

PREBURN

035-S-075-1
BTN
2_14_17
EPA1
INTERVAL:

10

60

Model Designation ARADA_FARRINGDON16

Tunnel Traverse Information

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	
dP	0.032	0.036	0.042	0.040	0.035	0.040	0.043	0.036	0.038
Temperature	100	100	100	100	100	100	100	100	100.000

		1	2	3	4	5	
		TEMPERATURES					
SCALE READING	FLUE DRAFT	LEFT SIDE	RIGHT SIDE	BACK	TOP	BOTTOM	STOVE AVG T
5.2	-0.066	429	431	483	609	149	420.2
4.3	-0.042	436	438	484	613	162	426.6
3.6	-0.036	407	409	455	588	171	406
3.2	-0.026	386	387	430	556	175	386.8
3	-0.015	369	366	419	504	178	367.2
2.7	-0.015	357	352	413	449	179	350
2.6	-0.02	341	338	403	406	180	333.6

Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 %
Dilution Tunnel Static: -0.400 In H2O
Tunnel Area: 0.196 ft²
Pitot Tube Cp: 0.99

Tunnel Velocity: 13.08 ft/sec.
Intial Tunnel Flow: 144.6789 scfm
Average Tunnel Flow: 147.059 scfm

Run # EPA1
 Date: 2/14/17

Dilution Tunnel MW(dry): 29.00 lb/lb-mole
 Dilution Tunnel MW(wet): 28.78 lb/lb-mole
 Dilution Tunnel H2O: 2.00 %
 Dilution Tunnel Static: -0.400 In H2O
 Tunnel Area: 0.196 ft²
 Pitot Tube Cp: 0.99

Dilution Tunnel Traverse Data								
	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8
dP	0.032	0.036	0.042	0.040	0.035	0.040	0.043	0.036
Temperature	100	100	100	100	100	100	100	100

0.038
 100.000

Tunnel Velocity: 13.08 ft/sec.
 Intial Tunnel Flow: 144.68 scfm
 Average Tunnel Flow: 147.06 scfm

JOB #	035-S-075-1															
TECHNICIAN	BTN							ROOM TEMP (F)	70.0			BEG	MID	END	AVG	
DATE:	2_14_17							BAROMETRIC				30.06	30.06	30.06	30.06	
RUN #:	EPA1															
READING INTERVAL:	10															
SAMPLE BOX :	A	METER Y FACTOR:	1.01						PROBE MATERIAL:			SS				
FRONT FILTER #:	3028&3033					REAR FILTER #	REAR FILTER #:	3029								
FINAL LEAK RATE (CFM):	<0.01	@	19	IN-HG			FINAL LEAK RATE (CFM)	<0.01	@	19	IN-HG					
Run Time:	420	AMBIENT FILTER #:				3032	VOLUME	2305.638	LITERS	FUEL MOISTURE DB				20.6	%	
					FINAL LEAK RATE (CFM):	<0.01	@	19	IN-HG							
TEST START TIME:	15:18								1	2	3	4	5	6		
									TEMPERATURES							
	GAS METER	SAMPLE	TUNNEL	ORIFICE	FILTER	TUNNEL VEL	Proportional	Scale	Weight	TUNNEL	FLUE	FILTER	FB REAR	CAT	METER	AMBIENT
ET	VOLUME	RATE(FT3/MIN)	DELTA P	DELTA H	VAC	FT/SEC	Rate (%)	Weight	Chg	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP
0	0.000	0.000	0.038	0	-0.13		NA	10.9	0	89	206	72	402	609.39	72	69
10	1.371	0.137	0.038	1.98	-0.7	13.099	101	10.4	0.5	89	212	74	365	758.11	74	69
20	2.752	0.138	0.038	1.99	-1.48	13.075	101	9.9	0.5	87	194	74	342	874.81	77	69
30	4.139	0.139	0.038	2.01	-1.46	13.051	101	9.4	0.5	85	200	74	334	951.59	80	69
40	5.537	0.140	0.038	2.02	-0.77	13.051	101	8.8	0.6	85	204	73	334	990.19	83	69
50	6.944	0.141	0.038	2.02	-1.47	13.051	101	8.2	0.6	85	211	74	339	1087.04	86	70
60	8.352	0.141	0.038	2	-1.46	13.063	101	7.6	0.6	86	233	74	350	1125.14	88	70
70	9.767	0.142	0.038	2.01	-1.43	13.075	101	6.8	0.8	87	246	75	361	1112.36	91	70
80	11.181	0.141	0.038	2.02	-0.71	13.087	101	5.9	0.9	88	252	75	374	1096.09	92	71
90	12.601	0.142	0.038	2.03	-1.06	13.087	101	5.2	0.7	88	239	75	387	1153.44	94	71
100	14.020	0.142	0.038	2.02	-0.79	13.075	100	4.8	0.4	87	223	75	385	1104.24	95	71
110	15.444	0.142	0.038	2.02	-1	13.063	101	4.5	0.3	86	199	75	379	919.18	95	71
120	16.866	0.142	0.038	2.03	-0.92	13.051	100	4.4	0.1	85	181	75	372	829.03	96	71
130	18.296	0.143	0.038	2.03	-1.11	13.039	101	4.2	0.2	84	170	75	364	783.82	97	71
140	19.720	0.142	0.038	2.04	-0.65	13.039	100	4.1	0.1	84	161	75	359	757	97	71
150	21.148	0.143	0.038	2.01	-0.97	13.028	100	3.9	0.2	83	153	74	354	727.44	97	71
160	22.578	0.143	0.038	2.04	-1.37	13.016	100	3.8	0.1	82	148	74	349	706.26	98	71
170	24.005	0.143	0.038	2.03	-0.72	13.016	100	3.7	0.1	82	143	74	346	686.67	98	71
180	25.437	0.143	0.038	2.04	-1.52	13.003	100	3.5	0.2	81	139	74	342	672.36	98	71
190	26.868	0.143	0.038	2.03	-0.67	13.028	100	3.5	0	83	135	74	339	664.64	98	72
200	28.296	0.143	0.038	2.05	-0.74	13.039	100	3.1	0.4	84	147	75	341	709.3	98	72
210	29.729	0.143	0.038	2.03	-0.79	13.039	101	2.9	0.2	84	148	75	352	751.9	98	73
220	31.157	0.143	0.038	2.04	-1.43	13.051	100	2.6	0.3	85	159	76	357	903.72	99	73
230	32.587	0.143	0.038	2.04	-1.45	13.063	100	2.2	0.4	86	173	76	359	955.4	99	73
240	34.019	0.143	0.038	2.04	-1.24	13.063	101	1.8	0.4	86	181	76	361	956.41	99	73
250	35.449	0.143	0.038	2.05	-1.42	13.063	100	1.5	0.3	86	177	76	363	1009.87	100	71
260	36.881	0.143	0.038	2.04	-0.93	13.039	100	1.3	0.2	84	169	75	363	863.17	100	70
270	38.314	0.143	0.038	2.04	-1.22	13.028	100	1.2	0.1	83	158	74	361	792.15	99	69

[illegible]

TEST START TIME:		15:18								1	2	3	4	5	6	
										TEMPERATURES						
	GAS METER	SAMPLE	TUNNEL	ORIFICE	FILTER	TUNNEL VEL	Proportional	Scale	Weight	TUNNEL	FLUE	FILTER	FB REAR	CAT	METER	AMBIENT
ET	VOLUME	RATE(FT3/MIN)	DELTA P	DELTA H	VAC	FT/SEC	Rate (%)	Weight	Chg	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP
	59.732		0.038	2.03		13.029	100.3			83	165				95	70

JOB #	035-S-075-1									
TECHNICIA	BTN									
DATE:	2_14_17									
RUN #:	EPA1									
READING INTERVAL:	10									
SAMPLE BOX :	B	METER Y FACTOR:	1.002	PROBE MATERIAL:			SS			
FRONT FILTER #:	3030				REAR FILTER #:	3031				
FINAL LEAK RATE (CFM):	<0.01	@	18	IN-HG	FINAL LEAK RATE (CFM):	<0.01	@	18	IN-HG	

Run Time:

420

Firebox Delta T

98.2

							1	2	3	4	5	6		
							TEMPERATURES							
ET	GAS METER VOLUME	SAMPLE RATE(FT3/MIN)	PROPORTIONAL RATE	FLUE DRAFT	ORIFICE DELTA H	FILTER VAC	LEFT SIDE	RIGHT SIDE	FILTER	FB TOP	FB BOT	METER	STOVE AVG T	
0	0	0	NA	0	0	1	339	336	72	402	180	72	332	Run No
10	1.350	0.135	101	-0.03	1.97	1.37	306	298	74	356	175	73	300	
20	2.711	0.136	101	-0.02	1.97	1.48	283	271	74	344	173	76	283	
30	4.082	0.137	101	-0.03	1.99	1.56	271	256	74	345	171	79	275	
40	5.463	0.138	101	-0.02	1.99	1.93	266	249	73	354	166	82	274	
50	6.848	0.139	101	-0.03	1.99	1.94	268	248	73	371	163	85	278	
60	8.236	0.139	101	-0.03	2	1.3	273	250	74	408	158	87	288	
70	9.626	0.139	101	-0.04	1.99	1.46	283	257	75	437	154	89	298	
80	11.018	0.139	101	-0.04	1.98	1.52	297	268	75	454	151	91	309	
90	12.415	0.140	101	-0.03	1.99	1.34	312	281	75	465	149	92	319	
100	13.812	0.140	101	-0.02	1.99	1.43	326	298	75	475	147	93	326	
110	15.209	0.140	100	-0.02	1.98	1.77	329	308	75	456	147	94	324	
120	16.611	0.140	101	-0.01	1.97	2.08	327	309	75	418	147	94	315	
130	18.013	0.140	100	-0.01	1.99	1.22	323	306	75	391	147	95	306	
140	19.413	0.140	100	-0.01	1.99	1.67	316	302	75	372	147	95	299	
150	20.819	0.141	100	-0.01	1.99	1.7	309	298	74	358	147	96	293	
160	22.221	0.140	100	-0.01	1.98	1.88	303	294	74	344	147	96	287	
170	23.625	0.140	100	-0.01	1.99	1.47	297	288	74	336	146	96	283	
180	25.031	0.141	100	0	1.98	1.5	291	283	74	328	146	96	278	
190	26.436	0.141	100	0	1.98	1.39	287	279	74	321	146	96	274	
200	27.839	0.140	100	-0.01	1.99	1.95	279	275	75	318	146	96	272	
210	29.246	0.141	100	-0.01	1.98	1.65	275	279	75	326	145	97	275	
220	30.649	0.140	100	-0.01	1.99	1.65	274	280	76	347	145	97	281	

Page 2 of 3

[illegible]

Ambient Sample Results:

JOB NUMBER: 035-S-075-1
TECHNICIAN: BTN
DATE: 2_14_17
RUN NUMBER: EPA1

METER Y FACTOR: **0.997**

	<u>Sample Volume (L)</u>	<u>Meter Temp °F</u>	<u>ΔH</u>	<u>ΔP</u>
Start	0	74	0	0
End	2305.638	93	0	0

Total Sample Volume - Vm
Total Sample Volume - Vm
Average Sample Rate
Sample Time
Average Meter Temperature
Total Sample Volume (Standard Conditions) - Vmstd

Total Particulates

Particulate Concentration (dry-standard)
Particulate Emission Rate

SAMPLE INFORMATION	
2305.638	Liters
81.423	ft³
0.19	ft³/min
420.00	Minutes
83.5	°F
79.232	dscf
0.4	mg
0.000005048	grams/dscf
0.000057143	grams/hour

JOB NUMBER

035-S-075-1

RUN #

EPA1

DATE:

2_14_17

BURN RATE

0.59

KG/HR DRY

FILTER A
PARTICULATE

6.6

mg

FILTER B
PARTICULATE

5.8

mg

Total Sample Volume - Vm

Average Gas Velocity in Dilution Tunnel - vs

Average Gas Flow Rate in Dilution Tunnel - Qsd

Total Sample Volume (Standard Conditions) - Vmstd

Average Tunnel Temperature

Average Delta p

Average Gas Meter Temperature

Average Delta H

Total Time of Test

Total Particulates

Particulate Concentration (dry-standard)

Ambient Train (dry-standard)

Net (dry-standard)

Particulate Emission Rate

Total PM Emissions

Average Total PM Emissions

AVERAGE PARTICULATE

EMISSIONS RATE

% OF AVERAGE

Emissions Factor

SAMPLE A
INFORMATION

59.73

13.08

8823.54

58.00

feet/second

dscf/hour

dscf

83.2

F

0.038

95

F

2.03

in-h20

420

min

6.6

mg

0.00011

grams/dscf

0.000005048

grams/dscf

0.000108750

grams/dscf

0.96

grams/hour

6.72

grams

6.36

grams

0.91

grams/hour

105.7

1.638

g/Kg -Dry

SAMPLE B
INFORMATION

58.78

13.08

8823.54

56.78

feet/second

dscf/hour

dscf

83.2

F

0.038

93

F

1.99

in-h20

420

min

5.8

mg

0.00010

grams/dscf

0.000005048

grams/dscf

0.00009710

grams/dscf

0.86

grams/hour

6.00

grams

grams

grams/hour

94.3

1.463

g/Kg -Dry