Magnitude 7 Metals LLC

STACK SAMPLE RESULTS

CARBON BAKE
LINE 3

Run Number 1 POM 1/16/2020 EPA Method # 315

METER VOLUME	181.895	CU. FT.
SQUARE ROOT OF DELTA P	0.327	SQ. ROOT IN. WATER
AVERAGE DELTA H	1.199	IN. WATER
METERED GAS TEMPERATURE	49.9	DEG. F
STATIC PRESSURE IN STACK	-0.05	IN. WATER
STACK TEMPERATURE	123.4	DEG. F
BAROMETRIC PRESSURE	30.11	IN. Hg
PROBE TIP DIAMETER	0.3327	INCHES
GAS METER CORRECTION FACTOR	0.992	
TOTAL SAMPLING TIME	300.0	MINUTES
TOTAL WATER COLLECTED	70.8	GRAMS
MOLECULAR WEIGHT	28.9	LB/LB-MOLE
SAMPLING DUCT AREA	52.56	SQ. FT.
MCEM COLLECTED	0.0318	GRAMS
GREEN ANODE MATERIAL USED	626707	LBS./DAY
VOLUME GAS SAMPLED	188.676	SCF
MOISTURE IN STACK GAS	1.736	%
VELOCITY OF STACK GAS (ACTUAL)	1157	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	54412	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	100.57	%
POM CONCENTRATION	5.951	MG./SCM
POM CONCENTRATION	0.002601	GRAINS/SCF
POM EMISSION	1.213	LBS./HR.
GREEN ANODE MATERIAL USED	13.06	TON/HR.
POM EMITTED	0.093	LBS./TON

Stack Sample Results
Raw Data Averages

CARBON BAKE LINE 3

Start Date: 1/16/2020 **Stop Date:** 1/16/2020 **Run #:** 1 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)
1-1	0.09	1.00	51	47	-0.04	110
1-2	0.13	1.45	51	47	-0.05	110
1-3	0.14	1.50	52	50	-0.07	119
1-4	0.10	1.10	49	49	-0.04	121
1-5	0.08	0.90	49	49	-0.03	121
2-1	0.09	1.00	49	49	-0.03	121
2-2	0.11	1.20	47	47	-0.04	122
2-3	0.12	1.30	47	47	-0.04	122
2-4	0.13	1.45	47	47	-0.05	122
2-5	0.10	1.10	48	48	-0.04	123
3-1	0.06	0.70	49	49	-0.02	113
3-2	0.08	0.90	49	47	-0.04	127
3-3	0.12	1.30	49	47	-0.07	128
3-4	0.14	1.55	49	47	-0.09	128
3-5	0.12	1.30	49	47	-0.06	129
4-1	0.14	1.55	51	50	-0.06	128
4-2	0.16	1.75	52	50	-0.07	130
4-3	0.11	1.20	52	51	-0.05	126
4-4	0.06	0.67	52	51	-0.03	122
4-5	0.06	0.67	52	51	-0.02	120
5-1	0.11	1.20	53	52	-0.06	122
5-2	0.10	1.10	53	52	-0.07	128
5-3	0.14	1.55	53	52	-0.08	132
5-4	0.15	1.65	54	53	-0.07	131
5-5	0.08	0.88	54	53	-0.03	130
Averages	**0.327** (AVG. SQ. RT.)	**1.199**	**49.86**		**-0.05**	**123.4**

MAGNITUDE 7 METALS, LLC
CARBON BAKE 3 STACK SAMPLING DATA

Date 1-16-20
Start Time 0805
Stop Time 13:10
Run # 1 Pm
Avg. Tip Diameter .3327
Duct Area = 52.56 sq. ft.
Delta H 1.77
2 % Moisture (assumed)

Operators
Cl. Allen
Joe Schneider

Chemist

Initial L.C. @ 15.0 = .013
Final L.C. @ 5.0 = 0.02
Initial L.C. @ ____ = ____
Final L.C. @ ____ = ____

Digital meter used 2077
Initial Pitot L.C. = nil
Final Pitot L.C. = ____

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	12	724.735	.09	1.00	51	47	-.04	110	33	225	.1	11.27
1-2			.13	1.45	51	47	.05	110	34	225	.1	11.27
1-3			.14	1.50	52	50	-.07	119	34	226	.1	10.92
1-4			.10	1.10	49	49	-.04	121	35	225	.1	11.06
1-5			.08	.90	49	49	-.03	121	35	225	.1	11.06
2-1		763.415	.09	1.00	49	49	-.03	121	35	225	.1	11.06
2-2			.11	1.20	47	47	-.04	122	35	225	.1	11.00
2-3			.12	1.30	47	47	-.04	122	35	225	.1	11.00
2-4			.13	1.45	47	47	-.05	122	35	225	.1	11.00
2-5			.10	1.10	48	48	-.04	123	36	225	.1	11.00
3-1		800.860	.06	.70	49	49	-.02	113	34	227	.1	11.21
3-2			.08	.90	49	47	-.04	127	36	226	.1	10.90
3-3			.12	1.30	49	47	-.07	128	37	226	.1	10.90
3-4			.14	1.55	49	47	-.09	128	37	226	.1	10.90
3-5			.12	1.30	49	47	-.06	129	37	226	.1	10.90
4-1		836.470	.14	1.55	51	50	-.06	128	34	225	.1	10.94
4-2			.16	1.75	52	50	-.07	130	37	225	.1	10.93
4-3			.11	1.20	52	51	-.05	126	37	225	.1	11.02
4-4			.06	0.67	52	51	-.03	122	36	225	.1	11.09
4-5			.06	0.67	52	51	-.02	120	36	225	.1	11.13
5-1		865.045	.11	1.20	53	52	-.06	122	36	225	.1	11.11
5-2			.10	1.10	53	52	-.07	128	35	225	.1	11.00
5-3			.14	1.55	53	52	-.08	132	36	226	.1	10.93
5-4			.15	1.65	54	53	-.07	131	38	225	.1	10.95
5-5			.08	.88	54	53	-.03	130	36	225	.1	10.98
FINAL		906.630										
S/N		14228187					77	8-1	5A	5H		

Nomograph factor: 12.62

Scrubbers operating: ____

MAGNITUDE 7 METALS, LLC
STACK SAMPLING RAW DATA
METHODS 5 & 13 or METHODS 5 & 315

Location: CB3 Line: 3 Date sampled: 1/16/2020 Run: 1PM Filter: DP

PITOT TUBE — Circle to document visual inspection.

SN D372

Visually inspected? Yes

PROBE TIP

SN 3185

DIAMETER MEASUREMENT (in.)

1. .3328
2. .3330
3. .3335
4. .3325
5. .3320
6. .3320
7. .3330
8. .3335

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

Out of round max. 0.004 in.

CAL. BY: JS

CALIPER: MITUTOYO S/N 7002015

NORANDA 0.5"

THICKNESS STD # 1 5000

SAMPLER OPERATION

PROBE HEAT SETTING
248 deg. F. +/- 25 deg. F.
Range: 223 - 273 deg. F.

HEATER BOX SETTING
For Method 13
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 30.25 (in. Hg)

CORRECTION FACTOR .14 (in. Hg)

For Method 13 only:

ORIGINAL GASEOUS FLUORIDE SAMPLE VOLUME _____ (liter)

		INITIAL WEIGHT	FINAL WEIGHT
IMPINGER #	+ 100 ml water	742.0	732.7
IMPINGER #	+ 100 ml water	736.6	765.9
IMPINGER #	+ EMPTY	631.6	648.0
IMPINGER #	+ SILICA GEL	1172.1	1206.5
IMPINGER #	+ SILICA GEL		
IMPINGER #	+ SILICA GEL		

BALANCE: METTLER PJ6000 SNR K59603 WEIGHED BY: JS

2 Kg Class S-1 Calibration Wt. 2000.0 Balance check must be +/- 0.5 grams.

COMMENTS:

Form: Impinger Report M5&13 or 5&315.xls 9/17/18

Magnitude 7 Metals LLC

GAS ANALYSIS REPORT

Location CB 3

Date 1-16-20

Run 1 PoM

Room

Analyzed by CT

Run	Time	Percent Carbon Dioxide (CO_2)	Percent Oxygen (O_2)
1	0830	19.8	1.0
2	0855	19.8	0.8
3	0915	20.0	0.8

MCEM analysis

Carbon Bake 3
Run 1 POM — Scrubber: — Date: 1/16/2020 — Filter #: DP

Container No.	ID	Final Weight (g)	Tare Weight (g)	Weight gain (g)	Weight gain (mg)	Acetone wash volume (ml)	Methylene chloride wash volume (ml)
	Aluminum Dish						
1 - Petri	1	2.5276	2.5262	0.0014	1.4		120
2 (Part. Beaker)+2M	2	2.5431	2.5298	0.0133	13.3	160	175
3W	3W	2.5474	2.5365	0.0109	10.9		150
3S	3S	2.5727	2.5652	0.0075	7.5	97.6	115.7
3S converted to ml						124.3	87.8
Totals					33.1	284.3	532.8
					$\sum m_{total}$	$\sum v_{aw}$	$\sum v_{tw}$

Acetone Lot # 070467 — Density of Acetone (mg/ml)		785.0	
Acetone blank Weight (g) and Volume (ml)	0.0001		200
Acetone blank Concentration $c_a = m_a \div (v_a \rho_a)$		6.37E-07	
Less acetone wash blank (mg) (not to exceed 1 mg/l of acetone used) $w_a = c_a \rho_a \sum v_{aw}$		0.14	
Concentration of acetone (mg/l) allowed compared to actual concentration	0.28	0.14	0.50
$MeCl_2$ Lot # 054318 — Density of Methylene Chloride (mg/ml)		1318	
Methylene blank Weight (g) and Volume (ml)	0		200
Methylene Chloride blank Concentration $c_a = m_a \div (v_a \rho_a)$		0.00E+00	
Less methylene chloride wash blank (mg) (not to exceed 1.5 mg/l of methylene chloride used) $w_t = c_t \rho_t \sum v_{tw}$		0.00	
Concentration of methylene chloride (mg/l) allowed compared to actual concentration	0.80	0.00	0.00
Less filter blank (mg) (not to exceed … (mg/filter) F_b		1.2 mg	
MCEM weight (mg) No blank corr. $\sum m_{total}$		33.1 mg	
MCEM weight (g)		0.0331 g	
MCEM wt (mg) minus acetone & MeCl2 blk $\sum m_{total} - w_a - w_t$		33.0 mg	
MCEM weight (mg) blk corr. $m_{MCEM} = \sum m_{total} - w_a - w_t - f_b$		31.8 mg	
MCEM weight (g)		0.0318 g	

Notes:

Filename: M315-2020 Data