maintained a light-off.  Burning coal will cause a sulfur-based compound to coat the catalyst.	Place combustor in a partially open and partially position after a hot fire has been started to burn off the soot accumulation.  Revert to burning wood and fire the combustor to elevated temperatures for one hour.



**CATALYTIC COMBUSTOR (PART # 106-534)**

**ACHIEVING AND MAINTAINING CATALYST LIGHT-OFF:**

There are some obvious signs of trouble that your inspection may reveal. The temperature in the stove and the gases entering the combustor must be raised to between 500F to 700F for catalytic activity to be initiated. During the start up of a cold stove a medium to high firing rate must be maintained for about 30 minutes. This ensures that the stove, catalyst and fuel are all stabilized at proper operating temperatures. Even though it is possible to have temperatures at 600F within minutes after a fire has been started, if the fire is allowed to die down immediately it may go out or the combustor may stop working. Once the combustor starts working, heat generated in it by burning the smoke will keep it working. During re-fueling and rekindling of the cool fire, or a fire that has burned down to the charcoal phase, operate the stove at a medium to high firing rate for about 10 minutes to ensure that the catalyst reaches operating temperatures.

**CATALYST MONITORING:** It is important to periodically monitor the operation of the catalytic combustor to ensure that it is functioning properly and to determine when it needs to be replaced. A non-functioning combustor will result in a loss of heating efficiency, and an increase in creosote and emissions. Following is a list of items that should be checked on a periodic basis.

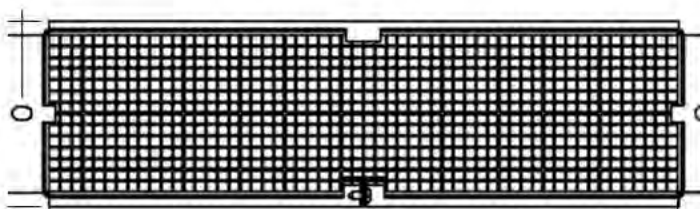
- Combustors should be visually inspected at least three times during the heating season to determine if physical degradation has occurred. Actual removal of the combustor is not recommended unless more detailed inspection is warranted because of decreased performance. If any of these conditions exist, refer to Catalyst trouble shooting section of this owner's manual.
- A good combustor is designed to withstand approximately 12,000 hours of continuous use. This will translate into five to ten years of use, depending on the length of your heating season and how often you use your stove. Proper maintenance will increase the combustor's effectiveness and prevent many problems. Inspect your combustor before each heating season, and during the season if your stove's performance seems to change.
- You can get an indication of whether the catalyst is working by comparing the amount of smoke leaving the chimney when the smoke is going through the combustor and catalyst light - off has been achieved, to the amount of smoke leaving the chimney when the smoke is not routed (by-pass open) through the combustor.

- Step 1:** Light the stove in accordance with instructions within this manual.
- Step 2:** With smoke routed through the catalyst (by-pass closed) go outside and observe the emissions leaving the chimney.
- Step 3:** Engage the bypass mechanism and move to by-pass open position. And again observe the emission leaving the chimney. Significantly more smoke should be seen when the smoke is not routed through the combustor (by-pass open). Be careful not to confuse smoke with steam.

**ACHIEVING PROPER DRAFT:** Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance and may damage the catalytic combustor. Inadequate draft may cause back puffing into the room and plugging of the chimney or catalyst.

**CATALYTIC COMBUSTOR CLEANING:**

<b>Method #1</b>
A vacuum cleaner may be used, but <b>never use high pressured air</b> to blow the cells free of any build-up. This can damage the cell walls. Any cell blockage can be removed with the use of a pipe cleaner or a cotton swab as well.
<b>Method #2</b>
Should the combustor's cells become covered with fly-ash, use a paint-brush or soft-bristled brush and dust the combustor gently. Never use anything abrasive to clean the combustor.
<b>Method #3</b>
Normally the catalytic combustor requires little or no maintenance, it generates such high temperatures and therefore is basically self-cleaning. However, should the combustor become covered with soot or creosote, it is possible to burn the accumulation off by opening the bypass and building a hot fire. Once the hot fire is created, close the bypass halfway and burn for 30 to 60 minutes with the bypass left in this position. <b>Never use cleaning solvents to clean it.</b> Check and clean the combustor, if necessary, before each burning season and inspect the flue system for any signs of creosote buildup.
A clean flue helps prevent chimney flue fires.

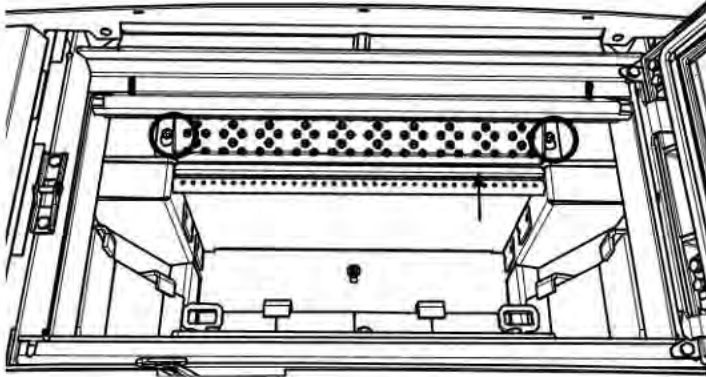




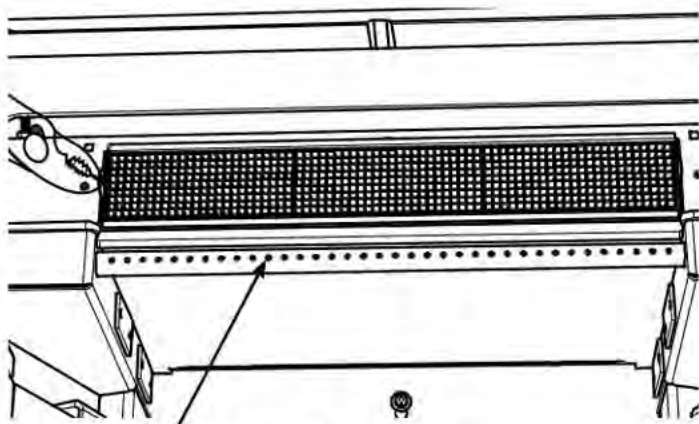
**COMBUSTOR ASSEMBLY  
REMOVAL / REPLACEMENT:**

If the combustor must be examined or replaced, follow this procedure:

1. Allow the stove to burn out and cool down.
2. Open the door and loosen the two 7/16" bolts -see locations below.

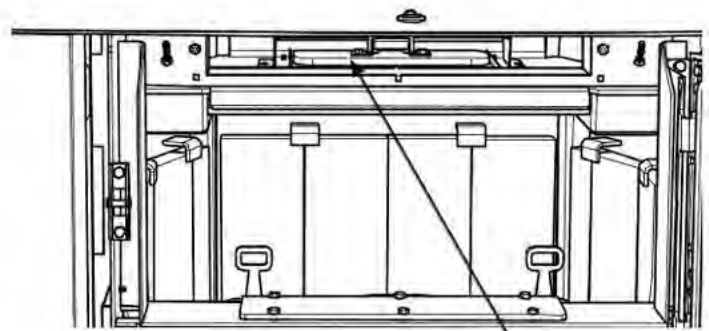


3. Lift flame shield slightly upwards in keyhole slot and pull it forward and down.
4. Use a pair of pliers and gently slide out the band at each end. The assembly will loosen enough that it can be pulled forward, lowered, and pulled out through the door.



Ci2700-1/Hi500-1 Airtube

**NOTE:** If also replacing the gasket in the bypass door (see next page), remove the lid of the bypass door while it is accessible and complete steps in Bypass Door Gasket Replacement.



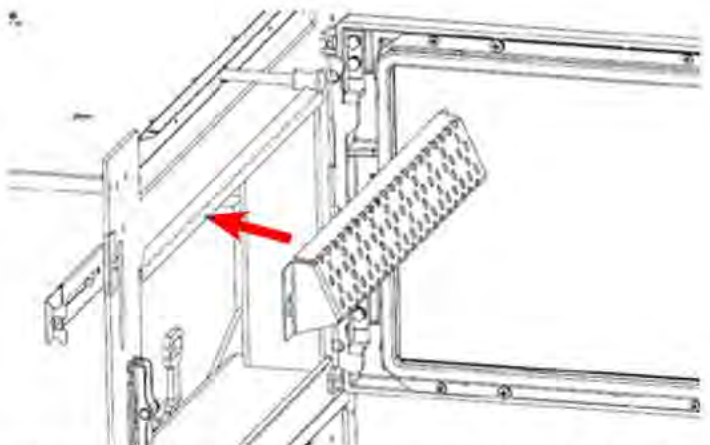
Lid for Bypass Door

**TO REPLACE THE COMBUSTOR:**

First clean the combustor area and the area around the by-pass, use a vacuum cleaner.

Lift the new combustor into position, with the stainless flanges on each end facing forward. The combustor should slide easily into position, you may need to pinch down the top center with your finger to start, gently push as far to the back of the stove as possible.

Replace the flame shield in the orientation shown below.



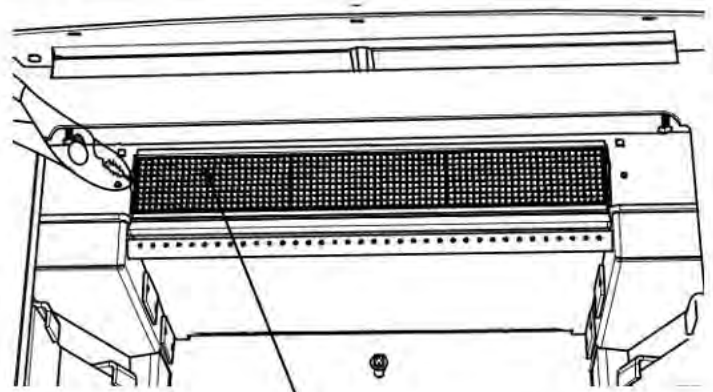
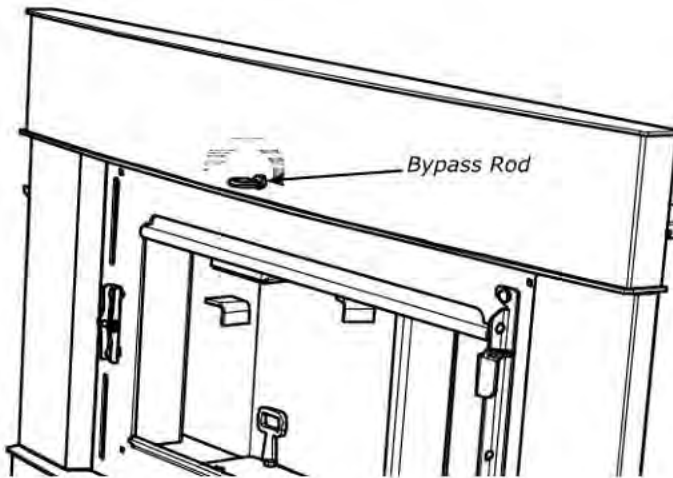
Lift it into position, place the key slot opening over the bolt and push the flame shield down to seat. Tighten the bolt till its SNUG only, do not over tighten. The flame shield should rest at an angle (about 45 degrees) with the thin end at the bottom and the thick end near the top of the stove.

**NOTE:** Replacement combustors can be retrieved from Applied Ceramics or Contact your local Regency Dealer for details.

**DO NOT OPERATE THE APPLIANCE IF COMBUSTOR BECOMES INACTIVE - DO NOT OPERATE WITHOUT COMBUSTOR.**

**BYPASS DOOR GASKET REPLACEMENT**

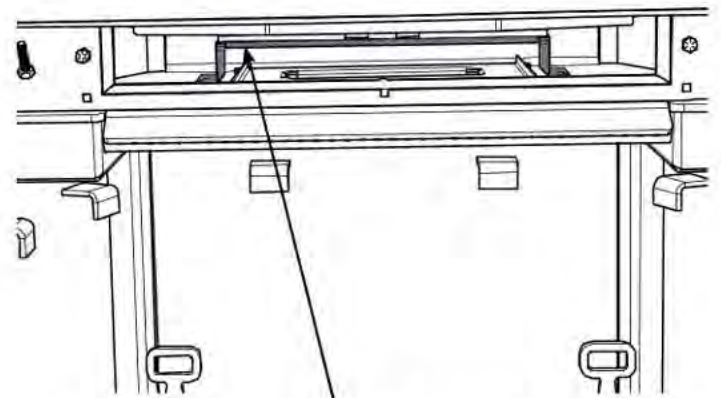
1. Remove bypass rod - turn counter clockwise.



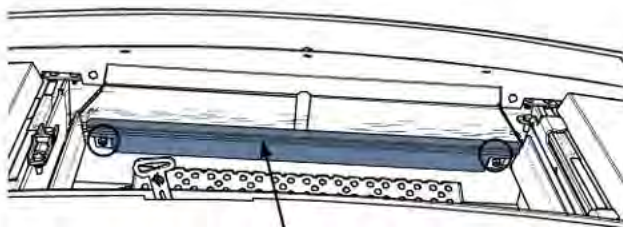
**D- Combustor- remove with pliers  
Tilt down and forward to ease removal.**

2. The following parts must be removed to allow access and a positive connection.

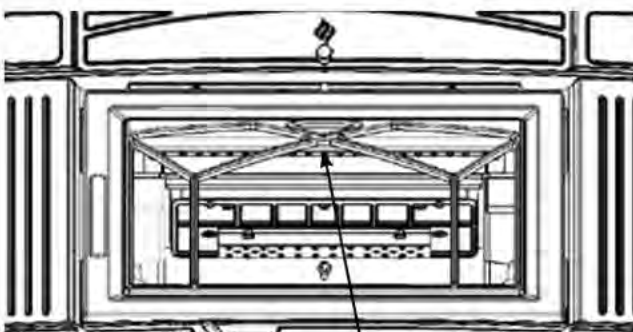
- a) Primary Air Shield
- b) Combustor Flame Shield
- c) Combustor
- d) Upper shield



**E- Upper Shield - slide forward and lift up to remove.**

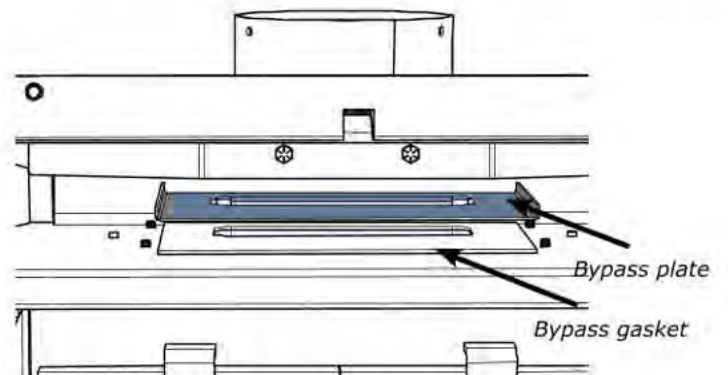


**A- Primary Air Shield - loosen 2 x 7/16" bolts - slide forward to remove.**



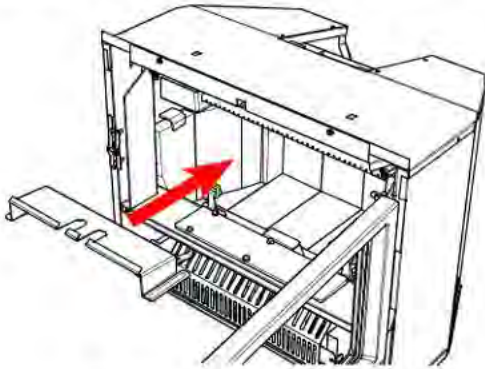
**B- Combustor Flame Shield - loosen 2 x 7/16" bolts to remove.**

3. Lift off bypass plate, remove bypass gasket and replace with a new one.

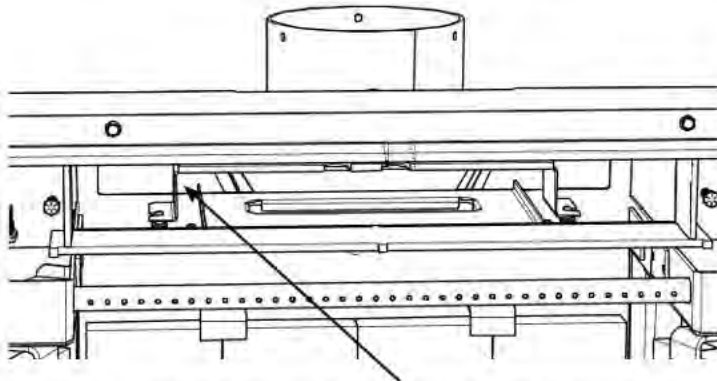




4. Reinstall bypass plate.
5. Reinstall the Upper Shield removed in Step 2d.  
 Ensure Upper Shield is centered in between 2 (two) vertical pins from front to back.  
 When positioning the upper shield locate the vertical pins by feel.  
 When the shield parts are in place - slide to the back.



E- Upper Shield - orientation for reinstall



Upper Shield - center between 2 vertical pins

6. Reinstall Combustor/Flame Combustor Shield / Primary Air Shield and Bypass Rod.

### DOOR GASKET

If the door gasket requires replacement, 5/8" diameter material must be used. A proper high temperature gasket adhesive is required. A gasket repair kit, Part # 846-530 is available from your local Regency dealer.



Cleaning &  
 Maintaining Your  
 Wood Stove

### GLASS CLEANING

Only clean your glass window when it is cool. Your local retailer can supply you with special glass cleaner if plain water and a soft cloth does not remove all deposits. Regular cleaning will prevent the build up of carbon and allow full view of fire.

- CAUTION:** Do not build fire too close to glass window.
- WARNING:** Do not use abrasive cleaners.
- WARNING:** Do not clean glass when hot.
- WARNING:** Do not operate unit with broken glass

### GLASS REPLACEMENT

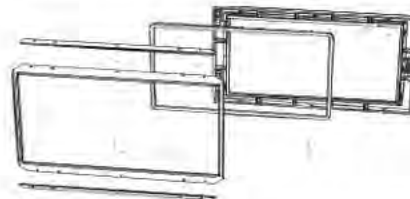
Your Regency Insert is supplied with 5mm Neoceram ceramic glass (Part #940-420/P) that will withstand the highest heat that your unit will produce. In the event that you break your glass by impact - purchase your replacement from an authorized Regency dealer only, and follow our step-by-step instructions.

**WARNING:** Do not use substitute materials.

### GLASS REMOVAL

Allow the stove to cool before removing or replacing glass. Remove the door from the insert and remove the glass retainer. Use caution when removing broken glass to prevent injury.

When placing the replacement glass in the door, make sure the glass gasket will properly seal your unit. Replace the retainer and tighten securely, but do not wrench down on the glass as this may cause breakage. Do not substitute materials. If your glass door does break, do not continue to use your unit until it has been replaced.



**WARNING:** Avoid impact on glass doors such as striking or slamming shut.



Annual Maintenance	
Completely clean out entire unit	Annually
Inspect air tubes, baffles and bricks	Replace any damaged parts.
Adjust door catch / latch	If unable to obtain a tight seal on the door - replace door gasket seal. Readjust latch after new gasket installed.
Inspect condition and seal of: Glass Gasket Door Gasket Bypass Door Gasket	Perform paper test - replace gasket if required
Paper Test	Test the seal on the loading door and bypass door with a paper bill. Place a paper bill in the gasketed area of the door on a cold stove—close the door. Try to remove the paper by pulling. The paper should not pull out easily; if it does, try adjusting the door latch (loading door only). If that doesn't solve the problem, replace the door gasket, bypass gasket, or both.
Check and lubricate door hinge + latch	Use only high temperature anti seize lube. (ie. never seize)
Check glass for cracks	Replace if required.
Clean blower motor	Disconnect power supply. Remove and clean blower. <b>*DO NOT LUBRICATE*</b>
Inspect and clean chimney	Annual professional chimney cleaning recommended.
Thermostat Probe	The thermostat probe that is inserted into the opening above the insert must be cleaned at least once a year. Use 220 sand paper to clean probe. Access to the probe can be done in 2 ways. - by removing the catalyst as this will be exposed once the catalyst is removed. - by removing the faceplate. However, there must be clearance above the insert to be able to remove the probe from the top of the insert. See specific details in this manual.

**NOTE: Chimney Cleaning**

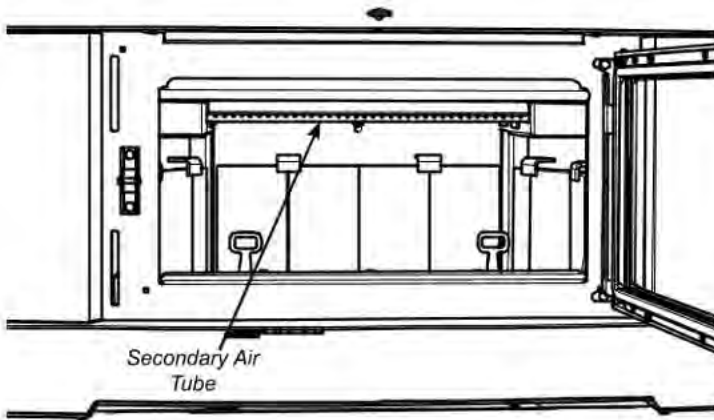
When cleaning the chimney system the bottom stainless steel shield underneath the bypass door should be removed for ease of cleaning. The catalytic combustor should also be removed so this can also be cleaned at the same time following the guide lines found in this manual. The bypass should be moved all the way outward so any creosote will fall onto the firebox floor when being cleaned. We highly recommend that the chimney cleaning be done by a professional as they will have the necessary tools such as a proper sized brush and special vacuum cleaner designed to deal with fine particles.

**IMPORTANT:**

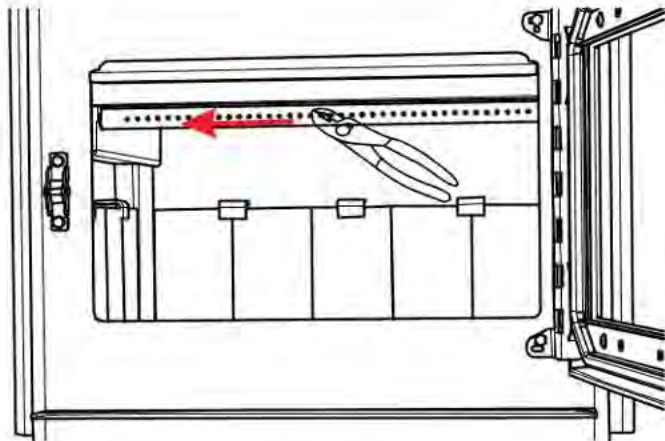
Before attempting to loosen or remove any screw, bolt from the interior of a wood stove, insert or factory built fireplace that has had a fire burned in it, we highly recommend to liberally spray the screw/bolt with a good-quality penetrating oil, one that does not have flammable properties contained within the penetrating oil being used. Allow it to set, then tap or vibrate the screw or bolt to help loosen it before attempting to remove it. For best results, follow the instructions that are provided with the penetrating oil.

## SECONDARY AIR TUBE REMOVAL / INSTALLATION

1. Allow the stove to burn out and cool down, until cool to touch.
2. Open stove door to access secondary air tube.



3. Grasp secondary air tube firmly with vise grips, using a hammer tap vise grips from right to left until air tube is released from grip.

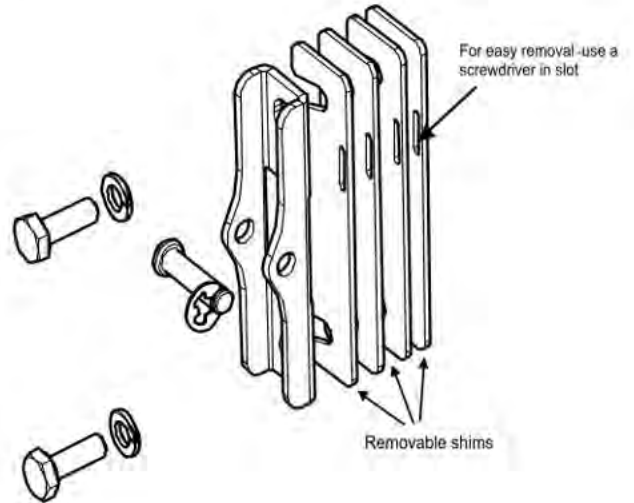


4. To reinstall or replace, first slide left side of tube into hole on left side air channel. Align tab on right side air channel with notch on right hand end of air tube. Firmly grip center of air tube with vise grips, use hammer to tap vise grips from left to right until the tube bottoms out into the air channel on right.

## DOOR CATCH ADJUSTMENT

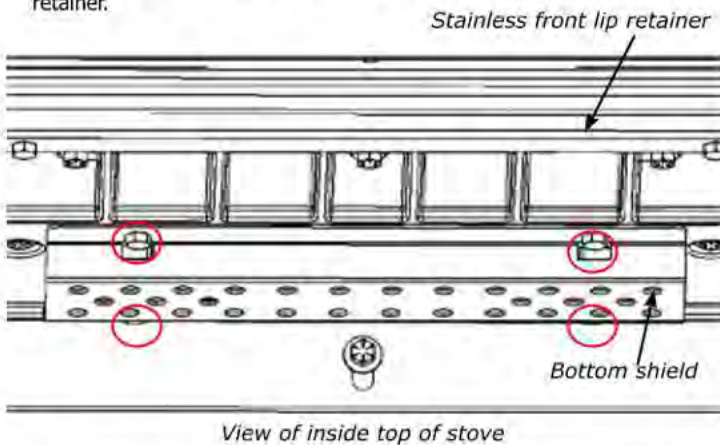
After a few fires, the door catch may require adjustment to renew a tight seal, as the door gasket will compress. Removal of a shim, shown in the diagram below, will allow the catch to be moved closer to the door frame, creating a tighter seal.

To remove a shim, loosen the 2 bolts to create clearance behind catch. Place a screwdriver in the slot of the shim and slide out. Retighten bolts. Note: Keep the shims - they may be required in the future when the gasket is replaced.

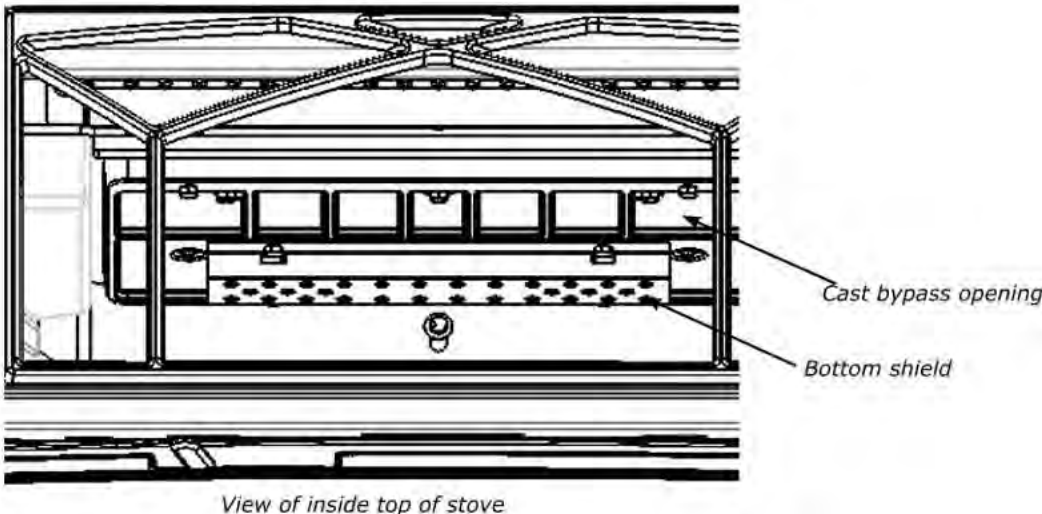


**CAST BYPASS TOP PLATE REMOVAL / INSTALLATION**

1. Allow the stove to burn out and cool down, until cool to touch.
2. Open stove door to access secondary air tube.
3. Remove secondary air tube—(see previous page).
4. Remove 2 bolts in locations shown and remove stainless steel front lip retainer.



5. Loosen the 4 bolts holding the bottom shield. Slide shield towards door opening to remove.
6. 8 bolts secure the cast bypass top plate to the roof of the stove. Before removing the bolts securing the cast bypass - support the cast up with 2 X 12-1/4" 2 x 4 's. The cast bypass opening weighs 30lbs - **DO NOT REMOVE** the bolts on the cast bypass prior to supporting the weight to avoid damage and injury.



7. Remove the cast bypass opening top plate and replace.
8. Reverse steps to reinstall.

**FAN OPERATION INTO AUTO MODE**

If fan will not come on in auto mode see the following possible causes and solutions:

**Possible causes:**

- Bypass damper is open
- Brand new unit or first burn of the season
- No ember bed established (embers or coals, not to be mistaken with ashes)
- Primary damper is set to low (all the way to the right)
- There are only a couple small logs on fire or fire is almost out
- Mechanical issues or defects

**Solutions:**

- Close bypass once unit is at optimum temperature
- Establish a couple inch ember bed
- Set damper between medium to high (middle or all the way to the left)
- Add a few more logs onto the fire
- See your authorized dealer

**NOTE:** The temperature displayed on the catalyst monitor has nothing to do with the activation temperature in auto for the fan.

The automatic sensor for this appliance is located at the firebox base. If the temperature at this location is not met, the fan will not come on. It is crucial on this appliance to get this up to operating temperature so that the catalyst is activated and bypass may be closed to retain heat within the firebox.

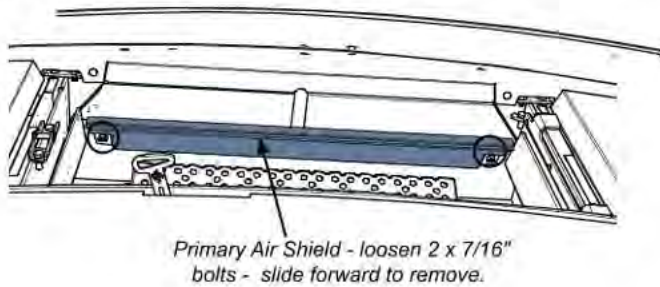


**SWEEPING THE FLUE FROM THE TOP DOWN**

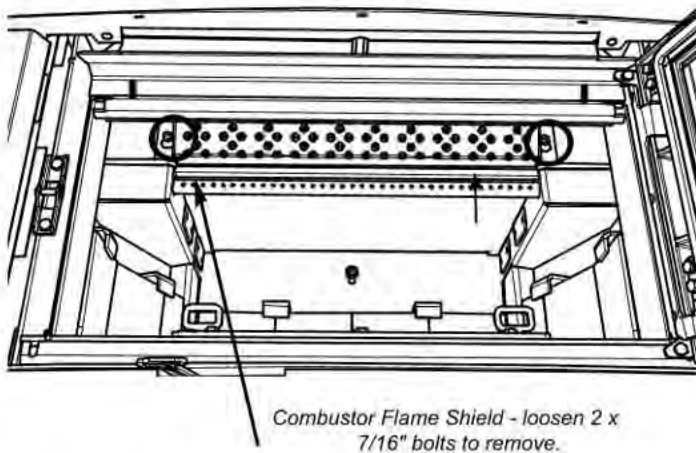
Note: The chimney system on this appliance cannot be cleaned from below.

IMPORTANT: It is imperative that the area around the exterior of the fireplace insert is protected with blankets, drop clothes to prevent any creosote, ash from falling on the finished floor.

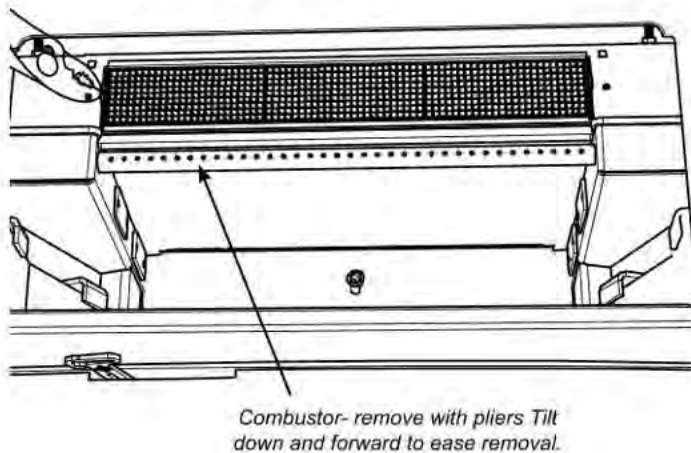
1. Remove the primary air shield



2. Remove the combustor flame shield.

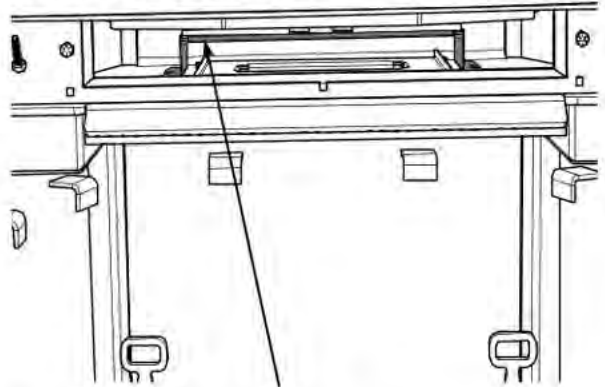


3. Remove the catalyst combustor



4. Close the door of the insert and the bypass rod and sweep the flue from the top of the chimney down into the bypass area.

5. After allowing the debris to settle slowly open the door to prevent spillage. Using an ash vac and extensions clean the area behind the catalyst combustor and bypass area.



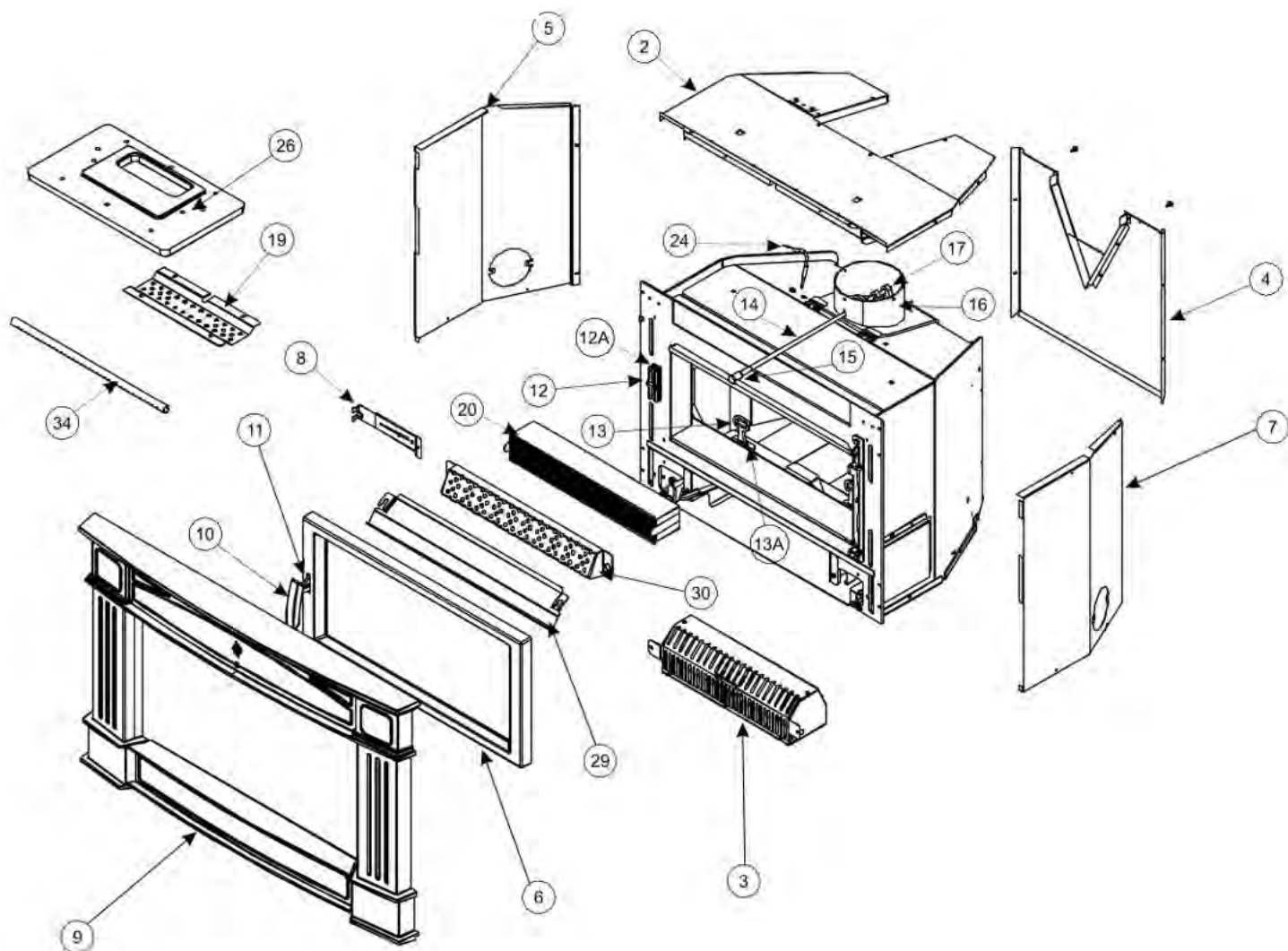
6. Check that the bypass is moving freely after cleaning the area. Do additional cleaning and make adjustments as needed.

7. Reverse steps 1-3 to reinstall the combustor, combustor flame shield and primary air shield.

**MAIN ASSEMBLY**

	<b>Part #</b>	<b>Description</b>
2	106-517	Stove Top Assembly
3	106-917	Fan Assembly
4	106-525	Rear Panel Assembly
5	106-038	Outer Shield L
6	106-520	Black cast door Assembly
*	106-565	Timberline Brown cast door Assembly
7	106-039	Outer Shield R
8	106-518	Handle/Tool Holder Assembly Regular
*	106-542	Handle/Tool Holder Assembly Oversize
9	106-912	Contemporary Faceplate
*	106-910	Low Profile Faceplate
*	106-921	Cast Faceplate Regular - Black
*	106-925	Cast Faceplate Regular -Timberline Brown
*	106-941	Cast Faceplate - Oversize Black
*	106-945	Cast Faceplate - Oversize Timberline Brown
*	106-931	Cast Grill - Black
*	106-935	Cast Grill - Timberline Brown
*	106-956	Standard Backing Plate
*	106-958	Oversize Backing Plate
10	156-241	Cast Handle
11	156-514	Handle Assembly
*	106-541/P	Aligner Assembly (For Back Side of Door Latch)
12	106-561	Catch Assembly
*	106-131F	106-131F Door Catch Shims (Each)
13	106-043	Andirons (ea)
13A	106-042	Andiron Bracket (Each)
14	106-016	Bypass rod
15	106-122B	Bypass knob (Matt Black)
	106-122MJE	Bypass knob (Timberline brown)
19	106-143	Bottom shield

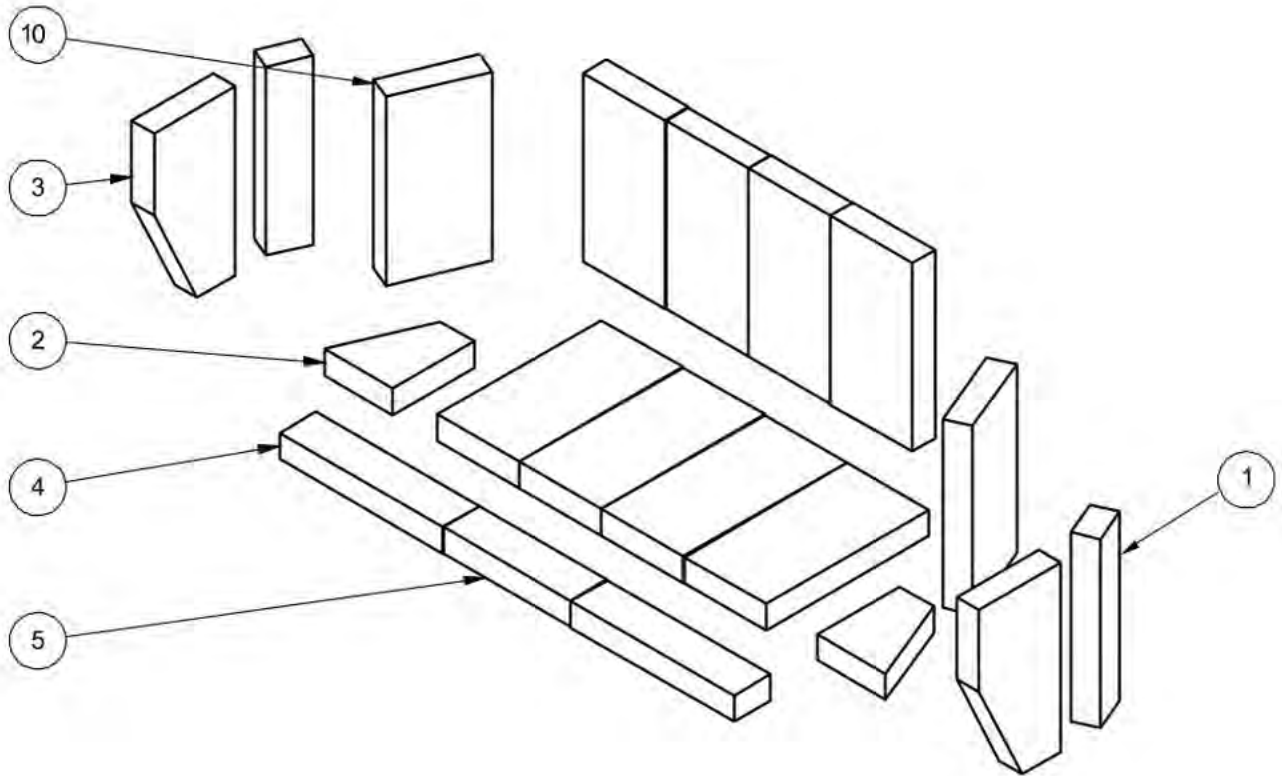
	<b>Part #</b>	<b>Description</b>
16	106-516	Flue Collar Assembly
17	106-062F	Fork
20	106-574	Catalytic Combustor
*	106-546	Contemporary Rail Assembly Left
*	106-547	Contemporary Rail Assembly Right
*	911-185	Digital Catalytic Combustor Monitor
24	911-186	Digital Catalytic Monitor Probe
*	106-955	Offset Flue Adapter
26	106-351	Cast Bypass Top Plate
27	106-018	Bypass Top Gasket
*	910-138	Auto/manual switch
*	910-140	Fan Hi/Off/Low switch
	106-536	Fan Swith Assembly Complete
*	910-142	Fan Thermodisc
*	910-157/P	Fan motor only
*	940-420/P	Replacement Glass (Includes Glass Gasket)
*	846-682	7/8" Window Adhesive Gasket Tape (12') (936-243)
*	106-003	Stainless steel baffle
29	106-095	Primary Air Shield
30	106-144	Combustor Flame Shield
*	106-060	Upper Shield
*	106-129	Bypass Damper Tool
34	033-953	Secondary Air Tube
	920-673	Manual
* Part not Shown		



**BRICK LAYOUT**

106-960 Brick Set - Complete

- 1 2 x 7 BRICK
- 4 2 x 9 BRICK
- 2 FIRE BRICK
- 2 FIRE BRICK
- 10 9 x 4.5 STANDARD BRICK







**Limited Lifetime Warranty**

FPI Fireplace Products International Ltd. (for Canadian customers) and Fireplace Products U.S., Inc. (for U.S. customers) (collectively referred to herein as “FPI”) extends this Limited Lifetime Warranty to the original purchaser of this appliance provided the product remains in the original place of installation. The items covered by this limited warranty and the period of such coverage is set forth in the table below.

Some conditions apply (see below).

The policy is not transferable, amendable, or negotiable under any circumstances.

Wood Products	Component Coverage					Labor Coverage (Years)
	Limited Lifetime	5 years	2 years	1 year	Warranty	
Welded Firebox Steel	✓					5
All Stainless Steel Components, Smoke Deflectors, Heat Shields etc.	✓					3
Air Tubes	✓					3
Airmate	✓					3
Door handle and latch assembly, all hardware	✓					3
Glass Thermal Breakage Only	✓					3
Steel Faceplates, Accessory Housings	✓					3
All Plating	✓					3
Ash Drawer, Heatshields, Pedestal	✓					
All Baffles, Steel, Ceramic, Vermiculite C-Baffles	✓					
All castings, firebox, surrounds, doors, panels etc.		✓				3
All Electrical, Blower, wiring, switches etc.			✓			2
Glass - Crazing				✓		1
Catalyst Combustor					*10 Years Prorated	
Venting/Chimney				✓		1
Screens				✓		1

\*See specific warranty details in regards to the catalyst combustor in unit manual.

**Conditions:**

Warranty protects against defect in manufacture or FPI factory assembled components only, unless herein specified otherwise.

Any part(s) found to be defective during the warranty period as outlined above will be repaired or replaced at FPI’s option through an accredited distributor, dealer or pre-approved and assigned agent provided that the defective part is returned to the distributor, dealer or agent for inspection if requested by FPI. Alternatively, FPI may at its own discretion fully discharge all of its obligations under the warranty by refunding the verified purchase price of the product to the original purchaser. The purchase price must be confirmed by the original Bill of Sale.

**The authorized selling dealer, or an alternative authorized FPI dealer if pre-approved by FPI, is responsible for all in-field diagnosis and service work related to all warranty claims. FPI is not responsible for results or costs of workmanship of unauthorized FPI dealers or agents in the negligence of their service work.**

At all times FPI reserves the right to inspect reported complaints on location in the field claimed to be defective prior to processing or authorizing of any claim. Failure to allow this upon request will void the warranty.

All warranty claims must be submitted by the dealer servicing the claim, including a copy of the Bill of Sale (proof of purchase by you). All claims must be complete and provide full details as requested by FPI to receive consideration for evaluation. Incomplete claims may be rejected.

Replacement units are limited to one per warranty term. Airtube and baffle replacements are limited to one replacement per term.

Unit must be installed according to all manufacturers' instructions as per the manual.

All Local and National required codes must be met.

The installer is responsible to ensure the unit is operating as designed at the time of installation.

The original purchaser is responsible for annual maintenance of the unit, as outlined in the owner's manual. As outlined below, the warranty may be voided due to problems caused by lack of maintenance.

Repair/replacement parts purchased by the consumer from FPI after the original coverage has expired on the unit will carry a 90 day warranty, valid with a receipt only. Any item shown to be defective will be repaired or replaced at our discretion. No labor coverage is included with these parts.

**Exclusions:**

This Limited Lifetime Warranty does not extend to rust or corrosion of any kind due to: a lack of maintenance or improper venting, lack of combustion air provision, or exposure to corrosive chemicals (i.e. chlorine, salt, air, etc.).

This Limited Lifetime Warranty also does not extend to: paint, firebricks (rear, sides, or bottom), door gasketing, glass gasketing (or any other additional factory fitted gasketing), vermiculite floor bricks, andiron assemblies, and flue damper rods.

Malfunction, damage or performance based issues as a result of environmental conditions, location, chemical damages, downdrafts, installation error, installation by an unqualified installer, incorrect chimney components (including but not limited to cap size or type), operator error, abuse, misuse, use of improper fuels (such as unseasoned cordwood, mill-ends, construction lumber or debris, off-cuts, treated or painted lumber, metal or foil, plastics, garbage, solvents, cardboard, coal or coal products, oil based products, waxed cartons, compressed pre-manufactured logs, kiln dried wood), lack of regular maintenance and upkeep, acts of God, weather related problems from hurricanes, tornados, earthquakes, floods, lightning strikes/bolts or acts of terrorism or war, which result in malfunction of the appliance are not covered under the terms of this Limited Lifetime Warranty.

FPI has no obligation to enhance or modify any unit once manufactured (i.e. as products evolve, field modifications or upgrades will not be performed on existing appliances).

This warranty does not cover dealer travel costs for diagnostic or service work. All labor rates paid to authorized dealers are subsidized, pre-determined rates. Dealers may charge homeowner for travel and additional time beyond their subsidy.

Any unit showing signs of neglect or misuse will not be covered under the terms of this warranty policy and may void this warranty. This includes units with rusted or corroded fireboxes which have not been reported as rusted or corroded within three (3) months of installation/purchase.

Units which show evidence of being operated while damaged, or with problems known to the purchaser and causing further damages will void this warranty.

Units where the serial no. has been altered, deleted, removed or made illegible will void this warranty.

Minor movement, expansion and contraction of the steel is normal and is not covered under the terms of this warranty.

FPI is not liable for the removal or replacement of facings or finishing in order to repair or replace any appliance in the field.

Freight damages for products or parts are not covered under the terms of the warranty.

Products made or provided by other manufacturers and used in conjunction with the FPI appliance without prior authorization from FPI may void this warranty.

**Limitations of Liability:**

The original purchaser's exclusive remedy under this warranty, and FPI's sole obligation under this warranty, express or implied, in contract or in tort, shall be limited to replacement, repair, or refund, as outlined above. IN NO EVENT WILL FPI BE LIABLE UNDER THIS WARRANTY FOR ANY INCIDENTAL OR CONSEQUENTIAL COMMERCIAL DAMAGES OR DAMAGES TO PROPERTY. TO THE EXTENT PERMITTED BY APPLICABLE LAW, FPI MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY SPECIFIED HEREIN. THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO DURATION OF THE EXPRESSED WARRANTY SPECIFIED ABOVE. IF IMPLIED WARRANTIES CANNOT BE DISCLAIMED, THEN SUCH WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some U.S. states do not allow limitations on how long an implied warranty lasts, or allow exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

Customers located outside the U.S. should consult their local, provincial or national legal codes for additional terms which may be applicable to this warranty.

**How to Obtain Warranty Service:**

Customers should contact the authorized selling dealer to obtain all warranty and service. In the event the authorized selling dealer is unable to provide warranty / service, please contact FPI by mail at the address listed on the next page. Please include a brief description of the problem and your address, email and telephone contact information. A representative will contact you to make arrangements for an inspection and/or warranty service, by an alternative dealer.

**Product Registration and Customer Support:**

Thank you for choosing a Regency Fireplace. Regency strives to be a world leader in the design, manufacture, and marketing of hearth products. To provide the best support for your product, we request that you complete a product registration form at <http://www.regency-fire.com/Customer-Care/Warranty-Registration.aspx> within ninety (90) days of purchase.



### Product Registration and Customer Support:

Thank you for choosing a Regency Fireplace. Regency strives to be a world leader in the design, manufacture, and marketing of hearth products. To provide the best support for your product, we request that you complete a product registration form found on our Web Site under Customer Care within ninety (90) days of purchase.

For purchases made in **CANADA or the UNITED STATES:**

<http://www.regency-fire.com/Customer-Care/Warranty-Registration.aspx>

For purchases made in **AUSTRALIA:**

<http://www.regency-fire.com.au/Customer-Care/Warranty-Registration.aspx>

You may also complete the warranty registration form below to register your Regency Fireplace Product and mail and/or fax it back to us, and we will register the warranty for you. It is important you provide us with all the information below in order for us to serve you better.

### Warranty Registration Form (or Register online immediately at the above Web Site):

<b>Warranty Details</b>	
Serial Number (required):	
Purchase Date (required) (mm/dd/yyyy):	
<b>Product Details</b>	
Product Model (required):	
<b>Dealer Details</b>	
Dealer Name (required):	
Dealer Address:	
Dealer Phone #:	
Installer:	
Date Installed (mm/dd/yyyy):	
<b>Your Contact Details (required)</b>	
Name:	
Address:	
Phone:	
Email:	

For purchases made in **CANADA:**

**FPI Fireplace Products  
International Ltd.**  
6988 Venture St.  
Delta, British Columbia  
Canada, V4G 1H4

Phone: 604-946-5155  
Fax: 1-866-393-2806

For purchases made in the **UNITED STATES:**

**Fireplace Products US, Inc.**  
PO Box 2189 PMB 125  
Blaine, WA  
United States, 98231

Phone: 604-946-5155  
Fax: 1-866-393-2806

For purchases made in **AUSTRALIA:**

**Fireplace Products Australia Pty Ltd**  
99 Colemans Road  
Dandenong South, Vic. 3175  
Australia

Phone: +61 3 9799 7277  
Fax: +61 3 9799 7822

For fireplace care and tips and answers to most common questions please visit our Customer Care section on our Web Site. Please feel free to contact your selling dealer if you have any questions about your Regency product.





## CATALYTIC COMBUSTOR WARRANTY COVERAGE

### IMPORTANT WARRANTY INFORMATION FOR CATALYTIC COMBUSTOR Effective March 1 2019

Any and all claims for catalytic combustor must be filed **by the consumer** directly with their authorized Regency Dealer. FPI/Regency does not handle these claims directly with consumers.

Please follow the instructions below for your catalytic combustor under warranty. To learn more about the care and maintenance or the catalytic combustor, please visit our website: [www.firecatcombustors.com](http://www.firecatcombustors.com).

Any warranty coverage before this date will be covered by the original warranty when the appliance was purchased.

- (1) **10-year** coverage from Regency – not the supplier of the catalytic combustor.
- (2) All claims must be made through the dealer where the appliance had been purchased.
- (3) One no-charge replacement at any time within the **ten (10) year** period.
- (4) Second replacement at 50% off retail\* within the original **ten (10) years**.
- (5) Subsequent replacements or if **ten (10)-year** coverage has expired at full retail\* price.
- (6) The catalytic combustor must not have been mechanically abused, nor must the wrong fuels have been used in the appliance.
- (7) All claims must be accompanied by clear photos of the catalytic combustor showing all damage and also showing existing internal venting from the stove.

The consumer will be responsible for removal, any servicing. This warranty is REGENCY® exclusive warranty and REGENCY® disclaims any other express or implied warranty for the catalytic combustor, including any warranty or merchantability of fitness for a particular use.

**NO LABOR WILL APPLY.**

All warranty claims must be sent to: Regency Fireplace Products  
By Authorized Regency Dealer

\* Prices subject to change.

Regency reserves the right to reject any claim if it is determined the damage is a result of misuse, abuse or improper cleaning/handling.



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***Installer: Please complete the following information***

**Dealer Name & Address:** \_\_\_\_\_  
\_\_\_\_\_

**Installer:** \_\_\_\_\_

**Phone #:** \_\_\_\_\_

**Date Installed:** \_\_\_\_\_

**Serial #:** \_\_\_\_\_



# QUALITY CONTROL SERVICES

LABORATORY EQUIPMENT • SALES • SERVICE • CALIBRATION • REPAIRS  
 2340 SE 11<sup>TH</sup> Ave. Portland, Oregon 97214 • Box 14831 Portland, Oregon 97293  
 (503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com



PFS Teco  
 11785 SE Hwy 212 STE#305  
 Clackamas, OR 97015

Report Number: DIRI0182484A0912013i221214

## A2LA ACCREDITED CERTIFICATE OF CALIBRATION WITH DATA

### INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Scale	Digiweigh	DWP12i 300kg x 0.	82484A0912013i	#050	Lab
Units	Readability	SOP	Cal Date	Last Cal Date	Cal Due Date
kg	0.01	QC033	12/14/22	1/27/22	12/2023

### FUNCTIONAL CHECKS

SHIFT TEST		LINEARITY		REPEATABILITY		ENVIRONMENTAL CONDITIONS		
Test Wt:	Tol:	Test Wt:	Tol:	Test Wt:	Tol:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
100	0.05	HB44	HB44	100	0.01	Good	Fair	Poor
As-Found:		As-Found:		As-Found:		Temperature: 18.6°C		
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>			
As-Left:		As-Left:		As-Left:				
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>			

### CALIBRATION DATA

Standard	As-Found	As-Left	Expanded Uncertainty
200	200.00	200.00	0.005
120	100.00	100.00	0.005
80	80.00	80.00	0.005
40	40.00	40.00	0.005
20	20.00	20.00	0.005
10	10.00	10.00	0.005

### CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Weight Set	R.L./Troemner	10kg to 1mg	G782	4/14/22	4/2023	20220751
Weight Set	Rice Lake	.001 to 10lb	PW0990	1/19/21	1/2023	20202519

Permanent Information Concerning this Equipment:

Comments/Information Concerning this Calibration

12/22: RH-46.7%

Report prepared/reviewed by: LD

Date: 12/14/22

Technician: Ko Dexter

Signature: [Signature]

THIS CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards.

# Dry Gas Meter Calibration

**DUT**

Manufacturer:	APEX	
Model:	XC-60	
Lab ID #:	53	
Serial #:	1902130	
Calibration Date:	1/26/2023	
Calibration Expiration:	7/26/2023	
Barometric Pressure:	30.51	in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer:	Apex	Fluke	Aquatech	Dwyer
Model:	SK25DA	52 II	DBX2	475
Lab ID#:	47	196	202	174
Calibration Expiration Date:	3/30/2023	11/29/2023	4/16/2023	3/29/2023
Calibration $\gamma$ Factor:	0.9978			

**Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.**

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	149.049	145.786	156.580
Standard DGM Temperature (°F)	64.0	64.0	64.0
Standard DGM Pressure (in H <sub>2</sub> O)	0.00	0.00	0.0
DGM Initial Volume (ft <sup>3</sup> )	0.000	0.000	0.000
DGM Final Volume (ft <sup>3</sup> )	5.425	5.311	5.765
DGM Temperature (°F)	89.0	92.0	94.0
DGM Pressure (in H <sub>2</sub> O)	2.00	3.50	1.2
Net Volume for Standard DGM (ft <sup>3</sup> )	5.264	5.148	5.530
Net Volume for DGM (ft <sup>3</sup> )	5.425	5.311	5.765
Dry Gas Meter $\gamma$ Factor	1.009	1.010	1.009
$\gamma$ Factor Deviation From Average	1.009	1.010	1.009

Average Gas Meter  $\gamma$  Factor

1.010

**Measurement Uncertainty:** Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

# Report and Certificate of Calibration



www.Cal-Cert.com



Toll Free  
800-856-4662

Address  
5777 SE International Way  
Milwaukie, OR 97222

Local  
503-654-9620

**Report #:** 28140-203323-14      **Customer PO#:** 1090  
**Customer Name:** PFS TECO  
**Customer Address:** 11785 SE Highway 212 Ste 305  
**City:** Clackamas      **State:** OR      **Zip:** 97015  
**Contact:** Aaron Kravitz  
**Service Address:** 11785 SE Highway 212 Ste 305      Clackamas, OR 97015

## Calibration Standards

19-00269   Thermo-Hygrometer   Comark   SN: 6237360167   Cal: 09/14/2022   Due: 08/31/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 25699-30694-3486
LA-01776   Pressure Transducer   Fluke   SN: 5956001   Cal: 11/25/2022   Due: 11/25/2023   Range: 10 in H2O   Report #: EVL846346

## Instrument Data

<b>Calibration Date:</b>	March 1, 2023	<b>Reference:</b>	ASME B40.100
<b>Recommended Due Date:</b>	March 1, 2024	<b>Cal-Cert Procedure:</b>	CP-003
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	Unknown	<b>Temperature:</b>	69 °F
<b>Type:</b>	Pressure Transducer	<b>Humidity:</b>	36% RH
<b>Model Number:</b>	Unknown	<b>Cal Factor:</b>	None
<b>Serial #:</b>	Unknown	<b>Asset #:</b>	53B
<b>Capacity:</b>	1 In H2O	<b>Service Location:</b>	Service Address
<b>Tolerance:</b>	± 1.00% of Span	<b>As Found:</b>	Pass
<b>Gauge Class:</b>	A	<b>As Left:</b>	Pass

Instrument Range:		1.00		Range Resolution:		0.01		Mode Verified:		Pressure	
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±				
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O				
0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.005				
0.10	0.10	0.10	0.00	0.10	0.00	0.01	0.005				
0.25	0.25	0.25	0.00	0.25	0.00	0.01	0.005				
0.50	0.50	0.50	0.00	0.50	0.00	0.01	0.005				
0.75	0.75	0.75	0.00	0.75	0.00	0.01	0.005				
1.00	1.00	1.00	0.00	1.00	0.00	0.01	0.005				
0.75	0.75	0.75	0.00	0.75	0.00	0.01	0.005				
0.50	0.50	0.50	0.00	0.50	0.00	0.01	0.005				
0.25	0.25	0.25	0.00	0.25	0.00	0.01	0.005				
0.10	0.10	0.10	0.00	0.10	0.00	0.01	0.005				
0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.005				

**Manufacturer:** Unknown

**Type:** Pressure Transducer

**Serial #:** Unknown

**Remarks:**

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.  
Cleaning and preventative maintenance were performed as part of this service.**

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**Service Engineer:**

Jon Rau

**Date:**

March 1, 2023

**Technical Manager:**

Marshall Doyle

**Signature:**





# Report and Certificate of Calibration



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800-856-4662

Address  
5777 SE International Way  
Milwaukie, OR 97222

Local  
503-654-9620

Report #: 28140-203324-14 Customer PO#: 1090  
 Customer Name: PFS TECO  
 Customer Address: 11785 SE Highway 212 Ste 305  
 City: Clackamas State: OR Zip: 97015  
 Contact: Aaron Kravitz  
 Service Address: 11785 SE Highway 212 Ste 305 Clackamas, OR 97015

## Calibration Standards

19-00269   Thermo-Hygrometer   Comark   SN: 6237360167   Cal: 09/14/2022   Due: 08/31/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 25699-30694-3486
LA-01776   Pressure Transducer   Fluke   SN: 5956001   Cal: 11/25/2022   Due: 11/25/2023   Range: 10 in H2O   Report #: EVL846346

## Instrument Data

<b>Calibration Date:</b>	March 1, 2023	<b>Reference:</b>	ASME B40.100
<b>Recommended Due Date:</b>	March 1, 2024	<b>Cal-Cert Procedure:</b>	CP-003
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	Newport	<b>Temperature:</b>	73 °F
<b>Type:</b>	Pressure Transducer	<b>Humidity:</b>	30% RH
<b>Model Number:</b>	Unknown	<b>Cal Factor:</b>	None
<b>Serial #:</b>	Unknown	<b>Asset #:</b>	53C
<b>Capacity:</b>	5 In H2O	<b>Service Location:</b>	Service Address
<b>Tolerance:</b>	± 1.00% of Span	<b>As Found:</b>	Pass
<b>Gauge Class:</b>	A	<b>As Left:</b>	Pass

Instrument Range:		Range Resolution:		Mode Verified:		Pressure	
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005
0.50	0.50	0.50	0.00	0.50	0.00	0.05	0.005
1.25	1.25	1.25	0.00	1.25	0.00	0.05	0.005
2.50	2.50	2.50	0.00	2.50	0.00	0.05	0.006
3.75	3.75	3.75	0.00	3.75	0.00	0.05	0.007
5.00	5.00	5.00	0.00	5.00	0.00	0.05	0.008
3.75	3.75	3.75	0.00	3.75	0.00	0.05	0.007
2.50	2.50	2.50	0.00	2.50	0.00	0.05	0.006
1.25	1.25	1.25	0.00	1.25	0.00	0.05	0.005
0.50	0.50	0.50	0.00	0.50	0.00	0.05	0.005
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005

**Manufacturer:** Newport

**Type:** Pressure Transducer

**Serial #:** Unknown

**Remarks:**

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.  
Cleaning and preventative maintenance were performed as part of this service.**

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**Service Engineer:**

Jon Rau

**Date:**

March 1, 2023

**Technical Manager:**

Marshall Doyle

**Signature:**



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800-356-4662

Address  
5777 SE International Way  
Milwaukie, OR 97222

Local  
503-654-0620



**Report #:** 26398-201253-5 **Customer PO#:** 1079  
**Customer Name:** PFS TECO  
**Customer Address:** 11785 SE Highway 212  
**City:** Clackamas **State:** OR **Zip:** 97015  
**Contact:** Ethan Frederick  
**Service Address:** 5777 SE International Way Milwaukie, OR 97222

### Calibration Standards

LP-00397   Gage Block Set   Mitutoyo   SN: 509020   Cal: 11/25/2020   Due: 11/30/2022   Vendor: BHD Test and Measurement   Report #: 112520A
LP-01346   Thermo-Hygrometer   Comark   SN: 06210350198   Cal: 02/07/2022   Due: 02/28/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 22748-67215-3486

### Instrument Data

<b>Calibration Date:</b>	October 21, 2022	<b>Reference:</b>	ASME B89.1.14 2018
<b>Calibration Due Date:</b>	October 21, 2023	<b>Cal-Cert Procedure:</b>	CP-008
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	Mitutoyo	<b>Temperature:</b>	69 °F
<b>Type:</b>	Digital Caliper	<b>Humidity:</b>	38% RH
<b>Model Number:</b>	CD-P6"S	<b>Asset #:</b>	208
<b>Serial #:</b>	B22159310	<b>Service Location:</b>	Cal-Cert Lab
<b>Capacity:</b>	6 Inches	<b>As Found:</b>	PASS
<b>Resolution:</b>	0.0005 Inches	<b>As Left:</b>	PASS

<b>Instrument Range:</b>	6.0000 Inches	<b>Range Resolution:</b>	0.0005 Inches
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Outside Jaws / Linearity				
Calibration Standard Inches	As Found Inches	As Left Reading 1 Inches	As Left Reading 2 Inches	Tolerance ± Inches
0.0000	0.0000	0.0000	0.0000	0.0000
0.0500	0.0500	0.0500	0.0500	0.0010
0.3000	0.3000	0.3000	0.3000	0.0010
0.6000	0.6005	0.6005	0.6005	0.0010
1.2000	1.2000	1.2000	1.2000	0.0010
2.4000	2.4005	2.4005	2.4005	0.0010
3.5000	3.5000	3.5000	3.5000	0.0010
5.0000	5.0005	5.0005	5.0005	0.0010
6.0000	6.0005	6.0005	6.0005	0.0010

**Expanded Uncertainty ± 0.00036 Inches**

Verifications (for information only)			
	Target	Measured	Tolerance ±
Resolution Check	0.1005	0.10050	N/A
Depth	1.000	1.00000	N/A
Step	1.000	1.00000	N/A
Inside Jaws	1.000	1.00000	N/A
Inspections			
Jaws Parallel	Acceptable		

**Remarks:**

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**Service Engineer:** Cameron Walling **Date:** October 21, 2022  
**Technical Manager:** Marshall Doyle **Signature:** *M Doyle*

Caliper CF-008-01

Revision 16 9/19/2022

# Dry Gas Meter Calibration

**DUT**

Manufacturer: APEX  
 Model: XC-60  
 Lab ID #: 54  
 Serial #: 1902133  
 Calibration Date: 1/26/2023  
 Calibration Expiration: 7/26/2023  
 Barometric Pressure: 30.49 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		Fluke	Aquatech	Dwyer
Model: SK25DA		52 II	DBX2	475
Lab ID#: 47		196	202	174
Calibration Expiration Date: 3/30/2023		11/29/2023	4/16/2023	3/29/2023
Calibration $\gamma$ Factor: 0.9978				

**Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.**

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	160.750	154.658	151.064
Standard DGM Temperature (°F)	64.0	65.0	66.0
Standard DGM Pressure (in H <sub>2</sub> O)	0.00	0.00	0.0
DGM Initial Volume (ft <sup>3</sup> )	0.000	0.000	0.000
DGM Final Volume (ft <sup>3</sup> )	5.962	5.736	5.621
DGM Temperature (°F)	97.0	96.0	97.0
DGM Pressure (in H <sub>2</sub> O)	3.00	2.00	1.0
Net Volume for Standard DGM (ft <sup>3</sup> )	5.677	5.462	5.335
Net Volume for DGM (ft <sup>3</sup> )	5.962	5.736	5.621
Dry Gas Meter $\gamma$ Factor	1.003	1.001	1.000
$\gamma$ Factor Deviation From Average	1.003	1.001	1.000

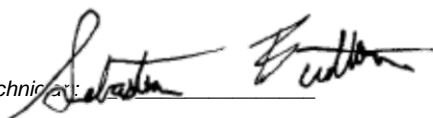
Average Gas Meter  $\gamma$  Factor

1.001

**Measurement Uncertainty:** Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Technician: 

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**Address**  
5777 SE International Way  
Milwaukie, OR 97222

**Local**  
503-654-9620

**Report #:** 28140-203325-14      **Customer PO#:** 1090  
**Customer Name:** PFS TECO  
**Customer Address:** 11785 SE Highway 212 Ste 305  
**City:** Clackamas      **State:** OR      **Zip:** 97015  
**Contact:** Aaron Kravitz  
**Service Address:** 11785 SE Highway 212 Ste 305      Clackamas, OR 97015

## Calibration Standards

19-00269   Thermo-Hygrometer   Comark   SN: 6237360167   Cal: 09/14/2022   Due: 08/31/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 25699-30694-3486
LA-01776   Pressure Transducer   Fluke   SN: 5956001   Cal: 11/25/2022   Due: 11/25/2023   Range: 10 in H2O   Report #: EVL846346

## Instrument Data

<b>Calibration Date:</b>	March 1, 2023	<b>Reference:</b>	ASME B40.100
<b>Recommended Due Date:</b>	March 1, 2024	<b>Cal-Cert Procedure:</b>	CP-003
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	Newport	<b>Temperature:</b>	68 °F
<b>Type:</b>	Pressure Transducer	<b>Humidity:</b>	37% RH
<b>Model Number:</b>	Unknown	<b>Cal Factor:</b>	None
<b>Serial #:</b>	Unknown	<b>Asset #:</b>	54B
<b>Capacity:</b>	1 In H2O	<b>Service Location:</b>	Service Address
<b>Tolerance:</b>	± 1.00% of Span	<b>As Found:</b>	Pass
<b>Gauge Class:</b>	A	<b>As Left:</b>	Pass

<b>Instrument Range:</b> 1.00		<b>Range Resolution:</b> 0.01		<b>Mode Verified:</b> Pressure			
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O
0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.005
0.10	0.10	0.10	0.00	0.10	0.00	0.01	0.005
0.25	0.25	0.25	0.00	0.25	0.00	0.01	0.005
0.50	0.50	0.50	0.00	0.50	0.00	0.01	0.005
0.75	0.75	0.75	0.00	0.75	0.00	0.01	0.005
1.00	0.99	0.99	-0.01	0.99	-0.01	0.01	0.005
0.75	0.75	0.75	0.00	0.75	0.00	0.01	0.005
0.50	0.50	0.50	0.00	0.50	0.00	0.01	0.005
0.25	0.25	0.25	0.00	0.25	0.00	0.01	0.005
0.10	0.10	0.10	0.00	0.10	0.00	0.01	0.005
0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.005

**Manufacturer:** Newport

**Type:** Pressure Transducer

**Serial #:** Unknown

**Remarks:**

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**Service Engineer:**

Jon Rau

**Date:**

March 1, 2023

**Technical Manager:**

Marshall Doyle

**Signature:**



# Dry Gas Meter Calibration

**DUT**

Manufacturer: APEX  
 Model: XC-50-DIR  
 Lab ID #: 203  
 Serial #: A2204292  
 Calibration Date: 1/26/2023  
 Calibration Expiration: 7/26/2023  
 Barometric Pressure: 30.50 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		Fluke	Aquatech	Dwyer
Model: SK25DA		52 II	DBX2	475
Lab ID#: 47		196	202	174
Calibration Expiration Date: 3/30/2023		11/29/2023	4/16/2023	3/29/2023
Calibration $\gamma$ Factor: 0.9978				

**Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.**

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	230.939	193.894	200.071
Standard DGM Temperature (°F)	66.0	66.0	66.0
Standard DGM Pressure (in H <sub>2</sub> O)	0.00	0.00	0.0
DGM Initial Volume (ft <sup>3</sup> )	0.000	0.000	0.000
DGM Final Volume (ft <sup>3</sup> )	8.610	7.251	7.491
DGM Temperature (°F)	92.0	92.0	91.0
DGM Pressure (in H <sub>2</sub> O)	2.56	1.30	0.8
Net Volume for Standard DGM (ft <sup>3</sup> )	8.156	6.847	7.065
Net Volume for DGM (ft <sup>3</sup> )	8.610	7.251	7.491
Dry Gas Meter $\gamma$ Factor	0.986	0.986	0.984
$\gamma$ Factor Deviation From Average	0.986	0.986	0.984

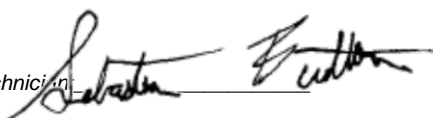
Average Gas Meter  $\gamma$  Factor

0.985

**Measurement Uncertainty:** Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Technician: 



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Address  
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Milwaukie, OR 97222

Local  
503-654-9620

Report #: 28140-203319-14 Customer PO#: 1090  
 Customer Name: PFS TECO  
 Customer Address: 11785 SE Highway 212 Ste 305  
 City: Clackamas State: OR Zip: 97015  
 Contact: Aaron Kravitz  
 Service Address: 11785 SE Highway 212 Ste 305 Clackamas, OR 97015

## Calibration Standards

19-00269   Thermo-Hygrometer   Comark   SN: 6237360167   Cal: 09/14/2022   Due: 08/31/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 25699-30694-3486
LA-01776   Pressure Transducer   Fluke   SN: 5956001   Cal: 11/25/2022   Due: 11/25/2023   Range: 10 in H2O   Report #: EVL846346

## Instrument Data

<b>Calibration Date:</b>	March 1, 2023	<b>Reference:</b>	ASME B40.100
<b>Recommended Due Date:</b>	March 1, 2024	<b>Cal-Cert Procedure:</b>	CP-003
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	Red Lion	<b>Temperature:</b>	69 °F
<b>Type:</b>	Pressure Transducer	<b>Humidity:</b>	35% RH
<b>Model Number:</b>	Unknown	<b>Cal Factor:</b>	None
<b>Serial #:</b>	Unknown	<b>Asset #:</b>	203B
<b>Capacity:</b>	1 In H2O	<b>Service Location:</b>	Service Address
<b>Tolerance:</b>	± 1.00% of Span	<b>As Found:</b>	Pass
<b>Gauge Class:</b>	A	<b>As Left:</b>	Pass

Instrument Range:		1.00		Range Resolution:		0.001		Mode Verified:		Pressure	
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±				
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O				
0.000	0.000	0.000	0.00	0.000	0.00	0.01	0.0005				
0.100	0.100	0.100	0.00	0.100	0.00	0.01	0.0005				
0.250	0.250	0.250	0.00	0.250	0.00	0.01	0.0006				
0.500	0.500	0.500	0.00	0.500	0.00	0.01	0.0008				
0.750	0.750	0.750	0.00	0.750	0.00	0.01	0.001				
1.000	1.000	1.000	0.00	1.000	0.00	0.01	0.0012				
0.750	0.750	0.750	0.00	0.750	0.00	0.01	0.001				
0.500	0.500	0.500	0.00	0.500	0.00	0.01	0.0008				
0.250	0.250	0.250	0.00	0.250	0.00	0.01	0.0006				
0.100	0.100	0.100	0.00	0.100	0.00	0.01	0.0005				
0.000	0.000	0.000	0.00	0.000	0.00	0.01	0.0005				

**Manufacturer:** Red Lion

**Type:** Pressure Transducer

**Serial #:** Unknown

**Remarks:**

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.  
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**Service Engineer:**

Jon Rau

**Date:**

March 1, 2023

**Technical Manager:**

Marshall Doyle

**Signature:**



# Report and Certificate of Calibration



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**Toll Free**  
800-856-4662

**Address**  
5777 SE International Way  
Milwaukie, OR 97222

**Local**  
503-654-9620

**Report #:** 28140-203320-14      **Customer PO#:** 1090  
**Customer Name:** PFS TECO  
**Customer Address:** 11785 SE Highway 212 Ste 305  
**City:** Clackamas      **State:** OR      **Zip:** 97015  
**Contact:** Aaron Kravitz  
**Service Address:** 11785 SE Highway 212 Ste 305      Clackamas, OR 97015

### Calibration Standards

19-00269   Thermo-Hygrometer   Comark   SN: 6237360167   Cal: 09/14/2022   Due: 08/31/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 25699-30694-3486
LA-01776   Pressure Transducer   Fluke   SN: 5956001   Cal: 11/25/2022   Due: 11/25/2023   Range: 10 in H2O   Report #: EVL846346

### Instrument Data

<b>Calibration Date:</b>	March 1, 2023	<b>Reference:</b>	ASME B40.100
<b>Recommended Due Date:</b>	March 1, 2024	<b>Cal-Cert Procedure:</b>	CP-003
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	Red Lion	<b>Temperature:</b>	73 °F
<b>Type:</b>	Pressure Transducer	<b>Humidity:</b>	30% RH
<b>Model Number:</b>	Unknown	<b>Cal Factor:</b>	None
<b>Serial #:</b>	Unknown	<b>Asset #:</b>	203C
<b>Capacity:</b>	5 In H2O	<b>Service Location:</b>	Service Address
<b>Tolerance:</b>	± 1.00% of Span	<b>As Found:</b>	Pass
<b>Gauge Class:</b>	A	<b>As Left:</b>	Pass

<b>Instrument Range:</b> 5.00		<b>Range Resolution:</b> 0.01		<b>Mode Verified:</b> Pressure			
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005
0.50	0.50	0.50	0.00	0.50	0.00	0.05	0.005
1.25	1.25	1.25	0.00	1.25	0.00	0.05	0.005
2.50	2.50	2.50	0.00	2.50	0.00	0.05	0.006
3.75	3.75	3.75	0.00	3.75	0.00	0.05	0.007
5.00	5.00	5.00	0.00	5.00	0.00	0.05	0.008
3.75	3.75	3.75	0.00	3.75	0.00	0.05	0.007
2.50	2.50	2.50	0.00	2.50	0.00	0.05	0.006
1.25	1.25	1.25	0.00	1.25	0.00	0.05	0.005
0.50	0.50	0.50	0.00	0.50	0.00	0.05	0.005
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005

**Manufacturer:** Red Lion

**Type:** Pressure Transducer

**Serial #:** Unknown

**Remarks:**

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.  
Cleaning and preventative maintenance were performed as part of this service.**

**Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.  
A2LA is recognized under the ILAC mutual recognition agreement (MRA).**

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSS Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above. Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

**Service Engineer:**

Jon Rau


**Date:**

March 1, 2023

**Technical Manager:**

Marshall Doyle

**Signature:**



# Report and Certificate of Calibration



www.Cal-Cert.com



Toll Free  
800-856-4662

Address  
5777 SE International Way  
Milwaukie, OR 97222

Local  
503-654-9620

Report #: 28140-203326-14 Customer PO#: 1090  
 Customer Name: PFS TECO  
 Customer Address: 11785 SE Highway 212 Ste 305  
 City: Clackamas State: OR Zip: 97015  
 Contact: Aaron Kravitz  
 Service Address: 11785 SE Highway 212 Ste 305 Clackamas, OR 97015

## Calibration Standards

19-00269   Thermo-Hygrometer   Comark   SN: 6237360167   Cal: 09/14/2022   Due: 08/31/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 25699-30694-3486
LA-01776   Pressure Transducer   Fluke   SN: 5956001   Cal: 11/25/2022   Due: 11/25/2023   Range: 10 in H2O   Report #: EVL846346

## Instrument Data

<b>Calibration Date:</b>	March 1, 2023	<b>Reference:</b>	ASME B40.100
<b>Recommended Due Date:</b>	March 1, 2024	<b>Cal-Cert Procedure:</b>	CP-003
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	Newport	<b>Temperature:</b>	73 °F
<b>Type:</b>	Pressure Transducer	<b>Humidity:</b>	30% RH
<b>Model Number:</b>	Unknown	<b>Cal Factor:</b>	None
<b>Serial #:</b>	Unknown	<b>Asset #:</b>	54C
<b>Capacity:</b>	5 In H2O	<b>Service Location:</b>	Service Address
<b>Tolerance:</b>	± 1.00% of Span	<b>As Found:</b>	Pass
<b>Gauge Class:</b>	A	<b>As Left:</b>	Pass

Instrument Range:		5.00		Range Resolution:		0.01		Mode Verified:		Pressure	
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±				
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O				
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005				
0.50	0.50	0.50	0.00	0.50	0.00	0.05	0.005				
1.25	1.25	1.25	0.00	1.25	0.00	0.05	0.005				
2.50	2.50	2.50	0.00	2.50	0.00	0.05	0.006				
3.75	3.75	3.75	0.00	3.75	0.00	0.05	0.007				
5.00	5.00	5.00	0.00	5.00	0.00	0.05	0.008				
3.75	3.75	3.75	0.00	3.75	0.00	0.05	0.007				
2.50	2.50	2.50	0.00	2.50	0.00	0.05	0.006				
1.25	1.25	1.25	0.00	1.25	0.00	0.05	0.005				
0.50	0.50	0.50	0.00	0.50	0.00	0.05	0.005				
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005				

**Manufacturer:** Newport

**Type:** Pressure Transducer

**Serial #:** Unknown

**Remarks:**

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.  
Cleaning and preventative maintenance were performed as part of this service.**

**Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.  
A2LA is recognized under the ILAC mutual recognition agreement (MRA).**

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NC SL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above. Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

**Service Engineer:**

Jon Rau

**Date:**

March 1, 2023

**Technical Manager:**

Marshall Doyle

**Signature:**



# Dry Gas Meter Calibration

**DUT**

Manufacturer: APEX  
 Model: Apex-AK-600  
 Lab ID #: 55  
 Serial #: 810016  
 Calibration Date: 1/27/2023  
 Calibration Expiration: 7/27/2023  
 Barometric Pressure: 30.15 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		Fluke	Aquatech	Dwyer
Model: SK25DA		52 II	DBX2	475
Lab ID#: 47		196	202	174
Calibration Expiration Date: 3/30/2023		11/29/2023	4/16/2023	3/29/2023
Calibration $\gamma$ Factor: 0.9978				

**Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.**

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	155.374	168.471	375.274
Standard DGM Temperature (°F)	65.0	66.0	67.0
Standard DGM Pressure (in H <sub>2</sub> O)	0.00	0.00	0.0
DGM Initial Volume (ft <sup>3</sup> )	0.000	0.000	0.000
DGM Final Volume (ft <sup>3</sup> )	5.505	5.830	13.012
DGM Temperature (°F)	73.0	74.0	75.0
DGM Pressure (in H <sub>2</sub> O)	0.50	0.50	0.5
Net Volume for Standard DGM (ft <sup>3</sup> )	5.487	5.949	13.253
Net Volume for DGM (ft <sup>3</sup> )	5.505	5.830	13.012
Dry Gas Meter $\gamma$ Factor	1.008	1.032	1.030
$\gamma$ Factor Deviation From Average	1.008	1.032	1.030

Average Gas Meter  $\gamma$  Factor

1.024

**Measurement Uncertainty:** Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Technician:



# Report and Certificate of Calibration



**Portland Laboratory**  
 5777 SE International Way  
 Milwaukie, OR 97222  
 800-356-4662  
 503-654-9620

**Anaheim Laboratory**  
 120 S. Chaparral Ct Suite 110  
 Anaheim Hills, CA 92808  
 888-700-4100  
 714-696-5300

[www.Cal-Cert.com](http://www.Cal-Cert.com)

**Report #:** 25314-28785-47 **Customer PO#:** 1073  
**Customer Name:** PFS TECO  
**Customer Address:** 11785 SE Highway 212  
**City:** Clackamas **State:** OR **Zip:** 97015  
**Contact:** John Steinert  
**Service Address:** 120 S. Chaparral Court, Suite 110 Anaheim Hills, CA 92808

### Calibration Standards

2-01754   Thermo-Hygrometer   Comark   SN: 06257740553   Cal: 08/12/2022   Due: 07/31/2023   Report #: 25476-198970-3646
ACS318   Electrical Meter   Fluke   SN: 895650804   Cal: 06/26/2022   Due: 06/30/2024   Vendor: Fluke   Range: Various   Report #: EVL809627
ACS403   Electrical Meter   Extech   SN: H241956   Cal: 04/02/2022   Due: 04/30/2023   Vendor: Associated Calibration Inc.   Range: 1111110 Ohms   Report #: 23340-70023-1546

### Instrument Data

<b>Calibration Date:</b>	August 19, 2022	<b>Reference:</b>	Manufactures Tolerances
<b>Recommended Due Date:</b>	August 19, 2023	<b>Cal-Cert Procedure:</b>	CP-080
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Gauge
<b>Manufacturer:</b>	Delmhorst	<b>Temperature:</b>	71.9 °F
<b>Type:</b>	Resistivity Meter	<b>Humidity:</b>	48% RH
<b>Model Number:</b>	MCS-1	<b>Asset #:</b>	#094
<b>Serial #:</b>	#094	<b>Service Location:</b>	Cal-Cert Lab
<b>Capacity:</b>	120 Megaohms	<b>As Found:</b>	Pass
<b>Tolerance:</b>	5.00 % of indication	<b>As Left:</b>	Pass

Instrument Range:	120 Megaohms		Resolution:	N/A		Mode Verified:	Resistance
Standard Reading	UUT As Found	UUT Reading #1	Error	UUT Reading #2	Error		
0.000	0.000	0.000	0.000	0.000	0.000		
1.100	1.095	1.095	-0.005	1.095	-0.005		
120.000	121.20	121.20	1.200	121.31	1.310		
0.000	0.000	0.000	0.000	0.000	0.000		
0.000	0.000	0.000	0.000	0.000	0.000		

**Expanded Uncertainty± 2.50 Megaohms**

### Remarks:

We sincerely thank you for your business. Please call us at 714-696-5300 for all your sales and calibration needs.  
 Cleaning and preventative maintenance were performed as part of this service.

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ANSI/NC SL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

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**Service Engineer:** Michael Rondeau **Date:** August 19, 2022  
**Technical Manager:** Marshall Doyle **Signature:**



# CERTIFICATE OF CALIBRATION

<b>CUSTOMER:</b>	<b>PFS-TECO :</b> CLACKAMAS, OR	<b>CALIBRATION DATE:</b>	05/03/2022
<b>PO NUMBER:</b>	1071	<b>CALIBRATION DUE:</b>	05/03/2023
<b>INST. MANUFACTURER:</b>	DWYER	<b>PROCEDURE:</b>	T.O.33K6-4-1769-1
<b>INST. DESCRIPTION:</b>	VELOMETER	<b>CALIBRATION FLUID:</b>	AIR @ 14.7 PSIA 70°F
<b>MODEL NUMBER:</b>	471	<b>RECEIVED CONDITION:</b>	WITHIN MFG. SPECS.
<b>SERIAL NUMBER:</b>	CP288559 ID# 095	<b>LEFT CONDITION:</b>	WITHIN MFG. SPECS.
<b>RATED ACCURACY:</b>	SEE NOTES BELOW.	<b>AMBIENT CONDITIONS:</b>	763mm HGA 51% RH 72°F
<b>UNCERTAINTY GIVEN:</b>	± 0.43% RD ; k=2	<b>CERTIFICATE FILE #:</b>	490265.2021
<b>NOTES:</b>	± 3% FS (0-500 / 0-1500) *** ± 4% F.S. (0-5000) ***± 5% F.S. (0-15000) *** ± 2 °F		

**Q.MANUAL IM 2.0 REV 2020.2 DATED 7-27-2020 \*\*\*\* DECISION RULE : NO PFA%**

UUT INDICATED FT/MIN	DM.STD. ACTUAL FT/MIN	UUT INDICATED DEG. F	DM STD. ACTUAL DEG. F
65	68	0 TO 200°F	0 TO 200°F
129	133	45.1	44.2
260	266	71.7	70.9
498	509	99.3	98.5
526	534		
1039	1058		
1484	1517		
523	534		
3076	3151		
4998	5127		
6752	6907		
14679	15068		

**STANDARDS USED:**

A24: HART SCIENTIFIC TEMP. STANDARD   ± 0.024 F   TRACE# 1617259390	DUE	04/12/2023
A800: FLOW-DYNE SONIC NOZZLE SYSTEM   0 - 1086 CFM ± 0.46% RD.   TRACE# 1329407628, 89576, 152043238	DUE	12/10/2022

All instruments used in the performance of the shown calibration have traceability to the National Institute of Standards and Technology (NIST). The uncertainty ratio between the calibration standards (DM.STD.) and the Unit Under Test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed according to the shown procedure. The use of IAS/ILAC logo indicates calibrations are in accordance to ISO/IEC 17025:2017.

**Dick Munns Company · 11133 Winners Circle, Los Alamitos, CA 90720**  
**Phone: 714-827-1215 · www.dickmunns.com**

This Calibration Certificate shall not be reproduced except, in full, without approval by Dick Munns Company. The data shown applies only to the instrument being calibrated and under the stated conditions of calibration.

Issuing Date:

Approved By:

Cal. Technician:

Calibrated at:  Lab

On-Site (Customer's)

05/03/2022

*Richard [Signature]*

D.C.

Page 1 of 1

# Certificate of Calibration

Certificate Number: 743892



**JJ Calibrations, Inc.**

7724 SE Aspen Summit Drive  
Portland, OR 97266-9217  
Phone 503.786.3005  
FAX 503.786.2994

**PFS TECO**

11785 SE Hwy 212  
Suite 305  
Clackamas, OR 97015

PO: 1033

Order Date: 03/08/2021

Authorized By: N/A



Calibrated on: 03/18/2021

\*Recommended Due: 03/18/2026

Environment: 19 °C 41 % RH

\* As Received: Other - See Remarks

\* As Returned: Other - See Remarks

Action Taken: Calibrated

Technician: 126

Property #: 097  
User: N/A  
Department: N/A  
Make: Unknown  
Model: 10 Lbs.  
Serial #: 097  
Description: Mass  
Procedure: DCN 500901  
Accuracy: Raw Data

Remarks: \* Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Data is provided for your determination of acceptability. Received/returned without accessories.

### Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
484A	Rice Lake	1kg- 10kg (Class ASTM 1)	Mass Set,	05/28/2021	699197
503A	Rice Lake	1mg- 200g (Class 0)	Mass Set,	09/11/2021	729241
550A	And (A&D) Co.	HP- 30K	Balance 30 Kg	12/31/2021	739307
723A	Rice Lake	1mg- 200g (Class 0)	Mass Set,	06/09/2021	723431

Parameter

### Measurement Data

Measurement Description	Range	Unit	Reference	Min	Max	*Error	UUT	Uncertainty
<b>Before/After</b>								Accredited = $\bar{U}$
<b>Mass</b>								
Raw Data		g	4535.92370000	0.0000000	0.0000000	0.1785299	4536.1022299 g	3.5E-01 $\bar{U}$

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to either the SI or to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by JCGM 106:2012. Unless otherwise stated, a test accuracy ratio (TAR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above. This report may not be reproduced, except in full, without written approval of JJ Calibrations.

Reviewer

3 Issued 03/25/2021

Rev # 15

Inspector





# QUALITY CONTROL SERVICES

LABORATORY EQUIPMENT • SALES • SERVICE • CALIBRATION • REPAIRS  
 2340 SE 11<sup>TH</sup> Ave. Portland, Oregon 97214 • Box 14831 Portland, Oregon 97293  
 (503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com



PFS Teco  
 11785 SE Hwy 212 STE#305  
 Clackamas, OR 97015

Report Number: DIRI0134307497221214

## A2LA ACCREDITED CERTIFICATE OF CALIBRATION WITH DATA

### INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Balance	Sartorius	ENTRIS224-1S	34307497	#107	Lab
Units	Readability	SOP	Cal Date	Last Cal Date	Cal Due Date
g	0.0001	QC012	12/14/22	6/9/22	12/2023

### FUNCTIONAL CHECKS

ECCENTRICITY		LINEARITY		STANDARD DEVIATION			ENVIRONMENTAL CONDITIONS
Test Wt:	Tol:	Test Wt:	Tol:	Test Wt:	Tol:		
100	0.0003	50 x 4	0.0002	100	0.0001		<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor
<b>As-Found:</b>		<b>As-Found:</b>		1. 100.0002	5. 1000.0003	9. 1000.0003	Temperature: 20.6°C
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	2. 1000.0001	6. 1000.0002	10. 1000.0002	
<b>As-Left:</b>		<b>As-Left:</b>		3. 1000.0002	7. 1000.0002	<b>Result</b>	
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	4. 1000.0002	8. 1000.0003	284.60499	

### A2LA ACCREDITED SECTION OF REPORT

Standard	As-Found	As-Left	Expanded Uncertainty
200	200.0009	200.0004	569.20999
100	100.0005	100.0002	569.20999
50	50.0004	50.0001	569.20999
20	20.0003	20.0000	569.20999
1	1.0001	1.0000	569.20999
0.1	0.1001	0.1000	569.20999

### CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Weight Set	Rice Lake	20 kg to 1mg	2831W	3/1/22	3/2023	20220382

#### Permanent Information Concerning this Equipment:

6 month calibration cycle  
 1/22 Extra checkpoint to encapsulate user range 0.05g.  
 AF= 0.0500g A/L= 0.0500

#### Comments/Info Concerning this Calibration:

12/22 RH= 45%. Adjusted span.

Report prepared/reviewed by: SC

Date: 12/14/22

Technician: J. Colacchio

Signature: [Signature]

THIS CERTIFICATE SHALL NOT BE REPRODUCED WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation and readability of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards.

# Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free  
800-356-1662

Address  
5777 SE International Way  
Milwaukie, OR 97222

Local  
503-654-9620



**Report #:** 31538-218157-14 **Customer PO#:**  
**Customer Name:** PFS TECO  
**Customer Address:** 11785 SE Highway 212, Suite 305  
**City:** Clackamas **State:** OR **Zip:** 97015  
**Contact:** Aaron Kravitz  
**Service Address:** 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

### Calibration Standards

10-00209   Weight   Rice Lake   SN: 43334   Cal: 02/02/2022   Due: 02/28/2024   Vendor: Oregon Dept of Ag   Report #: 20220092
19-00269   Thermo-Hygrometer   Comark   SN: 6237360167   Cal: 08/14/2023   Due: 08/31/2024   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 30530-30694-3646

### Instrument Data

<b>Calibration Date:</b>	October 12, 2023	<b>Reference:</b>	ASTM E898-20, D4753-15
<b>Calibration Due Date:</b>	April 12, 2024	<b>Cal-Cert Procedure:</b>	CP-002
<b>Calibration Frequency:</b>	6 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	Sartorius	<b>Temperature:</b>	73 °F
<b>Model Number:</b>	ENTRIS224	<b>Humidity:</b>	52% RH
<b>Type:</b>	Digital Balance	<b>Asset #:</b>	107
<b>Serial #:</b>	34307497	<b>Service Location:</b>	Service Address
<b>Scale Capacity:</b>	200 grams	<b>As Found:</b>	PASS
		<b>As Left:</b>	PASS

Scale Linear Test									
Instrument Range:			200.0000 grams			Resolution:			0.0001 grams
Calibration Standard	As Found UUT	As Found Error	As Left UUT	As Left Error	As Left % of Error	Tolerance (As Left) Allowable Error			
grams	grams	grams	grams	grams		Error	Condition	Expanded Unc. (grams)	
0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.0000	PASS	0.00000	
20.0000	19.9998	-0.0002	19.9998	-0.0002	0.00	0.0200	PASS	0.00463	
40.0000	39.9997	-0.0003	40.0000	0.0000	0.00	0.0400	PASS	0.00924	
60.0000	59.9996	-0.0004	60.0001	0.0001	0.00	0.0600	PASS	0.01386	
80.0000	79.9995	-0.0005	80.0001	0.0001	0.00	0.0800	PASS	0.01848	
100.0000	99.9994	-0.0006	99.9999	-0.0001	0.00	0.1000	PASS	0.02310	
120.0000	119.9993	-0.0007	119.9999	-0.0001	0.00	0.1200	PASS	0.02771	
140.0000	139.9991	-0.0009	140.0000	0.0000	0.00	0.1400	PASS	0.03233	
160.0000	159.9990	-0.0010	160.0001	0.0001	0.00	0.1600	PASS	0.03695	
180.0000	179.9990	-0.0010	180.0000	0.0000	0.00	0.1800	PASS	0.03926	
200.0000	199.9989	-0.0011	200.0000	0.0000	0.00	0.2000	PASS	0.04619	
100.0000	99.9994	-0.0006	99.9999	-0.0001	0.00	0.1000	PASS	0.02310	
0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.0000	PASS	0.00000	

FUNCTIONAL CHECKS					
ECCENTRIC LOAD TEST:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	100.0000	Test Weight Applied. % of load	Readings	Test Weight Applied	100.0000
Right	99.9999	0%	0.0000	1st	99.9999
Left	99.9998	(R1) 50%	99.9999	2nd	100.0000
Front	99.9998	100%	200.0000	3rd	99.9999
Back	99.9999	(R2) 50%	99.9999	4th	100.0000
Center	99.9999	0%	0.0000	5th	100.0000
As Left	PASS	As Left	PASS	As Left	PASS
Tolerance: The maximum error of the eccentric loading must be less than .1% of center load value.		Tolerance: The Difference of R1 and R2 must be within 0.1%		Tolerance: Deviation of lowest and highest reading within 0.1%	

**Remarks:**

The scale was adjusted prior to taking the As Left readings.

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs. Cleaning and preventative maintenance were performed as part of this service.**

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.  
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above. Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated. All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

**Service Engineer:**

Jon Rau

**Date:**

October 12, 2023

**Technical Manager:**

Marshall Doyle

**Signature:**



**REPORT#:** 31538-218157-14





# QUALITY CONTROL SERVICES

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(503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com



## Report of Calibration

Firm: PFS-TECO  
Address: 11785 SE Hwy 212, Ste 305  
City/State/Zip: Clackamas, OR 97015

Test Completed: 05/09/22  
Purchase Order: 1067  
Traceable Number: 20220682

Test Item: 200 mg and 100 mg Individual Weights  
Serial No.: Listed in Table

Manufacturer: Troemner  
Customer ID: Listed in Table

<u>Material</u>	<u>Assumed Density</u>	<u>Range</u>	<u>Tolerance Class</u>
Stainless Steel	7.95 g/cm <sup>3</sup>	200 mg & 100 mg	ASTM Class 1

### Method and Traceability

The procedure used for this calibration is NIST IR 6969 SOP 4 Double Substitution Weighing Design. Standards used for comparison are traceable to the National Institute of Standards and Technology (reports on file) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and traceability within the level of uncertainty reported. The Traceable Number listed above is Traceable to National Standards through an unbroken chain of comparison each having stated uncertainties.

### Standards Used:

100 g to 1 mg Working Standards Were Calibrated: 07/02/21 Due: 07/31/22 Standards ID: 723318  
Mass Comparators Used: MET-05 Tested by: D. Thompson

**Conventional Mass:** “The conventional value of the result of weighing a body in air is equal to the mass of a standard, of conventionally chosen density, at a conventionally chosen temperature, which balances this body at this reference temperature in air of conventionally chosen density. International Recommendation 33 (OIML IR 33 1973, 1979). “Conventional Value of the Result of Weighing in Air” (Previously known as “Apparent Mass vs. 8.0 g/cm<sup>3</sup>).

**Uncertainty Statement:** The uncertainty conforms to the ISO Guide to the Expressions of Uncertainty in Measurement. Uncertainty as reported is based on a coverage factor  $k=2$  for an approximate 95 percent level of uncertainty. Uncertainty components include the standard deviation of the process, the uncertainty of the standard used, an uncertainty component associated with the potential drift of the standard used, and the estimated uncertainty related to measuring and determining the air buoyancy effect.

Conventional Mass Values are listed on page 2 of this report.

page 1 of 2

Quality Control Services, Inc.  
Metrology Laboratory Manager  
E-mail [dthompson@qc-services.com](mailto:dthompson@qc-services.com)

Date: 05/09/22

Signature David S. Thompson

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Member: National Conference of Standards Laboratories and Weights & Measures





# QUALITY CONTROL SERVICES

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(503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com



## Report of Calibration

Firm: PFS-TECO  
Address: 11785 SE Hwy 212, Ste 305  
City/State/Zip: Clackamas, OR 97015

Test Completed: 05/09/22  
Purchase Order: 1067  
Traceable Number: 20220682

Test Item: 200 mg and 100 mg Individual Weights  
Serial No.: Listed in Table

Manufacturer: Troemner  
Customer ID: Listed in Table

### Laboratory Environment at time of test

Temperature °C	Pressure mmHg	Humidity %RH
21.93 to 21.94	760.7 to 760.8	47.8 to 47.9

### Conventional Mass Value

Nominal Value	As Found Value (g)	As Found Correction* (mg)	As Left Value (g)	As Left Correction* (mg)	Uncertainty (mg)	Tolerance (mg)
200 mg, 1000101395, #109-B	0.2000082	0.0082	0.2000082	0.0082	0.0014	0.010
100 mg, 1000126267, #109-A	0.1000065	0.0065	0.1000065	0.0065	0.0014	0.010

\*Correction is the difference between the conventional mass value of a weight and its nominal value.

**Comments:** These weights were received in good condition and were within ASTM Class 1 tolerances As Found.


**Recalibration Due:** The customer has requested a 5-year calibration cycle. The calibration due date for these weights is 05/09/27. The values listed above were found at the time of calibration. Any number of factors may cause these items to drift out of calibration before the calibration interval has expired.

Accredited by the American Association for Laboratory Accreditation (A2LA) under Calibration Laboratory Code 115953 and Certificate Number 1550.01. This laboratory meets the requirements of ISO/IEC 17025:2017 *General Requirements for the Competence of Testing and Calibration Laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration.

page 2 to 2

Quality Control Services, Inc.  
Metrology Laboratory Manager  
E-mail [dthompson@qc-services.com](mailto:dthompson@qc-services.com)

Date: 05/09/22

  
Signature David S. Thompson

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Member: National Conference of Standards Laboratories and Weights & Measures



## Model 1430 Microtector® Electronic Point Gage

### Installation and Operating Instructions



**Model 1430 Microtector® Portable Electronic Point Gage** combines modern, solid-state integrated circuit electronics with a time-proven point gage manometer to provide fast, accurate pressure measurements.

#### SPECIFICATIONS AND FEATURES

- Accurate and repeatable to  $\pm .00025$  inches water column
- Pressure range: 0 - 2" w.c., positive, negative, or differential pressures
- Non-toxic and inexpensive gage fluid consists of distilled water mixed with a small amount of fluorescein green color concentrate
- Convenient, portable, lightweight and self-contained, the unit requires no external power connections and is operated by a 1.5 volt penlight cell
- A.C. detector current eliminates point plating, fouling and erosion
- Micrometers are manufactured in accordance with ASME B89.1.13-2001, and are traceable to a standard at the National Institute of Standards and Technology
- Three-point mounting, dual leveling adjustment, and circular level vial assure rapid setup
- Durablock® precision-machined acrylic gage body
- Sensitive 0 - 50 microamp D.C. meter acts as a detector and also indicates battery and probe condition
- Heavy 2" thick steel base plate provides steady mounting
- Top-quality glass epoxy circuit board and solid-state, integrated circuit electronics
- Electronic enclosure of tough, molded styrene acrylonitrile provides maximum protection to components yet allows easy access to battery compartment
- Rugged sheet steel cover and carrying case protects the entire unit when not in use
- Accessories included are (2) 3-foot lengths Tygon® tubing, (2) 1/8" pipe thread adapters and 3/4 oz. bottle of fluorescein green color concentrate with wetting agent

**Maximum pressure: 100 psig with optional pipe thread connections.**

Tygon® is a registered trademark of Saint-Gobain Corporation

**DWYER INSTRUMENTS, INC.**

P.O. BOX 373

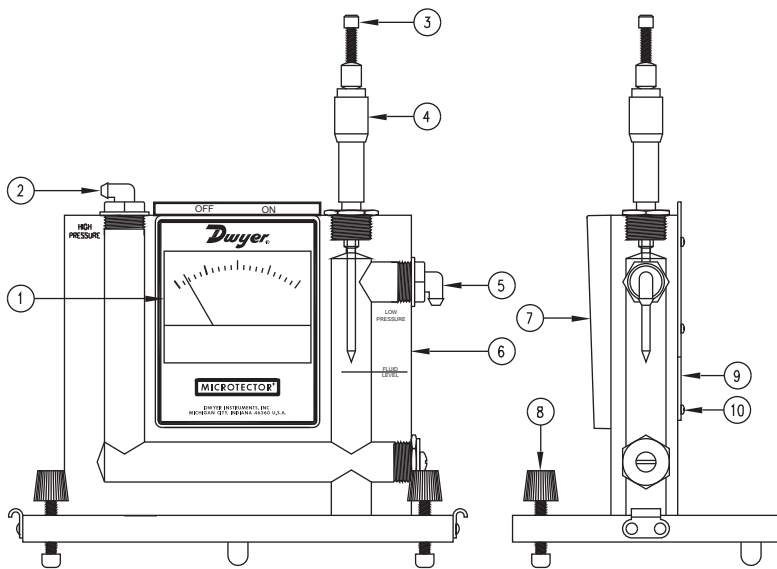
MICHIGAN CITY, INDIANA 46361, U.S.A.

Phone: 219/879-8000

Fax: 219/872-9057

www.dwyer-inst.com

e-mail: info@dwyer-inst.com



**Microtector® Gage**

### Precision Pressure Measurement

The Microtector® Gage combines the time-proven principles of the Hook Gage type manometer and modern solid-state integrated circuit electronics. It provides an inexpensive means of achieving accuracy and repeatability within  $\pm .00025$  inches water column throughout its 0 to 2 inches w.c. range. It is truly a new standard in precision measuring devices.

### Principles of Operation

A pressure to be measured is applied to the manometer fluid which is displaced in each leg of the manometer by an amount equal to  $1/2$  the applied pressure. A micrometer mounted point is then lowered until it contacts the manometer gage fluid. The instant of contact is detected by completion of a low-power A.C. circuit. Current for this circuit is supplied by a 1.5 volt penlight cell feeding two semiconductor amplifiers which act as a free-running multivibrator operating at a frequency of approximately two kilohertz. Completion of the A.C. circuit activates a bridge rectifier which provides the signal for indication on a sensitive (0 to 50 microamps) D.C. microammeter.

On indication of contact, the operator stops lowering the point and reads the micrometer which indicates one half the applied pressure. By interpolating eight divisions (each being  $.000125$  w.c.) between  $.001$  micrometer graduations, a total accuracy of  $.00025$  can easily be achieved. The micrometer complies with Federal Specification GGG-C-105A and is traceable to a master at the NIST.

### Locating and Opening

Stand the Microtector® Gage and case on a firm flat level surface. Remove cover by releasing the latches and lifting it straight up. If it is necessary to move the gage without case, handle only the base plate or clear acrylic block. **(CAUTION: Do not handle gage by grasping meter-electronic package housing Item 7 on drawing.)**

## Fluid Level

Level the gage by adjusting the two front leveling screws (Item 8 on drawing) until the bubble in the spirit level is centered in the small circle. After leveling the gage, open both rapid shut-off valve tube connectors (Items 2 and 5). Back off the micrometer (Item 4), if necessary, to make sure that the point is not immersed in the gage fluid. The fluid level in the gage should now coincide with the mark on the right hand bore (Item 6) plus or minus approximately 1/32 inch. If the level of fluid is too high, fluid can be removed with an eye dropper pipette or carefully poured out of the right connection (Item 5).

If the level is too low, remove the top left rapid shut-off valve tube connector (Item 2) and add distilled water pre-mixed with the proper amount of green concentrate. (See maintenance instructions for proportions. After correcting the fluid level, re-install the rapid shut-off connectors and, with these in the open position, re-level the Microtector® Gage. The gage is now ready to be zeroed.

## Zeroing

Turn the Micrometer barrel (Item 4) until its lower end just coincides with the zero mark on the scale and the zero on the barrel scale coincides with the vertical line on the internal scale. Note that the internal scale is graduated every .025" from 0 to 1.00 inch and the barrel scale is graduated in one thousandths from 0 to .025". Turn the meter circuit switch at the top of gage to the "on" position. While holding the barrel at the zero position (and with gage level), raise or lower the point by turning the knurled knob (Item 3) until the point is above, but near, the fluid.

Check to be sure that the meter registers zero. Watch the meter, hold the barrel, and lower the point slowly by turning the top knurled knob. As the knob is turned, the point will contact the fluid and the meter pointer will move from zero to some upscales position.

After making contact, turn the point out of the fluid by turning the micrometer barrel counter-clockwise to a reading of .010 or more. Again, watch the meter and, this time, lower the point by turning the micrometer barrel. The point position where the meter pointer begins to move up scale is the zero position. This position should correspond to the zero reading on the micrometer. Adjust the point in relation to the micrometer barrel by turning the top knob while holding the barrel steady. Repeat lowering the point, watching the meter for contact, and adjusting the point until the zero position and zero reading exactly coincide. The gage is now zeroed and should not be moved.

An alternative method of zeroing and reading can be used wherein, instead of zeroing the gage completely, a zero correction reading is taken and recorded, then subtracted from the final reading. Comparable results can be obtained with either method.

## Positive Pressure Measurement

With the fluid at its proper level, a pressure of 2.0" water column maximum can be measured. Positive pressure should be applied to the top left connection (Item 2) with the micrometer zeroed as described above. This will permit a simple direct reading to be taken.

After an unknown pressure has been applied at the top left connection, the fluid level will drop in the left bore and rise over the point in the right bore. Note that the indicating meter point has moved upscales because the point is immersed in the fluid. Turn the micrometer counter-clockwise until the point leaves the fluid as indicated by the meter pointer dropping to zero on its scale. Then slowly turn the micrometer down until its point just touches the fluid surface, causing movement of the meter pointer. Withdraw the point and repeat several times, noting each time the micrometer reading where the meter pointer begins. The average of these readings multiplied by two is the pressure applied to the gage. (Avg. reading x 2 = pressure applied in inches w.c. The degree of uncertainty for the operator is indicated by the difference in these readings.

When the readings are complete, the pressure should be removed and the zero setting of Microtector® Gage rechecked. Any change in the zero position will indicate inaccurate readings. Should this happen, the zero-set and pressure measurement procedure should be repeated.

### **Negative Pressure or Vacuum Measurement**

Zero the gage. Connect the source of vacuum or negative pressure to the right-side gage connection (Item 5) and proceed as described under Positive Pressure Measurement section. Remember that the pressure measured in this way is negative.

### **Differential Pressure Measurement**

Differential pressures may be measured by connecting the higher (more positive) pressure to the left connection (Item 2) and the lower pressure to the right connection (Item 5).

### **Storage**

Turn meter circuit switch to "off" position and withdraw the point well clear of fluid (by turning micrometer clockwise) when gage is not in use. This will conserve the batteries and minimize build-up of oxides, etc., on the point. Keep the unit covered and in an area free of strong solvent fumes.

### **Maintenance**

When the meter reading becomes reduced or the pointer movement gets sluggish (with the circuit on and the point in fluid), the following should be done:

(1) Remove the point (by unscrewing) and clean the tip lightly using fine crocus cloth. Wipe off all grit and dirt with a clean rag; reassemble and recheck meter operation.

(2) If the meter operation continues to be sluggish, replace the size AA, 1.5 volt battery. (Replace the battery at least once a year to avoid deterioration of battery and damage to gage. Leakproof alkaline battery is recommended.)

To replace the battery, remove center screw (Item 10) located in the back of the electronic enclosure. Cover (Item 9) will come off, exposing the battery. Pull the old battery out and push a new battery into the battery holder with the positive (center) terminal to the right (to the end marked with + on the holder).

If the fluid becomes contaminated and requires replacement: empty old fluid from gage; flush out with clear water and replace with distilled water and A-126 fluorescein green color concentrate mixed with 3/4 oz. concentrate to each quart of water.

### **CAUTION:**

1. Do not substitute other gage fluids, as proper gage operation depends on use of the specified gage fluid to provide proper surface tension, wetting ability and electrolyte capability with unity specific gravity.

If the gage bore is very dirty, a mild soap solution may be used to aid in cleaning prior to flushing with clear water.

2. Do not clean with liquid soaps, special solvent, de-greasers, aromatic hydrocarbons, etc. Such cleaners and solvents may contain chlorine, fluorine, acetone and related compounds that will permanently damage the gage and prevent proper operation.



# J-2000

owner's manual



**DELMHORST**<sup>®</sup>  
INSTRUMENT CO.

WHEN ACCURACY IS THE POINT.<sup>™</sup>



# QUALITY CONTROL SERVICES

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PFS Teco  
11785 SE Hwy 212 STE#305  
Clackamas, OR 97015

Report Number: DIRI01C101887027221214

## A2LA ACCREDITED CERTIFICATE OF CALIBRATION WITH DATA

### INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Scale	Mettler	IND570 - 1000lhx0	C101887027	#189	Lab
Units	Readability	SOP	Cal Date	Last Cal Date	Cal Due Date
lbs	0.02	QC033	12/14/22	1/27/22	12/2023

### FUNCTIONAL CHECKS

SHIFT TEST		LINEARITY		REPEATABILITY		ENVIRONMENTAL CONDITIONS		
Test Wt:	Tol:	Test Wt:	Tol:	Test Wt:	Tol:			
400	0.10	HB44	HB44	200	0.04			
As-Found:		As-Found:		As-Found:		<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor		
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Temperature: 16.7°C		
As-Left:		As-Left:		As-Left:				
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>			

### CALIBRATION DATA

Standard	As-Found	As-Left	Expanded Uncertainty
1000	1000.84	1000.02	0.012
600	600.32	600.00	0.011
400	400.10	400.00	0.011
200	200.00	199.98	0.011
100	100.00	99.98	0.011
50	50.00	50.00	0.011

### CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Avoirdupois Cast W	Rice Lake	25 and 50lb	PWO990-CA	7/18/22	7/2024	20221688

Permanent Information Concerning this Equipment:

Comments/Information Concerning this Calibration

12/14 As-Found Failed Linearity. Performed 3 point Linearity adjustment. As-Left Passed Linearity. Adjusted span.

Report prepared/reviewed by: JC

Date: 12/14/22

Technician: J. Colacchio

Signature: [Signature]

THIS CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy.



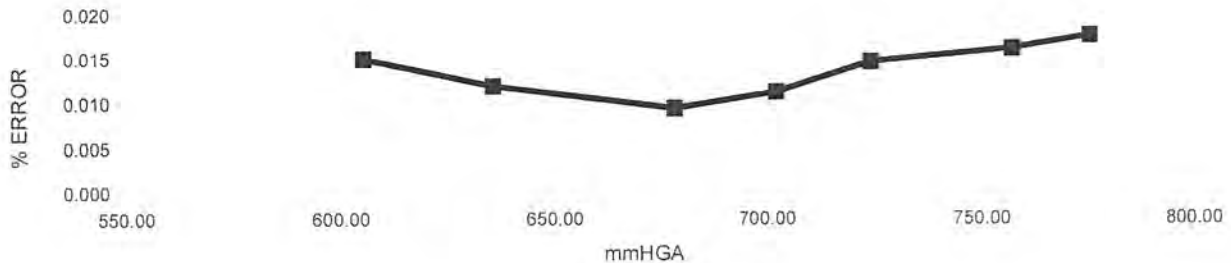


## CERTIFICATE OF CALIBRATION

**CUSTOMER:** PFS-TECO; CLACKAMAS, OR  
**PO NUMBER:** 1096  
**INST. MANUFACTURER:** AQUATECH SCIENTIFIC INSTRUMENTS  
**INST. DESCRIPTION:** DIGITAL BAROMETER  
**MODEL NUMBER:** DBX2  
**SERIAL NUMBER:** 118222  
**RATED ACCURACY:** +/- .18 mmHGA  
**UNCERTAINTY GIVEN:** +/- .03mmHGA.;k=2  
**NOTES:** AS REC./AS LEFT WITHIN SPECS. \*\* DECISION RULE: PFA NOT USED TO DETERMINE CONFORMITY \*\*

**CALIBRATION DATE:** 05/23/2023  
**CALIBRATION DUE:** 05/23/2024  
**PROCEDURE:** NAVAIR-17-20MP-03  
**CALIBRATION FLUID:** AIR @ 70F  
**STANDARD(S) USED:** A321, A22 DUE 3-2024  
**NIST TRACE # ' S:** 1236086968,1583142077  
**AMBIENT CONDITIONS:** 757 mmHGA, 60% RH, 68F  
**CERTIFICATE FILE #:** 533813

TEST POINT NUMBER	UUT INDICATED mmHGA	DM.STD. ACTUAL mmHGA	% RD. ERROR
1	605.24	605.330	0.015
2	635.45	635.525	0.012
3	678.24	678.303	0.009
4	702.18	702.258	0.011
5	724.19	724.295	0.014
6	757.11	757.231	0.016
7	775.39	775.525	0.017



All instruments used in the performance of the shown calibration have traceability to the National Institute of Standards and Technology (NIST). The uncertainty ratio between the calibration standards (DM.STD.) and the Unit Under Test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed according to the shown procedure. The use of IAS/ILAC logo indicates calibrations are in accordance to ISO/IEC 17025:2017.

**Dick Munns Company • 11133 Winners Circle, Los Alamitos, CA 90720**  
**Phone: 714-827-1215 • www.dickmunns.com**

This Calibration Certificate shall not be reproduced except, in full, without approval by Dick Munns Company. The data shown applies only to the instrument being calibrated and under the stated conditions of calibration.

Issuing Date:

Approved By:

Cal. Technician:

Calibrated at:  Lab

On-Site (Customer's)

5-23-2023

Page 1 of 1

# Report and Certificate of Calibration



www.Cal-Cert.com



Toll Free  
800-856-4662

Address  
5777 SE International Way  
Milwaukie, OR 97222

Local  
503-654-9620

Revision to Report #: 26398-201251-5 to correct serial number.

Date: 2/20/23

**Report #:** 26398-201251-5-01

**Customer PO#:** 1079

**Customer Name:** PFS TECO

**Customer Address:** 11785 SE Highway 212

**City:** Clackamas

**State:** OR

**Zip:** 97015

**Contact:** Ethan Frederick

**Service Address:** 5777 SE International Way Milwaukie, OR 97222

## Calibration Standards

10-00515   Steel Rule   SPI   SN: 00515   Cal: 06/01/2022   Due: 05/31/2023   Vendor: Cal-Cert   Range: 24 Inches   Report #: 24589-30769-3616
LP-01346   Thermo-Hygrometer   Comark   SN: 06210350198   Cal: 02/07/2022   Due: 02/28/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 22748-67215-3486

## Instrument Data

<b>Calibration Date:</b>	October 21, 2022	<b>Reference:</b>	Manufacturer's Spec
<b>Calibration Due Date:</b>	October 21, 2023	<b>Cal-Cert Procedure:</b>	CP-115
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Scaling
<b>Manufacturer:</b>	Starrett	<b>Temperature:</b>	69 °F
<b>Type:</b>	Tape Measure	<b>Humidity:</b>	3% RH
<b>Model Number:</b>	Exact	<b>Asset #:</b>	207
<b>Serial #:</b>	138054-2203-00002249	<b>Service Location:</b>	Cal-Cert Lab
<b>Capacity:</b>	192.00 Inches	<b>As Found:</b>	Pass
		<b>As Left:</b>	Pass

<b>Instrument Range:</b>	192.000 Inches	<b>Range Resolution:</b>	0.031 Inches
	Calibration Standard	As Found Reading	Verification Reading #1
	24.000	24.000	24.000
	48.000	48.000	48.000
	96.000	96.000	96.000
	120.000	120.000	120.000
	144.000	144.000	144.000
	168.000	168.000	168.000
	192.000	192.000	192.000

**Expanded Uncertainty ± 0.03580 Inches**

### Remarks:

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs. Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.  
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSS Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above. Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

**Service Engineer:** Cameron Walling

**Date:** October 21, 2022

**Technical Manager:** Marshall Doyle

**Signature:**

# Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free  
800-356-4662

Address  
5777 SE International Way  
Milwaukie, OR 97222

Local  
503-654-0620



**Report #:** 26398-201253-5 **Customer PO#:** 1079  
**Customer Name:** PFS TECO  
**Customer Address:** 11785 SE Highway 212  
**City:** Clackamas **State:** OR **Zip:** 97015  
**Contact:** Ethan Frederick  
**Service Address:** 5777 SE International Way Milwaukie, OR 97222

### Calibration Standards

LP-00397   Gage Block Set   Mitutoyo   SN: 509020   Cal: 11/25/2020   Due: 11/30/2022   Vendor: BHD Test and Measurement   Report #: 112520A
LP-01346   Thermo-Hygrometer   Comark   SN: 06210350198   Cal: 02/07/2022   Due: 02/28/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 22748-67215-3486

### Instrument Data

<b>Calibration Date:</b>	October 21, 2022	<b>Reference:</b>	ASME B89.1.14 2018
<b>Calibration Due Date:</b>	October 21, 2023	<b>Cal-Cert Procedure:</b>	CP-008
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	Mitutoyo	<b>Temperature:</b>	69 °F
<b>Type:</b>	Digital Caliper	<b>Humidity:</b>	38% RH
<b>Model Number:</b>	CD-P6"S	<b>Asset #:</b>	208
<b>Serial #:</b>	B22159310	<b>Service Location:</b>	Cal-Cert Lab
<b>Capacity:</b>	6 Inches	<b>As Found:</b>	PASS
<b>Resolution:</b>	0.0005 Inches	<b>As Left:</b>	PASS

<b>Instrument Range:</b>	6.0000 Inches	<b>Range Resolution:</b>	0.0005 Inches
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Outside Jaws / Linearity				
Calibration Standard Inches	As Found Inches	As Left Reading 1 Inches	As Left Reading 2 Inches	Tolerance ± Inches
0.0000	0.0000	0.0000	0.0000	0.0000
0.0500	0.0500	0.0500	0.0500	0.0010
0.3000	0.3000	0.3000	0.3000	0.0010
0.6000	0.6005	0.6005	0.6005	0.0010
1.2000	1.2000	1.2000	1.2000	0.0010
2.4000	2.4005	2.4005	2.4005	0.0010
3.5000	3.5000	3.5000	3.5000	0.0010
5.0000	5.0005	5.0005	5.0005	0.0010
6.0000	6.0005	6.0005	6.0005	0.0010

**Expanded Uncertainty ± 0.00036 Inches**

Verifications (for information only)			
	Target	Measured	Tolerance ±
Resolution Check	0.1005	0.10050	N/A
Depth	1.000	1.00000	N/A
Step	1.000	1.00000	N/A
Inside Jaws	1.000	1.00000	N/A

Inspections	
Jaws Parallel	Acceptable

**Remarks:**

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs. Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01. A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCCL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above. Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

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**Service Engineer:** Cameron Walling **Date:** October 21, 2022  
**Technical Manager:** Marshall Doyle **Signature:**

Caliper CF-008-01

Revision 16 9/19/2022

# Report and Certificate of Calibration



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**Address**  
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Milwaukie, OR 97222

**Local**  
503-654-9620

**Report #:** 28134-206391-14      **Customer PO#:** 1090  
**Customer Name:** PFS TECO  
**Customer Address:** 11785 SE Highway 212 Ste 305  
**City:** Clackamas      **State:** OR      **Zip:** 97015  
**Contact:** Aaron Kravitz  
**Service Address:** 11785 SE Highway 212 Ste 305 Clackamas, OR 97015

## Calibration Standards

19-00269   Thermo-Hygrometer   Comark   SN: 6237360167   Cal: 09/14/2022   Due: 08/31/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 25699-30694-3486
19-01135   Thermocouple Meter   Tegam   SN: T-312250   Cal: 08/01/2022   Due: 08/31/2023   Vendor: Cal-Cert   Range: 2,450 °F   Report #: 25315-30977-3646

## Instrument Data

<b>Calibration Date:</b>	February 28, 2023	<b>Reference:</b>	NAVAIR 17-20.ST-95
<b>Recommended Due Date:</b>	February 28, 2024	<b>Cal-Cert Procedure:</b>	CP-013
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	National Instruments	<b>Temperature:</b>	70 °F
<b>Type:</b>	Data Logger	<b>Humidity:</b>	31% RH
<b>Model Number:</b>	NI 9213	<b>Asset #:</b>	215 Booth 1
<b>Serial #:</b>	1B182FB	<b>Service Location:</b>	Service Address
<b>Resolution:</b>	0.1 °F	<b>As Found:</b>	Pass
<b>Capacity:</b>	2500 °F	<b>As Left:</b>	Pass
<b>Tolerance:</b>	± 3.0 °F		
<b>Additional Error</b>	± - °F		

### Type K Thermocouple METER FUNCTION

Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Tunnel	0.00	0.20	0.20	0.20	0.20	0.346
	500.00	500.30	500.30	500.30	0.30	
	1000.00	1000.40	1000.40	1000.40	0.40	
	1500.00	1500.40	1500.40	1500.40	0.40	
	2000.00	2000.50	2000.50	2000.50	0.50	
	2400.00	2400.70	2400.70	2400.70	0.70	

### Type K Thermocouple METER FUNCTION

Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Flue	0.00	0.10	0.10	0.10	0.10	0.346
	500.00	500.30	500.30	500.30	0.30	
	1000.00	1000.30	1000.30	1000.30	0.30	
	1500.00	1500.30	1500.30	1500.30	0.30	
	2000.00	2000.50	2000.50	2000.50	0.50	
	2400.00	2400.60	2400.60	2400.60	0.60	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Filter A	0.00	0.10	0.10	0.10	0.10	0.346
	500.00	500.10	500.10	500.10	0.10	
	1000.00	1000.20	1000.20	1000.20	0.20	
	1500.00	1500.30	1500.30	1500.30	0.30	
	2000.00	2000.30	2000.30	2000.30	0.30	
	2400.00	2400.40	2400.40	2400.40	0.40	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Back	0.00	0.10	0.10	0.10	0.10	0.346
	500.00	500.00	500.00	500.00	0.00	
	1000.00	1000.20	1000.20	1000.20	0.20	
	1500.00	1500.50	1500.50	1500.50	0.50	
	2000.00	2000.60	2000.60	2000.60	0.60	
	2400.00	2400.70	2400.70	2400.70	0.70	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Catgalyst	0.00	-0.30	-0.30	-0.30	-0.30	0.346
	500.00	499.90	499.90	499.90	-0.10	
	1000.00	1000.10	1000.10	1000.10	0.10	
	1500.00	1500.10	1500.10	1500.10	0.10	
	2000.00	2000.10	2000.10	2000.10	0.10	
	2400.00	2400.20	2400.20	2400.20	0.20	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Meter A	0.00	-0.50	-0.50	-0.50	-0.50	0.346
	500.00	499.70	499.70	499.70	-0.30	
	1000.00	999.90	999.90	999.90	-0.10	
	1500.00	1500.00	1500.00	1500.00	0.00	
	2000.00	2000.00	2000.00	2000.00	0.00	
	2400.00	2400.00	2400.00	2400.00	0.00	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Left	0.00	-0.50	-0.50	-0.50	-0.50	0.346
	500.00	499.70	499.70	499.70	-0.30	
	1000.00	999.70	999.70	999.70	-0.30	
	1500.00	1500.00	1500.00	1500.00	0.00	
	2000.00	2000.10	2000.10	2000.10	0.10	
	2400.00	2400.20	2400.20	2400.20	0.20	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Right	0.00	-0.60	-0.60	-0.60	-0.60	0.346
	500.00	499.70	499.70	499.70	-0.30	
	1000.00	999.80	999.80	999.80	-0.20	
	1500.00	1499.80	1499.80	1499.80	-0.20	
	2000.00	1999.90	1999.90	1999.90	-0.10	
	2400.00	2400.00	2400.00	2400.00	0.00	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Filter B	0.00	0.00	0.00	0.00	0.00	0.346
	500.00	500.80	500.80	500.80	0.80	
	1000.00	1000.60	1000.60	1000.60	0.60	
	1500.00	1500.20	1500.20	1500.20	0.20	
	2000.00	2000.00	2000.00	2000.00	0.00	
	2400.00	2399.70	2399.70	2399.70	-0.30	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Top	0.00	-0.80	-0.80	-0.80	-0.80	0.346
	500.00	499.30	499.30	499.30	-0.70	
	1000.00	999.50	999.50	999.50	-0.50	
	1500.00	1499.60	1499.60	1499.60	-0.40	
	2000.00	1999.60	1999.60	1999.60	-0.40	
	2400.00	2399.70	2399.70	2399.70	-0.30	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Bottom	0.00	-1.00	-1.00	-1.00	-1.00	0.346
	500.00	499.20	499.20	499.20	-0.80	
	1000.00	999.50	999.50	999.50	-0.50	
	1500.00	1499.50	1499.50	1499.50	-0.50	
	2000.00	1999.60	1999.60	1999.60	-0.40	
	2400.00	2399.60	2399.60	2399.60	-0.40	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Meter B	0.00	-0.80	-0.80	-0.80	-0.80	0.346
	500.00	499.30	499.30	499.30	-0.70	
	1000.00	999.50	999.50	999.50	-0.50	
	1500.00	1499.50	1499.50	1499.50	-0.50	
	2000.00	1999.60	1999.60	1999.60	-0.40	
	2400.00	2399.50	2399.50	2399.50	-0.50	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Meter C	0.00	-1.20	-1.20	-1.20	-1.20	0.346
	500.00	499.00	499.00	499.00	-1.00	
	1000.00	999.20	999.20	999.20	-0.80	
	1500.00	1499.30	1499.30	1499.30	-0.70	
	2000.00	1999.30	1999.30	1999.30	-0.70	
	2400.00	2399.30	2399.30	2399.30	-0.70	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Filter C	0.00	-1.00	-1.00	-1.00	-1.00	0.346
	500.00	499.20	499.20	499.20	-0.80	
	1000.00	999.40	999.40	999.40	-0.60	
	1500.00	1499.50	1499.50	1499.50	-0.50	
	2000.00	1999.50	1999.50	1999.50	-0.50	
	2400.00	2399.50	2399.50	2399.50	-0.50	



Manufacturer: National Instruments

Type: Data Logger

Serial #: 1B182FB

Type T Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Ambient	0.00	0.00	0.00	0.00	0.00	0.346
	20.00	17.70	17.70	17.70	-2.30	
	40.00	37.80	37.80	37.80	-2.20	
	60.00	57.70	57.70	57.70	-2.30	
	80.00	77.90	77.90	77.90	-2.10	
	100.00	97.90	97.90	97.90	-2.10	

**Remarks:**

15 Channels tested. Ambient is Type T, tested from 0 to 100 °F per customer request.

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs. Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01. A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above. Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated. All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Jon Rau Date: February 28, 2023

Technical Manager Marshall Doyle Signature: 

# Report and Certificate of Calibration



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Address  
5777 SE International Way  
Milwaukie, OR 97222

Local  
503-654-9620

**Report #:** 28134-206391-14      **Customer PO#:** 1090  
**Customer Name:** PFS TECO  
**Customer Address:** 11785 SE Highway 212 Ste 305  
**City:** Clackamas      **State:** OR      **Zip:** 97015  
**Contact:** Aaron Kravitz  
**Service Address:** 11785 SE Highway 212 Ste 305 Clackamas, OR 97015

## Calibration Standards

19-00269   Thermo-Hygrometer   Comark   SN: 6237360167   Cal: 09/14/2022   Due: 08/31/2023   Vendor: Cal-Cert   Range: 122 °F 95 %RH   Report #: 25699-30694-3486
19-01135   Thermocouple Meter   Tegam   SN: T-312250   Cal: 08/01/2022   Due: 08/31/2023   Vendor: Cal-Cert   Range: 2,450 °F   Report #: 25315-30977-3646

## Instrument Data

<b>Calibration Date:</b>	February 28, 2023	<b>Reference:</b>	NAVAIR 17-20.ST-95
<b>Recommended Due Date:</b>	February 28, 2024	<b>Cal-Cert Procedure:</b>	CP-013
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	National Instruments	<b>Temperature:</b>	72 °F
<b>Type:</b>	Data Logger	<b>Humidity:</b>	30% RH
<b>Model Number:</b>	NI 9213	<b>Asset #:</b>	215 Booth 1
<b>Serial #:</b>	1B182FB	<b>Service Location:</b>	Service Address
<b>Resolution:</b>	0.1 °F	<b>As Found:</b>	Pass
<b>Capacity:</b>	2500 °F	<b>As Left:</b>	Pass
<b>Tolerance:</b>	± 2.0 °F		
<b>Additional Error</b>	± - °F		

### Type K Thermocouple METER FUNCTION

Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Tunnel	0.00	-0.20	-0.20	-0.20	-0.20	0.346
	500.00	499.80	499.80	499.80	-0.20	
	1000.00	1000.00	1000.00	1000.00	0.00	
	1500.00	1500.10	1500.10	1500.10	0.10	
	2000.00	2000.10	2000.10	2000.10	0.10	
	2400.00	2400.10	2400.10	2400.10	0.10	

### Type K Thermocouple METER FUNCTION

Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Flue	0.00	-0.40	-0.40	-0.40	-0.40	0.346
	500.00	499.60	499.60	499.60	-0.40	
	1000.00	999.70	999.70	999.70	-0.30	
	1500.00	1499.90	1499.90	1499.90	-0.10	
	2000.00	1999.80	1999.80	1999.80	-0.20	
	2400.00	2400.00	2400.00	2400.00	0.00	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Filter A	0.00	-0.60	-0.60	-0.60	-0.60	0.346
	500.00	499.50	499.50	499.50	-0.50	
	1000.00	999.60	999.60	999.60	-0.40	
	1500.00	1499.70	1499.70	1499.70	-0.30	
	2000.00	1999.80	1999.80	1999.80	-0.20	
	2400.00	2399.80	2399.80	2399.80	-0.20	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Back	0.00	-0.70	-0.70	-0.70	-0.70	0.346
	500.00	499.50	499.50	499.50	-0.50	
	1000.00	999.50	999.50	999.50	-0.50	
	1500.00	1499.60	1499.60	1499.60	-0.40	
	2000.00	1999.70	1999.70	1999.70	-0.30	
	2400.00	2399.60	2399.60	2399.60	-0.40	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Catgalyst	0.00	-0.70	-0.70	-0.70	-0.70	0.346
	500.00	499.40	499.40	499.40	-0.60	
	1000.00	999.60	999.60	999.60	-0.40	
	1500.00	1499.60	1499.60	1499.60	-0.40	
	2000.00	1999.70	1999.70	1999.70	-0.30	
	2400.00	2399.70	2399.70	2399.70	-0.30	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Meter A	0.00	-1.30	-1.30	-1.30	-1.30	0.346
	500.00	498.80	498.80	498.80	-1.20	
	1000.00	999.10	999.10	999.10	-0.90	
	1500.00	1499.10	1499.10	1499.10	-0.90	
	2000.00	1999.10	1999.10	1999.10	-0.90	
	2400.00	2399.10	2399.10	2399.10	-0.90	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Left	0.00	-1.30	-1.30	-1.30	-1.30	0.346
	500.00	498.90	498.90	498.90	-1.10	
	1000.00	999.00	999.00	999.00	-1.00	
	1500.00	1499.20	1499.20	1499.20	-0.80	
	2000.00	1999.20	1999.20	1999.20	-0.80	
	2400.00	2399.20	2399.20	2399.20	-0.80	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Right	0.00	-1.40	-1.40	-1.40	-1.40	0.346
	500.00	498.90	498.90	498.90	-1.10	
	1000.00	999.00	999.00	999.00	-1.00	
	1500.00	1499.00	1499.00	1499.00	-1.00	
	2000.00	1999.00	1999.00	1999.00	-1.00	
	2400.00	2399.10	2399.10	2399.10	-0.90	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Filter B	0.00	0.00	0.00	0.00	0.00	0.346
	500.00	500.60	500.60	500.60	0.60	
	1000.00	1000.30	1000.30	1000.30	0.30	
	1500.00	1500.10	1500.10	1500.10	0.10	
	2000.00	1999.80	1999.80	1999.80	-0.20	
	2400.00	2399.50	2399.50	2399.50	-0.50	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Top	0.00	-1.40	-1.40	-1.40	-1.40	0.346
	500.00	498.90	498.90	498.90	-1.10	
	1000.00	999.00	999.00	999.00	-1.00	
	1500.00	1499.10	1499.10	1499.10	-0.90	
	2000.00	1999.00	1999.00	1999.00	-1.00	
	2400.00	2399.00	2399.00	2399.00	-1.00	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Bottom	0.00	-1.50	-1.50	-1.50	-1.50	0.346
	500.00	498.80	498.80	498.80	-1.20	
	1000.00	999.00	999.00	999.00	-1.00	
	1500.00	1499.00	1499.00	1499.00	-1.00	
	2000.00	1999.00	1999.00	1999.00	-1.00	
	2400.00	2399.00	2399.00	2399.00	-1.00	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Meter B	0.00	-1.30	-1.30	-1.30	-1.30	0.346
	500.00	499.00	499.00	499.00	-1.00	
	1000.00	999.00	999.00	999.00	-1.00	
	1500.00	1499.20	1499.20	1499.20	-0.80	
	2000.00	1999.20	1999.20	1999.20	-0.80	
	2400.00	2399.10	2399.10	2399.10	-0.90	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Meter C	0.00	-1.20	-1.20	-1.20	-1.20	0.346
	500.00	498.90	498.90	498.90	-1.10	
	1000.00	999.10	999.10	999.10	-0.90	
	1500.00	1499.20	1499.20	1499.20	-0.80	
	2000.00	1999.20	1999.20	1999.20	-0.80	
	2400.00	2399.20	2399.20	2399.20	-0.80	

Type K Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Filter C	0.00	-1.20	-1.20	-1.20	-1.20	0.346
	500.00	499.10	499.10	499.10	-0.90	
	1000.00	999.20	999.20	999.20	-0.80	
	1500.00	1499.30	1499.30	1499.30	-0.70	
	2000.00	1999.30	1999.30	1999.30	-0.70	
	2400.00	2399.20	2399.20	2399.20	-0.80	

Manufacturer: National Instruments

Type: Data Logger

Serial #: 1B182FB

Type T Thermocouple METER FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Ambient	0.00	-1.40	-1.40	-1.40	-1.40	0.346
	20.00	18.80	18.80	18.80	-1.20	
	40.00	38.80	38.80	38.80	-1.20	
	60.00	58.70	58.70	58.70	-1.30	
	80.00	78.80	78.80	78.80	-1.20	
	100.00	98.70	98.70	98.70	-1.30	

**Remarks:**

15 Channels tested. Ambient is Type T, tested from 0 to 100 °F per customer request.

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs. Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01. A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NC SL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above. Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated. All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Jon Rau

Date: February 28, 2023

Technical Manager: Marshall Doyle

Signature: 

# CERTIFICATE OF ANALYSIS

## Grade of Product: EPA PROTOCOL STANDARD

Part Number:	E04NI61E15A0574	Reference Number:	48-402546580-1
Cylinder Number:	CC121798	Cylinder Volume:	143.7 CF
Laboratory:	124 - Los Angeles (SAP) - CA	Cylinder Pressure:	2016 PSIG
PGVP Number:	B32022	Valve Outlet:	590
Gas Code:	CO,CO <sub>2</sub> ,O <sub>2</sub> ,BALN	Certification Date:	Sep 23, 2022

**Expiration Date: Sep 23, 2030**

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

### ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON MONOXIDE	4.250 %	4.306 %	G1	+/- 0.6% NIST Traceable	09/23/2022
CARBON DIOXIDE	17.00 %	17.01 %	G1	+/- 0.6% NIST Traceable	09/23/2022
OXYGEN	17.00 %	17.11 %	G1	+/- 0.7% NIST Traceable	09/23/2022
NITROGEN	Balance				

### CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12061520	CC354777	19.87 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	Jan 11, 2024
NTRM	98051002	SG9150866BAL	12.05 % OXYGEN/NITROGEN	+/- 0.7%	Dec 14, 2023
NTRM	08061402	CC267714	1.959 %W CARBON MONOXIDE/NITROGEN	+/- 0.6%	Jul 02, 2024

### ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS 6E CO <sub>2</sub>	NDIR	Sep 16, 2022
SIEMENS 6E CO HIGH	NDIR	Sep 06, 2022
SIEMENS OXYMAT 6	PARAMAGNETIC	Sep 12, 2022

Triad Data Available Upon Request



*[Handwritten Signature]*

**Approved for Release**





# CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

**Customer & Order Information**

PXPKG TUALATIN OR H  
10450 SW TUALATIN SHERWOOD ROAD  
TUALATIN OR 97062-9547

Certificate Issuance Date: 10/16/2019  
Praxair Order Number: 71120745  
Part Number: NI CD10CO33E-AS  
Customer PO Number: 79106732

Fill Date: 10/08/2019  
Lot Number: 70086928102  
Cylinder Style & Outlet: AS CGA 590  
Cylinder Pressure and Volume: 2000 psig 140 ft3

Certified Concentration		
Expiration Date:	10/16/2027	NIST Traceable
Cylinder Number:	CC139173	Expanded Uncertainty
10.09 %	Carbon dioxide	± 0.4 %
2.53 %	Carbon monoxide	± 0.6 %
10.48 %	Oxygen	± 0.4 %
Balance	Nitrogen	

**ProSpec EZ Cert**



**Certification Information:**

Certification Date: 10/16/2019    Term: 96 Months    Expiration Date: 10/16/2027

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1.  
Do Not Use this Standard if Pressure is less than 100.PSIG.  
CO2 responses have been corrected for Oxygen IR Broadening effect. O2 responses have been corrected for CO2 interference.

**Analytical Data:**

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

**1. Component: Carbon dioxide**

Requested Concentration: 10 %  
Certified Concentration: 10.09 %  
Instrument Used: Horiba VIA-510 S/N 20C194WK  
Analytical Method: NDIR  
Last Multipoint Calibration: 09/18/2019

First Analysis Data:				Date
Z:	0	R:	14	10/16/2019
C:	10.09	Conc:	10.09	
R:	14	Z:	0	
C:	10.1	Conc:	10.1	
Z:	0	R:	14.01	
C:	10.1	Conc:	10.1	
UOM:	%	Mean Test Assay:	10.09	%

**Reference Standard:** Type / Cylinder #: GMIS / CC164230  
Concentration / Uncertainty: 14.00 % ±0.265%  
Expiration Date: 04/16/2027

**Traceable to:** SRM # / Sample # / Cylinder #: SRM 1675b / 6-F-51 / CAL014538  
SRM Concentration / Uncertainty: 13.963% / ±0.034%  
SRM Expiration Date: 05/16/2022

Second Analysis Data:				Date
Z:	0	R:	0	
C:	0	Conc:	0	
R:	0	Z:	0	
C:	0	Conc:	0	
Z:	0	R:	0	
C:	0	Conc:	0	
UOM:	%	Mean Test Assay:		%

**2. Component: Carbon monoxide**

Requested Concentration: 2.5 %  
Certified Concentration: 2.53 %  
Instrument Used: Horiba VIA-510 S/N UB9UCSYX  
Analytical Method: NDIR  
Last Multipoint Calibration: 09/19/2019

First Analysis Data:				Date
Z:	0	R:	5	10/16/2019
C:	2.53	Conc:	2.53	
R:	5	Z:	0	
C:	2.53	Conc:	2.53	
Z:	0	R:	5.01	
C:	2.54	Conc:	2.54	
UOM:	%	Mean Test Assay:	2.53	%

**Reference Standard:** Type / Cylinder #: GMIS / CC242633  
Concentration / Uncertainty: 5.00 % ±0.543%  
Expiration Date: 04/03/2025

**Traceable to:** SRM # / Sample # / Cylinder #: SRM 2642a / 51-D-23 / FF23106  
SRM Concentration / Uncertainty: 7.859% / ±0.039%  
SRM Expiration Date: 07/15/2019

Second Analysis Data:				Date
Z:	0	R:	0	
C:	0	Conc:	0	
R:	0	Z:	0	
C:	0	Conc:	0	
Z:	0	R:	0	
C:	0	Conc:	0	
UOM:	%	Mean Test Assay:		%

**3. Component: Oxygen**

Requested Concentration: 10.5 %  
Certified Concentration: 10.48 %  
Instrument Used: OXYMAT 5E  
Analytical Method: Paramagnetic  
Last Multipoint Calibration: 09/18/2019

First Analysis Data:				Date
Z:	0	R:	9.88	10/16/2019
C:	10.49	Conc:	10.48	
R:	9.88	Z:	0	
C:	10.49	Conc:	10.48	
Z:	0	R:	9.89	
C:	10.5	Conc:	10.49	
UOM:	%	Mean Test Assay:	10.48	%

**Reference Standard:** Type / Cylinder #: NTRM / DT0010384  
Concentration / Uncertainty: 9.875 % ±0.4%  
Expiration Date: 11/18/2022

**Traceable to:** SRM # / Sample # / Cylinder #: NTRM / 170701 / NTRM DT0010384  
SRM Concentration / Uncertainty: 9.875% / ±0.040%  
SRM Expiration Date: 11/18/2022

Second Analysis Data:				Date
Z:	0	R:	0	
C:	0	Conc:	0	
R:	0	Z:	0	
C:	0	Conc:	0	
Z:	0	R:	0	
C:	0	Conc:	0	
UOM:	%	Mean Test Assay:		%

Analyzed By: Jose Vasquez

Certified By: Jenna Lockman (JLL)  
Jenna Lockman

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