MAGNITUDE 7 METALS LLC

STACK SAMPLE RESULTS

POTROOM
LINE 1 BA

Run Number 3 POM | 3/25/2021 | EPA Method # 315

METER VOLUME	258.080	CU. FT.
SQUARE ROOT OF DELTA P	0.676	SQ. ROOT IN. WATER
AVERAGE DELTA H	1.545	IN. WATER
METERED GAS TEMPERATURE	68.0	DEG. F
STATIC PRESSURE IN STACK	-0.57	IN. WATER
STACK TEMPERATURE	168.6	DEG. F
BAROMETRIC PRESSURE	29.73	IN. Hg
PROBE TIP DIAMETER	0.2510	INCHES
GAS METER CORRECTION FACTOR	0.990	
TOTAL SAMPLING TIME	360.0	MINUTES
TOTAL WATER COLLECTED	83.8	GRAMS
MOLECULAR WEIGHT	29.1	LB/LB-MOLE
SAMPLING DUCT AREA	196.00	SQ. FT.
MCEM COLLECTED	0.0055	GRAMS
AVG ALUMINUM PRODUCTION RATE	470027	LBS./DAY
VOLUME GAS SAMPLED	255.134	SCF
MOISTURE IN STACK GAS	1.522	%
VELOCITY OF STACK GAS (ACTUAL)	2492	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	401017	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	100.81	%
POM CONCENTRATION	0.761	MG./SCM
POM CONCENTRATION	0.000333	GRAINS/SCF
POM EMISSION	1.143	LBS./HR.
AVG. ALUMINUM PRODUCTION RATE	9.79	TON/HR.
POM EMITTED	0.117	LBS./TON

Magnitude 7 Metals

Stack Sample Results Raw Data Averages

POTROOM LINE 1 BA

Start Date: 3/25/2021 **Stop Date:** 3/25/2021 **Run #:** 3 POM

Traverse Point	Delta P (in. Water)	Delta H (in. Water)	Meter Temperature (in)	Meter Temperature (out)	Static Pressure (in. Water)	Stack Temperature (Deg. F)
B 1-1	0.36	1.25	66	68	-0.45	151
B 1-2	0.42	1.45	66	68	-0.48	152
B 1-3	0.32	1.10	66	66	-0.47	153
B 1-4	0.39	1.35	66	66	-0.48	152
B 2-1	0.48	1.65	67	67	-0.54	157
B 2-2	0.43	1.45	67	67	-0.55	159
B 2-3	0.40	1.35	67	67	-0.56	160
B 2-4	0.38	1.30	67	67	-0.56	158
B 3-1	0.50	1.70	67	66	-0.60	160
B 3-2	0.44	1.50	67	66	-0.55	160
B 3-3	0.38	1.30	67	66	-0.55	163
B 3-4	0.36	1.20	67	66	-0.57	163
B 4-1	0.55	1.85	62	62	-0.62	159
B 4-2	0.45	1.50	62	62	-0.60	159
B 4-3	0.44	1.50	62	62	-0.59	160
B 4-4	0.46	1.55	62	62	-0.55	159
B 5-1	0.44	1.50	62	61	-0.61	163
B 5-2	0.48	1.60	62	61	-0.62	164
B 5-3	0.50	1.70	62	61	-0.62	163
B 5-4	0.42	1.40	62	61	-0.58	162
A 1-1	0.61	2.00	64	64	-0.60	175
A 1-2	0.62	2.05	65	66	-0.64	177
A 1-3	0.63	2.10	65	66	-0.64	178
A 1-4	0.56	1.85	66	66	-0.61	179
A 2-1	0.58	1.90	67	66	-0.63	179
A 2-2	0.59	1.95	68	69	-0.64	177
A 2-3	0.55	1.85	70	71	-0.64	178
A 2-4	0.53	1.75	71	71	-0.63	177
A 3-1	0.44	1.45	71	71	-0.60	177
A 3-2	0.49	1.65	72	71	-0.60	178
A 3-3	0.52	1.75	73	72	-0.62	179
A 3-4	0.46	1.55	74	73	-0.57	181
A 4-1	0.49	1.65	75	74	-0.61	179
A 4-2	0.44	1.45	75	73	-0.57	179
A 4-3	0.41	1.35	75	73	-0.57	180
A 4-4	0.35	1.15	76	74	-0.53	180
A 5-1	0.45	1.50	76	76	-0.56	177
A 5-2	0.42	1.40	75	75	-0.56	179
A 5-3	0.37	1.25	76	76	-0.51	179
A 5-4	0.30	1.00	77	76	-0.51	180
Averages	**Avg. Sq. Rt 0.676**	**1.545**	**68.0**		**-0.57**	**168.6**

Date 3/25/21

Location PR1

Room B

Start Time 7:40

Run # 3PM

Avg. Tip Diameter .2510

Duct Area = 196 sq. ft.

Delta H 1.74

2 % Moisture (assumed)

MAGNITUDE 7 METALS LLC

STACK SAMPLING DATA

COMPLIANCE

Operators

Joe Schneider

Room Initial L.C. @ 15.0 = .016

Room Final L.C. @ 10 = .009

Digital meter used 20788

Initial Pitot L.C. = N/L

POINT #	SAMP TIME Min.	METER VOLUME Cu. Ft.	DELTA P in. H_2O	DELTA H in. H_2O	METER TEMP F IN	METER TEMP F OUT	STATIC PRESS. in. H_2O	STACK TEMP. °F	IMP. TEMP. °F	HEATER BOX TEMP. °F	PUMP VAC. in. Hg	SET PT.
1-1	9	898.225	.36	1.25	66	65	-.45	157	42	250	.1	3.44
1-2	9		.42	1.45	66	68	-.48	152	35	255	.2	3.45
1-3	9		.32	1.10	68	66	-.47	153	33	256	.1	3.44
1-4	9		.39	1.35	66	66	-.48	152	33	256	.1	3.45
2-1	9	922.100	.48	1.65	67	67	-.54	157	35	255	.3	3.43
2-2	9		.43	1.45	67	67	-.55	159	36	252	.2	3.41
2-3	9		.40	1.35	67	67	-.58	160	38	255	.1	3.41
2-4	9		.38	1.30	67	67	-.56	158	42	256	.1	3.42
3-1	9	947.425	.50	1.70	67	66	-.60	160	43	255	.3	3.40
3-2	9		.44	1.50	67	66	-.55	160	43	255	.2	3.40
3-3	9		.38	1.30	67	66	-.55	163	43	254	.1	3.39
3-4	9		.36	1.20	67	66	-.57	163	45	257	.1	3.39
4-1	9	972.680	.55	1.85	62	62	-.62	159	47	256	.6	3.38
4-2	9		.45	1.50	62	62	-.60	159	39	255	.3	3.38
4-3	9		.44	1.50	62	62	-.59	160	38	258	.3	3.38
4-4	9		.46	1.55	62	62	-.55	159	35	257	.3	3.38
5-1	9	998.930	.44	1.50	62	61	-.61	163	40	255	.3	3.36
5-2	9		.48	1.60	62	61	-.62	164	38	257	.3	3.35
5-3	9		.50	1.70	62	61	-.62	163	34	258	.4	3.36
5-4	9		.42	1.40	62	61	-.58	162	33	256	.2	3.36
Before LC		24.950										
S/N		1036720					78	7-7	5A	5H		

Nomograph factor: 4.01

AP

MAGNITUDE 7 METALS LLC

STACK SAMPLING DATA

COMPLIANCE

Date 3-25-21

Location PR1 3 Pom

Room A

Operators HC - Heath Conaway

Room Initial L.C. @ 10 = .010

Room Final L.C. @ 10 = .009

Stop Time 14:08

2 % Moisture (assumed)

Final Pitot L.C. = N.1

	POINT #	SAMP TIME Min.	METER VOLUME Cu. Ft.	DELTA P in. H_2O	DELTA H in. H_2O	METER TEMP F IN	METER TEMP F OUT	STATIC PRESS. in. H_2O	STACK TEMP. °F	IMP. TEMP. °F	HEATER BOX TEMP. °F	PUMP VAC. in. Hg	SET PT.
11:08	1-1	9	25.260	.61	2.00	64	64	-.60	175	44	250	.1	3.30
	1-2	9		.62	2.05	65	66	-.64	177	43	251	.3	3.30
	1-3	9		.63	2.10	65	66	-.64	178	42	253	.3	3.30
	1-4	9		.56	1.85	66	66	-.61	179	43	255	.4	3.30
11:44	2-1	9	53.820	.58	1.90	67	66	-.63	179	43	255	.3	3.30
	2-2	9		.59	1.95	68	69	-.64	177	46	256	.3	3.32
	2-3	9		.55	1.85	70	71	-.64	178	48	255	.3	3.33
	2-4	9		.53	1.75	71	71	-.63	177	48	255	.2	3.34
12:20	3-1	9	82.510	.44	1.45	71	71	-.60	177	48	256	.3	3.34
	3-2	9		.49	1.65	72	71	-.60	178	49	257	.2	3.34
	3-3	9		.52	1.75	73	72	-.62	179	51	257	.2	3.34
	3-4	9		.46	1.55	74	73	-.57	181	50	257	.3	3.33
12:56	4-1	9	109.850	.49	1.65	75	74	-.61	179	52	257	.2	3.35
	4-2	9		.44	1.45	75	73	-.57	179	53	257	.2	3.35
	4-3	9		.41	1.35	75	73	-.57	180	53	257	.3	3.34
	4-4	9		.35	1.15	76	74	-.53	180	54	257	.2	3.35
1:32	5-1	9	132.830	.45	1.50	76	74	-.56	177	55	258	.2	3.37
	5-2	9		.42	1.40	75	75	-.56	179	57	257	.1	3.35
	5-3	9		.37	1.25	76	76	-.51	179	58	257	.1	3.36
	5-4	9		.30	1.00	77	76	-.51	180	58	257	.1	3.36
2:06	FINAL		156.615										

Nomograph factor: 4.01

AP

MAGNITUDE 7 METALS LLC
STACK SAMPLING RAW DATA

Location: PR1 Line: 1 Start Date: 3-25-21 Run: 3 POM Filter: GP

PITOT TUBE

Circle to document visual inspection.

SN N 7052

Visually inspected? Yes

PROBE TIP

SN 7

DIAMETER MEASUREMENT (in.)

1. _____
2. _____
3. AVG
4. _____
5. .2510
6. _____
7. _____
8. _____

If previous calibration referenced, circle Yes to document visual inspection.

Out of round max. 0.004 in.

CAL. BY: _____

CALIPER: MITUTOYO S/N 7002015

NORANDA 0.5"

THICKNESS STD # 1 _____

SAMPLER OPERATION

PROBE HEAT SETTING

248 deg. F. +/- 25 deg. F.

Range: 223 - 273 deg. F.

HEATER BOX SETTING

For Method 14

165 deg. F. +/- 15 deg. F.

Range: 150 - 180 deg. F.

For Method 315

248 deg. F. +/- 25 deg. F.

Range: 223 - 273 deg. F.

BAROMETER READING 29.87 (in. Hg)

CORRECTION FACTOR -.14 (in. Hg)

For Method 13 only:

ORIGINAL GASEOUS FLUORIDE SAMPLE VOLUME _____ (liter)

M315

		INITIAL WEIGHT	FINAL WEIGHT
IMPINGER #	+ 100 ml water	760.7	731.1
IMPINGER #	+ 100 ml water	632.4	678.9
IMPINGER #	+ EMPTY	500.7	516.2
IMPINGER #	+ SILICA GEL	930.9	982.3
IMPINGER #	+ SILICA GEL		
IMPINGER #	+ SILICA GEL		

BALANCE: METTLER PJ6000 SNR K59603 WEIGHED BY: CLB

2 Kg Class S-1 Calibration Wt. 1999.9 Balance check must be +/- 0.5 grams.

COMMENTS: _____

AP

Form: Impinger Report Stack Samples.xlsx 2/19/20

Magnitude 7 Metals

GAS ANALYSIS REPORT

Location PR1

Date 3/25/21

Run 3pm

Room B

Analyzed by JS

Run	Time	Percent Carbon Dioxide (CO_2)	Percent Oxygen (O_2)
1	7:50	1.2	20.5
2	8:10	1.4	21.0
3	8:15	1.6	21.0

Room A

Analyzed by AC

Run	Time	Percent Carbon Dioxide (CO_2)	Percent Oxygen (O_2)
1	13:30	1.6	21.0
2	13:45	1.6	21.5
3	14:10	1.8	21.5

Form: Gas Analysis Form.xls 3/24/99