

	1	2	3	4	5	6	7	8	9
	La ppm / CO ₂ %	Ce ppm / CO ₂ %	Co ppm / CO ₂ %	Zn ppm / Al%					
M-7/180 ¹	.467	ND	.911	733					
220 ²	1.25	ND	.70	827					
240 ³	.96	ND	.766	53					
300 ⁴	ND	ND	.347	88					
330 ⁵	1.41	ND	.711	73					
M-10/160 ⁶	1.92	1.92	.068	86					
500 ⁷	ND	ND	.433	42					
620 ⁸	1.79	2.15	.803	51					
680 ⁹	.75	1.70	.836	ND					
1000 ¹⁰	ND	ND	.415	36					
M-12/240 ¹¹	ND	ND	.078	48					
330 ¹²	1.94	ND	.538	ND					
470 ¹³	1.29	1.29	.720	53					
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

EFFICIENCY LINE NO. 2689

A

Bleaching Procedure - Use Chem Lab hood

- 1) Put sample into beaker
- 2) Add 50 ml of NaClO (Clorox Bleach) to beaker
- 3) Under the hood, heat below boiling
- 4) Occasionally swirl (every hour)
- 5) After 1 day test with I_2

Decant ~ 5 ml of NaClO soln, add a few drops I_2 soln. Color (0.025 norm.) should bleach out almost immediately.

— If color bleaches out, decant samples and fill beaker with distilled water. Let samples with distilled water sit for 1 to 5 minutes. Decant and repeat 2 more times

— If color does not bleach, decant and add bleach. Let sit for 1 more day, then check with I_2 again.

- 6) dry in vacuum desiccator attached to vacuum pump before Acetoxisite leach - Weigh samples

B

HCL leach

- 1) Add 50 ml of ~10% HCL to sample in beaker
- 2) Let sit ~~for 2 days~~ until all fizzing stops - stirring ~ 1 per hour Neither sample frozen
- 3) if ~~litmus paper indicates solution is still~~ ~~red~~, decant, rinse 3 times with distilled, and dry in vacuum desiccator. ~~otherwise~~, repeat ~~HCL leach procedure~~.
- afterwards weigh samples

C

HNO₃ Leach Procedure

- 1) add 20 ml of conc. HNO₃ to sample in beaker
- 2) heat, below boiling, for one day.
- 3) ~~if filter paper indicates asbestos~~
~~residue~~, decant, rinse 3 times with distilled, and dry in vacuum desiccator. ~~Asbestos, repeat HNO₃ leach procedure.~~

Weight sampler afterward

D

Acetonitrile Procedure - Use ^{water} Hood

- 1) Put Sample into beaker
- 2) Add 10 ml of Acetonitrile, Swirl every hour
- 3) After 1/2 day, decant and repeat (1) and (2) and (3)
- 4) Rinse once with 10 ml Acetonitrile
- 5) Dry in vacuum desiccator attached to vacuum pump. put samples back in vials.
Weigh samples afterward

Ben:

- 1) a Run a magnet over samples to remove drill steel.
(see me if rock is also removed)
- 1) b Wash + crush samples 5360 & 1510
as before
- 2) Divide into $\frac{8 \text{ equal wt. splits}}{4}$ splits ~~for each sample.~~
- 3) Label these a5340 A through D +
a1510 A through D.
- 4) Subject the samples to the leach
procedures indicated by X's on
the following pages.

1510-1540

5320-5340

A .1819
 B .1771
 C .1806
 D .1748

A .2512
 B .2414
 C .2520
 D .2896

Orig. weights	gms	<u>1510-1540</u>		weights (gms)
.1819	A	After Bleach	(1)	.1766
	A	After HCL	(2)	.1633
.1771	B	After HCL	(1)	.1549
	B	After Bleach	(3)	.1171
	B	After Acetonitrile	(2)	.1246
.1806	C	After HNO ₃	(1)	.1534
.1748	D	After Acetonitrile	(1)	.1531
	D	After Bleach	(2)	.1454
	D	After HCL	(3)	.1351
<u>5320-5340</u>				
.2512	A	After Bleach	(1)	.2475
	A	After HCL	(2)	.2200
.2414	B	After HCL	(1)	.2251
	B	After Bleach	(3)	.2091
	B	After Acetonitrile	(2)	.2214
.2520	C	After HNO ₃	(1)	.2220
.2896	D	After Acetonitrile	(1)	.2733
	D	After Bleach	(2)	.2682
	D	After HCL	(3)	.2286

← Evaporated down to ~20 mls. Boiled slightly

3/29/85

Gas Leached

1150 2.8320 2.012 for HCL Leach
 4160 4.0515 2.010 for HCL Leach

HCL Leach - Some particles floating on top.

1150 after HCL Leach 1.5685
 4160 after HCL Leach 1.7380

	Before Leach/After	Original	Splits	Before Leach/After	dif
1150	A .1521	dif	4160	A .1597	dif
✓	B .1560 .1255 .0305			B .1560 .1407 .0153	
	C .1515 .1370 .0145		✓	C .1638 .1284 .0354	
	D .1550 .1252 .0298			D .1580 .1275 .0305	
	E .1531			E .1559	
	F .1553 .1361 .0192			F .1568 .1413 .0155	
	G .1559 .1454 .0103			G .1590 .1526 .0064	
	H .1575 .1200 .0375			H .1559 .1238 .0314	
✗					

✓ = some particles floating on top 1st decant.

General Procedure

- 1) For samples Well B, ~~1060-1090~~ 1150-1180
and Well B 4160-4180
- 2) ~~wash 2 times of each~~
- 3) ~~Wash~~ - Do HCL LEACH on Both ~~1060~~ & ~~4160~~
- 4) Separate into 8 splits of 150 to 200 mg for each sample
- i.e., 16 splits total - put remaining sample in vial, save.
- 5) Label the splits ¹¹⁵⁰~~1060~~ A ~~+~~ to ¹¹⁵⁰~~1060~~ H
& 4160 A ~~+~~ to 4160 H

For ¹¹⁵⁰~~1060~~ A ^E~~+~~: Do Nothing - Put in vial, label vial
 For 4160 A ^E~~+~~: Do Nothing - Put in vial, label vial

For ¹¹⁵⁰~~1060~~ B ^F~~+~~: Do Bleach Procedure
 For 4160 B ^F~~+~~: Do Bleach Procedure

For ¹¹⁵⁰~~1060~~ C ^G~~+~~: Do Acetonitrile Procedure
 For 4160 C ^G~~+~~: Do Acetonitrile Procedure

For ¹¹⁵⁰~~1060~~ D ^H~~+~~: Do HNO₃ Procedure
 For 1060 D & H: Do HNO₃ Procedure

★ Do not sieve when decanting - Use the centrifuge if you have to.

HCl Leach (step (3) of general procedure page)

- 1) Add 100 ml of ~10% HCl to each 2 gram sample - swirl beaker
- 2) Let sit for 1 hour
- 3) Decant HCl, rinse with distilled and dry in vacuum dessicator.
- 4) Weigh samples - Record weights
- 5) go to step 4 of General Procedure

Bleach Procedure ($B_A + F$ samples)

- 1) Put each of the two B samples ~~in a beaker~~ and two F samples into 1 beaker each (label beakers).
- 2) Add 100 ml of NaClO (Bleach) to each beaker
- 3) Under the ^{Chem-Lab} hood, heat to below boiling
- 4) Swirl each hour for 1 work day
cover and let sit overnight
- 5) Decant bleach, repeat steps (2) to (4)
- 6) Decant, wash 3 times with distilled water, and dry in vacuum desiccator.
- 7) Weigh samples afterward, put in vials.

Acetonitrile Procedure (C⁺G samples)

- 1) Put each of the ~~two~~ ⁴ samples into ~~a~~ beaker and two G samples into 1 beaker each (label beakers).
- 2) Add 20 ml of acetonitrile
- 3) swirl each hour for 1 work day
- 4) ~~After~~ At end of day, decant acetonitrile, ~~add~~ ²⁰ ml of fresh acetonitrile, swirl for 10 minutes. Decant Acetonitrile, add ~~100~~ ²⁰ ml fresh acetonitrile, swirl, then leave overnight.
- 5) Next morning, swirl once an hour all day
- 6) At end of day, decant and wash ~~once~~ ³ times with ~~100~~ ²⁰ ml acetonitrile, then 3 times with distilled water. Dry in vacuum dessicator.
- 7) Weigh samples, put in vials

HNO_3 Procedure (D_{15} ^{D+H} samples)

- 1) Put each of ~~two~~ two D and two H samples into 1 beaker each (label beakers).
- 2) Add 40 ml of conc. HNO_3 to samples in beakers.
- 3) Heat below boiling for 1 work day
- 4) let sit over night (covered).
- 5) ^{heat below boiling} ~~repeat~~ for one ^{more} day
- 6) Decant HNO_3 , rinse 3 times with distilled water, & dry in vacuum desiccator.
- 7) Store in labeled vials