MAGNITUDE 7 METALS LLC

STACK SAMPLE RESULTS

POTROOM
LINE 1

Run Number 2 POM 3/24/2021 EPA Method # 315

METER VOLUME	257.485	CU. FT.
SQUARE ROOT OF DELTA P	0.686	SQ. ROOT IN. WATER
AVERAGE DELTA H	1.581	IN. WATER
METERED GAS TEMPERATURE	76.4	DEG. F
STATIC PRESSURE IN STACK	-0.62	IN. WATER
STACK TEMPERATURE	186.3	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	71.9	GRAMS
MOLECULAR WEIGHT	29.1	LB/LB-MOLE
SAMPLING DUCT AREA	196.00	SQ. FT.
MCEM COLLECTED	0.0087	GRAMS
AVG ALUMINUM PRODUCTION RATE	470027	LBS./DAY
VOLUME GAS SAMPLED	250.580	SCF
MOISTURE IN STACK GAS	1.333	%
VELOCITY OF STACK GAS (ACTUAL)	2564	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	402063	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	98.75	%
POM CONCENTRATION	1.226	MG./SCM
POM CONCENTRATION	0.000536	GRAINS/SCF
POM EMISSION	1.846	LBS./HR.
AVG. ALUMINUM PRODUCTION RATE	9.79	TON/HR.
POM EMITTED	0.189	LBS./TON

Magnitude 7 Metals

Stack Sample Results Raw Data Averages

POTROOM LINE 1

Start Date: 3/24/2021 **Stop Date:** 3/24/2021 **Run #:** 2 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)
A 1-1	0.43	1.40	66	66	-0.52	181
A 1-2	0.62	2.05	67	68	-0.66	181
A 1-3	0.60	2.00	67	68	-0.63	182
A 1-4	0.56	1.85	68	68	-0.62	182
A 2-1	0.51	1.70	68	69	-0.61	181
A 2-2	0.53	1.75	69	69	-0.63	182
A 2-3	0.55	1.80	70	70	-0.64	183
A 2-4	0.54	1.80	71	70	-0.62	183
A 3-1	0.40	1.35	71	71	-0.59	184
A 3-2	0.46	1.50	71	70	-0.63	182
A 3-3	0.50	1.65	71	70	-0.65	181
A 3-4	0.45	1.50	71	71	-0.63	181
A 4-1	0.43	1.45	71	71	-0.59	180
A 4-2	0.44	1.45	71	71	-0.58	181
A 4-3	0.37	1.25	70	71	-0.57	181
A 4-4	0.33	1.10	71	71	-0.53	181
A 5-1	0.42	1.40	71	71	-0.59	180
A 5-2	0.37	1.25	71	71	-0.57	178
A 5-3	0.34	1.20	71	72	-0.55	178
A 5-4	0.28	0.95	72	72	-0.53	179
B 1-1	0.34	1.15	78	78	-0.54	190
B 1-2	0.45	1.50	79	78	-0.62	190
B 1-3	0.47	1.55	80	79	-0.64	191
B 1-4	0.48	1.60	81	81	-0.66	192
B 2-1	0.43	1.45	82	81	-0.58	191
B 2-2	0.52	1.75	82	82	-0.67	193
B 2-3	0.45	1.50	83	83	-0.65	192
B 2-4	0.48	1.60	84	83	-0.62	192
B 3-1	0.50	1.65	82	83	-0.64	192
B 3-2	0.50	1.65	84	84	-0.67	192
B 3-3	0.45	1.50	84	84	-0.68	193
B 3-4	0.46	1.55	83	83	-0.65	192
B 4-1	0.50	1.65	85	84	-0.64	193
B 4-2	0.54	1.80	85	84	-0.66	192
B 4-3	0.54	1.80	84	84	-0.63	192
B 4-4	0.50	1.70	85	85	-0.60	190
B 5-1	0.48	1.60	84	84	-0.58	189
B 5-2	0.62	2.05	85	85	-0.65	192
B 5-3	0.60	2.00	85	85	-0.67	191
B 5-4	0.53	1.80	84	85	-0.61	190
Averages	**Avg. Sq. Rt 0.686**	**1.581**	**76.4**		**-0.62**	**186.3**

Date 3/24/21

Location PR1 2Pom

Room A

Start Time 0810

Run # 2Pom

Avg. Tip Diameter .2510

Duct Area = 196 sq. ft.

Delta H 1.7431

2 % Moisture (assumed)

MAGNITUDE 7 METALS LLC

STACK SAMPLING DATA

COMPLIANCE

Operators

Heath Conaway

Room Initial L.C. @ 15.0 = .019

Room Final L.C. @ 5 = .005

Digital meter used 2078

Initial Pitot L.C. = NIL

	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.
8:10	1-1	9	639.070	.43	1.40	66	66	-.52	181	49	250	.1	3.29
	1-2	9		.62	2.05	67	68	-.66	181	49	251	.1	3.29
	1-3	9		.60	2.00	67	68	-.63	182	49	252	.1	3.29
	1-4	9		.56	1.85	68	68	-.62	182	50	255	.1	3.29
8:46	2-1	9	663.420	.51	1.70	68	69	-.61	181	52	255	.1	3.30
	2-2	9		.53	1.75	69	69	-.63	182	53	255	.2	3.30
	2-3	9		.55	1.80	70	70	-.64	183	54	255	.2	3.30
	2-4	9		.54	1.80	71	70	-.62	183	55	255	.1	3.30
9:22	3-1	9	687.530	.40	1.35	71	71	-.59	184	55	255	.1	3.30
	3-2	9		.46	1.50	71	70	-.63	182	55	255	.1	3.31
	3-3	9		.50	1.65	71	70	-.65	181	56	255	.1	3.31
	3-4	9		.45	1.50	71	71	-.63	181	56	255	.1	3.32
9:58	4-1	9	712.000	.43	1.45	71	71	-.59	180	56	257	.1	3.32
	4-2	9		.44	1.45	71	71	-.58	181	57	255	.1	3.32
	4-3	9		.37	1.25	70	71	-.57	181	57	255	.1	3.31
	4-4	9		.33	1.10	71	71	-.53	181	57	256	.1	3.32
10:34	5-1	9	737.200	.42	1.40	71	71	-.59	180	58	255	.1	3.32
	5-2	9		.37	1.25	71	71	-.57	179	58	255	.1	3.33
	5-3	9		.34	1.20	71	72	-.55	178	59	255	.1	3.34
	5-4	9		.28	.95	72	72	-.53	179	59	255	.1	3.33
11:10	Before LC		760.820										
	S/N		1036720					78	7-7	5-A	5-H		

Nomograph factor: 4.01

AP

MAGNITUDE 7 METALS LLC

STACK SAMPLING DATA

COMPLIANCE

Date 3-24-21

Location PR1

Room B

Stop Time ~~0245~~ 1445

Operators KH

Room Initial L.C. @ 15 = .018

Room Final L.C. @ 10 = .003

2 % Moisture (assumed)

Final Pitot L.C. = Nil

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	762.215	.34	1.15	78	78	-.54	190	63	250	.1	3.32
1-2	9		.45	1.50	79	78	-.62	190	55	255	.2	3.32
1-3	9		.47	1.55	80	79	-.64	191	48	255	.2	3.32
1-4	9		.48	1.60	81	81	-.66	192	50	255	.3	3.33
2-1	9	787.720	.43	1.45	82	81	-.58	191	52	255	.2	3.34
2-2	9		.52	1.75	82	82	-.67	193	56	255	.4	3.33
2-3	9		.45	1.50	83	83	-.65	192	56	255	.2	3.34
2-4	9		.48	1.60	84	83	-.62	192	54	255	.3	3.34
3-1	9	814.510	.50	1.65	82	83	-.64	192	55	255	.4	3.34
3-2	9		.50	1.65	84	84	-.67	192	57	255	.4	3.35
3-3	9		.45	1.50	84	84	-.68	193	57	255	.2	3.34
3-4	9		.46	1.55	83	83	-.65	192	58	255	.2	3.34
4-1	9	841.230	.50	1.65	85	84	-.64	193	55	255	.4	3.34
4-2	9		.54	1.80	85	84	-.66	192	51	255	.5	3.35
4-3	9		.54	1.80	84	84	-.63	192	51	255	.5	3.35
4-4	9		.50	1.70	85	85	-.60	190	52	255	.4	3.36
5-1	9	869.220	.48	1.60	84	84	-.58	189	52	255	.3	3.36
5-2	9		.62	2.05	85	85	-.65	192	52	255	.6	3.35
5-3	9		.60	2.00	85	85	-.67	191	53	255	.6	3.36
5-4	9		.53	1.80	84	85	-.61	190	55	255	.5	3.36
FINAL		897.950										

Nomograph factor: 4.01

AP

MAGNITUDE 7 METALS LLC
STACK SAMPLING RAW DATA

Location: PR1 Line: 1 Start Date: 3-24-21 Run: 2PdM Filter: FP

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	HEATER BOX SETTING
248 deg. F. +/- 25 deg. F.	For Method 14
Range: 223 - 273 deg. F.	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: M315

ORIGINAL GASEOUS
FLUORIDE SAMPLE VOLUME _____ (liter)

		INITIAL WEIGHT	FINAL WEIGHT
IMPINGER #	+ 100 ml water	727.6	684.1
IMPINGER #	+ 100 ml water	742.6	786.7
IMPINGER #	+ EMPTY	646.4	663.2
IMPINGER #	+ SILICA GEL	944.0	998.5
IMPINGER #	+ SILICA GEL		
IMPINGER #	+ SILICA GEL		

BALANCE: METTLER PJ6000 SNR K59603 WEIGHED BY: cb

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

COMMENTS: _____

AP

Magnitude 7 Metals

GAS ANALYSIS REPORT

Location PR1 2 Pom

Date 3-24-21

Run 2 Pom

Room A

Analyzed by HC

Run	Time	Percent Carbon Dioxide (CO_2)	Percent Oxygen (O_2)
1	9:30	1.8	21.5
2	9:40	1.6	21.0
3	9:50	1.6	21.0

Room B

Analyzed by KH

Run	Time	Percent Carbon Dioxide (CO_2)	Percent Oxygen (O_2)
1	1:55	1.2	20.5
2	1:58	1.3	21.0
3	2:02	1.2	21.0

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

RA