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## ALUMINA

# = class, where 1 = CRM and 2 = RM analysis listed in mass % except \* which is mg/kg T = Total

#	Number	Al <sub>2</sub> O <sub>3</sub>	Be*	CaO	Cr <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO*	Na <sub>2</sub> O	P*	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	Units
AVAILABLE INDIVIDUALLY																
2	CERAM AN27	99.76	.	0.03	.	0.02	<0.01	<0.01	.	0.08	.	.	0.08	<0.01	.	25 or 100 g
2	CERAM AN26	99.76	.	0.03	.	0.03	<0.01	<0.01	.	0.02	.	.	0.12	<0.01	(0.08)	25 or 100 g
2	CERAM AN25	99.39	.	0.03	.	0.03	0.01	<0.01	.	0.53	.	<0.01	<0.01	<0.01	(0.34)	25 or 100 g
1	VS SH12/3	73.6	.	18.8	0.46	0.66T	.	2.15	.	.	.	.	0.76	.	.	100 g
1	NCS DC62107b	67.64	.	0.60	.	2.48	0.11	0.21	.	0.03	SO <sub>3</sub> :0.03	.	10.85	3.14	14.50	20 g
1	DSZU 123.45-03	.	.	.	2.7*	0.02	V <sub>2</sub> O <sub>5</sub> : 3.7*	2.3	0.33	.	.3	4.0*	0.022	0.0046	.	50 g last

AVAILABLE ONLY AS SET 1-5

1	DSZU 123.46-03-1	.	.	.	.	0.022	.	.	.	0.20	.	.	0.020	.	.	20 g SET 1-5 only
1	DSZU 123.46-03-2	.	.	.	.	0.022	.	.	.	0.33	.	.	0.021	.	.	20 g SET 1-5 only
1	DSZU 123.46-03-3	.	.	.	.	0.037	.	.	.	0.44	.	.	0.037	.	.	20 g SET 1-5 only
1	DSZU 123.46-03-4	.	.	.	.	0.055	.	.	.	0.47	.	.	0.054	.	.	20 g SET 1-5 only
1	DSZU 123.46-03-5	.	.	.	.	0.090	.	.	.	0.72	.	.	0.077	.	.	20 g SET 1-5 only

CRM	ALUMINA SET										SET/3 ONLY for R034, others set or individually				trace informational Cl, NiO, SO <sub>3</sub>		50 g
Number	B <sub>2</sub> O <sub>3</sub>	CaO	CuO	Fe <sub>2</sub> O <sub>3</sub>	Ga <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	ZnO	ZrO <sub>2</sub>	LOI			
JCRM R034	(<0.0006)	0.0002	(<0.0003)	(0.0003)	0.0021	0.0020	(<0.0001)	0.0018	0.0045	(<0.0001)	(<0.0004)	(<0.0002)	(<0.0002)	0.188			
JCRM R035	(<0.0006)	0.0188	0.0018	0.0151	0.0074	0.0005	0.0013	0.222	0.0116	0.0007	0.0029	0.0012	0.0009	0.156			
JCRM R036	0.0533	0.0242	(<0.0003)	0.0139	0.0076	(0.0002)	0.0006	0.0316	0.0569	0.0002	0.0032	0.0007	0.0004	0.072			

CRM ALUMINOUS SET available in SET/3 only 100 g units

Number	Type	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	ZrO <sub>2</sub> +HfO <sub>2</sub>	LOI
JCRM R303	Bauxite	88.49	0.012	1.51	.	0.006	.	0.064	5.55	2.93	0.110	.
JCRM R304	Sillimanite	55.94	0.427	0.585	0.329	0.451	0.273	.	35.90	1.33	0.105	4.26
JCRM R041	Mullite	70.18	0.059	0.598	0.174	0.190	0.197	0.136	28.11	0.185	0.058	.

## CRM ALUMINUM FLUORITE

analysis listed in mass %

100 g units

Number	F	Al	Fe <sub>2</sub> O <sub>3</sub>	Na	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	SO <sub>4</sub>	LOI
NCS DC91016	64.97	31.92	0.025	0.028	0.0275	0.196	0.076	1.25
NCS DC91008	61.79	30.70	0.132	0.097	0.0253	0.104	0.585	(4.61)
NCS DC91011	61.51	32.28	0.021	0.121	0.1317	0.429	0.627	0.754
NCS DC91010	60.96	30.52	0.126	0.125	0.0265	0.251	0.748	(5.48)
NCS DC91013	60.88	33.12	0.020	0.315	0.0013	0.017	0.098	0.467
NCS DC91007	60.76	30.27	0.156	0.104	0.0295	0.146	0.654	(6.00)
NCS DC91015	59.99	30.70	0.107	0.111	0.0247	0.301	0.702	(5.61)
NCS DC91012	59.74	33.93	0.037	0.126	0.0027	0.016	0.136	0.547
NCS DC91009	57.79	34.68	0.028	0.113	0.0008	0.015	0.093	0.662
NCS DC91014	57.72	34.76	0.015	0.113	0.0007	0.014	0.104	0.640

CRM ANDALUSITE 100 g units

Number	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
SARM 34	59.15	(0.13)	0.75	0.23	0.13	0.093	39.04	0.16	0.62

## CRM ANDESITE WITH EXTENSIVE ANALYSIS

analysis listed in mass %

Number	Si	SiO <sub>2</sub>	Al	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	Fe	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	TiO <sub>2</sub>	LOI	
JA-1	29.90	63.97	8.06	15.22	.	5.70	4.95	3.98	2.59	7.07	+0.72	-0.30	0.77	1.57	0.157	3.84	0.165	0.85	.
JA-1a	.	63.66	.	15.40	.	5.74	.	3.67	.	7.17	.	.	0.78	1.55	0.157	3.90	0.165	0.87	.
GBW 07110	.	63.06	.	16.1	1.03	2.47	.	0.19	4.51	.	+1.79	.	5.17	0.84	0.089	3.06	0.36	0.80	.
JA-3	29.11	62.27	8.23	15.56	.	6.24	4.62	4.83	1.15	6.60	+0.20	-0.11	1.41	3.72	0.104	3.19	0.116	0.70	.
GBW 07104	.	60.62	.	16.17	3.47	5.20	.	2.39	.	4.90	+1.5)	.	1.89	1.72	.	3.86	.	.	4.44
US-AGV-2a	27.7	59.3	8.95	16.91	.	5.20	4.68	.	.	6.69	.	.	2.88	1.79	.	4.19	0.48	1.05	.
USZ 48-2009	.	59.20	.	16.72	.	5.58	.	(1.66)	.	5.43	.	.	2.42	3.52	0.081	4.46	0.264	0.71	1.39
CGL 019	.	58.64	.	16.0	.	3.85	.	.	.	5.91	(0.58)	.	4.85	1.74	0.0469	4.41	1.002	1.395	(1.33)
JA-2	26.37	56.42	8.16	15.41	.	6.29	4.34	3.69	2.16	6.21	+1.12	-1.25	1.81	7.60	0.108	3.11	0.146	0.66	.

continued analysis listed in mg/kg except \* which is ppb and % which is mass %

Number	Ag	As	Au*	B	Ba	Be	Bi	Ca%	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	Eu	
JA-1	.	2.78	0.16	21.0	311	0.50	.	4.07	0.11	13.3	43.0	12.3	7.83	0.62	43.0	4.55	3.04	1.20	
JA-1a	.	.	.	.	(322)	.	.	.	.	.	.	(12.9)	(4.1)	.	(41.8)	.	.	.	.
GBW 07110	0.17	5.96	.	10.8	1053	3.64	0.09	.	0.61	117	160	7.9	7.7	7.16	9.1	5.32	2.93	1.96	
JA-3	0.084	.	.	24.8	323	0.80	.	4.46	.	22.8	.	21.1	66.2	2.08	43.4	3.01	1.57	0.82	
GBW 07104	0.071	2.1	(0.95)	4.7	1020	1.1	0.081	.	0.061	40	(46)	13.2	32	2.3	55	1.85	0.85	1.02	
US-AGV-2a	.	.	.	1140	2.3	.	.	3.72	.	68	.	16	17	(1.16)	53	3.6	(1.79)	(1.54)	
USZ 48-2009	(0.08)	(3.64)	.	.	672	(2.01)	(0.12)	.	(0.06)	55.2	.	19.2	95.9	1.09	41.2	(2.55)	(1.18)	1.44	
CGL 019	.	6.5	.	2828	2.22	(0.10)	.	.	.	219	.	13.4	35	11.7	21.6	4.03	1.62	3.36	
JA-2	.	0.26	20.7	321	2.05	.	.	4.50	.	32.7	.	29.5	436	4.63	29.7	2.80	1.48	0.93	

Number	F	Ga	Gd	Ge	Hf	Hg	Ho	I	In	K%	La	Li	Lu	Mg%	Mn%	Mo	Na%	Nb
JA-1	161	16.7	4.36	1.33	2.42	.	0.95	.	.	0.64	5.24	10.8	0.47	0.95	0.122	1.59	2.85	1.85
JA-1a	.	.	.	.	.	.	.	.	.	.	.	(11.6)	.	.	.	(1.2)	.	.
GBW 07110	1120	19.8	6.54	1.11	7.5	0.014	1.10	0.07	0.11	.	62.5	17.5	0.49	.	0.95	.	20.8	
JA-3	.	16.3	2.96	.	3.42	.	0.51	.	.	1.17	9.33	14.5	0.32	2.24	0.081	1.89	2.37	3.41
GBW 07104	280	18.1	2.7	0.93	2.9	0.012	0.34	(0.14)	0.037	.	22	18.3	0.12	.	0.0604	0.54	.	6.8
US-AGV-2a	(440)	20	(4.69)	.	(5.08)	.	(0.71)	.	.	2.39	38	(11)	(0.25)	1.08	0.0770	.	3.11	15
USZ 48-2009	.	21.1	(3.93)	.	3.80	(0.004)	(0.46)	.	.	.	26.2	(13.2)	(0.15)	.	.	(0.60)	.	3.23
CGL 019	.	21.7	(7.8)	.	8.3	0.658	.	.	.	112	22.7	0.179	.	.	(1.74)	.	14.8	
JA-2	.	16.9	3.06	.	2.86	.	0.50	.	.	1.50	15.8	27.3	0.27	4.58	0.084	0.60	2.31	9.47

Number	Nd	Ni	P%	Pb	Pr	Rb	S	Sb	Sc	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Ti%
JA-1	10.9	.	0.072	6.55	1.71	12.3	21.6	0.22	28.5	.	3.52	.	263	0.13	0.75	.	0.82	0.51
JA-1a	.	(2.3)	.	.	.	.	.	.	.	.	.	.	(268)	.	.	.	.	.
GBW 07110	47.2	12.6	.	97.7	13.2	183	230	1.34	7.52	0.03	8.63	3.12	318	1.42	0.99	(0.007)	16.7	.
JA-3	12.3	32.2	0.051	7.70	2.40	36.7	.	.	22.0	.	3.05	.	287	0.27	0.52	.	3.25	0.42
GBW 07104	19	17	0.1030	11.3	4.9	38	192	0.12	9.5	(0.04)	3.4	0.79	790	0.40	0.41	0.017	2.6	0.3090
US-AGV-2a	30	19	0.21	13	8.3	68.6	.	(0.6)	13	.	(5.7)	(2.3)	658	(0.89)	(0.64)	.	6.1	0.63
USZ 48-2009	27.2	61.2	.	18.7	(6.77)	49.7	.	(0.27)	11.8	.	5.16	(0.86)	1116	(0.25)	0.49	.	6.46	.
CGL 019	90.7	27	.	34.1	25.3	104	.	8.5	8.6	.	13.2	1.8	2692	0.74	0.871	.	11.4	.
JA-2	13.9	130	0.064	19.2	3.84	72.9	.	.	19.6	.	3.11	1.68	248	0.80	0.44	.	5.03	0.40

Number	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Units
JA-1	.	0.47	0.34	105	.	30.6	3.03	90.9	88.3	20 g
JA-1a	.	.	.	(107)	.	.	.	(91)	(94.9)	100 g
GBW 07110	1.02	0.50	3.04	64.3	1.62	28.0	3.15	164	335	50 g
JA-3	.	.	1.18	169	.	21.2	2.16	67.7	118	20 g
GBW 07104	0.16	0.15	0.90	94	(0.45)	9.3	0.89	71	99	70 g
US-AGV-2a	(0.27)	(0.26)	1.88	120	.	20	1.6	86	230	25 g
USZ 48-2009	(0.22)	(0.17)	1.96	123	(1.70)	11.8	1.00	71.5	141	100 g
CGL 019	(0.45)	0.207	1.72	102	(0.93)	17.7	1.231	89	368	100 g
JA-2	0.32	0.28	2.21	126	.	18.3	1.62	64.7	116	20 g

## CRM ANHYDRITE

analysis listed in mass %

50 g units

Number	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	SO <sub>3</sub>	SiO <sub>2</sub>	Sr	TiO <sub>2</sub>
GUW AN	(0.023)	0.65	40.7	0.014	(0.5)	0.013	0.34	(0.002)	0.032	57.6	(0.22)	0.14	(0.003)

continued analysis listed in mg/kg

Number	B	Ba	Cl	Cr	Cs	Cu	Ga	Li	Mo	Rb	Sb	Ta	Th	V	Zn	Zr
GUW AN	100	14.8	0.033	0.90	0.037	4	4.3	9	1.2	4.7	0.044	0.007	0.048	18	7.9	13

**CRM ANORTHOSITE**

analysis listed in mass %

40 g units

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Ba	CaO	CO <sub>2</sub>	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	H <sub>2</sub> O+	T.H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	TiO <sub>2</sub>
VS M011	53.46	27.42	0.0319	10.95	0.0	1.09	0.53	1.74	0.088	0.33	0.42	0.65	0.49	0.037	4.39	0.041	0.0100	0.18
VS 2120-81	51.77	22.78	0.051	10.06	0.36	4.66	6.26	.	0.40	.	.	0.76	2.10	0.076	4.04	0.140	0.069	1.87
VS M010	51.65	23.91	0.0294	10.18	0.14	4.40	1.45	6.34	0.095	0.26	0.36	0.50	2.24	0.073	3.99	0.13	0.0460	0.83

continued

analysis listed in mg/kg except % which is mass %

Number	B	Be	Co	Cr	Cs	Cu	F	Ga	La	Li	Mo	Nb	Ni	Pb	Rb	Sc	Sn	Sr	V%	Y	Yb	Zn	Zr
VS M011	4.5	0.8	9.6	12	0.73	26	420	21	20	7.5	1.2	2.6	14	6.8	2.7	5	5.1	802	0.0024	8	1.1	50	42
VS 2120-81	.	0.9	23	36	.	31	.	17	.	.	.	.	10	7	.	23	.	.	0.013	.	.	83	72
VS M010	8.7	1.1	27	23	0.55	44	380	26	24	7.1	2.0	3.9	32	8.0	5.5	11	5.0	477	0.0109	17	2.0	96	58

**CRM ANTIMONY ORE**

analysis listed in mass

200 g units

Number	Al	As	C	Ca	Cu	Fe	H <sub>2</sub> O	K	Mg	Na	Pb	S	Sb	Si	LOI
CAN CD-1	(5.5)	0.66	(0.2)	(1.4)	(<0.01)	(2.8)	(0.2)	(1.8)	(0.6)	(0.1)	(0.02)	(3.1)	3.57	(32.9)	(4.0)

**CRM ANTIMONY ORE**

analysis listed in mass %

analysis in mg/kg \* Sb calculated from certified results for 4ACID, ICP, and XRF

Number	Sb	Pb	S	Se	Zn	Ag	As	Au	Bi	Cd	Co	Cu	Ga	Li	Nb	Ni	Sn	Units
GSb-3 *	53.69	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g
GSb-2	31.0838	.	.	.	.	.	.	23.64	.	.	.	.	.	.	.	.	.	10 g
GSb-11 *	21.10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g
GSb-10 *	11.66	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g
GSb-6 *	9.88	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g
GSb-9 *	6.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g
GSb-4 *	3.43	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g
NCS DC70013	1.81	0.012	1.02	0.018	0.037	7.3	25.3	.	(0.24)	2.6	2.2	51.3	9.1	22.8	5.4	3.2	3.0	50 g
GSb-7 *	1.75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g
GSb-8 *	1.63	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g
GSb-5 *	0.18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g
GSb-1	0.1636	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g

**CRM ARAGONITE/CALCITE**

100 g units

Number	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	F	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	SrO	LOI
UNS AK	0.11	43.0	54.9	0.20	0.130	0.037	0.110	0.047	0.029	0.046	0.64	0.28	43.27

**CRM ASCHARITE ORE**

Number	B <sub>2</sub> O <sub>3</sub>	CaO	T.Fe	FeO	MgO	P	S	SiO <sub>2</sub>	Ins.Res.	Units
NCS DC16005	5.65	0.15	52.98	26.13	11.64	0.016	1.242	4.51	4.72	100 g

**CRM BARITE ORE**

70 g units

Number	BaO	BaSO <sub>4</sub>	CaF <sub>2</sub>	Cu	T.Fe <sub>2</sub> O <sub>3</sub>	Pb	Salt	SO <sub>3</sub>	Sr	Zn
NCS DC86002	65.40	98.47	.	(0.00029)	.	.	(0.11)	34.37	0.10	(0.00060)
NCS DC86004	57.36	86.14	.	0.00421	.	.	(0.13)	31.44	1.22	(0.00056)
NCS DC86005	44.80	66.93	.	0.0129	.	.	(0.21)	24.50	1.12	0.00269
NCS DC86003	28.36	41.46	14.03	0.00067	.	.	(0.37)	14.99	0.054	0.00124
NCS DC86001	28.34	42.41	.	0.0109	49.37	.	(0.28)	15.94	0.39	0.00223
NCS DC86007	27.01	40.54	.	0.00102	.	.	(0.21)	13.95	0.059	0.00364
NCS DC86006	13.00	18.87	.	0.14	20.96	0.41	0.93	51.33	0.058	3.76



## BAUXITE

# = class, 1=CRM and 2=RM      BCS: 100g      CERAM: 25 or 100g      CETEM: 90-120g      GBAP: 10g      NCS: 50-100g      SRM 600: 90g      other SRM: 60g

#	Number	Al <sub>2</sub> O <sub>3</sub>	A.Al <sub>2</sub> O <sub>3</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>	Fe	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	R.SiO <sub>2</sub>	TiO <sub>2</sub>	V <sub>2</sub> O <sub>5</sub>	ZrO <sub>2</sub>	LOI
1	BCS 394/1	88.88	.	0.0173	.	.	1.372	.	0.0047	.	0.0574	6.47	.	2.969	.	.	.
1	NCS HC28815	88.55	.	0.15	.	.	1.75	0.11	0.073	0.017	0.23	4.88	.	3.69	.	.	.
1	JCRM R301	87.5	.	0.03	.	.	1.40	0.04	0.02	0.03	0.07	7.24	.	2.90	.	0.13*	0.35
1	NCS DC61105	85.07	.	0.24	.	.	1.18	0.44	0.21	0.080	.	8.17	.	3.76	.	.	0.29
1	NCS HC28814	83.07	.	0.22	.	.	2.71	0.17	0.088	0.022	0.18	9.69	.	3.64	.	.	0.15
1	NCS DC91017	71.14	.	0.75	.	.	2.01	0.477	0.090	0.022	0.221	3.16	.	3.04	.	.	.
1	NCS HC28813	70.28	.	0.37	.	.	6.64	0.20	0.18	0.051	0.25	14.20	.	2.85	.	.	4.57
1	NCS DC91018	64.53	.	0.26	.	.	6.06	0.22	0.246	0.030	0.185	8.02	.	2.59	.	.	.
1	NCS HC28812	60.41	.	0.51	.	.	9.69	0.22	0.26	0.070	0.30	17.82	.	2.22	.	.	7.96
1	DSZU 123.62-13	57.4	.	0.12	0.035	.	0.88	.	0.075	.	0.073	8.73	.	2.51	0.044	.	.
1	NCS DC91019	57.15	.	0.089	.	.	16.11	1.00	0.235	0.31	0.077	6.31	.	2.65	.	.	.
1	SRM 696	54.5	.	0.018	0.047	.	8.70	0.009	0.012	(0.007)	0.050	3.79	.	2.64	0.072	0.14	29.9
1	IPT 131	54.1	.	.	.	.	11.5	0.022	.	.	0.15	0.78	.	1.77	0.042	0.35	30.0
1	BCS 395	52.4	.	0.05	(0.07)	.	16.3	(0.02)	0.02	(0.02)	.	1.24	.	1.93	.	.	27.8
1	CETEM BXSP-1	50.1	40.0	(0.03)	0.003	.	6.7	0.53	(0.06)	(0.02)	0.203	14.7	7.8	1.24	0.016	0.15	26.1
1	SRM 69b	48.8	.	0.13	0.011	.	7.14	0.068	0.085	(0.025)	0.118	13.43	.	1.90	0.028	0.29	27.2
1	SRM 698	48.2	.	0.62	0.080	.	19.6	0.010	0.058	.	0.37	0.69	.	2.38	0.064	0.061	27.3
1	NCS HC28811	46.52	.	0.69	.	.	14.01	0.25	0.37	0.10	0.35	22.96	.	1.36	.	.	12.75
1	SRM 697	45.8	.	0.71	0.100	.	20.0	0.062	0.18	.	0.97	6.81	.	2.52	0.063	0.065	22.1
1	DSZU 123.61-13	42.8	.	0.13	0.22	.	27.2	.	0.046	.	0.086	3.36	.	2.15	0.071	.	.
1	GBAP-16	42.60	.	0.11	0.047	.	16.52	0.126	0.146	0.057	0.034	21.56	.	3.587	0.081	0.107	14.94
1	SRM 600	40.0	.	0.22	0.024	.	17.0	0.23	0.05	0.022	0.039	20.3	.	1.31	0.060	0.060	20.5

#	Number	Al <sub>2</sub> O <sub>3</sub>	A.Al <sub>2</sub> O <sub>3</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>	Fe	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	R.SiO <sub>2</sub>	TiO <sub>2</sub>	V <sub>2</sub> O <sub>5</sub>	ZrO <sub>2</sub>	LOI
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A.Al<sub>2</sub>O<sub>3</sub>: Available AluminaR.SiO<sub>2</sub>: Reactive Silica\* Includes HfO<sub>2</sub>

Number	BaO	MnO	MnO <sub>2</sub>	SO <sub>3</sub>	ZnO
BCS 394/1	.	.	.	.	.
NCS HC28815	.	.	.	.	C: 0.018
JCRM R301	.	.	.	.	.
NCS DC61105	.	.	.	.	.
NCS HC28814	.	0.011	.	.	C: 0.050
NCS DC91017	.	0.036	.	S:0.031	0.0018 Ga <sub>2</sub> O <sub>3</sub> : 0.0114
NCS HC28813	.	0.053	.	.	C: 0.099
NCS DC91018	.	0.012	.	S:0.040	0.0040 Ga <sub>2</sub> O <sub>3</sub> : 0.0106
NCS HC28812	.	0.082	.	.	C: 0.14
DSZU 123.62-13	.	0.009	.	S:0.030	C: 0.10 CO <sub>2</sub> : 0.09 Ga <sub>2</sub> O <sub>3</sub> : 0.013 100 g unit
NCS DC91019	.	0.021	.	S:0.033	0.0036 Ga <sub>2</sub> O <sub>3</sub> : 0.008
SRM 696	.	0.004	.	0.150	0.0014
IPT 131	.	0.31	.	.	0.013
BCS 395	.	.	.	.	.
CETEM BXSP-1	.	.	0.070	(0.07)	0.009
SRM 69b	.	0.110	.	0.551	0.0035
SRM 698	.	0.38	.	0.143	0.029
NCS HC28811	.	0.13	.	.	C: 0.20
SRM 697	.	0.41	.	0.0770	0.037
DSZU 123.61-13	.	0.023	.	S:0.045	C: 0.22 CO <sub>2</sub> : 0.19 Ga <sub>2</sub> O <sub>3</sub> : 0.009 100 g unit
GBAP-16	(0.011)	0.022	.	0.068	.
SRM 600	.	0.013	.	0.155	0.003 last of stock

Number	BaO	MnO	MnO <sub>2</sub>	SO <sub>3</sub>	ZnO
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RM	BAUXITE																	
	Al <sub>2</sub> O <sub>3</sub> : Available Alumina							C.Org: Organic Carbon			BXT-04, BXT-06 500 g units					others 100 g		
Number	Al <sub>2</sub> O <sub>3</sub>	C.Org	CaO	Cr <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	V <sub>2</sub> O <sub>5</sub>	ZnO	ZrO <sub>2</sub>	A.Al <sub>2</sub> O <sub>3</sub>	LOI
ALC-BXT-10	54	(0.08)	(<0.01)	(0.03)	12.4	(<0.01)	.	(0.01)	.	(0.05)	.	2.7	2.01	(0.06)	.	(0.07)	.	28.6
ALC-BXT-09	53.4	(0.2)	(0.01)	0.037	14.5	(0.01)	(0.03)	(0.04)	(0.01)	(0.07)	(0.06)	7.57	2.98	(0.06)	(0.002)	(0.12)	.	20.8
ALC-BXT-13	53.4	0.051	(0.02)	0.016	11.44	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.09)	4.82	1.54	(0.04)	(0.002)	(0.08)	53.3	28.52
ALC-BXT-08	51.5	(0.082)	(0.02)	(0.049)	9.6	(0.018)	(0.03)	(0.021)	(0.02)	(0.26)	.	3.2	9.5	(0.17)	(0.006)	(0.089)	.	25.6
ALC-BXT-14	51.2	0.162	(0.01)	(0.01)	13.17	(0.01)	(0.01)	(0.02)	(0.01)	(0.062)	(0.11)	5.86	1.11	(0.01)	(0.005)	0.131	50.4	28.35

## CRM BERYLLIUM ORE

analysis listed in mass %

Number	BeO	Al <sub>2</sub> O <sub>3</sub>	CaO	F	FeO	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	Units
NCS DC86313	3.02	15.55	0.52	0.0088 (F-)	0.15	0.47	(0.63)	3.28	0.083	0.020	3.63	(0.018)	71.97	0.010	0.86	70 g
NCS DC86302	0.365	14.86	0.584	0.041	(0.18)	0.593	0.59	3.89	0.069	0.036	4.67	0.013	73.99	0.016	0.73	70 g
NCS DC86301	0.060	14.86	0.582	0.019	(0.18)	0.513	0.60	4.10	0.071	0.030	4.79	(0.012)	73.97	0.015	0.68	70 g

continued analysis listed in mg/kg

Number	CeO <sub>2</sub>	Dy <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>	Mo	Nd <sub>2</sub> O <sub>3</sub>	Pr <sub>6</sub> O <sub>11</sub>	RE <sub>x</sub> O <sub>y</sub> *	Sc <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	Tb <sub>4</sub> O <sub>7</sub>	Tm <sub>2</sub> O <sub>3</sub>	W	Y <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>
NCS DC86313	13.1	3.62	1.95	0.11	2.83	0.67	6.08	0.25	3.37	5.96	1.58	63.6	1.91	1.99	0.57	0.29	.	23.0	1.88
NCS DC86302	14.8	4.6	2.2	0.15	3.8	0.87	7.7	0.36	1.2	7.6	2.0	78.6	3.1	2.7	0.80	0.36	5.5	28.9	2.5
NCS DC86301	14.3	4.5	2.1	0.14	3.6	0.82	7.0	0.31	0.41	6.6	1.7	75.6	1.7	2.5	0.80	0.32	1.3	29.2	2.2

\* RE<sub>x</sub>O<sub>y</sub>: Rare Earth Oxide

## BORATE ORE

# = class, 1=CRM and 2=RM

analysis listed in mass %

BCS: 100 g units

SRM: 60 g units

#	Number	B <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	BaO	CaO	F	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	SO <sub>3</sub>	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	LOI+H <sub>2</sub> O
1	SRM 1835	18.739	3.474	0.0497	21.622	0.348	1.141	1.261	3.411	0.0333	3.484	1.477	18.408	0.9418	0.1332	25.724
2	BCS 205a	18.46	5.38	.	12.58	.	0.15	1.04	0.62	.	8.53	.	52.0	.	0.04	.

## CRM BRUCITE

T = total

50 g units

Number	Al <sub>2</sub> O <sub>3</sub>	CaO	CO <sub>2</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>
NCS DC60129	0.053	2.51	8.08	0.49	(25.24)	0.0041	61.43	0.036	0.0066	0.12	2.69
NCS DC60130	0.067	6.18	9.95	0.40	(23.22)	0.0066	56.21	0.033	0.013	0.12	4.47

## RM CALCINED BONE

25 or 100 g

Number	Al <sub>2</sub> O <sub>3</sub>	BaO	CaO	F	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	SO <sub>3</sub>	SrO	TiO <sub>2</sub>	LOI
CERAM CCB1	0.05	0.031	53.4	0.13	0.04	(0.12)	0.011	1.14	0.52	40.5	1.28	0.114	0.049	<0.01	2.60

**CRM CARBONATITE** analysis listed in mass % T = Total 25 g units

Number	Al <sub>2</sub> O <sub>3</sub>	CaO	T.Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	Ba	Ce	La	Nb	Sr
US COQ-1	0.37	48.3	2.94	0.16	1.25	0.43	0.04	2.6	3.47	0.15	0.1000	0.1700	0.0750	0.3900	1.2000

analysis listed in mg/kg FOR ALTERNATES SEE LIMESTONE IN THIS CATALOG

Number	Be	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Ho	Nd	Ni	Pr	Sc	Sm	Tb	Th	U	V	Y	Yb	Zn	Zr
US COQ-1	1.2	<5	<10	0.2	<10	18	7	15	6	50	3	480	13	150	3	56	4	10	11	110	81	6	87	65

**CRM CHROME MAGNESITE**

analysis listed in mass % BCS, NCS DC25x: 100 g GCR: 10 g NCS DC28x: 50 g NH: 75 g VS: 125 g

Number	MgO	Cr <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	B <sub>2</sub> O <sub>3</sub>	CaO	Fe	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	Li <sub>2</sub> O	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
BCS 396	64.6	15.6	5.73	0.09	1.12	.	10.9	(0.03)	(0.05)	0.17	(0.06)	.	.	1.37	0.26	.
NH 95	63.93	18.30	3.50	.	1.23	.	6.77	.	.	.	.	.	.	4.05	.	.
BCS 370	61.8	13.4	12.3	.	1.54	.	7.23	0.03	0.03	0.11	0.06	.	.	3.01	0.13	.
BCS 369	53.5	17.2	14.7	.	1.17	.	10.3	0.03	0.03	0.11	0.05	.	.	2.59	0.14	.
VS K5/2	54.8	22.6	4.28	.	1.15	.	8.47	.	.	.	.	.	.	8.64	.	.
NH 96	46.98	22.37	12.92	.	1.59	.	11.90	.	.	.	.	.	.	2.71	.	.
GCR-04	36.29	0.701	0.42	.	0.039	.	12.288	(0.02)	.	0.0422	.	0.0182	0.093	39.22	0.115	10.666
NH 97	21.26	40.00	16.12	.	0.52	.	14.73	.	.	.	.	.	.	5.94	.	.
NCS DC25002	20.59	36.31	10.97	.	0.82	9.71	.	.	.	.	.	P:(0.0072)S:(0.017)	11.71	.	.	100g
GCR-01	14.59	44.95	11.31	.	0.052	.	19.63	0.448	.	0.4448	.	(0.0098)	0.048	6.63	0.311	1.286
GCR-05	13.21	38.04	11.53	.	0.039	.	25.49	(0.015)	.	0.811	.	(0.0089)	0.018	7.53	0.258	2.848
GCR-02	12.84	43.97	6.87	.	0.107	.	27.13	(0.03)	.	0.716	.	(0.0071)	0.019	5.83	0.317	1.883
GCR-06	9.01	47.92	8.72	.	0.087	.	28.8	0.0198	.	0.716	.	(0.0096)	0.033	3.21	0.343	0.795

**CRM CHROMITE**

Number	Origin	Cr	Fe	MgO	Ti	Units
US 30	Philippines	23.95	11.21	(16.62)	0.14	55 g

**CHROMIUM ORE**

# = class, where 1 = CRM and 2 = RM analysis listed in mass % except \* which is mg/kg

#	Number	Cr <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	MgO	Fe	FeO	Fe <sub>2</sub> O <sub>3</sub>	Mn	MnO	Mn <sub>3</sub> O <sub>4</sub>	P	P <sub>2</sub> O <sub>5</sub>	S	SO <sub>3</sub>	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>
1	NCS HC26617	96.19	.	.	.	.	.	0.054	.	.	.	.	0.002	.	.	0.26	.	.
1	NCS DC73013	57.80	10.53	(0.13)	16.45	.	(8.3)	13.70T	0.097	.	.	(0.0012)	(0.005)	.	.	1.10	0.122	.
1	USZ 36-2002	54.37	8.24	0.24	16.09	.	.	14.73T	.	0.15	.	.	0.02	.	0.07	4.73	.	0.11
1	VS R27/1	50.8	8.08	0.131	19.7	9.45	11.2	.	.	.	.	0.0019	.	0.019	.	7.10	.	.
1	VS R14/5	47.0	7.2	0.13	21.6	9.32	10.8	.	.	.	.	0.0017	.	0.037	.	8.79	.	.
1	SARM 146	46.91	14.54	0.10	10.62	.	25.58	.	.	0.22	.	.	.	.	.	0.616	.	0.57
1	NCS DC28130	46.74	14.53	0.053	9.79	20.34	.	.	0.156	.	.	0.0027	.	0.003	.	0.79	0.373	.
1	NCS DC73012	46.56	11.60	0.46	17.92	.	(12.0)	15.34T	0.135	.	.	(0.0013)	.	0.076	.	5.06	0.070	.
1	BCS 308/1	44.91	15.10	0.65	9.15	.	26.58	.	.	0.230	.	.	.	.	.	1.194	.	0.74
1	NCS DC28131	45.10	13.70	0.18	10.37	19.66	.	.	0.150	.	.	0.0033	.	0.0029	.	2.93	0.344	.
1	SARM 131	41.83	14.60	(0.24)	9.15	.	.	30.7	.	0.243	.	.	.	.	.	3.13	.	0.944
1	NCS DC28133	40.20	15.97	0.46	13.41	16.74	.	.	0.142	.	.	0.0037	.	0.017	.	4.73	0.294	.
1	NCS DC28132	36.50	16.22	0.69	15.32	14.83	.	.	0.133	.	.	0.0028	.	0.022	.	7.70	0.244	.
1	NCS DC73011	34.44	11.37	0.32	23.32	.	(8.5)	11.84T	0.090	.	.	0.0020	.	0.024	.	12.24	0.100	.
1	NCS DC28129	33.00	13.94	1.00	17.27	12.90	.	.	0.180	.	.	0.0030	.	0.021	.	12.19	0.136	.
1	NCS DC28128	27.55	18.94	1.27	20.48	9.76	.	.	0.114	.	.	0.0029	.	0.035	.	12.55	0.145	.
2	CERAM AN100	26.60	24.7	1.16	22.38	.	.	12.88	.	.	0.13	.	.	.	.	11.1	.	0.21
1	NCS DC73010	17.59	11.86	0.44	28.12	.	(8.68)	10.51T	0.088	.	.	0.0031	.	0.037	.	20.30	0.085	.
1	FLX CRM111	11.48	4.66	2.07	70.20	.	.	9.54	.	.	0.370	.	0.088	.	(0.13)	1.40	.	0.160

continued

Number	Au*	C	CO <sub>2</sub>	Co	H <sub>2</sub> O-	H <sub>2</sub> O+	HFO <sub>2</sub>	K <sub>2</sub> O	Na <sub>2</sub> O	Ni	NiO	V	WO <sub>3</sub>	Zn	ZrO <sub>2</sub>	LOI	Units
NCS HC26617	.	0.006	soluble Cr:	1.34%	.	.	.	.	.	.	.	.	.	.	.	.	20 g
NCS DC73013	.	.	(0.14)	0.016	.	(0.59)	.	(0.004)	(0.016)	0.16	.	0.048	.	.	.	.	50 g
USZ 36-2002	0.03	.	0.47	0.01	0.11	.	.	.	.	0.09	.	0.04	.	0.023	.	1.07	200 g
VS R27/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g
VS R14/5	.	(0.113)	.	.	.	.	.	.	.	.	.	0.044	.	.	.	.	100 g
SARM 146	.	.	.	.	.	.	.	.	.	.	V <sub>2</sub> O <sub>5</sub> :0.32	.	.	.	.	.	100 g
NCS DC28130	.	.	.	0.025	.	.	.	0.014	.	0.092	.	0.215	.	0.071	.	.	50 g
NCS DC73012	.	.	(1.2)	0.016	.	2.5	.	(0.010)	0.018	0.134	.	0.064	.	.	.	.	50 g
BCS 308/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g
NCS DC28131	.	.	.	0.025	.	.	.	0.015	.	0.094	.	0.207	.	0.065	.	.	50 g
SARM 131	.	.	.	.	.	.	.	.	.	.	V <sub>2</sub> O <sub>5</sub> :0.414	.	.	.	.	.	100 g
NCS DC28133	.	.	.	0.022	.	.	.	0.023	.	0.121	.	0.162	.	0.065	.	.	50 g
NCS DC28132	.	.	.	0.022	.	.	.	0.033	.	0.134	.	0.143	.	0.058	.	.	50 g
NCS DC73011	.	.	(0.46)	0.014	.	(6.4)	.	0.026	0.073	0.175	.	0.044	.	.	.	.	50 g
NCS DC28129	.	.	.	0.027	.	.	.	0.035	.	0.162	.	0.089	.	0.102	.	.	50 g
NCS DC28128	.	.	.	0.016	.	.	.	0.043	.	0.169	.	0.077	.	0.049	.	.	50 g
CERAM AN100	.	.	.	CuO:0.02	.	.	.	0.01	0.04	.	.	.	.	ZnO:0.04	.	(5.03)	25 or 100 g
NCS DC73010	.	.	(0.6)	0.0124	.	(10.7)	.	0.046	(0.13)	0.188	.	0.043	.	.	.	.	50 g
FLX CRM111	.	.	.	Co3O4: 0.012	.	<0.01	0.010	<0.1	.	0.031	.	<0.02	.	0.057	(0.58)	.	80 g



**CRM CLAY**

analysis listed in mass %

Number	Al	B	Ba	Ca	Ce	Co	Cr	Fe	K	Li	Mg	Mn	Na	P	Si	Sr
SRM 97b	20.76	.	(0.018)	0.0249	.	(0.00038)	0.0227	0.831	0.513	0.0550	0.113	0.0047	0.0492	(0.02)	19.81	0.0084
SRM 98b	14.30	.	(0.07)	0.0759	.	(0.00163)	0.0119	1.18	2.81	0.0215	0.358	0.0116	0.1496	(0.03)	26.65	0.0189
SRM 679	11.01	.	0.0432	0.1628	(0.0105)	(0.0026)	0.01097	9.05	2.433	0.00717	0.7552	(0.1730)	0.1304	(0.075)	24.34	0.00734

continued analysis listed in mass %

analysis listed in mg/kg

Number	Ti	Zn	Zr	LOI	Cs	Eu	Hf	Rb	Sb	Sc	Th	Units
SRM 97b	1.43	(0.0087)	(0.05)	(13.3)	(3.4)	(0.84)	(13)	(33)	(2.2)	(22)	(36)	60 g powder
SRM 98b	0.809	(0.0110)	(0.022)	(7.5)	(16.5)	(1.3)	(7.2)	(180)	(1.6)	(22)	(21)	60 g powder
SRM 679	0.577	(0.0150)	.	.	(9.6)	(1.9)	(4.6)	(190)	.	(22.5)	(14)	75 g powder

**CLAYS and FIRECLAYS**

# = class, where 1 = CRM and 2 = RM

analysis listed in mass %

\* CERAM AN41 lists Mn<sub>3</sub>O<sub>4</sub> as MnO

#	Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	Cl-	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	TiO <sub>2</sub>	LOI	Units	Other
1	NH 138	68.90	26.01	0.23	.	1.47	0.98	0.22	.	0.10	.	.	0.92	.	75 g	
1	NCS DC62108d	68.59	14.12	1.21	.	5.29	2.33	1.58	.	1.24	.	0.03	0.76	4.22	20 g	
1	GBW 03103	66.64	13.28	3.23	0.011	4.64	2.50	1.84	0.088	1.81	0.106	0.027	.	5.10	60 g	CO <sub>2</sub> : 1.66
1	VS K11	62.2	16.8	1.2	.	(6.3)	.	2.01	0.064	.	.	S:0.05	0.98	.	50 g	
1	NH 137	61.46	32.43	0.28	.	1.63	1.31	0.28	.	0.126	.	.	1.13	.	75 g	
1	GBW 03115	55.90	28.57	0.70	.	0.87	1.54	0.30	.	1.74	.	.	1.21	8.72	50 g	
1	GBW 03102a	53.67	31.32	1.80	0.0029	0.33	1.15	0.083	0.020	2.55	0.053	0.023	0.030	8.81	50 g	CO <sub>2</sub> : (0.051)
1	IPT 42	51.9	32.2	0.05	.	1.09	0.47	0.19	.	0.02	0.07	.	0.96	12.9	50 g	
1	IPT 32	51.8	28.5	0.17	.	3.46	0.80	0.39	.	0.16	0.13	.	1.49	12.6	50 g	
1	BCS 348	51.13	31.59	0.173	.	1.04	2.23	0.305	.	0.344	0.071	.	1.08	11.75	100 g	
1	GBW 03101a	49.98	26.27	0.13	0.0041	10.55	0.79	0.46	0.052	0.060	0.14	0.49	0.70	10.62	50 g	CO <sub>2</sub> : (0.041)
2	FLX 134	F: 0.0678	Fluorine in Ball Clay, single element												30 g	

**CRM CLAY - SYNTHETIC MULLITE**

80 g units

Number	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P	SiO <sub>2</sub>	TiO <sub>2</sub>
NCS HCl4809	72.39	0.19	0.93	0.24	0.42	0.16	0.043	21.81	3.64
NCS HCl4808	57.47	0.15	0.46	1.69	0.14	0.46	0.022	37.41	1.45
NCS HCl4807	43.62	0.23	1.14	1.62	0.21	0.46	0.062	51.43	0.65

## CRM COPPER ORE WITH EXTENSIVE ANALYSIS - CONTINUED ON THE NEXT PAGE

analysis listed in mass % except \* which is mg/kg # = provisional analysis OREAS samples list multiple methods, more information upon request

Number	Cu	Ag*	Au*	C	F	Fe	Fe <sub>2</sub> O <sub>3</sub>	Mo	Ni	Pb	Pd*	Pt*	S	Zn	LOI
VS 2891-84	40.4	707.7	.	.	.	(5.78)	.	.	.	2.25	.	.	(15.98)	2.89	.
CGL 203	31.80	(66)	.	.	.	(21.0)	.	0.1399	.	0.01366	.	.	(33.94)	0.1526	.
CAN CCU-1e	23.07	205.2	20.27	0.100	(0.0255)	30.7	.	(0.00161)	(0.000727)	0.703	.	.	35.28	3.02	(17.14)
JCu-1 #	3.73	.	.	(3.06T)	.	.	17.5T	.	(0.0425)	(0.0004)	.	.	(7.00)	0.0679	(15.37)
GBW 07233	1.15	3.9	.	.	0.079	.	55.58	0.00014	0.00096	0.00091	.	.	0.72	0.059	.
CETEM CBPA-1	0.98	.	(0.17)	(0.16 org)	(0.0708)	.	16.5	(0.0010)	0.0276	(0.0033)	.	.	(0.16)	0.0126	(3.8)
SRM 330a	0.845	.	.	.	.	(1.06)	.	(0.00045)	0.002895	(0.0027)	.	.	.	0.00949	.
CGL 103	0.8080	2.05	.	.	.	2.75	.	0.0160	(0.000950)	(0.00727)	.	.	2.12	0.0096	(4.27)
OREAS 904	0.519	.	0.045	.	.	.	.	.	.	.	(<0.002)	(<0.010)	.	.	.
OREAS 904 4	0.612	0.551	.	.	.	6.68	.	0.000212	0.00401	0.00106	.	.	0.063	0.00263	.
OREAS 904 A	0.630	0.366	(0.02)	.	.	6.40	.	0.000202	0.00366	0.000849	.	.	0.034	0.00224	.
CAN HV-2a	0.3808	1.448	.	(0.4)	.	2.044	.	0.01254	0.000647	0.00069	.	.	0.344	0.00565	(3.01)
GBW 07234	0.19	0.7	.	.	0.080	.	12.25	0.00024	0.00056	0.00130	.	.	0.14	0.013	.
USZ 4-85	0.115	(1.1)	.	.	.	.	3.9T	0.007	(0.00165)	(0.00510)	.	.	2.03	(0.00680)	(4.26)
OREAS 901	0.083	.	0.363	.	.	.	.	.	.	.	(0.002)	.	.	.	.
OREAS 901 4	0.141	0.439	.	.	.	4.03	.	0.000336	0.00399	0.00174	.	.	0.036	0.00240	.
OREAS 901 A	0.144	0.276	0.34	.	.	3.70	.	0.000323	0.00347	0.00146	.	.	0.033	0.00202	.

continued analysis listed in mass %

Number	Al	Al <sub>2</sub> O <sub>3</sub>	Ca	CaO	K	K <sub>2</sub> O	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	P	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>
VS 2891-84	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(21.74)	.	.
CGL 203	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(6)	.	.
CAN CCU-1e	0.1385	.	0.129	.	(0.0133)	.	0.706	.	0.0096	.	(0.0147)	.	.	.	3.134	(0.00549)	.
JCu-1 #	.	0.29	.	23.5	.	0.015	.	2.13	.	0.59	.	0.052	.	(<0.005)	(28.68)	.	0.013
GBW 07233	.	1.73	.	9.61	.	0.071	.	3.91	.	0.60	.	0.044	.	.	9.27	.	0.079
CETEM CBPA-1	.	10.1	.	2.97	.	1.85	.	3.29	0.058	.	.	1.42	.	1.00	(56.4)	(0.35)	.
SRM 330a	7.053	.	0.323	.	5.47	.	0.868	.	.	.	0.657	.	(0.0326)	Si: 33.4	(0.1223)	.	.
CGL 103	.	16.19	.	0.285	.	3.71	.	0.69	.	(0.0160)	.	1.48	.	0.139	67.07	.	0.463
OREAS 904	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 904 4	6.30	.	0.046	.	3.31	.	0.556	.	0.041	.	0.034	.	0.098	.	.	(0.19)	.
OREAS 904 A	1.25	.	0.0404	.	0.603	.	0.143	.	0.041	.	(0.01)	.	0.095	.	.	(0.007)	.
CAN HV-2a	7.96	.	1.891	.	2.31	.	0.329	.	0.0545	.	2.335	.	0.0427	.	Si:31.34	.	0.128
GBW 07234	.	15.18	.	4.95	.	2.71	.	1.30	.	0.12	.	3.21	.	.	53.36	.	0.50
USZ 4-85	.	.	.	.	.	(3.38)	.	.	.	.	.	(1.74)	.	(0.15)	.	.	.
OREAS 901	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 901 4	6.81	.	0.092	.	3.67	.	0.600	.	0.0290	.	0.042	.	0.062	.	.	(0.23)	.
OREAS 901 A	0.992	.	0.091	.	0.512	.	0.124	.	0.030	.	(0.01)	.	0.059	.	.	(0.01)	.

continued analysis listed in mg/kg

Number	As	Ba	Be	Bi	Cd	Ce	Co	Cr	Cs	Dy	Er	Eu	Ga	Gd	Ge	Hf
VS 2891-84	.	.	.	.	290	.	.	.	.	.	.	.	.	.	.	.
CGL 203	.	.	.	.	(9.31)	.	(86.87)	(42.97)	.	.	.	.	.	.	.	.
CAN CCU-1e	101	(6)	.	(3)	74.2	(2)	301	.	.	.	.	.	(3)	.	(1)	.
JCu-1 #	(173)	(3.5)	.	.	(3.6)	.	(324)	(10)	.	.	.	.	.	.	.	.
GBW 07233	4.2	.	.	1.5	0.42	13.2	.	(7)	.	1.1	0.78	0.28	22.6	1.1	0.89	.
CETEM CBPA-1	(9)	(478)	.	.	(3)	(427)	78	26	.	.	.	.	(22.2)	.	.	.
SRM 330a	.	1560	.	.	3.391	22.32	4.542	77.0	.	.	.	.	17.4	.	.	.
CGL 103	167	958	(1.04)	.	(0.57)	(40.35)	12	(18)	(2.27)	.	.	.	(18.92)	.	.	.
OREAS 904	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 904 4	98	194	7.86	4.05	(0.07)	86	83	54	3.79	(5.6)	(3.4)	(1.4)	16.7	(6.6)	0.18	5.0
OREAS 904 A	91	68	6.54	3.74	0.058	70	82	17.5	0.62	(3.0)	(1.6)	(1.0)	3.40	(4.9)	(0.1)	(0.6)
CAN HV-2a	12.1	869	(1.02)	(1.58)	(0.2)	19.1	3.40	100	2.70	1.126	0.646	(0.502)	19.56	1.40	.	(2)
GBW 07234	1.5	(800)	.	0.43	0.14	72.6	.	(10)	(10)	2.4	1.3	1.3	22.6	3.6	0.93	.
USZ 4-85	(47)	.	(4.5)	(21.7)	.	.	(12)	(22)	.	.	.	.	.	.	.	.
OREAS 901	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 901 4	71	229	6.17	4.75	(0.05)	95	73	57	5.12	(6.4)	(3.7)	(1.7)	18.7	(8.2)	(0.2)	5.27
OREAS 901 A	66	86	4.49	4.35	(0.05)	78	73	23.0	0.97	(3.5)	(1.8)	(1.1)	3.15	(5.6)	0.11	(0.8)

## CRM COPPER ORE WITH EXTENSIVE ANALYSIS - CONTINUED FROM THE PREVIOUS PAGE

analysis listed in mg/kg		# = provisional analysis															OREAS samples list multiple methods, more information upon request
Number	Hg	Ho	In	La	Li	Lu	Nb	Nd	Pr	Rb	Re	Sb	Sc	Se	Sm	Sn	
VS 2891-84	.	.	.	.	.	.	.	.	.	.	28.2	.	.	.	.	.	
CGL 203	.	.	.	.	.	.	.	.	.	.	.	(400)	.	(77)	.	.	
CAN CCU-1e	10.4	.	(6)	(1)	(0.5)	.	(0.2)	(1)	.	(0.5)	(0.004)	104	(1)	(304)	(0.3)	(15)	
JCu-1 #	.	.	.	.	(2.9)	.	.	.	.	(1.9)	.	(3.8)	.	.	.	.	
GBW 07233	.	0.26	1.4	7.5	(9)	0.16	.	4.7	1.4	.	.	0.36	1.8	5.1	1	11.1	
CETEM CBPA-1	.	.	.	(267)	.	.	(10)	(143)	.	(101)	.	.	(16)	.	(20)	(7)	
SRM 330a	.	.	.	.	22.19	.	(5.7)	.	.	.	.	.	5.693	.	.	.	
CGL 103	.	.	.	(19.38)	.	.	.	.	.	(83.76)	.	23	.	.	.	.	
OREAS 904	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
OREAS 904 4	.	(1.1)	0.22	43.2	16.7	0.47	(6.3)	(36)	(9.7)	130	(<0.002)	1.48	11.2	3.30	(7.1)	2.83	
OREAS 904 A	(0.04)	(0.6)	0.17	33.9	(3.5)	0.21	(0.09)	(32)	(7.7)	22.4	(<0.001)	0.78	3.83	2.81	(5.4)	0.58	
CAN HV-2a	.	(0.2)	.	9.1	(11)	(0.109)	(2)	8.77	(2.32)	48.3	(0.1)	0.689	(3)	(0.7)	1.69	(1.2)	
GBW 07234	.	0.48	0.25	40.3	(15)	0.2	.	29.4	8.1	(94)	.	0.23	5.4	0.89	5.1	3.8	
USZ 4-85	.	.	.	.	.	.	.	.	.	(80)	.	.	.	(5.4)	.	.	
OREAS 901	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
OREAS 901 4	.	(1.3)	0.26	47.0	17.9	0.53	(8.0)	(46)	(13)	161	(0.002)	2.61	14.0	(3.2)	(9.0)	3.33	
OREAS 901 A	(0.02)	(0.7)	0.21	38.1	(3.1)	0.22	(0.1)	(35)	(8.9)	23.9	(0.002)	1.47	5.55	2.68	(6.4)	0.58	

  

Number	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zr	Units	Other
VS 2891-84	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	.
CGL 203	.	.	.	.	.	.	.	.	.	.	.	.	.	100 or 250 g	.
CAN CCU-1e	(2)	.	.	61.8	(0.2)	2.69	.	(1)	(4)	(0.4)	(1)	.	(5)	200 g	H <sub>2</sub> O%:(0.150)
JCu-1 #	(75)	.	.	.	.	.	.	.	(9)	.	.	.	.	100 g	H <sub>2</sub> O%:(0.54-, 1.00+)
GBW 07233	.	.	0.21	0.62	0.9	0.06	0.11	.	.	4.1	7.3	0.28	.	50 g	.
CETEM CBPA-1	(67)	(5)	.	.	(25)	.	.	(41)	(168)	.	(69)	.	(149)	135 g	.
SRM 330a	218.1	.	.	.	(7.6)	.	.	.	(43)	.	20.01	.	80.5	90 g	.
CGL 103	181	.	.	.	.	.	.	(0.96)	(59.43)	(13.55)	.	.	(102.76)	100 g	.
OREAS 502b 4	350	1.17	0.74	0.15	15.8	0.80	0.33	4.28	126	3.43	23.3	2.30	71	10 or 60 g	4-Acid except FA Au Pd Pt
OREAS 502b A	63	(0.73)	0.52	0.16	15.0	0.60	(0.22)	3.93	114	2.29	15.2	1.39	10.9	10 or 60 g	Aqua Regia
OREAS 904	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g last of stock	.
OREAS 904 4	27.2	0.54	1.00	(0.04)	14.3	0.52	(0.5)	8.43	76	2.12	31.5	3.14	171	" 4 acid digestion	.
OREAS 904 A	16.5	(<0.01)	0.70	(0.03)	7.56	0.15	(0.2)	5.20	21.7	(0.6)	17.2	1.41	(17)	" aqua regia	B: (12ppm)
CAN HV-2a	472	(0.2)	(0.19)	.	1.28	(0.1)	(0.10)	1.08	(52.2)	(7.89)	(5.96)	(0.680)	(65.8)	200 g	H <sub>2</sub> O%:(0.3)
GBW 07234	.	.	0.48	0.13	8.8	0.36	0.18	.	.	3.9	11.8	1.2	.	50 g	.
USZ 4-85	.	.	.	(6.8)	.	.	.	.	.	(16)	.	.	(149)	100 g	.
OREAS 901	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g or 60 g, various methods	.
OREAS 901 4	31.0	0.76	1.18	0.090	16.1	0.78	(0.5)	10.3	81	(3.5)	37.4	3.58	176	" 4 acid digestion	.
OREAS 901 A	21.0	(0.02)	0.77	0.076	9.13	0.34	(0.3)	5.84	(21)	(1.1)	18.8	1.49	28.1	" aqua regia	B: (13ppm)

## CRM COPPER ORE

analysis listed in mass %		F = Sodium Peroxide Fusion ICP										A = Four Fcid Digestion ICP-OES/MS values			10 g
Number	Cu	Ag	Al <sub>2</sub> O <sub>3</sub>	As	CaO	Cd	Co	Fe	MgO	Pb	S	Sb	SiO <sub>2</sub>	Zn	
OREAS 113 4	13.5	0.00226	.	0.0234	.	0.00155	0.0766	28.2	.	0.0230	.	0.0008	.	0.4178	
OREAS 113 F	13.3	(0.0025)	.	0.0238	.	(0.0016)	0.0754	28.0	.	0.0248	.	0.00076	.	0.4158	
OREAS 166 4	8.82	0.00108	1.38	.	0.98	.	0.1970	11.38	1.67	0.0140	11.6	.	.	0.0037	
OREAS 166 F	8.75	0.0012	1.34	.	0.98	.	0.2077	11.45	1.67	0.0128	11.29	.	61.4	0.0037	
OREAS 112 F	5.13	0.0017	.	0.0240	.	0.0015	0.0547	33.3	.	0.0349	.	0.0017	.	0.4302	
OREAS 112 4	5.10	0.00132	.	0.0222	.	0.00146	0.0551	34.1	.	0.0360	.	0.0016	.	0.4351	
OREAS 165 F	3.21	0.00031	2.61	.	0.11	.	0.2485	8.86	3.48	0.0434	8.28	.	72.0	0.0044	
OREAS 165 4	3.20	0.000302	2.59	.	0.081	.	0.2445	8.86	3.53	0.0443	8.5	.	.	0.0037	
OREAS 111b 4	2.47	0.00101	.	0.0220	.	0.00143	0.0490	36.1	.	0.0393	.	0.0021	.	0.4334	
OREAS 111b F	2.44	<0.0020	.	0.0212	.	0.00148	0.0488	35.5	.	0.0397	.	0.0019	.	0.4370	
OREAS 111 4	2.37	0.00101	.	0.0215	.	0.00120	0.0452	35.2	.	0.0377	.	0.0018	.	0.4196	
OREAS 111 F	2.30	<0.0020	.	0.0217	.	0.0014	0.0457	34.1	.	0.0375	.	0.0019	.	0.4099	
OREAS 164 4	2.25	0.000294	2.07	.	0.393	.	0.0168	6.80	3.07	0.0214	6.2	.	.	0.0045	
OREAS 164 F	2.22	<0.0005	2.05	.	0.401	.	0.0167	6.88	3.07	0.0199	5.98	.	77.9	0.0047	
OREAS 163 4	1.76	0.00043	3.24	.	0.860	.	0.0230	11.07	5.42	0.0492	10.4	.	.	0.0108	
OREAS 163 F	1.71	0.0005	3.16	.	0.92	.	0.0230	11.1	5.34	0.0461	9.98	.	.	0.0102	
OREAS 162 4	0.772	0.00035	1.70	.	13.2	.	0.0631	8.57	9.17	0.0340	4.38	.	.	0.0026	
OREAS 162 F	0.761	0.000358	1.64	.	13.1	.	0.0660	8.63	9.04	0.0320	4.40	.	.	0.002755	

  

Number	Cu	Ag	Al <sub>2</sub> O <sub>3</sub>	As	CaO	Cd	Co	Fe	MgO	Pb	S	Sb	SiO <sub>2</sub>	Zn
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## COPPER ORE

# = class, where 1=CRM and 2=RM; analysis in mass % except \* = mg/kg; GBM: 10 or 250g NCS: 50g VS: 100g

#	Number	Cu	Ag*	As	Ni	Pb	Tot.S	Zn	Au*	Bi*	Co*	Cd*	Fe	Hg*	Mo*	Sb*	SiO <sub>2</sub>
1	OREAS 992	43.90	(33.50)	.	(1.50)	(0.0470)	36.97	(17.8*)	(7.92)	.	(790)	.	.	.	(2.00)	last	10 g units
1	GBM914-12	27.0618	61.5	.	0.0020	0.1256	29.74	0.824	.	.	.	.	.	.	.	.	.
1	IMN Ko-P2	26.10	458.7	0.138	1.16	.	.	.	.	.	.	.	.	.	.	.	250 g units
1	GBM315-15	25.0264	334.2	.	0.0842	0.7680	26.74	1.2523	.	.	.	.	.	.	.	.	.
1	GBM313-16	24.2702	109.3	.	0.0153	0.0035	3.64	0.0043	.	.	.	.	.	.	.	.	.
1	GBM316-12	23.8210	86.0	.	0.0009	0.0236	25.43	0.0480	.	.	.	.	.	.	.	.	.
1	GBM310-15	23.7854	78.8	.	0.0293	0.3327	27.6	1.1931	.	.	.	.	.	.	.	.	.
1	IMN W5	22.95	392	0.117	.	1.38	C:10.71	Org.C:7.91	.	.	.	.	.	.	.	.	100 g units
1	GBM913-14	22.7577	200.3	.	0.0053	0.0029	6.22	0.0107	.	.	.	.	.	.	.	.	.
1	GBM314-15	21.2876	176.2	.	0.0037	0.0145	6.54	0.02	.	.	.	.	.	.	.	.	.
1	OREAS 991	20.66	48.14	(0.0170)	(0.00320)	(0.0123)	(30.77)	.	47.04	(<50)	(122)	.	(26.92)	(490)	.	.	50 g units
1	GBM919-12	19.5549	112.9	.	0.2069	0.1228	13.42	0.8434	.	.	.	.	.	.	.	.	.
1	GBM319-11	18.0603	108.0	.	0.0914	1.1393	22.96	1.5795	.	.	.	.	.	.	.	.	.
1	VS R34/1	17.21	81	0.35	.	0.17	38.6	2.45	4.7	60	.	32.9	.	97	680	1.92	.
1	GBM905-14	17.3667	.	.	0.0531	0.0334	.	0.0074	.	.	.	.	.	.	.	.	.
1	GBM908-11	17.7033	11.4	.	.	0.0547	29.78	2.3604	.	.	.	.	.	.	.	.	last
1	GBM314-16	16.0964	89.4	.	0.0661	0.0884	22.79	0.2898	.	.	.	.	.	.	.	.	.
1	GBM317-11	16.0746	225.6	.	0.3227	0.4270	24.41	3.4916	.	.	.	.	.	.	.	.	.
1	GBM913-13	12.1059	74.1	.	0.0084	0.0125	2.43	0.0386	.	.	.	.	.	.	.	.	.
1	GBM317-13	10.3409	19.0	.	3.9436	0.7361	15.52	2.4779	.	.	.	.	.	.	.	.	.
1	NCS DC29110	8.53	120	0.020	.	0.027	(15.42)	0.19	.	.	.	13.5	(0.039)	.	35.3	.	.
1	GBM319-16	6.9993	8.8	.	0.0055	0.0012	0.04	0.0023	.	.	.	.	.	.	.	.	.
1	GBM319-8	6.9613	8.8	0.0115	0.0057	0.0005	.	0.0023	.	.	53	.	.	.	.	.	.
1	GBM319-7	4.3368	51.8	0.1241	0.0008	0.0061	.	0.0669	.	.	45	.	.	.	.	.	.
1	GBM319-15	4.3324	51.3	.	0.0009	0.0069	0.07	0.0681	.	.	.	.	.	.	.	.	.
1	NCS DC29109	3.84	59.9	0.046	.	0.024	(8.58)	0.083	.	.	.	5.68	(0.043)	.	71	.	.
1	GBM916-14	3.6746	26.8	.	0.0023	0.0515	23.66	0.7103	.	.	.	.	.	.	.	.	.
1	GBM905-11	3.1758	.	.	0.0038	0.0042	.	0.0084	.	.	.	.	.	.	.	.	.
1	GBM319-14	2.9546	36.4	.	0.0299	0.7331	4.92	2.2491	.	.	.	.	.	.	.	.	.
1	GBM916-12	2.6105	17.0	.	0.0023	0.0566	19.10	0.5018	.	.	.	.	.	.	.	.	.
1	GBM911-16	2.4774	7.9	.	0.0229	0.0325	3.6	0.1210	.	.	.	.	.	.	.	.	.
1	GBM317-12	2.4309	16.3	.	0.0021	0.0544	18.72	0.5049	.	.	.	.	.	.	.	.	.
1	GBM318-4	2.4208	20.5	0.0545	0.0077	0.0023	.	0.0407	.	.	40	.	.	.	.	.	.
1	GBM915-16	2.2960	51.2	.	0.0197	0.9698	3.88	1.9551	.	.	.	.	.	.	.	.	.
1	GBM916-13	2.0136	12.5	.	0.0023	0.0390	17.60	0.3795	.	.	.	.	.	.	.	.	.
1	GBM915-9	2.2767	50.0	0.1265	0.0198	0.9502	.	1.9314	.	.	106	.	.	.	.	.	.
1	GBM316-11	2.2288	21.7	.	0.0021	0.1065	18.11	1.0133	.	.	.	.	.	.	.	.	.
1	GBM905-12	2.1853	.	.	0.0062	0.0033	.	0.0100	.	.	.	.	.	.	.	.	.
1	GBM319-13	1.5964	7.4	.	0.0075	0.0066	2.18	0.0454	.	.	.	.	.	.	.	.	.
1	GBM319-1	1.5759	7.2	0.0052	0.0080	0.0061	.	0.0450	.	.	73	.	.	.	.	.	.
1	GBM915-4	1.1835	25.7	0.0663	0.0118	0.4921	.	1.0035	.	.	69	.	.	.	.	.	.
1	GBM311-14	1.7501	04.5	.	0.0045	0.0508	2.0	0.0872	.	.	.	.	.	.	.	.	.
1	GBM311-10	1.7334	3.8	0.0040	0.0031	0.0505	.	0.0841	.	.	65	.	.	.	.	.	.
1	VS R35	1.65	17.4	0.067	.	0.036	26.7	0.74	1.23	.	.	.	.	.	.	.	35.2
2	IMN MR2	1.61	29	0.013	.	0.085	.	0.025	.	.	.	.	0.88	.	.	.	200 g units
2	IMN MR1	1.23	58	0.028	.	0.15	.	0.040	.	.	.	.	1.41	.	.	last	200 g units
1	GBM915-15	1.0954	11.9	.	0.7954	0.0066	1.29	0.0050	.	.	.	.	.	.	.	.	.
1	GBM910-6	1.0084	3.6	0.0117	0.0044	0.0173	.	0.0907	.	.	131	.	.	.	.	.	.
1	GBM910-16	1.0069	3.7	.	0.0048	0.0180	1.5	0.0943	.	.	.	.	.	.	.	.	.
1	NCS DC29108	0.90	14.9	0.00766	.	0.0080	(1.65)	0.020	.	.	.	.	(0.028)	.	11.7	.	.
1	NCS DC29107	0.29	6.1	0.00414	.	0.00345	(0.68)	0.010	.	.	.	.	(0.15)	.	23.4	.	100 g units
1	IMN W2	0.285	6.2	0.00123	.	0.0412	.	C:7.59	Org.C:(0.361)	.	.	.	.	.	.	.	100 g units
1	IMN W7	.	.	.	.	0.00424	.	.	.	.	.	.	.	.	.	.	100 g units

## CRM COPPER ORE

analysis listed in mass % except \* which is mg/kg

Number	Cu	As	Bi	Cd	F	Fe	MgO	Mn	Ni	Pb	S	Sb	Zn	Ag*	Au*	Units
NCS DC28058	20.56	0.012	.	<0.001	0.056	24.70	7.63	0.013	0.093	0.015	22.87	.	0.194	17.1	4.68	20 g
NCS DC28055	12.79	4.68	0.023	0.0067	0.028	3.22	0.18	0.110	0.017	0.037	1.54	0.25	0.64	85.9	0.04	50 g
NCS DC28057	10.71	0.034	.	<0.001	0.036	29.34	4.01	0.084	0.072	0.019	25.05	.	0.052	12.0	6.16	20 g
NCS DC28056	8.46	2.14	0.19	0.0064	0.53	10.44	7.04	0.169	0.011	0.087	0.86	0.22	0.503	109.9	0.05	50 g
NCS DC28054	6.78	0.209	0.283	0.0021	1.15	15.39	12.51	0.124	<0.005	0.106	0.082	.	0.456	126.1	0.05	50 g

## CRM COPPER ORE

analysis listed in mass % except \* which is mg/kg

20 g units

Number	Cu	Ag*	Au*	Al <sub>2</sub> O <sub>3</sub>	As	Bi	CaO	Cd*	Co	F	Fe	MgO	Mn	Ni	Pb	S	SiO <sub>2</sub>	Zn
NCS DC28059a	18.04	157.0	2.48	2.89	0.104	0.897	14.71	64	0.026	0.162	19.80	1.12	0.085	0.045	0.031	9.53	6.22	0.59

## CRM CRYOLITE

analysis listed in mass %

Number	Al	CaO	F	Fe <sub>2</sub> O <sub>3</sub>	Na	P <sub>2</sub> O <sub>5</sub>	SO <sub>4</sub> <sup>2-</sup>	SiO <sub>2</sub>	LOI	Units
NCS DC91001	17.34	(0.606)	55.45	0.053	21.75	0.0034	0.233	0.087	4.53	100 g
NCS DC91002	15.18	(0.597)	54.66	0.032	26.32	0.025	0.199	0.211	2.97	100 g
NCS DC91003	13.65	(0.719)	53.89	0.036	29.29	0.013	0.205	0.363	2.25	100 g
NCS DC91004	13.16	(0.508)	53.2	0.033	30.26	0.037	0.293	0.389	2.12	100 g
NCS DC91005	12.69	(0.0062)	52.14	0.0098	32.01	0.065	0.45	0.485	1.4	100 g
NCS DC91006	11.75	0.112	51.21	0.04	33.24	0.051	0.683	0.238	1.6	100 g

**CRM DIABASE WITH EXTENSIVE ANALYSIS**

analysis listed in mass %																			US: 25 g units		NCS: 70 g units	
Number	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	F	FeO	Fe <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub> T	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SO <sub>3</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI				
US W-2b	15.45	.	10.86	(0.0205)	8.34	1.53	10.83	.	0.626	6.37	0.167	2.20	0.14	(0.0079)	.	52.68	1.06	.				
NCS-DC71311	13.21	(0.11)	7.83	(0.07)	7.24	.	(13.40)	(2.44)	1.49	5.08	.	3.17	0.55	.	0.44	49.88	2.94	2.30				

continued analysis listed in mg/kg except % which is mass %

Number	Ag	As	B	Ba	Be	Bi	Cd	Ce	Cl%	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd
US W-2b	.	(1.2)	(12)	170	(1.3)	.	.	23	(0.0190)	43	92	(0.99)	110	3.6	(2.5)	(1.0)	17	.
NCS-DC71311	0.33	5.1	17.0	614	1.5	0.39	0.39	78.1	(0.04)	37.5	111	1.7	82.6	5.5	(2.6)	3.5	21.2	7.2

Number	Ge	Hf	Hg	Ho	La	Li	Lu	Mn%	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc	Se	Sm
US W-2b	.	2.6	.	(0.76)	10	9.6	(0.33)	.	.	(7.9)	13	70	(9.3)	.	21	(0.79)	36	.	3.3
NCS-DC71311	1.5	9.2	0.017	1.2	38.1	20.8	0.34	(0.16)	1.4	25.3	42.8	56.8	33.0	10.6	47.4	2.3	27.1	(0.19)	8.6

Number	Sn	Sr	Ta	Tb	Th	Tm	U	V	W	Y	Yb	Zn	Zr
US W-2b	.	190	(0.5)	(0.63)	2.4	(0.38)	(0.53)	260	.	23	2.1	80	100
NCS-DC71311	2.0	470	1.8	1.1	4.9	0.36	1.2	268	1.4	24.5	2.2	(160)	359

**DIORITE WITH EXTENSIVE ANALYSIS**

analysis listed in mass %																T = Total		IAG: RM, ~35 g units		all others: CRM, 100 g units	
Number	Al <sub>2</sub> O <sub>3</sub>	CaO	CO <sub>2</sub>	Fe	FeO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	H <sub>2</sub> O-	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	Type				
CAN-SY-4	20.69	8.05	3.5	4.2	2.86	6.21	(1.0)	(0.15)	1.66	0.54	0.108	7.10	0.131	49.9	0.287	4.56	Diorite Gneiss				
VS 6103-91	16.56	4.84	(0.18)	.	3.79	5.55	(1.6)	(0.14)	2.98	3.05	0.086	3.57	0.17	60.45	0.86	1.59	Quartz				
USZ 50-2009	15.97	6.99	.	.	4.82	8.10T	0.35	(0.11)	1.55	3.81	0.12	3.33	(0.39)	57.75	1.34	0.51	Diorite				
IAG OU-4	14.83	4.48	.	.	4.52	5.82T	.	.	2.70	2.30	0.14	3.61	0.173	63.34	0.77	1.72	Microdiorite				

continued analysis listed in mg/kg

Number	B	Ba	Be	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	F	Ga	Gd	Hf	Ho
CAN-SY-4	.	340	2.6	122	2.8	12	1.5	7	18.2	14.2	2.00	.	335	14.0	10.6	4.3
VS 6103-91	46	720	2.4	46	17	58	2.9	39	.	.	1.3	710	18	.	.	.
USZ 50-2009	.	425	.	50.8	84.9	100	(5.24)	100	(4.29)	(2.29)	(1.41)	.	419.58	(5.21)	(3.69)	(0.85)
IAG OU-4	.	360.8	1.79	55.7	13.5	54.7	2.07	27.3	7.81	4.83	1.64	.	17.4	7.39	5.54	1.63

Number	La	Li	Lu	Mn	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc	Sm	Sn	Sr
CAN-SY-4	58	37	2.1	819	13	57	9	10	15.0	55	.	1.1	12.7	.	1191
VS 6103-91	27	30	0.30	.	12	24	33	24	.	83	.	15	4.8	.	410
USZ 50-2009	24.40	(13.9)	(0.30)	.	6.92	30.48	40.94	8.97	(6.45)	48.5	.	20.46	(5.61)	.	454
IAG OU-4	24.96	35.0	0.71	.	12.8	27.9	21.0	14.1	6.85	98.5	0.30	19.1	6.94	2.42	99.9

Number	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
CAN-SY-4	0.9	2.6	1.4	.	2.3	0.8	8	.	119	14.8	93	517
VS 6103-91	.	.	6.8	.	.	.	96	.	21	2.1	71	173
USZ 50-2009	(0.48)	(0.76)	3.88	.	(0.32)	(1.09)	213	266	23.62	2.05	92.77	191
IAG OU-4	1.00	1.25	8.42	0.46	0.72	2.19	82.7	.	47.1	4.70	69.5	195.1

## DOLERITE WITH EXTENSIVE ANALYSIS

# = class, where 1 = CRM and 2 = RM analysis listed in mass % except \* which is mg/kg

#	Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	F	FeO	Fe <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub> T	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	TiO <sub>2</sub>	LOI	Units
1	SARM 50	51.56	15.28	10.80	.	8.49	11.0	.	.	0.61	7.57	0.17	2.30	0.15	.	0.86	.	100 g
2	IAG OU-2	51.095	13.801	8.994	.	8.404	.	13.253	.	0.990	5.585	0.170	2.480	0.300	.	2.425	.	~35 g
2	IAG OU-5	49.10	13.62	6.63	.	8.74	14.60	.	.	0.826	5.17	0.310	4.29	0.440	.	2.718	2.08	~35 g
1	VS 8671-2005	47.99	14.63	10.42	(0.021)	10.33	.	14.62	(0.88)	0.46	7.51	0.21	2.32	0.17	(0.026)	1.59	(0.42)	100 g
1	US DNC-1a	47.15	18.34	11.49	(0.0066)	7.32	1.79	9.97	.	0.234	10.13	0.15	1.89	0.07	.	0.48	.	25 g

continued analysis listed in mg/kg

Number	Ag	As	Au	B	Ba	Be	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	Eu
SARM 50	.	.	.	.	220	.	.	(30)	.	40	357	.	84	.	.	.
IAG OU-2	.	.	.	.	341.1	1.11	.	60.2	.	44.8	97.0	0.495	63.0	6.09	3.06	2.23
IAG OU-5	.	(2.45)	.	.	309.2	1.31	(0.20)	44.17	.	38.60	38.40	0.555	27.32	9.04	5.49	2.35
VS 8671-2005	(0.05)	.	(0.0026)	(3.8)	227	0.8	.	22	.	52	213	(0.45)	180	5.1	2.9	1.4
US DNC-1a	.	(0.12)	.	(0.9)	118	(1)	.	.	(60)	57	270	.	100	(3)	.	0.59

Number	Ga	Gd	Ge	Hf	Ho	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb
SARM 50	.	.	.	.	.	.	.	.	.	(10)	.	(85)	25	.	14
IAG OU-2	23.05	7.26	.	5.29	1.21	27.71	12.79	0.372	3.05	17.25	33.35	51.77	13.12	7.92	25.44
IAG OU-5	21.2	8.64	(2.03)	5.59	1.92	18.10	21.74	0.767	.	9.58	28.47	15.00	4.66	6.29	19.29
VS 8671-2005	17	4.5	1.5	2.7	(1)	8	8.6	0.44	0.98	6	13.2	126	(3)	2.6	11
US DNC-1a	(15)	(2)	.	.	(0.62)	3.6	5.2	.	.	(3)	5.2	247	(6.3)	.	(4.5)

Number	Sb	Sc	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
SARM 50	.	.	.	.	195	.	.	(6)	.	.	.	216	.	23	.	81	86
IAG OU-2	.	28.21	8.70	17.73	403.7	1.20	1.11	3.02	.	0.427	0.63	339.3	.	30.93	2.52	113.0	200.5
IAG OU-5	0.42	42.4	7.64	2.00	226.8	(0.546)	1.46	2.25	(0.125)	0.789	0.500	447.8	(0.865)	51.8	5.10	133.6	219.9
VS 8671-2005	.	41	4	2.64	197	0.35	0.8	1.0	.	0.44	0.45	315	(0.4)	29	3.3	112	125
US DNC-1a	0.96	31	.	.	144	.	.	.	.	.	.	148	.	18	2	70	38

CRM		DOLOMITE WITH EXTENSIVE ANALYSIS														analysis listed in mass %			
Number	CaO	MgO	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	Cl	F	FeO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	Units		
UL DW1	30.84	21.40	(0.05)	.	.	.	.	0.27	.	0.010	(0.06)	0.042	(0.023)	(0.06)	(0.010)	47.29	50 g		
GBW 07114	30.02	21.8	0.10	46.77	0.012	0.014	0.15	0.04	(0.34)	0.038	0.010	(0.03)	0.006	0.62	0.015	.	50 g		
continued		analysis listed in mg/kg except % which is mass %																	
Number	Ag	As	B	Ba	Be	Bi	Br	Tot.C%	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd
UL DW1	.	(1.3)	.	24	.	.	.	.	.	2.2	(0.2)	(4)	.	(4)	0.82	0.50	0.16	.	0.81
GBW 07114	0.04	0.23	20.5	44.3	(0.22)	0.03	0.84	(12.88)	0.07	3.58	3.88	2.6	0.07	30.2	0.19	0.09	0.05	(0.21)	0.18
Number	Ge	Hf	Hg	Ho	I	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	S%	Sb	
UL DW1	.	(0.03)	.	0.18	.	.	3.6	.	0.05	.	.	3	.	(35)	0.67	.	.	.	.
GBW 07114	0.15	(0.10)	(0.004)	0.04	0.23	(0.066)	1.34	2.30	0.019	(0.24)	(2.77)	1.39	241	(4.44)	(0.44)	(1.42)	0.011	0.04	
Number	Sc	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	
UL DW1	0.24	.	0.62	.	284	.	0.12	.	0.08	.	0.06	1.4	6.9	.	9.4	0.39	83	.	
GBW 07114	0.098	0.08	0.25	0.53	49	(0.18)	0.05	(0.012)	0.11	(0.070)	(0.040)	0.16	2.10	0.11	(1.40)	0.09	11.7	3.0	

## DOLOMITE

# = class, where 1 = CRM and 2 = RM analysis listed in mass %

#	Number	CaO	MgO	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MnO	Na <sub>2</sub> O	P	P <sub>2</sub> O <sub>5</sub>	PbO
1	NCS DC28009a	45.90	6.65	2.56	0.47	.	0.235	0.272	0.0049	0.012	0.0033	.	.
1	NCS DC28206	41.66	11.31	4.64	0.16	.	0.112	.	0.0050	.	0.0032	.	.
1	NCS DC14020a	37.59	15.38	0.25	0.11	.	0.459	0.019	0.020	0.015	0.0012	.	.
1	NCS DC14021b	34.82	17.34	1.30	0.18	.	0.447	0.027	0.0072	0.019	0.0057	.	.
1	NCS DC28203	34.74	17.16	1.45	0.286	.	0.404	.	0.012	.	0.016	.	.
1	NCS DC28015a	33.60	15.50	4.89	1.40	.	0.641	0.35	0.0085	0.019	0.011	.	.
1	NCS DC14018b	31.96	19.92	0.77	0.23	.	0.269	0.030	0.031	0.033	0.0023	.	.
1	NCS DC11003a	31.49	21.06	0.098	0.083	.	0.024	0.0030	0.0061	0.017	0.0016	.	.
1	NCS DC28014a	31.46	18.60	2.97	0.81	.	0.472	0.29	0.012	0.021	0.0061	.	.
1	NCS DC28013a	31.12	19.10	2.65	0.73	.	0.504	0.13	0.011	0.034	0.0034	.	.
1	NCS DC28012a	30.94	20.92	1.48	0.23	.	0.26	0.085	0.011	0.012	0.014	.	.
1	NCS DC28208	30.80	20.79	0.99	0.23	.	0.32	.	0.019	.	0.0013	.	.
1	NCS DC28202	30.79	20.73	2.12	0.203	.	0.275	.	0.026	.	0.0013	.	.
1	NCS DC28201	30.62	20.53	6.75	0.048	.	0.085	.	0.0072	.	0.0012	.	.
1	BCS 512	30.61	21.59	0.379	0.055	(<0.001)	0.030	(<0.02)	0.0036	.	.	(<0.02)	(<0.001)
1	CGL 021	30.59	21.40	0.267	0.200	.	0.228	0.062	0.047	(0.040)	.	0.044	.
2	DH 0915	30.59	21.21	0.035	0.019	.	0.191	0.007	0.050	0.026	.	0.008	.
1	ECRM 782-1	30.34	21.29	0.266	0.104	0.0009	0.450	0.0260	0.081	.	.	0.0128	0.0029
1	NCS DC28207	30.33	20.88	1.26	0.27	.	0.44	.	0.013	.	0.018	.	.
2	FLX 135	30.00	21.24	0.969	0.276	.	0.162	0.063	Mn <sub>2</sub> O <sub>3</sub> : 0.052	.	.	.	.
Number	S	Sr	SrO	Ti	TiO <sub>2</sub>	ZnO	LOI	Units					
NCS DC28009a	0.021	.	0.020	.	0.024	.	43.48	50 g					
NCS DC28206	0.0093	.	0.015	.	0.0056	.	41.70	50 g					
NCS DC14020a	0.046	.	.	.	.	.	45.88	50 g					
NCS DC14021b	0.009	0.021	.	0.085	.	.	45.37	50 g					
NCS DC28203	0.028	.	.	.	.	.	45.58	50 g					
NCS DC28015a	0.013	.	0.0060	.	0.074	.	43.24	50 g					
NCS DC14018b	0.010	0.0081	.	0.011	.	.	46.24	70 g					
NCS DC11003a	0.011	0.021	.	0.0043	.	.	46.71	70 g					
NCS DC28014a	0.019	.	0.0058	.	0.041	.	44.94	50 g					
NCS DC28013a	0.007	.	0.0064	.	0.034	.	45.49	50 g					
NCS DC28012a	0.003	.	0.0070	.	0.0080	.	45.58	50 g					
NCS DC28208	0.022	.	.	.	.	.	46.20	50 g					
NCS DC28202	0.016	.	.	.	.	.	45.22	50 or 100 g					
NCS DC28201	0.0019	.	.	.	.	.	41.00	50 g					
BCS 512	.	.	0.024	.	0.0020	(<0.01)	46.80	100 g					
CGL 021	.	(0.0057)	.	.	(0.013)	.	(46.63)	50 g C:(12.925)					
DH 0915	.	.	.	.	.	.	.	100 g					
ECRM 782-1	.	.	.	.	0.0042	0.0082	47.25	100 g					
NCS DC28207	0.033	.	.	.	.	.	46.11	50 g					
FLX 135	.	.	.	.	.	.	.	30 g					

## RM DOLOMITE SUBSTITUTE

typical analysis in mass % \* DH 0710 also contains 0.015 CuO \*\* DH 0712 also contains 0.167 Na<sub>2</sub>O and 0.012 Nb<sub>2</sub>O<sub>5</sub> 100 g units

Number	CaO	MgO	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	Fe	K <sub>2</sub> O	Mn <sub>3</sub> O <sub>4</sub>	NiO	P <sub>2</sub> O <sub>5</sub>	PbO	S	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	V <sub>2</sub> O <sub>5</sub>	ZnO	ZrO <sub>2</sub>
DH 0710 *	35.36	35.30	8.28	0.591	5.14	0.077	1.079	0.013	0.107	0.011	0.265	10.23	0.028	0.301	0.032	0.159	0.051
DH 0711	32.46	28.57	9.49	0.84	8.81	0.092	1.745	0.020	0.262	0.015	0.314	12.07	0.029	0.370	0.056	0.183	0.068
DH 0709	23.45	63.07	5.62	0.071	1.96	0.053	0.444	0.010	0.133	0.029	0.097	3.69	0.011	0.131	0.021	0.014	0.057
DH 0712 **	20.16	32.62	20.79	0.560	6.72	0.146	0.906	0.050	0.141	0.008	0.129	13.30	0.016	0.671	0.039	0.052	0.383



## DUNITE

# = class, where 1 = CRM and 2 = RM analysis listed in mass % DH, SARM: 100 g US: 25 g VS 2112: 40 g VS 4233: 100 g

#	Number	MgO	SiO <sub>2</sub>	Si	Al <sub>2</sub> O <sub>3</sub>	Al	CO <sub>2</sub>	Tot.C	CaO	Ca	Co	Cr	Cr <sub>2</sub> O <sub>3</sub>	T.Fe	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>
1	US DTS-2B	49.4	39.4	18.4	0.45	0.24	.	.	0.12	0.09	0.0120	1.5500	.	5.43	(4.27 FeII)	.	7.76
1	SARM 6	43.51	38.96	.	(0.3)	.	.	.	0.28	.	.	.	0.42	.	14.63	0.71	.
1	VS 2112-81	42.40	35.07	.	.	.	0.46	.	.	.	0.0129	.	.	.	.	.	10.06
1	VS 4233-88	41.86	39.58	.	0.97	.	(1.61)	.	1.52	.	0.012	0.41	.	.	(5.54)	.	8.91

continued analysis listed in mass %

Number	H <sub>2</sub> O	K <sub>2</sub> O	Mg	MnO	Na	Na <sub>2</sub> O	Ni	P <sub>2</sub> O <sub>5</sub>	S	TiO <sub>2</sub>	V	LOI @ 900 °C
US DTS-2B	.	.	29.8	.	(0.02)	.	0.3780	.	.	.	0.0022	.
SARM 6	.	(0.01)	.	0.22	.	(0.04)	.	.	.	(0.02)	.	.
VS 2112-81	11.35	.	.	0.176	.	.	0.133	.	.	.	0.00069	.
VS 4233-88	(+4.82 -0.4)	0.010	.	0.13	.	0.035	0.22	(0.01)	(0.041)	0.018	0.0033	6.31

continued analysis listed in mg/kg except % which is mass %

Number	Ba	Cu	Ge	Li	Mn	Mo	Pb	Rb	Sb	Sc	Sn	Sr	Zn
US DTS-2B	(16)	(3)	(0.7)	.	830	.	(4)	(2)	(0.6)	(3)	.	.	45
SARM 6	.	.	.	.	.	.	.	.	.	.	.	.	.
VS 2112-81	.	27	.	.	1.4	.	.	.	.	.	2.2	.	82
VS 4233-88	.	33	1.1	2.0	.	.	.	.	.	9	.	18	30

H<sub>2</sub>O+: (4.82)

## FELDSPAR

# = class, where 1 = CRM and 2 = RM analysis listed in mass %

#	Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	BaO	CaO	F	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	PbO	Rb <sub>2</sub> O	SrO	TiO <sub>2</sub>	LOI	Units
1	BCS 532	77.07	13.46	.	0.212	.	0.181	3.80	0.159	4.35	.	.	.	.	.	0.56	100 g
1	FLX CRM129	69.84	16.44	0.130	0.374	.	(0.104)	10.78	.	2.11	0.068	.	.	(0.014)	(0.036)	(0.428)	40 g
1	BCS 375/1	69.24	17.88	.	0.78	.	0.291	1.47	0.180	8.89	0.226	.	.	.	0.312	0.72	100 g
1	FLX CRM128	67.88	19.95	(0.007)	1.08	.	0.021	0.206	.	10.74	(0.008)	.	.	0.049	(0.017)	(0.171)	40 g
2	DH X1602	66.93	17.16	0.323	0.032	0.047	.	14.19	0.001	.	0.087	0.012	.	0.036	0.038	.	100 g
1	GBW 03116	66.26	18.63	.	0.76	.	0.19	9.60	0.054	3.69	.	.	.	.	0.048	0.86	50 g
1	IPT 72	66.2	20.26	.	0.18	.	0.09	1.47	(0.022)	10.0	1.03	.	.	.	0.005	0.66	80 g
1	IPT 53	65.8	18.3	.	0.27	.	0.13	12.1	0.05	2.5	0.072	.	.	.	0.013	0.51	80 g
1	BCS 376/1	65.77	18.63	0.0210	0.421	.	0.085	11.59	(0.03)	3.00	(0.02)	0.0090	.	.	(<0.01)	0.203	100 g
1	BCS 529	56.24	26.84	.	9.58	.	0.273	0.421	0.045	5.58	.	.	.	.	.	0.550	100 g
	Number	Si	Al	Ba	Ca		Fe	K		Na	P	Pb	Rb	Sr			Units
1	SRM 99b	(32.07)	10.36	0.1409	(1.18)	.	0.02787	3.09	.	5.25	(0.0044)	0.00712	0.00726	0.0444	.	.	40 g

## CRM FELDSPAR WITH EXTENSIVE ANALYSIS

analysis listed in mass %

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	Li <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Rb <sub>2</sub> O	TiO <sub>2</sub>	LOI	Units
GUM FK	88.2	6.18	.	0.110	.	0.261	.	.	4.23	.	0.15	0.0037	0.25	0.077	.	0.058	.	50 g
UNS ZK	74.38	14.19	.	0.43	0.73	0.88	.	.	4.06	0.06	0.067	0.025	4.50	.	0.094	0.039	0.54	100 g
JF-1	66.69	18.08	.	0.93	.	0.06	0.08	+0.23 -0.13	9.99	.	0.006	0.001	3.37	0.01	.	0.005	.	100 g
JF-2	65.30	18.52	.	0.09	.	0.06	0.06	+0.24 -0.18	12.94	.	.	0.001	2.39	.	.	0.005	20 or	100 g
VS 811-89	60.67	18.20	0.20	0.51	4.8	7.20	.	4.0	3.43	.	2.22	0.042	2.31	0.19	.	0.94	.	100 g
SRM 70b	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	40 g

analysis listed in mg/kg except % indicating mass %, \* indicating ppb, and ! indicating scientific notation

Number	Al%	As	B%	Ba%	Be	Ca%	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	F%	Fe%	Ga	Ge
GUM FK	.	.	.	0.0700	.	.	.	.	.	2.6	11	.	.	.	.	.	6	.
UNS ZK	.	4.8	.	.	.	.	5.7	7.0	.	38.7	12.2	.	.	.	.	.	33.3	.
JF-1	9.57	.	.	0.1750	.	0.66	4.19	0.12	5.48	2.09	0.82	0.39	0.31	0.87	.	0.06	17.4	.
JF-2	9.80	.	.	0.0298	.	0.06	0.84	0.68	.	1.06	0.78	.	.	0.59	.	0.04	17.9	.
VS 811-89	.	.	0.008	0.09	3.0	0.007*	21	96	.	6.3	41	.	.	0.06	.	.	22	1.7
SRM 70b	7.98	.	.	0.00282	.	0.1770	.	(0.7)	.	.	.	.	.	.	(0.13)	.	.	.

Number	Hf	Ho	K%	La	Li%	Mg%	Mn%	Mo	Na%	Nb	Nd	Ni	P%	Pb	Pr	Ra!	Rb%	S%
GUM FK	.	.	.	.	0.0008	.	.	.	.	.	.	.	0.004	18	.	.	0.0132	.
UNS ZK	1.4	.	.	.	.	.	.	21.0	.	33.5	.	29.4	.	.	.	.	.	.
JF-1	1.18	0.11	8.29	2.80	0.000981	0.004	0.001	.	2.50	0.74	1.46	.	.	33.4	0.48	.	0.0266	.
JF-2	0.19	.	10.74	0.63	0.000219	.	0.001	.	1.77	0.70	.	.	.	48.7	.	.	0.0218	.
VS 811-89	.	.	.	.	0.006	.	.	2.0	.	14	.	59	.	20	.	3e-10	0.012	0.087
SRM 70b	.	.	6.33	.	.	(0.0298)	0.00630	.	2.36	.	.	.	0.0790	(57)	.	.	(0.0495)	.

Number	Sc	Si%	Sm	Sr%	Ta	Tb	Th	Ti%	Tl	U	V	Y	Yb	Zn%	Zr%
GUM FK	.	.	.	0.0072	.	.	.	.	.	.	.	.	.	.	0.0014
UNS ZK	3.6	.	16.8	.	19.4	.	4.7	.	.	.	.	8.4	.	0.00194	.
JF-1	0.23	31.17	0.41	0.0172	0.079	0.076	1.17	0.003	1.18	0.33	5.43	2.84	0.35	0.000441	0.00386
JF-2	0.089	30.52	0.11	0.0200	.	.	0.31	0.003	1.10	.	4.86	2.67	.	0.000140	0.000673
VS 811-89	19	.	3.2	0.017	1.3	.	11	.	.	2.5	0.016%	32	3.4	0.012	0.021
SRM 70b	.	(34.4)	.	(0.0027)	.	.	.	(0.0032)	.	.	(0.93)	.	.	(0.00077)	.

## CRM TRACE ELEMENTS IN FELDSPAR

analysis listed in mg/kg

Number	Rb	Uncertainty	Sr	Uncertainty	<sup>87</sup> Sr/ <sup>86</sup> Sr	<sup>86</sup> Sr/ <sup>88</sup> Sr	Units
SRM 607	523.90	1.01	65.485	0.320	1.20039	0.1194	5 g

**CRM FLUORSPAR (FLUORITE)**

analysis listed in mass % NCS DC62003a: 20g NCS DC14046-8,NCS DC282x, RH03: 50g other NCS, CMSI, GBW: 65g SRM: 120g all others: 100g

Number	CaF <sub>2</sub>	F	Al <sub>2</sub> O <sub>3</sub>	BaO	CaCO <sub>3</sub>	CaO	Fe	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	Na <sub>2</sub> O	P	S	SiO <sub>2</sub>	Others
SRM 180	98.80	.	.	.	.	.	.	.	.	.	.	.	.	.
SARM 15	97.84	.	.	.	0.95	.	.	(0.23)	.	.	0.007	.	(0.26)	MgCO <sub>3</sub> : 0.55 Mn: 0.0213
SARM 14	97.32	.	.	.	(0.3)	.	.	(0.06)	.	.	(0.079)	.	(0.57)	
BCS 392	97.2	.	.	0.37	.	0.52	.	.	.	.	.	0.12	0.67	CO <sub>2</sub> : 0.48 Pb: 0.18
JK D	97.07	47.24	0.04	.	.	.	.	0.20	.	.	0.035	0.004	(1.5)	
NCS DC28088	96.87	.	0.14	.	0.14	.	.	0.173	0.036	0.019	0.015	0.092	1.76	MgO: 0.015 Mn: 0.040
GBW 07250	94.91	.	.	.	(0.02)	.	.	0.096	0.019	0.005	0.0025	0.029	4.72	
NCS DC28228	94.81	.	.	.	0.99	.	0.26	.	.	.	0.076	0.107	2.76	Mn: 0.010
NCS DC14022a	93.68	.	.	.	0.30	.	0.166	.	0.026	0.006	0.014	0.35	3.06	
NCS DC14024a	93.28	.	.	.	0.62	.	0.22	.	0.040	0.006	0.0014	0.009	5.44	
VS 3383-86	91.84	.	0.53	.	.	0.612	.	.	.	.	0.063	0.095	5.03	
GBW 07251	90.87	.	.	.	(0.02)	.	.	0.124	0.026	0.005	0.0031	0.090	8.35	
NCS DC28230	90.72	.	.	.	0.87	.	0.25	.	.	.	0.063	0.084	7.68	Mn: 0.012
CGL 132	88.65	.	.	.	(0.78)	.	.	.	.	.	(0.012)	(0.019)	10.15	
NCS DC28229	85.56	.	.	.	0.58	.	0.28	.	.	.	0.045	0.079	10.62	Mn: 0.013
IPT 95	85.4	.	.	.	.	.	.	0.36	.	.	.	.	8.3	
GBW 07253	85.21	.	.	.	(0.02)	.	.	0.209	0.044	0.005	0.0013	0.045	14.15	
VS SH13	84.7	.	.	.	0.51	.	0.353	.	.	.	0.012	0.103	13.0	
NCS DC28087	83.12	.	0.69	.	1.06	.	.	0.36	0.28	0.031	0.018	0.050	13.74	MgO: 0.14 Mn: 0.0099
NCS DC28227	78.75	.	.	.	0.33	.	0.28	.	.	.	.	0.028	19.36	Mn: 0.012
NCS DC28226	77.33	.	.	.	0.20	0.31	.	.	.	.	.	0.068	18.04	Mn: 0.014
NCS DC28086	73.73	.	1.07	.	2.06	.	.	0.87	0.38	0.054	0.023	0.28	19.27	MgO: 0.73 Mn: 0.027
NCS DC62003a	60.98	.	3.69	.	.	1.17	.	2.35	1.44	0.52	SO <sub>3</sub> : 0.12	0.12	26.20	MgO: 0.18 TiO <sub>2</sub> : 0.15 LOI: 1.38
NCS DC28085	60.16	.	1.29	.	3.73	.	.	1.32	0.41	0.067	0.021	0.52	27.17	MgO: 1.99 Mn: 0.034
NCS DC28084	46.59	.	0.99	.	9.08	.	.	0.52	0.34	0.061	0.0071	0.071	28.89	MgO: 5.51 Mn: 0.051
CGL 135	35.60	.	.	.	(0.68)	.	.	.	.	.	0.037	0.41	47.67	
VS 4182-87	32.75	.	.	.	1.70	.	.	.	.	.	0.114	0.038	47.52	
VS 5132-89	32.69	.	.	.	11.75	.	.	.	.	.	.	.	(27.68)	
VS 2666-83	32.02	.	.	.	0.70	.	.	.	.	.	0.055	1.24	47.73	
VS 5133-89	4.17	.	.	.	1.10	.	.	.	.	.	.	.	.	

Number	CaF <sub>2</sub>	F	Al <sub>2</sub> O <sub>3</sub>	BaO	CaCO <sub>3</sub>	CaO	Fe	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	Na <sub>2</sub> O	P	S	SiO <sub>2</sub>	Others
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**FLUORSPAR (FLUORITE)**

# = class where 1 = CRM and 2 = RM analysis listed in mass % except \* which is mg/kg IGS: 55 g all others: 100 g

#	Number	Ca	F	Al <sub>2</sub> O <sub>3</sub>	BaO	CO <sub>2</sub>	CuO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	SiO <sub>2</sub>	SO <sub>4</sub>	TiO <sub>2</sub>	ZnO	LOI 900°C
1	IGS 39	.	<b>46.69</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	DH 2712	44.18	<b>40.6</b>	1.01	.	2.11	0.199	0.373	0.125	0.739	0.237	.	8.91	0.103	0.069	0.103	0.370
2	DH 2709	39.98	<b>38.10</b>	0.310	.	0.027	0.052	15.72	0.029	0.017	0.077	0.030	3.93	0.027	.	0.004	0.929
1	USZ HJ	37.32	<b>34.92</b>	2.35	.	.	.	0.34	0.99	.	.	.	23.01	.	0.047	.	.
1	UNS FM **	35.89	<b>34.03</b>	(0.329)	3.89	(0.13)	.	0.496	0.097	(0.036)	.	(0.087)	22.59	.	0.018	.	.

Number	Bi*	Ce*	Cr*	Cr <sub>2</sub> O <sub>3</sub> %	Cu*	Eu*	La*	Mo*	Pb*	S	Sb*	Sc*	Sm*	Sr%	Y*
IGS 39	.	.	.	.	.	.	.	.	.	.	.	.	.	(0.014)	.
DH 2712	.	.	.	0.106	.	.	NiO:0.153	.	PbO:0.102	.	.	.	SnO <sub>2</sub> :0.054	.	.
DH 2709	.	.	.	0.004	.	.	.	.	.	.	.	.	.	.	.
USZ HJ	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
UNS FM **	(58.8)	28.3	272	.	60.7	1.16	14.1	44.6	72.2	0.91	2.1	0.67	5.6	(0.0580)	154

\*\* UNS FM also contains Co: 2.6\*, Cs: 0.81\*, Mn: 64\*, U: 2.9\*, Yb: 3\* and trace informational values for 19 other elements

## CRM GABBRO

analysis listed in mass %																			40 g units					
Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	F	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	H <sub>2</sub> O+	T.H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	TiO <sub>2</sub>						
VS M08	51.98	16.39	0.43	9.02	0.0390	9.61	0.85	11.55	0.088	0.22	0.31	0.46	6.39	0.16	3.27	0.21	0.1700	1.15						
VS M07	40.79	17.60	0.03	14.62	0.1300	7.76	3.73	12.35	0.12	0.70	0.82	0.75	6.46	0.15	2.05	1.08	0.1800	3.39						
continued																			analysis listed in mg/kg except % which is mass %		VS M08: Gabbro		VS M07: Orthoclase Gabbro	
Number	B	Ba	Be	Co	Cr	Cs	Cu	Ga	La	Li	Mo	Nb	Ni	Pb	Rb	Sc	Sn	Sr	V	Y	Yb	Zn	Zr	
VS M08	7.5	272	0.8	48	126	1.1	40	18	26	5.5	3.2	3.7	18	7.3	4.0	31	2.7	477	199	18	2.0	84	48	
VS M07	4.5	7480	(1.2)	49	76	1.1	59	(18)	37	5.4	(2.4)	12	45	7.6	12	(25)	(3.8)	1745	270	.	.	65	53	

## CRM GABBRO WITH EXTENSIVE ANALYSIS

analysis listed in mass % except * which is mg/kg																			CAN WMG-1A: 350 g		CGL: 100 or 250 g		GBW: 50 g		JGb-1: 20 g		others: 100 g	
Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	F	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	TiO <sub>2</sub>	LOI												
USZ 51-2009	48.00	26.26	.	13.61	(0.085)	2.00	.	4.22	(+0.61 -0.13)	0.31	2.85	0.080	2.42	0.078	0.37	1.40												
VS 8670-2005	46.63	14.93	.	10.68	0.13	6.23	.	11.33	(+0.93)	3.09	6.81	0.167	2.72	1.03	1.72	(0.77)												
JGb-2	46.47	23.48	.	14.10	.	5.41	0.62	6.69	-0.14	0.059	6.18	0.13	0.92	0.017	0.56	.												
JGb-1 *	43.66	17.49	.	11.90	0.0133	9.43	4.79	15.06	+1.28 -0.13	0.24	7.85	0.189	1.20	0.056	1.60	.												
CGL 013	43.15	22.57	.	14.99	(0.099)	4.57	4.79	10.99	(+0.46 -0.21)	0.11	4.51	0.10	1.41	(0.038)	0.94	(1.03)												
VS 2117-81	37.62	13.67	(0.16)	15.75	0.0720	9.05	18.54	.	(0.12)	0.204	8.66	0.222	0.72	2.15	1.46	.												
GBW 07112	35.69	14.14	0.12	9.86	0.006	13.36	9.90	.	1.09	0.15	5.25	0.193	2.11	0.028	7.69	.												
Number	Si	Al	Ca	Fe	K	Mg	Mn	Na	P	Ti																		
JGb-1 *	20.41	9.26	.	8.50	.	10.53	4.79	15.05	+1.28 -0.13	0.20	4.73	0.146	0.89	0.024	0.96	.												
CAN WMG-1A	18.27	4.75	.	10.06	.	12.71	.	.	.	0.1021	7.41	(0.1141)	0.1119	0.0731	0.419*	(4.31)												

\* JGb-1 is certified for major elements and their oxides

continued																				analysis listed in mg/kg except % which is mass %									
Number	Ag	As	B	Ba%	Be	Bi	Cd	Ce	Cl%	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd											
USZ 51-2009	.	.	.	0.0119	.	.	.	7.90	.	14.93	69.97	.	45.32	.	.	.	18.87	.											
VS 8670-2005	(0.09)	.	(15)	0.152	1.9	.	.	163	.	40	58	3.3	58	6.2	2.8	3.9	17	11.5											
JGb-2	.	.	.	0.00365	.	.	.	3.0	.	25.8	125	0.51	11.4	.	.	0.59	15.9	.											
JGb-1 *	.	1.09	4.03	0.00643	.	.	0.087	8.17	.	60.1	57.8	0.26	85.7	1.56	1.04	0.62	17.9	1.61											
CGL 013	.	.	.	0.004994	.	.	.	(3.43)	.	35.21	35.72	.	608	(0.79)	(0.44)	(0.37)	17.94	(0.8)											
VS 2117-81	.	.	.	0.0110	.	.	.	.	.	65	14	.	3600	.	.	.	21	.											
GBW 07112	0.05	.	1.84	0.00862	.	0.04	0.09	4.2	0.006	93.0	14.5	.	28.3	1.11	0.47	0.74	23.7	1.31											
CAN WMG-1A	3.03	5.99	.	0.0216	.	(0.251)	(0.818)	(17.18)	.	191	804	.	7120	2.291	(1.34)	(0.733)	(12.4)	(2.351)											
Number	Ge	Hf	Ho	I	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pd	Pb	Pr	Pt	Rb	S%											
USZ 51-2009	.	.	.	.	.	.	.	.	.	.	.	23.94	.	6.00	.	.	6.58	.											
VS 8670-2005	1.3	5.3	1.1	.	.	82	12	0.3	1.4	8.4	89	.	47	15	20.7	.	80	(0.015)											
JGb-2	.	0.25	.	.	.	1.5	.	0.062	0.42	1.9	1.8	.	13.6	1.5	.	.	2.9	.											
JGb-1 *	1.01	0.88	0.33	.	.	3.60	4.59	0.15	0.59	3.34	5.47	.	25.4	.	1.92	1.13	6.87	0.1910											
CGL 013	.	(0.32)	(0.16)	.	.	(1.31)	(4.89)	(0.06)	(0.5)	(0.36)	(2.33)	.	23.34	.	4.68	(0.5)	.	(1.96)											
VS 2117-81	2.1	.	.	.	.	.	3.3	.	2.0	.	.	.	28	.	6	.	.	0.1240											
GBW 07112	1.06	0.65	0.20	0.08	0.12	1.71	1.94	0.06	.	9.3	4.10	69	.	.	0.84	.	.	0.37											
CAN WMG-1A	.	.	.	.	.	8.47	(44.7)	(0.196)	2.49	(5.26)	9.41	2480	0.484	(9.2)	(2.220)	0.899	(2.53)	3.43											
Number	Sc	Se	Sm	Sn	Sr%	Ta	Tb	Te	Th	Tl	Tm	U	V	Y	Yb	Zn	Zr												
USZ 51-2009	12.33	.	.	.	0.1196	.	.	.	.	.	.	.	85.28	5.14	.	59.87	(33.49)												
VS 8670-2005	26	.	17	3.2	0.224	0.5	1.5	.	8	.	(0.35)	1.8	250	30	2.5	120	219												
JGb-2	27	.	0.51	.	0.0438	0.29	0.15	.	0.19	.	.	.	174	4.5	0.39	48.5	11.6												
JGb-1 *	35.8	.	1.49	0.48	0.0327	0.18	0.29	.	0.48	.	0.16	0.13	635	10.4	1.06	109	32.8												
CGL 013	39.66	.	(0.72)	.	0.0778	.	(0.13)	.	.	.	(0.05)	.	420	4.30	(0.39)	98.00	(12)												
VS 2117-81	37	.	.	6.5	0.1040	.	.	.	.	.	.	.	960	.	2.6	136	.												
GBW 07112	22.5	0.26	1.22	0.89	0.0612	.	0.20	0.010	.	0.07	0.09	.	768	4.9	0.36	118	29												
CAN WMG-1A	21.33	14.1	2.211	(1.91)	0.00390	(0.355)	.	(1.19)	1.07	.	(0.192)	(0.65)	158	12.67	(1.220)	112	35.7												

## CRM GOLD ORE

ng/g (ppb) 10g or 1kg

Number	Au
GLG914-4	369.36
GLG318-1	259.04
GLG319-3	238.19
GLG313-3	227.70
GLG912-5	224.34
GLG917-3	222.13
GLG318-3	214.41
GLG911-5	209.21
GLG914-3	205.83
GLG904-4	204.08
GLG914-5	195.97
GLG315-5	194.82
GLG917-2	190.30
GLG317-2	189.86
GLG313-4	183.83
GLG303-1	164.48
GLG317-1	151.88
GLG316-2	150.84
GLG304-4	121.43
GLG310-3	119.30
GLG314-3	103.11
GLG314-5	95.23
GLG319-4	99.13
GLG317-3	94.60
GLG913-5	84.83
GLG313-5	83.36
GLG310-5	79.83
GLG316-1	76.74
GLG908-4	66.63
GLG917-1	59.71
GLG305-3	55.48
GLG319-5	44.93
GLG908-3	34.86
GLG910-3	32.02
GLG319-1	25.63
GLG910-2	24.31
GLG913-2	22.75
GLG904-2	21.55
GLG312-1	20.65
GLG901-1	18.99
GLG302-2	16.67
GLG915-1	14.01
GLG913-1	11.13
GLG902-2	10.66
GLG901-2	9.92
GLG912-1	6.86
GLG910-4	6.36
GLG916-1	5.06
GLG911-4	4.65
GLG910-1	4.89
GLG907-1	4.18
GLG912-3	3.98
GLG307-2	3.83
GLG904-1	3.82
GLG911-3	3.74
GLG914-2	3.68
GLG314-1	3.63
GLG316-5	3.50
GLG916-2	3.48
GLG916-3	3.45
GLG911-1	3.35
GLG916-4	3.27
GLG302-4	3.23
GLG913-4	3.10
GLG318-2	3.03
GLG314-2	2.98
GLG913-3	2.81
GLG312-2	2.78
GLG316-3	2.75
GLG910-5	2.58
GLG912-2	2.54
GLG316-4	2.52
GLG319-2	2.50

## CRM GOLD ORE

analysis listed in grams per Ton

Number	Ag	Au	Units
NCS DC93008a	58.5	18.6	500 g
NCS DC93006b	35.5	42.8	1 kg
NCS DC93007b	23.7	31.8	750 g
NCS DC93009a	7.9	2.5	500 g
NCS DC93009	7.8	2.5	500 g

## CRM GOLD ORE

analysis listed in mg/kg (ppm) except % which is mass 10g or 200g units

Number	Au Fire	Au Aqua	Ag	As	Co	Cu	Ni	Pb	S%	Zn
GBMS911-4	6.78	6.73	1.79	36	54	900	32	35	0.79	115
GBMS304-4	5.67	5.29	3.4	535	.	9786	732	271	6.27	149
GBMS304-1	3.06	2.96	1.4	168	.	3156	380	197	1.33	120
GBMS911-2	2.88	2.82	1.24	62	78	1417	34	47	1.30	122
GBMS304-3	2.68	2.51	1.5	263	137	3637	376	159	2.35	143
GBMS911-3	1.33	1.31	0.17	13	31	7652	27	37	0.99	196
GBMS911-1	1.04	1.04	1.19	335	31	10028	23	5844	1.40	1221

Fire = Fire Assay, Aqua = Aqua Regia

## CRM GOLD ASSAY PILLS

25 x 1g pressed powder

Number	Au mg/kg (ppm)
GAP-06	2.2202
GAP-03	1.0000
GAP-05	0.5249
GAP-01	0.3237
GAP-04	0.2117
GAP-02	0.1025
GAP-07	0.0304

## RM GOLD ORE

g/t = mg/kg = ppm 100 g or 1 kg

Number	Au	Pd*	Pt*
CDN GS-50	50.5	.	.
CDN GS-40	39.95	.	.
CDN GS-22	22.94	.	.
CDN GS-20A	21.12	.	.
CDN GS-20B	20.23	no 1 kg	.
CDN GS-20C	19.65	no 100 g	.
CDN GS-14A	14.90	.	.
CDN GS-13A	13.20	.	.
CDN GS-12A	12.31	.	.
CDN GS-10D	9.50	.	.
CDN GS-9A	9.31	.	.
CDN GS-7F	6.90	.	.
CDN GS-4E	4.19	.	.
CDN GS-3K	3.19	.	.
CDN GS-3L	3.18	.	.
CDN GS-2P	1.99	.	.
CDN GS-P7H	0.799	.	.
CDN GS-P8C	0.784	.	.
CDN GS-P5C	0.571	.	.
CDN BL-10	<0.01	<0.01	<0.01

## RM GOLD AND SILVER ORE

data in mg/kg (ppm) 100 g or 1 kg units

Number	Au	Ag
CDN GS-3M	3.10	95.4
CDN GS-2Q	2.37	73.2
CDN GS-1Q	1.24	40.7

## RM GOLD AND SILVER ORE

analysis listed in mg/kg (ppm) 100 g or 1 kg

Number	Ag	Au	Au
CDN GS-8C	.	8.59 FA/Inst	8.62 FA/Grav
CDN GS-5Q	60.3	5.59 FA/Inst	5.64 FA/Grav
CDN GS-5P	119	4.78 FA/Inst	4.80 FA/Grav
CDN GS-5L	.	4.68 FA/ICP	4.74 FA/Grav

## CRM GOLD ORE

mg/kg (ppm) 10g or 1kg

Number	Au Fire	Au Aqua
G310-10	48.53	47.74 last
G917-1	48.52	47.79
G916-6	30.94	30.47
G312-10	24.94	24.67
G915-8	24.72	24.58
G916-5	19.92	19.63
G915-5	17.95	17.29
G914-9	16.77	16.62
G915-7	12.38	12.35
G301-9	10.47	.
G914-10	10.26	10.17
G311-9	10.01	7.45
G315-8	9.93	9.83
G915-9	9.82	9.83
G914-7	9.81	9.68
G915-3	9.39	9.22
G915-4	9.16	9.00
G306-3	8.66	8.60
G307-7	7.87	7.75
G311-10	7.32	5.54
G912-1	7.29	7.33
G313-10	7.09	7.10
G313-5	7.07	7.05
G313-7	6.93	6.97
G314-3	6.70	6.68
G316-8	6.11	6.06
G316-7	5.85	5.79
G312-9	5.84	5.69
G315-6	5.68	5.26
G315-1	5.64	5.38
G904-8	5.53	5.51
G314-5	5.29	5.30
G915-2	4.98	4.96
G913-8	4.87	4.93
G396-8	4.82	4.75
G316-10	4.65	4.56
G915-1	4.56	4.51
G916-7	4.51	4.48
G998-4	4.36	4.27
G912-6	4.08	4.05
G398-10	4.07	3.99
G397-6	3.95	3.82
G905-7	3.92	3.89
G913-5	3.70	3.21
G911-8	3.65	2.68
G310-9	3.29	3.25 last
G900-7	3.22	3.19
G916-8	3.20	3.15
G914-6	3.21	3.16
G305-8	3.14	2.80
G916-9	3.13	2.88
G910-6	3.09	3.05
G398-6	2.94	2.86
G916-10	2.81	2.73
G914-1	2.57	2.55
G912-2	2.51	2.51
G308-3	2.50	2.47
G914-2	2.48	2.44
G906-2	2.46	2.40
G314-7	2.45	2.43
G303-4	2.43	2.45
G911-4	2.43	2.45
G313-8	2.43	2.41
G913-2	2.40	2.42
G913-3	2.36	2.21
G913-7	2.31	2.26
G913-6	2.19	2.16
G912-3	2.09	2.10
G313-2	2.04	2.07
G313-4	2.00	2.00
G307-8	1.99	1.97
G314-6	1.98	1.98
G916-2	1.98	1.96

Number Au Fire Au Aqua

## CRM GOLD ORE

mg/kg (ppm) 10g or 1kg

Number	Au Fire	Au Aqua
G912-4	1.91	1.95
G316-9	1.75	1.71
G916-1	1.72	1.70
G906-1	1.67	1.64
G901-5	1.65	1.61
G312-5	1.60	1.56
G904-7	1.58	1.54
G311-8	1.57	1.54
G300-9	1.53	1.51
G314-9	1.52	1.49
G910-9	1.51	1.48
G312-2	1.51	1.47
G910-1	1.42	1.40
G307-4	1.40	1.36
G316-6	1.40	1.39
G911-3	1.37	1.37
G913-4	1.37	1.35
G907-5	1.34	1.31
G311-5	1.32	1.28
G911-10	1.30	1.30
G914-3	1.24	1.20
G301-8	1.19	.
G905-1	1.16	1.14
G308-2	1.11	1.08
G316-2	1.04	1.03
G314-8	1.03	1.02
G315-9	1.02	1.00
G916-3	1.01	1.00
G314-2	0.99	0.98
G315-2	0.98	0.98
G904-4	0.96	0.93
G999-3	0.95	0.90
G910-2	0.90	0.89
G399-5	0.87	0.85
G913-1	0.82	0.82
G998-3	0.81	0.80
G314-1	0.75	0.74
G912-8	0.53	0.52
G916-4	0.51	0.51
G313-3	0.51	0.49
G316-5	0.50	0.50
G398-2	0.50	0.42
G912-7	0.42	0.41
G912-5	0.38	0.38
G314-10	0.38	0.38
G315-4	0.32	0.31
G316-1	0.31	0.31
G315-7	0.30	0.29
G311-3	0.27	0.27
G316-4	0.24	0.24
G307-3	0.24	0.23
G312-7	0.22	0.22
G311-6	0.22	0.21
G903-10	0.21	0.22
G908-2	0.21	0.21
G316-3	0.21	0.21
G310-2	0.20	0.20
G914-4	0.20	0.20
G914-5	0.20	0.20
G911-5	0.20	0.19
G302-10	0.18	0.16
G911-6	0.17	0.16
G314-4	0.14	0.13
G315-5	0.10	0.10
G310-3	0.07	0.06
G908-1	0.06	0.06

Number Au Fire Au Aqua

**CRM GOLD ORE**

analysis listed in mass % except \* which is mg/kg for U, M = /ICP and X = XRF D = Densotu/Specific Gravity

Number	Au*	Al <sub>2</sub> O <sub>3</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	S	SiO <sub>2</sub>	TiO <sub>2</sub>	U M	LOI	D	Units
AMIS 0429	22.93	.	0.48	(0.11)	4.97	0.54	.	(0.04)	.	1.57	87.70	.	0.0722	(1.87)	.	100 g
AMIS 0430	2.68	2.80	0.19	0.12	2.03	0.32	(0.11)	0.030	(0.06)	0.33	92.3	(0.14)	0.0113	(1.66)	2.71	100 g

**CRM GOLD AND SILVER ORE**

analysis listed in mg/kg (ppm) \* and mass percent %

Number	Ag*	Au*	As%	S%	Sb%	Units
NCS DC28104	62.2	63.4	.	.	.	250 g
USZ 29-2000	6.05	42.26	.	.	.	100 or 200 g
VS 5938-91	6.5	36	8.45	28.73	0.021	100 g
VS 5937-91	6.4	33	7.78	25.83	0.019	100 g
VS 2739-83	5.7	34	8.0	26.0	0.020	100 g
NCS DC28107	20.4	20.0	.	.	.	250 g
NCS DC29103	18.0	20.0	.	.	.	500 g
CAN MA-1b	(4)	17.0	.	.	.	200 g
VS 5936-91	3.5	20	4.72	15.26	0.012	100 g
VS 2739-83	23	13	.	15.10	0.044	100 g
NCS DC28106	11.0	11.0	.	.	.	500 g
USZ 39-2005	49.33	10.92	.	.	.	250 g
VS 5934-91	1.8	8.9	2.11	6.77	0.0057	100 g
CAN MA-3a	(2.4)	8.56	.	.	.	200 g
USZ 40-2005	27.06	7.38	.	.	.	100 or 250 g
USZ 30-2000	1.18	5.92	.	.	.	250 g
NCS DC28105	5.8	5.0	.	.	.	500 g
VS 5933-91	1.1	4.6	1.08	3.35	0.0039	100 g
NCS DC29102	37.4	4.30	.	.	.	500 g
VS 8815-2006	0.75	4.25	1.000	3.27	0.00260	100 g
USZ 31-2000	1.07	3.28	.	.	.	250 g
CAN MA-2c	(0.51)	3.02	.	.	.	400 g
VS 5932-91	0.9	3.0	0.54	1.77	0.0021	100 g
NCS DC28102	2.2	2.5	.	.	.	500 g
VS 8816-2006	0.360	2.13	0.500	1.64	0.00135	100 g
NCS DC28103	3.1	1.8	.	.	.	500 g
NCS DC28101	4.2	1.7	.	.	.	500 g
USZ 21-98	.	1.06	.	.	.	250 g
VS 2740-83	0.31	0.9	0.17	0.38	0.0019	100 g
NCS DC29101	.	0.64	.	.	.	500 g
VS 5940-91	0.9	0.55	0.063	0.34	0.0075	100 g
VS 5939-91	0.7	0.37	.	0.24	0.0025	100 g
KZ 63-86	.	0.023	.	.	.	100 g
KZ 64-86	.	0.0076	.	.	.	100 g
KZ 65-86	.	0.0067	.	.	.	100 g
NCS DC90006	732	.	.	.	.	50 g
NCS DC90005	559	.	.	.	.	50 g
NCS DC90004	446	.	.	.	.	50 g
NCS DC90003	298	.	.	.	.	50 g
NCS DC29106	199	.	.	.	.	50 g
NCS DC29105	138.1	.	.	.	.	50 g
NCS DC90002	112	.	.	.	.	50 g
NCS DC29104	50.3	.	.	.	.	50 g
NCS DC90001	46.9	.	.	.	.	50 g

Number	Ag*	Au*	As%	S%	Sb%	Units
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**CRM GOLD AND SILVER ORE**

minesite carbon material

data listed in mg/kg (ppm) 10 g units

Number	Au	Ag	
GLC302-3	7467	1248	last of stock
GLC918-2	6577	3188	
GLC318-2	5429	2542	
GLC319-1	3556	387	
GLC318-3	3186	422	
GLC918-3	3160	475	
GLC917-2	2460	175	
GLC919-1	2367	148	
GLC314-1	2031	947	last of stock
GLC320-1	2011	1002	
GLC320-2	1623	802	
GLC616-1	1330	601	
GLC919-2	1199	519	
GLC916-2	1174	209	
GLC315-4	974	360	
GBC916-1	933	265	
GLC915-2	829	27	
GBC319-4	808	225	
GBC321-1	788	229	
GBC917-2	770	219	
GBC921-4	714	209	
GBC321-2	713	207	
GBC917-3	628	195	
GBC921-3	547	226	
GBC318-2	484	281	
GBC911-3	470	596	last of stock
GBC615-2	467	(57)	
GBC320-2	411	116	
GBC920-2	380	178	
GBC902-3	285	83	last of stock
GBC921-2	251	73	
GBC921-1	157	49	
GBC314-1	51	38	last of stock
GBC920-1	41	30	
GBC320-1	23	14	
GBC321-4	19	34	
GBC616-1	12	46	
GBC915-2	6	21	

Number	Au	Ag
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## CRM GOLD AND SILVER ORE - CONTINUED ON THE NEXT PAGES

Number	Au*	Ag*	As	Ba	Cu	Fe	Fe <sub>2</sub> O <sub>3</sub>	Pb	S	SO <sub>3</sub>	Sb	Zn	LOI
CAN DS-1	32.59	0.47	0.6960	0.0221	0.00271	(3.0)	.	0.00138	(2.609)	.	(0.0107)	0.0206	(13)
USZ 38-2005	31.28	.	.	0.02	0.43	.	14.71	.	.	.	.	0.006529	2.59
OREAS 12a	11.79	(3)	(0.6795)	(0.0646)	(0.0262)	.	(20.9)	(0.0015)	(5.34)	.	(0.00152)	(0.0129)	(8.91)
OREAS 62d	10.50	8.37	(0.0028)	(0.0210)	(0.0042)	.	(2.88)	(0.0015)	(0.47)	(1.49)	(0.00019)	(0.0029)	(11.24)
USZ 20-98	10.05	3.05	.	.	.	.	1.92	.	.	.	.	.	0.95
KZ 3597-86	8.8	.	3.96	.	.	.	.	.	.	.	.	.	.
KZ 16-2004	8.57	1.35	.	.	0.02	.	.	.	.	.	.	.	.
KZ 62-86	5.7	2.3	.	.	.	.	.	.	.	.	.	.	.
OREAS 19a	5.49	(1.5)	(0.3410)	(0.0469)	(0.0163)	.	(15.9)	(0.00105)	(2.54)	.	(0.00075)	(0.0128)	(4.70)
KZ 61-86	4.4	14.7	0.32	.	0.00044	.	.	.	.	.	0.076	.	.
OREAS 61e 4	4.43	5.27	(0.00173)	(0.0272)	(0.0060)	(2.66)	.	(0.00133)	0.790	.	(<0.0005)	(0.0051)	(7.74)
OREAS 61e A	4.51	5.37	(0.00159)	(0.00344)	(0.0058)	(2.37)	.	(0.00120)	(0.824)	.	(<0.0002)	(0.00469)	.
OREAS 61e F	.	.	.	(0.0277)	.	(2.56)	.	.	(0.760)	.	.	.	.
OREAS 17c	3.04	(0.5)	(0.2055)	(0.0398)	(0.0130)	.	(14.1)	(0.00105)	(1.59)	.	(0.00045)	(0.0139)	(2.72)
OREAS 23a	3	0.1	0.0037	0.1092	0.00421	.	.	0.00213	.	.	0.000045	0.0069	.
OREAS 7Ca	2.54	.	(0.1917)	(0.0683)	.	.	(4.06)	.	.	(0.04)	(0.0161)	(0.0030)	.
UNS AuM	2.5	.	0.08765	BaO:0.066	0.00359	.	5.55	.	.	.	.	.	.
OREAS 16a	1.81	(0.5)	(0.0625)	(0.0365)	(0.0084)	.	(13.9)	(0.0006)	(1.24)	.	(0.0001)	(0.0136)	(1.22)
OREAS 15d	1.559	(0.5)	(0.2445)	(0.0252)	(0.0068)	.	(12.17)	(0.0012)	(0.62)	.	(0.00023)	(0.0107)	(1.28)
KZ 15-2004	1.48	17.4	.	.	0.02	.	.	0.18	.	.	.	0.055	.
OREAS 66a	1.237	18.9	(0.0282)	(0.08085)	0.0121	.	(6.745)	(0.0260)	(1.075)	.	(0.0064)	(0.0091)	(4.16)
USZ 41-2006	0.91	.	.	0.0249	0.75	.	.	0.0027	.	3.87	.	0.0136	5.43
CAN CH-4	0.88	2.1	0.00088	(0.0425)	0.20	5.42	.	.	0.63	.	0.77	0.020	(0.9)
USZ 34-2002	0.79	1.7	0.12	.	0.001484	2.18T	.	0.002	.	.	0.14	0.0025	2.84
US DGPm-1	0.73	.	0.0180	.	.	.	1.92	.	.	.	0.0014	.	.
USZ 35-2002	0.57	1.25	.	.	.	.	.	.	.	.	.	.	.
KZ 17-2004	0.49	1.78	.	.	1.59	3.91	.	.	1.73	.	.	.	.
OREAS 15f	0.334	(<0.5)	(0.0127)	(0.0328)	(0.0061)	.	(12)	(0.0005)	(0.24)	.	(0.00004)	(0.0113)	(0.44)
KZ 6585-93	0.28	11.6	0.075	.	0.064	.	.	0.12	.	.	.	0.60	.
CAN GTS-2a	0.272	(0.64)	0.0124	0.0186	0.00886	7.56	.	.	0.348	.	(0.000133)	0.0208	(9.87)
OREAS H5	0.047	.	.	.	.	.	.	.	.	.	.	.	.
OREAS H5 A	0.057	1.92	0.0000008	(0.0052)	0.0099	0.813	.	0.00361	(0.017)	.	(0.000485)	0.000658	.
OREAS H5 N	(0.053)	.	(0.0000014)	(0.0173)	.	(1.24)	.	.	.	.	(0.000510)	(0.00460)	.
OREAS 24b	<0.003	.	(0.00100)	BaO:0.0819	.	.	6.35	.	0.190	.	.	(0.0113)	2.46
OREAS 24b 4	.	(0.127)	(0.000835)	0.0716	0.00380	4.39	.	0.00231	0.198	.	0.000100	0.0105	.
OREAS 24b A	(0.002)	(0.058)	0.000796	0.0146	0.00364	3.93	.	0.000923	0.200	.	(0.000048)	0.0093	.
OREAS 24b F	.	(2.17)	(0.000974)	0.0739	(0.00351)	4.45	.	(0.00229)	0.203	.	(0.000133)	(0.0103)	.
OREAS 25a	<0.002	.	.	BaO:(0.0151)	.	.	9.77	.	0.044	.	.	(0.00467)	11.70
OREAS 25a 4	.	(0.168)	(0.000994)	0.0147	0.00339	6.60	.	0.00252	0.051	.	0.000067	0.00444	.
OREAS 25a A	(0.001)	(0.035)	(0.000284)	0.0056	0.00249	5.99	.	0.00210	(0.050)	.	(0.000018)	0.00301	.
OREAS 25a F	.	(0.570)	(0.000983)	0.0151	(0.00391)	6.72	.	(0.00244)	(0.046)	.	(0.000102)	0.00468	.
OREAS 24c	<0.001	<0.2	<0.00002	0.0269	0.00486	7.62	.	0.000290	(<0.01)	.	<0.00001	0.0108	.
OREAS 22d	<0.001	<0.1	<0.0001	0.000617	0.000923	0.468	.	0.000072	(<0.01)	.	0.000021	0.000670	.
Number	Au*	Ag*	As	Ba	Cu	Fe	Fe <sub>2</sub> O <sub>3</sub>	Pb	S	SO <sub>3</sub>	Sb	Zn	LOI

## CRM GOLD AND SILVER ORE - CONTINUED FROM THE PREVIOUS AND ON TO THE NEXT PAGE

analysis listed in mass % except * which is mg/kg																		OREAS samples list multiple methods, more information upon request	
Number	Al	Al <sub>2</sub> O <sub>3</sub>	C	Ca	CaO	K	K <sub>2</sub> O	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	P	P <sub>2</sub> O <sub>5</sub>	Si	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>
CAN DS-1	4.48	.	(3.126)	(6.248)	.	(1.1)	.	2.76	.	0.0437	.	.	.	0.0340	.	(25.68)	.	.	.
USZ 38-2005	.	2.03	.	.	0.56	.	0.64	.	1.01	.	0.03	.	0.17	.	0.05	.	77.37	.	0.15
OREAS 12a	.	(9.3)	(1.51)	.	(7.95)	.	(0.64)	.	(4.22)	.	(0.78)	.	(0.89)	.	(0.63)	.	(43.0)	.	(0.56)
OREAS 62d	.	(6.75)	(2.61)	.	(12.27)	.	(1.97)	.	(0.95)	.	(0.08)	.	(0.36)	.	(0.102)	.	(62.48)	.	(0.29)
USZ 20-98	.	1.70	.	.	0.77	.	0.37	.	.	.	0.025	.	0.07	.	0.037	.	92.57	.	0.08
KZ 3597-86	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 16-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 62-86	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 19a	.	(11.9)	(0.81)	.	(8.29)	.	(0.68)	.	(5.94)	.	(0.45)	.	(1.96)	.	(0.47)	.	(47.4)	.	(1.17)
KZ 61-86	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 61e 4	(4.50)	.	.	(4.93)	.	(2.00)	.	(0.818)	.	(0.061)	.	(0.656)	.	(0.051)	.	.	.	(0.220)	.
OREAS 61e A	(1.25)	.	.	(4.61)	.	(0.203)	.	(0.723)	.	(0.059)	.	(0.064)	.	(0.048)	.	.	.	(0.042)	.
OREAS 61e F	(4.45)	.	(1.61)	(4.88)	.	(1.99)	.	(0.820)	.	(0.062)	.	(0.705)	.	(0.048)	.	(31.90)	.	(0.231)	.
OREAS 17c	.	(12.8)	(0.56)	.	(8.40)	.	(0.71)	.	(6.63)	.	(0.33)	.	(2.40)	.	(0.41)	.	(49.1)	.	(1.41)
OREAS 23a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 7Ca	.	(15.2)	.	( $<0.01$ )	.	(4.23)	.	(0.72)	.	( $<0.01$ )	.	( $<0.05$ )	.	(0.08)	.	(71.1)	.	(0.68)	.
UNS AuM	.	14.06	.	4.09	.	1.92	.	1.81	.	0.082	.	3.08	.	.	.	66.15	.	0.39	.
OREAS 16a	.	(13.15)	(0.28)	.	(8.09)	.	(0.817)	.	(6.79)	.	(0.26)	.	(2.81)	.	(0.4)	.	(49.88)	.	(1.67)
OREAS 15d	.	(13.25)	(0.20)	.	(7.95)	.	(0.743)	.	(6.47)	.	(0.188)	.	(2.74)	.	(0.326)	.	(52.86)	.	(1.61)
KZ 15-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 66a	.	(8.49)	(0.03)	.	(2.32)	.	(0.355)	.	(1.82)	.	(0.04)	.	(0.85)	.	(0.1635)	.	(73.6)	.	(0.83)
USZ 41-2006	.	14.58	.	3.14	.	2.81	.	5.52	.	0.12	.	2.36	.	0.27	.	52.09	.	0.93	.
CAN CH-4	7.73	.	0.12	1.96	.	1.81	.	1.43	.	0.043	.	3.26	.	0.061	.	63.10	.	0.31	.
USZ 34-2002	.	4.79	.	.	2.53	.	1.48	.	0.37	.	0.017	.	0.055	.	0.125	.	84.70	.	0.17
US DGPM-1	.	9.56	.	(0.22)	.	2.74	.	(0.56)	.	.	.	.	.	.	.	79.82	.	.	.
USZ 35-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 17-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 15f	.	(14.2)	(0.16)	.	(8.59)	.	(0.82)	.	(7.13)	.	(0.18)	.	(3.02)	.	(0.336)	.	(51.0)	.	(1.78)
KZ 6585-93	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CAN GTS-2a	6.96	.	2.011	4.01	.	2.021	.	2.412	.	0.1510	.	0.617	.	0.0892	.	23.65	.	(0.5*)	.
OREAS H5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS H5 A	(2.31)	.	.	(0.014)	.	(0.059)	.	(0.073)	.	0.007	.	(0.135)	.	0.010	.	.	.	(0.040)	.
OREAS H5 N	.	.	.	.	.	(0.500)	.	.	.	.	.	(0.215)	.	.	.	.	.	.	.
OREAS 24b	.	15.15	0.189	.	1.47	.	3.39	.	2.75	.	0.059	.	1.15	.	0.161	.	66.0	.	0.798
OREAS 24b 4	8.02	.	.	1.08	.	2.81	.	1.65	.	0.044	.	0.846	.	0.069	.	.	.	0.468	.
OREAS 24b A	3.15	.	.	0.461	.	1.17	.	1.36	.	0.035	.	0.108	.	(0.062)	.	.	.	0.198	.
OREAS 24b F	7.81	.	.	1.06	.	2.74	.	1.62	.	0.046	.	0.824	.	(0.073)	.	31.12	.	0.481	.
OREAS 25a	.	18.24	1.56	.	0.438	.	0.599	.	(0.579)	.	0.063	.	0.191	.	0.117	.	56.7	.	1.93
OREAS 25a 4	8.87	.	.	0.309	.	0.482	.	0.327	.	0.047	.	0.134	.	0.048	.	.	.	0.977	.
OREAS 25a A	5.85	.	.	0.150	.	0.131	.	(0.193)	.	0.042	.	(0.040)	.	0.037	.	.	.	(0.036)	.
OREAS 25a F	9.25	.	.	0.302	.	0.493	.	0.324	.	0.049	.	(0.126)	.	0.049	.	25.85	.	1.14	.
OREAS 24c	7.45	.	.	5.86	.	0.735	.	3.93	.	0.108	.	2.42	.	0.156	.	.	.	1.06	.
OREAS 22d	0.132	.	.	(0.010)	.	(0.008)	.	(0.009)	.	0.011	.	(0.009)	.	(0.001)	.	.	.	0.021	.
Number	Al	Al <sub>2</sub> O <sub>3</sub>	C	Ca	CaO	K	K <sub>2</sub> O	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	P	P <sub>2</sub> O <sub>5</sub>	Si	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>



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analysis listed in mg/kg except % which is mass %

OREAS samples list multiple methods, more information upon request

Number	B	Be	Bi	Cd	Ce	Co	Cr	Cr <sub>2</sub> O <sub>3</sub>	Cs	Dy	Er	Eu	Ga	Gd	Ge	Hf	Hg
CAN DS-1	.	(0.819)	(0.1)	(0.98)	(40)	9.5	(59)	.	(7)	.	.	(1)	(10)	.	.	(4)	82
USZ 38-2005	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 12a	.	(0.8)	(0.3)	.	(21.7)	(31)	.	.	(4)	(4)	(2.0)	(1.1)	(13.3)	(4.4)	.	(1)	.
OREAS 62d	.	(0.5)	.	.	(16.2)	(6.0)	.	.	(5.2)	(1.2)	(0.7)	(0.5)	(7.1)	(1.4)	.	(1.0)	.
USZ 20-98	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 3597-86	1.08%	.	.	.	.	0.17%	.	.	.	.	.	.	.	.	.	.	.
KZ 16-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 62-86	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 19a	.	(1.0)	(0.2)	.	(29.6)	(40.5)	.	.	(2)	(4)	(2.1)	(1.5)	(17)	(4.8)	.	(2.5)	.
KZ 61-86	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 61e 4	.	(0.89)	(<2)	(<0.5)	.	(9.29)	(24.4)	.	.	.	.	.	(10.0)	.	.	.	.
OREAS 61e A	(<10)	(0.58)	(<2)	(1.15)	.	(8.83)	(21.6)	.	.	.	.	.	(<10)	.	.	.	(0.70)
OREAS 61e F	.	.	.	.	(18.7)	.	(<70)	.	(5.58)	(1.48)	(0.89)	(0.58)	(9.75)	(1.74)	.	(1.5)	.
OREAS 17c	.	(1.0)	(0.1)	.	(32.7)	(44)	.	.	(2)	(5)	(2.3)	(1.6)	(18.5)	(5)	.	(3)	.
OREAS 23a	.	.	0.15	0.15	.	14.8	.	.	.	.	.	.	.	.	.	.	.
OREAS 7Ca	.	.	.	.	(90)	.	(502)	.	(10)	.	.	(1.4)	.	.	.	(4.4)	.
UNS AuM	.	.	.	.	.	.	47	.	.	.	.	.	12.9	.	.	.	.
OREAS 16a	.	(0.7)	.	.	(36.4)	(44)	.	.	(1.6)	(4.6)	(2.20)	(1.72)	(18.1)	(5.2)	.	(3.6)	.
OREAS 15d	.	(0.9)	(0.4)	.	(34.1)	(43)	.	.	(0.8)	(4.3)	(2.1)	(1.6)	(17.9)	(4.9)	.	(3.2)	.
KZ 15-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 66a	.	(0.6)	(10.2)	(1)	(33.6)	(18)	.	.	(0.5)	(2.15)	(1.23)	(0.98)	(17.4)	(2.9)	.	(1.9)	.
USZ 41-2006	.	.	.	.	.	24.3	99.3	.	.	.	.	.	.	.	.	.	.
CAN CH-4	.	.	.	1.14	.	26	114	.	.	.	.	.	.	.	.	.	.
USZ 34-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
US DGPM-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USZ 35-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 17-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 15f	.	(1.3)	.	.	(38.8)	(47)	.	.	(1.1)	(5.18)	(2.48)	(1.98)	(18.8)	(5.9)	.	(4.5)	.
KZ 6585-93	.	.	.	96	.	.	.	.	.	.	.	.	.	.	.	.	.
CAN GTS-2a	.	.	.	(0.58)	.	22.1	(270)	.	.	.	.	.	.	.	.	.	.
OREAS H5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS H5 A	(23.0)	(<1)	5.44	1.28	.	3.68	31.1	.	.	.	.	.	(11.4)	.	(<0.1)	.	(0.14)
OREAS H5 N	.	.	Br: (4.99)	.	(76)	(4.64)	(108)	.	(1.94)	.	.	(0.93)	.	.	.	(57)	(<1)
OREAS 24b	.	.	.	.	.	(28.3)	.	201	.	.	.	.	.	.	.	.	.
OREAS 24b 4	.	2.92	0.68	(0.049)	84	16.9	118	.	10.7	(4.47)	(2.54)	(1.36)	20.1	(6.02)	(0.83)	3.90	.
OREAS 24b A	(6.23)	(1.65)	0.73	(0.046)	(61)	15.7	106	.	9.15	(2.65)	(1.21)	(0.66)	10.8	(3.96)	(0.26)	(0.52)	.
OREAS 24b F	(69)	2.95	(1.03)	.	86	16.9	142	.	10.5	5.83	3.41	1.39	20.2	6.27	(1.64)	6.15	.
OREAS 25a	.	.	.	.	.	(10.0)	.	(167)	.	.	.	.	.	.	.	.	.
OREAS 25a 4	.	1.02	0.35	(0.041)	48.9	8.20	115	.	6.46	(2.67)	(1.50)	(0.64)	25.9	(2.91)	(0.22)	4.53	.
OREAS 25a A	(5.92)	(0.65)	0.30	(0.041)	33.1	5.72	73	.	4.45	(1.15)	(0.50)	(0.43)	20.6	(1.74)	(0.13)	(0.47)	(0.053)
OREAS 25a F	(39.2)	(0.94)	(0.40)	.	51	8.05	125	.	6.36	4.31	2.76	0.80	25.4	3.79	(2.02)	11.1	.
OREAS 24c	.	1.05	<0.1	<0.1	(40.2)	42.7	193	.	(0.80)	(4.82)	(2.35)	(1.94)	(20.7)	(5.95)	(0.43)	3.75	.
OREAS 22d	.	(0.066)	<0.1	<0.1	(2.43)	0.85	(11.9)	.	(0.10)	(0.15)	(<0.1)	(<0.05)	(0.26)	(0.20)	(0.065)	0.22	.
Number	B	Be	Bi	Cd	Ce	Co	Cr	Cr <sub>2</sub> O <sub>3</sub>	Cs	Dy	Er	Eu	Ga	Gd	Ge	Hf	Hg

## CRM GOLD AND SILVER ORE - CONTINUED FROM THE PREVIOUS AND ON TO THE NEXT PAGE

analysis listed in mg/kg except % which is mass %																	OREAS samples list multiple methods, more information upon request
Number	Ho	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pd	Pr	Pt	Rb	Re	Sc	Se	Sm
CAN DS-1	.	(0.5)	(20)	(20)	.	.	.	.	48.7	.	.	.	.	.	.	.	.
USZ 38-2005	.	.	.	.	.	0.11%	.	.	28.27	.	.	.	.	.	.	.	.
OREAS 12a	(0.73)	(0.05)	(17.7)	(19.5)	(0.28)	(5.5)	(3.25)	(19.5)	(71.5)	.	(4.56)	.	(20.5)	.	(20)	.	(4.18)
OREAS 62d	(0.24)	(0.02)	(7.6)	(39)	(0.1)	(6.7)	(1.2)	(7.8)	(7.0)	.	(1.9)	.	(72)	.	(7.0)	.	(1.7)
USZ 20-98	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 3597-86	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 16-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 62-86	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 19a	(0.8)	(0.05)	(17.7)	(13.0)	(0.27)	(4.0)	(10)	(19.8)	(106)	.	(4.78)	.	(19.5)	.	(20)	.	(4.68)
KZ 61-86	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 61e 4	.	.	(10.0)	(50)	.	(5.67)	.	.	(8.37)	.	.	(0.004)	.	.	(10.0)	.	.
OREAS 61e A	.	.	(15.0)	.	.	(5.67)	.	.	(9.14)	.	.	.	.	.	(6.00)	(0.60)	.
OREAS 61e F	(0.33)	.	(8.95)	.	(0.14)	.	(1.80)	(9.75)	.	.	(2.33)	.	(91)	.	.	.	(2.03)
OREAS 17c	(0.82)	(0.05)	(18.1)	(10.3)	(0.26)	(4.3)	(13)	(19.7)	(136)	.	(4.84)	.	(21.5)	.	(20.5)	.	(4.83)
OREAS 23a	.	.	.	.	.	9.6	.	.	40.5	.	.	.	.	.	.	.	.
OREAS 7Ca	.	.	(50)	.	.	.	.	.	.	.	.	.	(168)	.	(14)	.	(10)
UNS AuM	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 16a	(0.86)	(0.05)	(19.3)	(8.0)	(0.25)	(3.2)	(18.8)	(20.6)	(157)	.	(5.19)	.	(26.1)	.	(18.3)	.	(5.2)
OREAS 15d	(0.81)	(0.06)	(16.9)	(8.3)	(0.23)	(2)	(17.8)	(18.2)	(147)	.	(4.29)	.	(21.1)	.	(21)	.	(4.7)
KZ 15-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 66a	(0.4)	(0.48)	(17.6)	(14.8)	(0.21)	(5.5)	(6.8)	(16.0)	(59)	.	(4)	.	(8)	.	(9)	.	(3.35)
USZ 41-2006	.	.	.	.	.	51.8	.	.	25.4	.	.	.	.	.	.	.	2.1
CAN CH-4	.	.	.	.	.	.	.	.	51	.	.	.	.	.	.	.	.
USZ 34-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
US DGPM-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USZ 35-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 17-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS 15f	(0.91)	(0.06)	(17.9)	(8.8)	(0.24)	(4.5)	(20.8)	(21.6)	(157)	.	(4.82)	.	(22.4)	.	(18.5)	.	(5.28)
KZ 6585-93	.	.	.	.	.	.	.	.	77.1	.	.	.	.	.	.	.	.
CAN GTS-2a	.	.	.	.	.	.	.	.	77.1	.	.	.	.	.	.	.	.
OREAS H5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OREAS H5 A	.	.	(27.5)	(2.00)	.	7.22	(0.75)	.	11.9	.	.	.	.	.	(2.50)	(1.86)	.
OREAS H5 N	.	Ir: (<0.005)	(52)	.	(0.69)	(13.7)	.	(32.4)	(28.1)	.	.	.	(58)	.	(9.11)	(12.4)	(5.28)
OREAS 24b	.	.	.	.	.	.	.	.	(59)	<0.001	.	<0.001	.	.	.	.	.
OREAS 24b 4	(0.80)	(0.077)	42.4	52	(0.32)	4.03	14.6	(36.2)	60	.	(9.86)	.	164	(0.002)	15.3	(0.66)	(7.06)
OREAS 24b A	(0.46)	(0.048)	(29.2)	45.6	(0.20)	3.86	(0.31)	(24.6)	57	(<0.01)	(6.87)	(0.001)	114	(<0.001)	9.51	(0.42)	(4.68)
OREAS 24b F	1.17	.	44.0	52	0.49	(4.91)	16.0	38.7	61	.	10.2	.	161	(<0.1)	14.1	.	7.17
OREAS 25a	.	.	.	.	.	.	.	.	(31.2)	<0.001	.	<0.001	.	.	.	.	.
OREAS 25a 4	(0.46)	(0.091)	21.8	36.7	(0.23)	2.55	22.4	(17.0)	45.8	.	(4.71)	.	61	.	13.7	(2.86)	(3.41)
OREAS 25a A	(0.20)	(0.081)	(13.0)	(23.7)	(0.057)	(1.36)	(0.52)	(11.7)	26.9	(<0.01)	(3.35)	(0.004)	(31.4)	(<0.05)	8.64	(0.87)	(2.26)
OREAS 25a F	0.92	.	23.3	(35.1)	0.45	(2.99)	26.5	20.0	(55)	.	5.33	.	60	(<0.1)	13.5	.	3.90
OREAS 24c	(0.90)	(0.056)	(19.7)	8.32	(0.27)	2.49	23.8	(20.7)	138	(<0.005)	(5.28)	(<0.005)	21.9	(<0.002)	21.6	(1.00)	(5.55)
OREAS 22d	(<0.05)	(<0.005)	(1.20)	14.2	(0.013)	2.36	0.88	(1.03)	4.38	(<0.005)	(0.32)	(<0.005)	0.54	(<0.002)	(0.20)	(<1)	(0.22)
Number	Ho	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pd	Pr	Pt	Rb	Re	Sc	Se	Sm

## CRM GOLD AND SILVER ORE - CONTINUED FROM THE PREVIOUS PAGES

analysis listed in mg/kg except % which is mass %													OREAS samples list multiple methods, more information upon request			
Number	Sn	Sr	Ta	Tb	Te	Th	Tl	Tm	U	W	Y	Yb	Zr	Units	Other	
CAN DS-1	.	.	.	.	.	.	20	.	.	.	.	.	.	400 g		
USZ 38-2005	.	88.71	.	.	.	.	.	.	.	0.01%	.	.	.	250 g		
OREAS 12a	(1)	(136)	(0.3)	(0.64)	(0.4)	(4.4)	.	.	(1.85)	(6.5)	(20.2)	(1.88)	(40.5)	60 g		
OREAS 62d	.	(217)	.	(0.2)	(3.5)	(1.5)	.	.	(0.4)	(6.7)	(6.5)	(0.7)	(34)	60 g		
USZ 20-98	.	.	.	.	.	.	.	.	.	.	.	.	.	250 g	last of stock	
KZ 3597-86	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	last of stock	
KZ 16-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g		
KZ 62-86	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g		
OREAS 19a	(1)	(279)	(0.65)	(0.7)	(0.2)	(3.7)	.	.	(1.3)	(3.5)	(19.9)	(1.75)	(99)	60 g		
KZ 61-86	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g		
OREAS 61e 4	.	(245)	.	.	( $<20$ )	( $<10$ )	.	.	( $<10$ )	( $<10$ )	.	.	.	Au/Pd/Pt FA, others 4-acid		
OREAS 61e A	.	(113)	.	.	(2.21)	( $<20$ )	( $<10$ )	.	( $<10$ )	( $<10$ )	.	.	.	60 or 500g, Aqua Regia		
OREAS 61e F	( $<1$ )	(245)	(0.10)	(0.27)	.	(2.31)	(0.85)	(0.14)	(0.61)	(3)	(8.70)	(0.83)	(54)	Borate Fusion, C/S combust		
OREAS 17c	(1)	(333)	(0.85)	(0.76)	.	(3.5)	.	.	(1.05)	(3.8)	(20.5)	(1.8)	(123)	60 g		
OREAS 23a	3.1	.	.	.	.	20.9	.	.	6.2	3.7	.	.	.	10 g or 60 g, <b>GRANITE</b>		
OREAS 7Ca	.	.	.	.	.	(16)	.	.	.	(18)	.	(2.8)	.	chips 500g Br:(5ppm) H <sub>2</sub> O:(3.44+)		
UNS AuM	.	187.7	.	.	.	.	.	.	.	.	14.2	.	.	81		
OREAS 16a	(3)	(369)	(1.1)	(0.8)	.	(3.2)	.	.	(0.9)	(1)	(22.8)	(1.82)	(161)	200 g		
OREAS 15d	(1)	(357)	(1)	(0.75)	(0.3)	(2.9)	.	.	(0.8)	(1.5)	(20.2)	(1.73)	(120)	60 g		
KZ 15-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g		
OREAS 66a	(3.50)	(488)	(0.4)	(0.40)	(9.6)	(4.1)	.	.	(1.4)	(10.5)	(10.3)	(1.3)	(75)	60 g		
USZ 41-2006	.	259	.	.	.	.	.	.	.	.	.	.	78.3	100 or 250 g		
CAN CH-4	.	(209)	.	.	.	.	.	.	.	.	.	.	.	200 g		
USZ 34-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	250 g	H <sub>2</sub> O: 0.10-	
US DCPM-1	.	.	.	.	.	.	.	.	.	(76)	.	.	.	200 g	last of stock	
USZ 35-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	250 g		
KZ 17-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g		
OREAS 15f	(2)	(382)	(1.1)	(0.88)	.	(3.05)	.	.	(0.9)	(0.5)	(23.2)	(1.9)	(166)	60 g		
KZ 6585-93	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g		
CAN GTS-2a	.	92.8	.	.	.	1.244	.	.	.	.	.	.	.	350 g		
OREAS H5	.	.	.	.	.	.	.	.	.	.	.	.	.	60 g	fire assay	
OREAS H5 A ( $<10$ )	.	(6.89)	( $<10$ )	.	(2.37)	(19.1)	(0.71)	.	.	( $<5$ )	(5.00)	.	(47.8)	Aqua regia	V: 0.00350%	
OREAS H5 N ( $<100$ )	.	.	(2.83)	(0.72)	.	(29.0)	.	.	(7.60)	(8.35)	.	(4.33)	(2085)	Neutron activation analysis		
OREAS 24b	.	(134)	.	.	.	.	.	.	.	.	.	.	.	60 g	last of stock Cl:( $<10$ ppm)	
OREAS 24b 4	4.25	124	1.23	(0.87)	.	16.4	0.86	(0.31)	3.06	3.64	19.9	(2.17)	134	" 4 acid digestion, <b>GRANODIORITE</b>		
OREAS 24b A	2.26	(29.0)	.	(0.54)	.	14.3	0.66	(0.17)	1.74	(1.19)	12.3	(1.15)	24.5	" aqua regia		
OREAS 24b F	4.65	125	1.32	0.98	.	16.5	0.91	0.50	3.31	4.13	32.5	3.24	213	" fusion ICP-OES/MS		
OREAS 25a	.	(56)	.	.	.	.	.	.	.	.	.	.	(135)	10 g 60 g or 1 kg	Cl:( $<10$ ppm)	
OREAS 25a 4	4.06	48.5	1.60	(0.41)	(0.10)	15.8	0.35	(0.3)	2.94	2.10	12.3	(1.48)	(159)	" 4 acid digestion, <b>SOIL</b>		
OREAS 25a A	2.70	17.3	(0.099)	(0.24)	.	10.7	0.20	(0.062)	1.49	.	4.56	(0.41)	(19.0)	" aqua regia		
OREAS 25a F	4.83	49.4	1.99	0.66	.	16.4	(0.30)	0.43	3.51	2.89	25.1	2.89	398	" fusion ICP-OES/MS		
OREAS 24c	1.51	442	1.48	(0.90)	( $<0.05$ )	3.08	(0.064)	(0.31)	0.76	0.53	22.3	(1.88)	143	10 g 60 g or 1 kg	Basalt V: 161	
OREAS 22d	0.61	(1.14)	(0.036)	( $<0.05$ )	( $<0.05$ )	0.67	( $<0.02$ )	( $<0.05$ )	0.18	0.21	0.69	( $<0.1$ )	7.02	10 g	V: 2.63 last then 22e	
Number	Sn	Sr	Ta	Tb	Te	Th	Tl	Tm	U	W	Y	Yb	Zr	Units	Other	

## GRANITE WITH EXTENSIVE ANALYSIS

analysis listed in mass %

IAG: RM all others: CRM

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	F	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	TiO <sub>2</sub>	LOI
JG-2	76.83	12.47	.	0.70	(0.0972)	0.57	0.33	0.97	+0.33 -0.12	4.71	0.037	0.016	3.54	0.002	0.044	.
SARM 1	75.70	12.08	(0.10)	0.78	0.42	1.30	(0.6)	2.00	0.49	4.99	(0.06)	.	3.36	.	(0.09)	.
VS 3333-85	74.76	10.64	(0.1)	0.32	0.062	1.61	4.50	.	(0.30)	4.64	0.10	0.120	4.24	0.024	0.26	.
IAG OU-3	74.09	11.10	1.913	0.2	0.1100	3.255	.	3.8341	.	4.55	.	0.090	3.678	.	0.224	1.815
GUV GM	73.42	13.55	0.28	1.07	0.067	1.13	2.01	.	0.35	4.76	0.37	0.043	3.78	0.062	2.12	.
USZ 47-2008	72.37	14.07	.	1.15	.	1.81	2.44	.	.	4.68	0.38	0.06	3.63	0.13	0.30	0.64
USZ 28-99	71.61	16.13	.	0.39	1.25	0.29	.	0.51	-(0.05)	3.52	(0.29)	0.13	5.25	0.028	(0.03)	1.14
SARM 48	67.11	11.24	.	8.90	.	(0.2)	0.58	.	.	4.26	0.18	0.02	3.22	(0.09)	0.10	.
NCS DC73376	66.27	16.33	0.35	2.66	0.0670	(1.6)	.	3.12	(1.0)	2.60	1.63	.	5.3	.	.	1.28

continued analysis listed in mg/kg except % which is mass % and \* which is ng/g

Number	Ag	Al%	As	B	Ba	Be	Bi	Ca%	Cd	Ce	Cl	Co	Cr	Cs	Cs <sub>2</sub> O%	Cu	Dy
JG-2	(0.019)	6.60	(0.68)	(1.78)	81.0	3.26	(0.64)	0.50	(0.004)	48.3	.	3.62	6.37	6.79	.	0.49	10.5
SARM 1	.	.	.	.	(120)	.	.	.	.	195	.	.	12	.	.	12	(17)
VS 3333-85	(0.06)	.	(4)	11	90	5	.	.	.	90	.	1.3	3.1	4.5	.	12	(10)
IAG OU-3	.	.	3.3793	.	28	10.94	.	0.38	196.3	.	.	.	18.61	0.66	.	3.3	18.87
GUV GM	(0.09)	.	4.1	11	340	(4.8)	.	.	65	.	.	3.7	11	8.1	.	13	(5.4)
USZ 47-2008	.	.	2.28	.	350	8.63	1.03	.	.	64.38	.	2.71	182	17.02	.	7.36	4.42
USZ 28-99	.	.	(3)	.	.	.	.	.	.	(25)	.	.	(130)	.	0.012	8	.
SARM 48	.	.	.	.	(290)	.	.	.	.	(850)	.	.	23	.	.	(10)	.
NCS DC73376	0.03	.	(0.25)	15	1140	1.7	0.096	.	(0.06)	48	(120)	7.8	24	2.6	.	(3.1)	1.52

Number	Er	Eu	Fe%	Ga	Gd	Ge	Hf	Hg	Ho	In	K%	La	Li	Li <sub>2</sub> O%	Lu	Mg%	Mn%
JG-2	6.04	0.10	0.68	18.6	8.01	(1.70)	4.73	(0.0033)	1.67	.	3.91	19.9	42.2	.	1.22	0.02	0.012
SARM 1	.	0.35	.	27	(14)	.	.	.	.	.	.	109	(12)	.	(2)	.	0.0160
VS 3333-85	(6)	0.4	.	27	.	2.2	12	.	.	.	.	45	52	.	0.9	.	.
IAG OU-3	11.44	1.152	.	32.1	18.073	1.5	22.631	.	4.011	.	.	94.64	1.41	.	1.628	.	.
GUV GM	(2.2)	0.60	.	15	(5.2)	(1.6)	5.1	(0.0033)	(1.0)	.	.	41	50	.	0.40	.	.
USZ 47-2008	2.37	0.58	.	22.80	4.95	1.50	4.75	.	0.85	.	.	29.59	124	.	0.35	.	.
USZ 28-99	.	.	.	.	.	.	.	.	.	.	.	.	.	0.37	.	.	.
SARM 48	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NCS DC73376	0.76	1.0	.	18.2	2.4	0.93	3.3	0.0035	0.27	(0.03)	.	25	24.7	.	0.11	.	0.0430

Number	Mo	Na%	Nb	Nd	Ni	P%	Pb	Pr	Rb	Rb <sub>2</sub> O%	S	Sb	Sc	Se	Si%	Sm	Sn	Sr
JG-2	0.37	2.63	14.7	26.4	(4.35)	0.001	31.5	6.20	301	.	(7.0)	(0.057)	2.42	.	35.91	7.78	3.00	17.9
SARM 1	.	.	53	72	(8)	.	40	.	325	.	.	.	.	.	.	15.8	.	10
VS 3333-85	1.7	.	17	50	6	.	10	.	140	.	(160)	(0.5)	4.6	.	.	10	5	8
IAG OU-3	1.975	.	80.2	87	.	.	36	22.7	171	.	.	0.3	.	.	.	18.71	11.45	11.2
GUV GM	1.1	.	18	30	6.8	.	30	(7.2)	260	.	.	(0.51)	4.8	.	.	4.9	4.4	133
USZ 47-2008	3.06	.	15.22	27.10	5.76	.	24.81	7.27	275	.	.	0.19	4.36	.	.	5.54	13.30	111
USZ 28-99	.	.	71	.	10	.	64	.	0.24	.	.	.	(7)	.	.	.	.	.
SARM 48	(5)	.	202	.	.	.	135	.	.	.	.	.	.	.	.	.	.	29
NCS DC73376	(0.27)	.	4.5	21	13	0.0570	7.6	5.8	57	.	(50)	0.063	5.0	0.019	.	3.3	0.8	690

Number	Ta	Tb	Te	Th	Ti%	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Units
JG-2	2.76	1.62	.	1.62	0.026	1.55	1.16	11.3	3.78	23.0	86.5	6.85	13.6	97.6	20 g
SARM 1	.	3.0	.	51	0.0540	.	(2)	(15)	(2)	.	143	14.2	50	300	100 g
VS 3333-85	1.1	0.4	.	80	.	.	.	1.8	6	(1.1)	60	7	140	470	100 g
IAG OU-3	5.748	3.081	.	22.845	.	0.735	1.731	5.5396	.	.	113.1	11.3	149.22	942	~35 g
GUV GM	1.7	0.7	.	36	.	.	.	6.4	11	1.6	26	3.1	34	149	50 g
USZ 47-2008	2.56	0.79	.	19.35	.	1.72	0.37	5.44	14.03	0.56	25.19	2.36	54.59	169	100 g
USZ 28-99	54	.	.	.	.	.	.	.	.	.	.	.	0.086%	46	100 g
SARM 48	.	.	.	113	.	.	.	.	(8)	.	436	.	53	300	100 g
NCS DC73376	(0.34)	0.29	.	1.9	0.1800	(0.20)	0.11	(0.4)	45	0.38	7.3	0.69	47	(100)	70 g

## CRM GRANODIORITE WITH EXTENSIVE ANALYSIS

analysis listed in mass %

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Al	CO <sub>2</sub>	CaO	Fe	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Si	TiO <sub>2</sub>	
JG-1a	72.30	14.30	7.57	.	2.13	1.40	1.36	0.51	2.00	+0.59	-0.12	3.96	0.69	0.057	3.39	0.083	33.80	0.25
JG-1	72.30	14.24	7.54	.	2.20	1.52	1.61	0.38	2.18	+0.54	-0.07	3.98	0.74	0.063	3.38	0.099	33.80	0.26
JG-3	67.29	15.48	8.19	.	3.69	2.58	1.83	1.62	3.69	+0.67	-0.17	2.64	1.79	0.071	3.96	0.122	31.45	0.48
US GSP-2	66.6	14.9	7.88	.	2.10	3.43	.	.	4.90	.	.	5.38	0.96	.	2.78	0.29	31.1	0.66
VS 2125-81	64.08	15.35	.	0.14	3.93	.	2.87	5.23	.	.	.	3.98	1.87	0.160	3.25	0.228	.	0.517
GBW 07111	59.68	16.56	.	0.15	4.72	.	3.08	2.64	.	0.88	.	3.50	2.81	0.094	4.05	0.34	.	0.77

continued analysis listed in mg/kg except % which is mass % and \* which is ppb

Number	Ag	As	Au*	B	Ba%	Be	Bi	Br	C%	Ca%	Cd	Ce	Cl%	Co	Cr	Cs	Cu
JG-1a	(0.023)	(0.43)	0.21	3.95	0.0470	3.16	(0.43)	.	(0.0295)	1.52	(0.026)	45.0	(0.0065)	5.90	17.6	10.6	1.67
JG-1	0.034	0.33	0.11	6.87	0.0466	3.15	0.50	(0.068)	(0.0216)	1.57	0.040	45.8	0.00581	4.06	53.2	10.1	2.52
JG-3	(0.029)	(0.37)	0.17	(2.15)	0.0466	(1.60)	.	.	(0.0120)	2.64	(0.054)	40.3	(0.0156)	11.7	22.4	1.78	6.81
US GSP-2	.	.	.	.	0.1340	(1.5)	.	.	.	1.50	.	410	.	7.3	20	(1.2)	43
VS 2125-81	.	.	.	27	0.14	3.7	.	.	.	.	.	.	.	13	37	.	57
GBW 07111	0.066	0.4	.	3.92	0.1900	2.11	0.05	(0.34)	(0.057 Org)	.	0.08	112	0.023	15.6	37.6	0.97	8.8

Number	Dy	Er	Eu	F%	Ga	Gd	Ge	Hf	Hg*	Ho	I*	In	Ir*	K%	La	Li	Lu
JG-1a	4.44	2.57	0.70	0.0439	16.5	4.08	(1.5)	3.59	(4.1)	0.82	.	(0.025)	.	3.29	21.3	79.5	0.44
JG-1	4.14	2.16	0.73	0.0498	17.8	4.28	1.44	3.56	16.5	0.81	(0.012)	(0.044)	.	3.30	22.4	86.6	0.39
JG-3	2.59	1.52	0.90	(0.0317)	17.1	2.92	(1.06)	4.29	(2.4)	0.38	.	.	(0.0016)	2.19	20.6	20.9	0.26
US GSP-2	(6.1)	(2.2)	2.3	(0.3000)	22	(12)	.	(14)	.	(1.0)	.	.	.	4.48	180	(36)	(0.23)
VS 2125-81	.	.	.	.	22	.	1.8	.	.	.	.	.	.	.	20	.	.
GBW 07111	3.20	1.57	1.91	0.084	20.8	5.09	1.00	5.2	35	0.60	(78)	0.08	.	.	60.5	16.2	0.24

Number	Mg%	Mn%	Mo	Na%	Nb	Nd	Ni	P%	Pb%	Pd*	Pr	Rb%	S%	Sb	Sc	Se	Sm
JG-1a	0.42	0.044	0.45	2.51	11.4	20.4	6.91	0.036	0.00264	(<0.2)	5.63	0.0178	(0.0011)	(0.048)	6.21	.	4.53
JG-1	0.45	0.049	1.75	2.51	12.4	19.3	7.47	0.043	0.00254	(<0.2)	4.83	0.0182	0.00109	0.13	6.53	0.0030	4.62
JG-3	1.08	0.055	0.45	2.94	5.88	17.2	14.3	0.053	0.00117	(<0.2)	4.70	0.00673	(0.0055)	(0.08)	8.76	.	3.39
US GSP-2	0.58	0.0320	(2.1)	2.06	27	200	17	0.13	0.0042	.	(51)	0.0245	.	.	6.3	.	27
VS 2125-81	.	.	3.22	.	8.8	.	15	.	0.016	.	.	0.016	0.019	.	13	.	.
GBW 07111	.	.	0.47	.	10.6	48.1	24.4	.	0.00198	.	13.2	0.00701	0.011	0.06	10.3	0.03	7.74

Number	Sn	Sr%	Ta	Tb	Te	Th	Ti%	Tl	Tm	U	V	W	Y	Yb	Zn%	Zr%	Units
JG-1a	4.47	0.0187	1.90	0.81	.	12.8	0.15	0.98	0.38	4.69	22.7	12.4	32.1	2.70	0.00365	0.0118	20 g
JG-1	3.60	0.0184	1.79	0.78	.	13.2	0.16	1.03	0.41	3.47	25.2	(1.58)	30.6	2.47	0.00411	0.0111	20 g
JG-3	1.40	0.0379	0.70	0.46	.	8.28	0.29	(0.40)	0.24	2.21	70.1	(14.1)	17.3	1.77	0.00465	0.0144	100 g
US GSP-2	.	0.0240	.	.	.	105	0.40	(1.1)	(0.29)	2.40	52	.	28	1.6	0.0120	0.0550	50 g
VS 2125-81	8.0	0.048	.	.	.	.	.	.	.	90	.	.	.	.	0.012	0.021	40 g
GBW 07111	1.44	0.1198	0.62	0.68	0.011	10.9	.	0.39	0.26	1.40	104	0.19	15.5	1.56	0.00854	0.0224	50 g

## GRAPHITE

analysis listed in mass % Graph = Graphitic, T = Total CDN: RM, all others: CRM CDN: 10 g GGC: 10 g NCS: 50 g USZ: 100 g

Number	Al <sub>2</sub> O <sub>3</sub>	C.Graph	T.C	CO <sub>2</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	Ni	P <sub>2</sub> O <sub>5</sub>	Rb	S	SiO <sub>2</sub>	TiO <sub>2</sub>	Zn	Zr	LOI
NCS DC60121	5.60	76.50	.	0.28	0.74	1.48T	1.98	0.99	0.50	0.022	0.23	.	0.16	.	0.14	10.34	0.55	Volatile:2.72		Ash:20.78
GGC-01	.	24.97	26.68	.	.	.	.	.	.	.	.	.	.	.	0.04	.	.	.	.	.
USZ 32-2000	9.33	(12.0)	14.43	4.10	7.05	3.48	.	2.54	1.94	0.03	0.47	0.007	.	0.014	.	52.20	0.57	0.018	0.012	22.21
USZ 33-2000	8.46	(11.34)	13.38	2.45	.	3.61	.	2.09	.	0.07	0.51	.	.	.	.	52.84	0.49	.	.	17.0
NCS DC60120	13.03	9.91	.	0.67	5.34	6.99T	2.80	2.17	5.35	0.054	1.56	.	0.14	.	2.59	49.34	0.64	.	.	.
GGC-14	.	9.23	9.24	.	.	.	.	.	.	.	.	.	.	.	.	1.33	.	.	.	.
GGC-13	.	7.99	8.02	.	.	.	.	.	.	.	.	.	.	.	.	2.73	.	.	.	.
GGC-12	.	5.27	5.30	.	.	.	.	.	.	.	.	.	.	.	.	1.45	.	.	.	.
GGC-11	.	4.98	5.06	.	.	.	.	.	.	.	.	.	.	.	.	3.73	.	.	.	.
GGC-10	.	4.79	5.22	.	.	.	.	.	.	.	.	.	.	.	.	4.40	.	.	.	last
CDN GR-1	(8.6)	3.12	.	.	(6.3)	(4.2)	.	(3.0)	(2.4)	(<0.1)	(0.3)	.	.	.	(1.0)	(65.3)	(0.4)	.	.	(6.8)
NCS DC60119	12.93	2.91	.	3.60	9.37	6.73T	2.60	2.54	6.10	0.084	1.60	.	0.13	.	1.18	49.84	0.57	.	.	.
GGC-09	.	2.41	2.95	.	.	.	.	.	.	.	.	.	.	.	.	4.59	.	.	.	last
CDN GR-3	(9.3)	2.39	.	.	(6.2)	(4.3)	.	(3.1)	(2.5)	(<0.1)	(0.4)	.	.	.	(1.0)	(66.2)	(0.4)	.	.	(4.9)
CDN GR-2	(7.9)	1.93	.	.	(11.6)	(3.3)	.	(2.9)	(1.9)	(<0.1)	(0.2)	.	.	.	(1.0)	(57.5)	(0.3)	.	.	(10.9)
CDN GR-4	(12.9)	1.01	.	.	(6.6)	(6.3)	.	(2.3)	(2.4)	(0.2)	(1.8)	.	.	.	(1.0)	(61.8)	(0.5)	.	.	(2.7)
GGC-08	.	0.39	1.03	.	.	.	.	.	.	.	.	.	.	.	1.57	.	.	.	.	.
GGC-07	.	0.13	0.56	.	.	.	.	.	.	.	.	.	.	.	0.51	.	.	.	.	.

CRM	GRAPHITE ORE												analysis listed in mass %		50 g units	
Number	Al <sub>2</sub> O <sub>3</sub>	Ash	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	TiO <sub>2</sub>	Volatile			
NCS DC28120	10.93	95.62	11.81	5.34	2.39	8.79	0.048	1.50	0.083	1.06	52.73	0.39	2.22			
NCS DC28121	10.72	90.65	11.12	5.00	2.32	8.43	0.047	1.38	0.083	0.99	50.28	0.36	2.48			
NCS DC28119	8.13	29.00	0.23	2.09	1.33	0.55	0.032	0.28	0.087	0.02	15.66	0.44	2.88			
NCS DC28118	1.92	11.45	0.91	1.98	0.19	1.00	0.021	0.088	0.007	0.49	5.00	0.085	1.87			
NCS DC28117	0.63	3.47	0.19	0.46	0.17	0.18	0.005	0.009	0.004	0.17	1.76	0.014	1.33			

**CRM GRAPHITE - SYNTHETIC**

available as a set or individually																analysis listed in mg/kg												50 g units	
Number	Al	As	Ca	Cl	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	NO <sub>3</sub>	Na	Ni	Pb													
CIBA KD-2	35	(0.05)	98	(4.1)	(0.10)	1.3	1.0	180	(41)	(21)	23	(0.22)	(0.5)	(20)	3.9	(1.6)													
CIBA LD-4	33	(0.06)	126	(3.3)	(0.11)	3.4	1.3	149	(25)	(7.5)	3.5	(0.62)	(0.5)	(13)	5.5	(1.1)													
CIBA KD-3	15	(0.04)	62	(4.4)	(0.07)	0.69	0.81	111	(39)	(22)	13	(0.44)	(0.5)	(17)	4.2	(0.90)													
CIBA KD-6	8.4	(0.04)	79	(3.3)	(0.03)	0.44	0.62	37	(17)	.	4.3	(0.39)	(0.5)	(7)	2.0	(1.2)													
CIBA PD-7	5.5	(0.03)	22	(6.4)	(0.03)	2.2	0.51	59	(17)	.	1.1	(0.25)	(0.5)	(2)	1.1	(1.0)													

continued

Number	S	SO <sub>4</sub>	Sb	Si	Sn	Sr	Ta	Ti	V	W	Zn	Zr
CIBA KD-2	(44)	(88)	(0.05)	(145)	(<0.2)	(2.8)	(0.005)	(46)	(3.6)	(<0.08)	(4.4)	(3.7)
CIBA LD-4	(68)	(98)	(0.03)	(404)	.	(2.7)	(0.011)	(49)	(4.3)	(<0.06)	(2.9)	(8.6)
CIBA KD-3	(43)	(85)	(0.02)	(147)	.	(1.9)	(0.006)	(38)	(3.8)	(<0.08)	(1.2)	(4.5)
CIBA KD-6	(44)	(73)	(0.03)	(66)	.	(1.9)	(0.006)	(51)	(4.9)	(0.03)	(1.7)	(6.0)
CIBA PD-7	(23)	(25)	(0.02)	(50)	.	(1.3)	(0.005)	(29)	(2.0)	(0.03)	(0.9)	(4.5)

**CRM GREISEN**

analysis listed in mass%												T = Total		CGL: 17025, 100 g units				GUW: 50 g units	
Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	F	Fe <sub>2</sub> O <sub>3</sub>	FeO	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	Li	P <sub>2</sub> O <sub>5</sub>	Rb	Sn	TiO <sub>2</sub>	Zn	Zr	LOI	
<b>CGL 022</b>	80.93	10.26	0.836	(1.48)	3.25T	.	(1.47)	0.044	0.102	(0.038)	.	0.018	(0.0463)	0.1884	0.086	0.0273	0.0148	1.46	
GUW GNA	71.47	14.7	0.62	3.32	5.92	3.81	2.63	0.168	0.034	0.08	0.49	.	0.202	0.19	0.022	0.0078	0.0070	.	

continued

analysis listed in mg/kg															
Number	As	Ba	Bi	Cr	Cs	Cu	Dy	Ga	Mo	Nb	Sr	Ta	Th	U	
<b>CGL 022</b>	63.6	(25.6)	(29.6)	271	(29.7)	563	(14.1)	26.1	.	28.4	16.6	(4.01)	32.9	(6.12)	
GUW GNA	7	51	220	.	45	.	3	.	100	.	.	29	.	22	

also 19 more informational elements

**CRM GYPSUM ROCK**

analysis listed in mass %														100 g units	
Number	SO <sub>3</sub>	CaO	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub> *	H <sub>2</sub> O	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	SrO	L.O.I.**		
DOMTAR GYP A	46.2	32.9	0.10	0.47	0.05	19.4	0.021	0.18	0.009	0.011	0.45	0.11	20.06		

\* Total iron calculated as Fe<sub>2</sub>O<sub>3</sub>

\*\* Loss on ignition at 1000°C

continued

analysis listed in mg/kg													
Number	As	Ba	Br	Cd	Ce	Cl	Co	Cr	Cs	Eu	Hf	La	
DOMTAR GYP A	0.19	(28)	(0.5)	0.51	(0.7)	12	(0.2)	(2)	(0.15)	0.06	0.26	0.24	

continued

Number	Lu	Mn	Rb	Sb	Sc	Sm	Th	Ti	U	Yb	Zn	Zr
DOMTAR GYP A	(0.006)	19	(0.8)	0.04	0.09	0.041	(0.1)	(78)	0.1	0.02	7	(9)

**CRM GYPSUM ROCK**

analysis listed in mass %

Number	SO <sub>3</sub>	CaO	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	Cl-	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	LOI	Units
GBW 03109a	51.91	39.24	0.34	(4.02)	0.033	0.16	0.39	0.094	1.74	0.065	1.68	(0.27)	0.016	4.55	50 g
GBW 03111a	40.72	32.30	0.14	(5.44)	0.0032	0.11	17.95	0.026	2.47	0.014	0.63	(0.096)	0.010	23.60	50 g
NCS DC62106d *	43.91	32.21	0.25	.	.	0.20	.	0.08	0.72	0.11	0.99	.	0.01	21.52	20 g
GBW 03111	37.64	30.28	1.14	(5.80)	0.013	0.38	16.62	0.23	3.19	0.014	4.16	(0.077)	0.058	(22.88)	50 g

\* NCS DC62106d also contains 0.17% adhered water and 19.78% crystallized water.

**RM GYPSUM BYPRODUCT**

analysis listed in mass % based on a dry (40°C) sample

100 g units

Number	SO <sub>3</sub>	CaO	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	Cr <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	V <sub>2</sub> O <sub>5</sub>	%Total	LOI*
DOMTAR FGD-1	46.4	32.7	0.023	0.02	0.0002	0.014	20.70	0.007	0.007	0.005	0.03	0.13	0.012	.	0.0003	100.05	21.04
DOMTAR FGD-2	45.6	32.8	0.033	0.62	0.0015	0.043	20.38	0.01	0.019	0.02	0.05	0.21	0.024	.	0.0009	98.81	21.33
DOMTAR TIG-1	43.4	32.3	0.57	1.41	0.036	0.26	20.3	0.008	0.12	0.036	0.04	0.11	0.42	0.82	0.10	99.93	22.03

H<sub>2</sub>O+ combined water at 250°C \* Loss on ignition at 1000°C (1 hr)

continued analysis listed in mg/kg

Number	As	Ce	Cl	Co	Cr	Dy	Eu	F	Hf	La	Mn	Sb
DOMTAR FGD-1	0.10	0.5 (100)	0.02	1.2	.	0.02	95	.	0.35	2.0	0.03	
DOMTAR FGD-2	0.48	1.7 (115)	0.07	10.2	0.48	0.09	320	0.06	2.18	2.5	0.024	
DOMTAR TIG-1	0.22	6	400	0.26	246	0.42	0.08	230	3.0	2.7	36	0.05

Number	Sc	Se	Sm	Ta	Tb	Th	Ti	U	V	Yb	Zn	Zr
DOMTAR FGD-1	0.023	0.8	0.07	.	.	0.03	75	.	1.5	.	1.7	.
DOMTAR FGD-2	0.166	3.0	0.52	.	0.07	0.38	75	1.10	5.1	0.27	2.3 (10)	
DOMTAR TIG-1	17.1	.	0.65	3.1 (2)	2.14	6154	2.5	560	0.31 (32)	(80)		

**CRM HORNBLENDITE WITH EXTENSIVE ANALYSIS**

analysis listed in mass %

Number	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	FeO	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	Mn	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>	LOI
VS 2113-81	14.24	.	11.04	9.72	18.26	.	0.382	12.70	.	0.144	2.14	.	.	37.95	.	1.91	.
NCS DC73377	13.76	(0.16)	9.6	10.8	14.8	(1.7)	0.48	7.2	0.1600	.	2.07	.	(0.0060)	49.62	0.5510	.	1.06
JH-1	5.66	.	15.02	(8.09)	10.27	.	0.53	16.73	.	0.19	0.71	0.099	.	48.18	.	0.67	.

continued analysis listed in mg/kg except \* which is ng/g

Number	Ag	As	B	Ba	Be	Bi	Cd	Ce	Cl	Co	Cr	Cs	Cu%	Dy	Er	Eu	F	Ga	Gd
VS 2113-81	.	.	.	99	.	.	.	74	15	.	15	.	0.074	.	.	.	.	25	.
NCS DC73377	(0.05)	26	12	62	0.34	(0.06)	(0.14)	7.7	(116)	52	137	1.8	0.0084	3.5	2.3	0.91	200	17.2	2.8
JH-1	.	.	.	106	.	.	.	17.6	.	51.5	616	0.87	0.00086	2.5	1.2	0.86	.	7.9	.

Number	Ge	Hf	Hg*	Ho	In	La	Li	Lu	Mo	Nb	Nd	Ni	P	Pb	Pr	Rb	Sb	Sc
VS 2113-81	.	.	.	.	.	.	.	.	1.3	.	.	.	57	.	4.9	.	.	58
NCS DC73377	1.46	1.5	3.3	0.85	(0.06)	2.9	11.2	0.39	0.15	2.7	6.5	117	360	(8)	1.25	29	0.63	43
JH-1	.	1.4	.	0.53	.	7.9	.	0.17	0.77	4.2	11.6	58.2	.	2.6	.	14.4	.	77.6

Number	Se	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Units
VS 2113-81	.	.	2.9	.	.	.	.	.	.	.	39	.	.	1.5	1370	21	40 g
NCS DC73377	0.083	2.1	(0.8)	142	(0.18)	0.57	(0.4)	(0.11)	0.37	(0.14)	296	0.34	20	2.4	100	(57)	70 g
JH-1	.	3.1	.	153	0.23	0.52	1.4	.	.	0.58	228	.	13.7	1.2	61.8	48.3	100 g

**AMPHIBOLITE**

## IRON PELLETS (supplied in homogeneous powder form)

# = class, where 1 = CRM and 2 = RM analysis listed in mass % except \* which is mg/kg

#	Number	Fe	Fe(met)	FeO	Al	Al <sub>2</sub> O <sub>3</sub>	Ca	CaO	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	P	S	Si	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>
1	VS R10/4	90.9	87.3	.	.	0.29	.	1.65	.	0.30	.	.	.	0.094	0.0104	0.0062	.	4.11	.	.
1	SRM 691	90.5	.	.	.	1.21	.	0.64	.	0.51	.	0.042	.	0.177	0.005	(0.009)	.	3.6	.	0.27
1	NCS DC28240a	66.18	.	0.78	.	0.43	.	0.51	.	0.79	.	0.040	.	.	0.010	0.0066	.	3.81	.	0.048
1	VS R29	64.95	.	0.48	.	0.38	.	0.45	.	0.149	.	.	.	.	0.0123	0.0118	.	6.13	.	.
1	NCS DC28239b	63.78	.	0.77	.	0.98	.	0.85	.	1.59	.	0.065	.	.	0.016	0.0086	.	5.29	.	0.18
1	NCS DC28020a	63.07	.	(0.04)	.	1.47	.	1.34	.	0.96	.	0.303	.	0.103	0.028	0.0084	.	5.22	.	0.258
1	VS R28	63.01	.	1.16	.	0.37	.	4.09	.	0.194	.	.	.	.	0.0121	0.087	.	5.11	.	.
1	NCS DC28020b	61.81	.	(0.18)	.	1.48	.	1.30	.	1.00	.	0.310	.	0.099	0.032	0.0055	.	6.88	.	0.251
1	NCS DC11025	61.37	.	(1.92)	.	1.35	.	1.04	.	0.80	.	0.120	.	0.105	0.093	0.021	.	6.59	.	1.61
1	NCS DC28020c	60.46	.	0.33	.	0.76	.	0.75	.	5.15	.	0.130	.	0.036	0.013	0.029	.	6.12	.	0.154
1	VS R3/2	58.72	.	2.53	.	2.50	.	4.47	.	2.48	.	0.232	.	.	0.0027	0.005	.	3.74	.	2.49
1	VS R23/1	58.7	.	.	.	.	.	4.45	.	.	.	.	.	.	.	.	.	3.75	.	.
1	NCS DC28021a	57.88	.	6.53	.	2.54	.	3.15	.	3.11	.	0.126	.	0.105	0.016	0.115	.	7.92	.	0.207

Number	As*	C	Cd*	Co	Cr	Cu	K	K <sub>2</sub> O	Mo*	N*	Ni	Pb*	Sn	V	V <sub>2</sub> O <sub>5</sub>	Zn	Units
VS R10/4	.	1.72	.	.	.	0.0019	.	0.055	.	.	.	1.8	.	.	.	0.0018	100 g
SRM 691	(14)	(0.12T)	(<5)	0.031	0.025	0.030	0.065	.	(<20)	(50)	(0.269)	(<20)	(<0.001)	0.015	.	(0.004)	100 g
NCS DC28240a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g
VS R29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g
NCS DC28239b	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g
NCS DC28020a	.	.	.	.	.	0.0089	.	0.078	.	.	.	.	.	.	.	0.012	50 g
VS R28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g
NCS DC28020b	.	.	.	.	.	0.0089	.	0.066	.	.	.	.	.	0.155	.	0.012	50 g
NCS DC11025	.	.	.	.	.	.	.	0.111	.	.	.	.	.	.	.	0.012	70 g
NCS DC28020c	.	.	.	.	.	0.010	.	0.081	.	.	.	.	.	.	.	0.012	50 g
VS R3/2	.	.	.	0.020	.	.	.	.	.	.	.	.	.	.	0.56	.	100 g
VS R23/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	150 g
NCS DC28021a	12	.	.	.	.	0.018	.	0.265	.	.	.	47	.	.	.	0.039	50 g

## CRM IRON SULPHIDE CONCENTRATE

analysis listed in mass %

25 g units

Number	Al	Ca	Co	Cr	Cu	Fe	K	Mg	Mn	Na	Ni	P	Pb	S	SiO <sub>2</sub>	Ti	Zn
CAN TPO-1	(3.51)	(2.17)	0.021	(0.03)	0.118	34.85	(0.56)	(1.66)	(0.08)	(0.85)	0.617	(0.03)	(0.02)	18.03	25.52	(0.35)	(0.02)









CRM IRON ORE, chart 4 of 9 # = class, where 1 = CRM and 2 = RM analysis listed in mass % except \* which is mg/kg

Table with 21 columns: Number, Fe, FeO, Al, Al2O3, Ca, CaO, K, K2O, Mg, MgO, Mn, MnO, Na, Na2O, P, P2O5, S, Si, SiO2, Ti, TiO2. It lists chemical compositions for various samples including GIOP-56, NCS DC15005, ASCRM 035, etc.

Table with 17 columns: Number, As, Ba, C, CO2, Cl, Co, Cr, Cr2O2, Cu, Ni, Pb, V, V2O5, Zn, Zr, LOI, Units, Other. It lists trace elements and units for the same set of samples as the first table, such as GIOP-56, NCS DC15005, etc.

CRM

IRON ORE, chart 5 of 9

# = class, where 1 = CRM and 2 = RM

analysis listed in mass % except \* which is mg/kg

Table with 21 columns: #, Number, Fe, FeO, Al, Al2O3, Ca, CaO, K, K2O, Mg, MgO, Mn, MnO, Na, Na2O, P, S, Si, SiO2, Ti, TiO2. Contains multiple rows of chemical analysis data for various CRM samples.

Table with 21 columns: #, Number, Fe, FeO, Al, Al2O3, Ca, CaO, K, K2O, Mg, MgO, Mn, MnO, Na, Na2O, P, S, Si, SiO2, Ti, TiO2. Continuation of chemical analysis data for CRM samples, including trace elements.

Table with 21 columns: Number, As, Ba, C, Cl, Co, Cr, Cr2O3, Cu, Ni, Pb, V, V2O5, Zn, Zr, LOI, Units, Other. Summary table for trace elements and units.

CRM	IRON ORE, chart 6 of 9										# = class, where 1 = CRM and 2 = RM										analysis listed in mass % except * which is mg/kg									
#	Number	Fe	FeO	Al	Al <sub>2</sub> O <sub>3</sub>	Ca	CaO	K	K <sub>2</sub> O	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	P	S	Si	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>									
1	VS R36	57.47	0.73	.	0.71	.	0.037	.	0.015	.	0.39	.	0.024	.	0.076	0.0138	.	0.0064	.	16.28	.	0.031								
1	NCS DC28081	57.41	1.89	.	5.11	.	0.34	.	0.150	.	0.142	.	0.228	.	0.045	0.054	0.018	.	7.31	.	0.230									
1	GIOP-86	57.26	.	.	2.657	.	0.1514	.	0.0107	.	0.1758	0.085	.	0.0184	.	0.03934	0.0139	.	5.752	.	0.1434									
1	GIOP-75	57.23	.	.	2.649	.	0.1564	.	0.01048	.	0.1778	0.0875	.	0.0182	.	0.0394	0.014	.	5.761	.	0.143									
1	GIOP-68	57.18	.	.	4.126	.	0.0414	.	0.0173	.	0.063	0.1027	.	0.0163	.	0.0555	0.0293	.	5.51	.	0.2228									
1	GIOP-61	57.14	.	.	2.523	.	0.1735	.	0.0194	.	0.068	0.228	.	0.0199	.	0.0426	0.0388	.	5.946	.	0.115									
1	JSS 821-1	57.05	.	1.24	.	0.159	.	0.0055	.	0.113	.	0.085	.	0.0095	.	0.0415	0.0108	2.28	.	0.0718	.									
1	ECRM 689-1	57.05	.	1.185	.	1.183	.	0.462	.	0.980	.	0.1196	.	0.638	.	0.0706	.	(5.4)	.	0.3264	.									
1	ASCRM 030	56.76	.	1.42	.	0.245	.	0.009	.	0.108	.	0.079	.	0.0170	.	0.038	0.021	2.71	.	0.089	.									
1	JSS 831-2	56.64	1.97	FeII:	21.82	1.05	.	0.061	.	2.09	.	0.501	.	0.082	.	0.153	0.0049	1.93	.	4.51	.									
1	NCS DC73005	56.60	20.50	.	0.99	.	1.36	.	0.071	.	3.62	0.076	.	.	0.058	0.017	2.44	.	11.48	0.043	.									
1	GIOP-142	56.58	.	.	3.032	.	0.2678	.	0.0109	.	0.218	0.0892	.	0.0126	.	0.0412	0.01404	.	6.704	.	0.1782									
1	NCS DC28212	56.29	26.9	.	2.53	.	8.04	.	.	.	1.96	.	0.289	.	.	0.032	0.197	.	8.86	.	0.208									
1	GIOP-137	56.285	.	.	6.029	.	0.966	.	0.0691	.	0.5292	0.04	.	0.2205	.	0.0579	0.0209	.	7.946	.	0.3815									
1	NCS DC28112	56.23	24.15	.	1.39	.	2.73	.	0.133	.	4.89	0.132	.	.	0.070	0.023	0.369	.	7.81	0.620	1.03									
1	JSS 820-5	56.17	.	1.63	.	0.112	.	0.0172	.	0.073	.	0.067	.	0.0132	.	0.031	0.0182	2.81	.	0.092	.									
1	NCS DC11018	56.02	7.78	.	2.20	.	9.89	.	0.038	.	2.87	.	0.355	.	0.057	0.058	0.023	.	4.50	.	0.108									
1	IMZ 313	55.85	0.68	.	1.13	.	0.079	.	0.030	.	0.31	0.03	.	.	0.23	0.031	0.0085	.	17.29	.	0.044									
1	NCS DC15002a	55.81	1.86	.	1.93	.	1.10	.	0.433	.	0.36	.	0.026	.	0.33	0.011	0.469	.	13.00	.	0.083									
1	VS R5/6	55.8	9.81	.	2.57	.	9.30	.	.	.	1.95	.	0.86	.	.	0.029	0.035	.	5.71	.	0.29									
1	NCS DC19016	55.23	1.01	.	3.07	.	1.08	.	0.123	.	1.88	.	0.199	.	0.173	0.037	0.0087	.	6.43	.	7.69									
1	GIOP-136	55.22	.	.	6.493	.	1.055	.	0.0757	.	0.5767	0.0402	.	0.241	.	0.0578	0.0241	.	8.632	.	0.4166									
1	OREAS 404	55.14	.	.	2.97	.	0.102	.	(0.008)	.	(0.074)	.	(0.007)	.	(0.014)	0.151	0.032	.	7.88	.	0.385									
1	IMZ 343	55.09	6.37	.	0.74	.	10.93	.	0.037	.	1.21	0.0200	.	.	(0.040)	0.030	0.021	.	9.31	.	0.032									
1	NCS DC28225	54.96	10.7	.	2.93	.	11.49	.	.	.	0.98	.	0.171	.	.	0.050	0.032	.	5.89	.	0.152									
1	NCS DC18018	54.90	7.87	.	2.34	.	10.36	.	.	.	2.41	.	0.29	.	.	0.064	0.036	.	5.81	.	0.50									
1	NCS DC11004a	54.86	1.17	.	2.85	.	0.630	.	0.26	.	0.524	.	1.04	.	0.047	0.119	0.258	.	8.27	.	0.120									
1	VS 5405-90	54.83	.	.	2.04	.	.	.	0.33	.	0.29	0.62	.	.	.	0.034	0.018	.	16.23	.	0.092									
1	NCS DC11006a	54.74	3.90	.	1.48	.	1.02	.	0.214	.	0.657	.	1.31	.	0.048	0.036	0.439	.	8.53	.	0.154									
1	NCS DC18019	54.03	7.98	.	2.57	.	10.50	.	.	.	2.71	.	0.70	.	.	0.073	0.027	.	6.11	.	0.24									
1	NM 161.5	53.85	.	.	7.53	.	.	.	.	.	.	.	.	.	.	0.071	0.008	.	7.13	.	0.29									
1	IRSID 603-1	53.65	.	4.20	.	(0.91)	.	.	.	(0.2)	.	0.440	.	.	.	0.084	0.097	1.28	.	0.137	.									
1	NCS DC28034	53.42	15.27	.	0.57	.	0.31	.	0.086	.	11.21	0.065	.	.	0.25	0.018	0.192	.	5.22	0.044	.									

Number	As	Ba	C	Cl	Co	Cr	Cr <sub>2</sub> O <sub>3</sub>	Cu	Ni	Pb	V	V <sub>2</sub> O <sub>5</sub>	Zn	Zr	LOI	Units	Other	
VS R36	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Insoluble Residue: 16.5	100 g	.
NCS DC28081	0.0014	.	.	.	.	0.032	.	0.0038	.	.	.	.	0.0027	.	.	50 g	.	
GIOP-86	.	.	.	.	.	.	.	.	.	.	.	0.00336	0.0094	.	.	10 g	.	
GIOP-75	.	.	.	.	.	.	.	.	.	.	.	0.00312	0.0092	.	.	10 g	.	
GIOP-68	.	.	.	0.011	.	0.0051	.	.	.	.	.	0.00353	.	.	.	10 g	.	
GIOP-61	.	.	.	0.0094	.	.	.	.	.	.	.	.	0.0042	.	.	10 g	.	
JSS 821-1	.	.	.	.	.	0.0027	.	0.0007	0.0035	0.0006	0.0040	.	0.0074	.	.	70 g	.	
ECRM 689-1	.	.	.	.	0.0103	.	.	0.0068	0.0195	0.1020	.	0.0042	.	.	.	100 g	.	
ASCRM 030	0.0014	0.0034	.	0.0101	0.0014	0.0020	.	0.0016	0.0019	0.0008	0.0042	.	0.0096	0.0037	9.24	10x10 g	Sr: 0.0010	
JSS 831-2	.	.	.	.	.	0.028	.	0.0068	0.0077	.	0.299	.	0.074	.	(0.11)	100 g	.	
NCS DC73005	.	.	.	.	.	.	0.068	.	.	.	.	.	.	.	.	50 g	.	
GIOP-142	(0.0015)	(0.0052)	.	(0.0035)	0.00182	0.00206	.	(0.0019)	0.002	(0.0038)	0.00499	.	0.00871	0.0054	8.368	10 g	Sr:0.004	
NCS DC28212	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	.	
GIOP-137	(0.001)	0.0053	.	(0.0032)	(0.0017)	0.0051	.	(0.0019)	0.00175	(0.0026)	0.00726	.	0.00233	0.0079	3.111	10 g	Sr: 0.0056	
NCS DC28112	0.167	.	.	.	.	.	.	0.527	.	.	.	.	0.037	.	.	70 g	.	
JSS 820-5	.	.	.	.	.	0.0032	.	0.00068	0.0023	0.00065	0.0042	.	0.0032	.	.	70 g	.	
NCS DC11018	0.0014	.	.	.	.	.	.	0.0044	0.0031	0.0031	.	.	0.065	.	.	70 g	.	
IMZ 313	(0.0008)	0.0017	0.031	(0.29)	0.0002	0.0067	.	0.0015	0.0024	0.0009	(0.001)	.	0.0028	.	-1.31	100 g	.	
NCS DC15002a	0.23	.	.	.	.	.	.	0.134	.	0.319	.	.	0.161	.	.	50 g	.	
VS R5/6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	150 g	.	
NCS DC19016	.	.	.	.	0.010	.	0.34	.	0.021	.	.	0.51	0.033	.	.	100 g	.	
GIOP-136	(0.001)	0.0056	.	0.0036	(0.0018)	0.00537	.	(0.0016)	0.00194	(0.003)	0.00768	.	0.00257	0.0087	3.266	10 g	Sr: 0.0053	
OREAS 404	(0.00176)	(0.00312)	.	(0.00379)	.	0.004	0.0124	(0.0018)	(0.0031)	(0.0006)	(0.00422)	.	(0.0018)	(0.0107)	9.40	10 g	Sr:(23.6*)	
IMZ 343	.	.	.	.	.	.	.	.	.	.	.	.	0.005	.	.	100 g	.	
NCS DC28225	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	.	
NCS DC18018	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
NCS DC11004a	0.096	(BaO:0.86)	0.310	.	0.0054	.	.	0.066	.	0.101	.	.	0.144	.	.	50 g	.	
VS 5405-90	.	.	.	.	.	.	.	.	.	0.23	.	.	0.089	.	.	50 g	Ge: 5.1*	
NCS DC11006a	0.215	(BaO:1.08)	0.227	.	0.0086	.	.	0.102	.	0.182	.	.	0.30	.	.	50 g	.	
NCS DC18019	0.021	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
NM 161.5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
IRSID 603-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
NCS DC28034	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	70 g	B <sub>2</sub> O <sub>3</sub> : 3.62	





CRM IRON ORE, chart 8 of 9 # = class, where 1 = CRM and 2 = RM analysis listed in mass % except \* which is mg/kg

#	Number	Fe	FeO	Al	Al <sub>2</sub> O <sub>3</sub>	Ca	CaO	K	K <sub>2</sub> O	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	P	S	Si	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>
1	IRSID 612-1	42.4	.	3.00	.	12.06	.	.	.	1.20	.	0.363	.	.	.	0.885	0.053	5.94	.	0.151	.
1	NCS DC18020	41.81	21.87	.	3.23	.	18.30	.	.	.	4.85	.	1.80	.	.	0.159	0.302	.	10.21	.	0.50
1	GIOP-131	41.08	.	.	12.77	.	2.23	.	0.151	.	1.231	0.0612	.	0.5184	.	0.0561	0.0329	.	17.619	.	0.8557
1	NCS DC73003	40.51	(14.5)	.	2.27	.	2.00	.	0.27	.	2.22	0.122	.	.	0.16	0.032	0.94	.	33.93	0.067	.
1	NCS DC28065	39.68	0.10	.	9.98	.	0.30	.	.	.	2.54	0.59	.	.	.	0.010	0.23	.	10.00	.	0.14
1	KZ 182-89	38.63	1.61	.	1.04	.	0.14	.	0.11	.	.	0.044	.	.	.	0.065	.	.	42.64	.	0.144
1	VS R8/3	38.2	.	.	10.35	.	0.89	.	.	.	2.17	.	0.432	.	.	0.165	0.031	.	16.57	.	0.85
1	IMZ 265/1	37.74	.	.	3.10	.	1.50	.	.	.	0.53	0.056	.	.	.	0.039	0.047	.	37.02	.	.
1	GIOP-129	37.56	.	.	14.34	.	2.534	.	0.1711	.	1.397	0.0618	.	0.5898	.	0.05535	0.0382	.	19.931	.	0.968
1	IRSID 601-1	36.76	.	2.33	.	4.05	.	.	.	1.21	.	0.370	.	.	.	0.590	0.065	8.95	.	0.114	.
1	NCS DC13033	35.36	5.18	.	(0.11)	.	(0.13)	.	.	.	0.20	.	0.125	.	.	0.022	0.0064	.	48.50	.	0.007
1	KZ 183-89	35.16	1.32	.	1.66	.	.	.	0.35	.	.	0.046	.	.	.	0.019	0.7	.	41.56	.	0.073
1	VS R20/3	34.7	.	.	0.67	.	2.54	Magnetic Iron: 27.6%	.	.	3.42	.	.	.	.	.	0.073	.	37.6	.	.
1	NCS DC28069	34.18	0.11	.	2.39	.	0.12	.	.	.	12.12	0.78	.	.	.	0.0015	0.082	.	18.28	.	0.030
1	NCS DC11013	34.07	20.15	.	0.74	.	0.99	.	0.165	.	2.86	.	0.093	.	0.065	0.054	0.118	.	48.27	.	0.043
1	VS R24/2	33.73	.	.	1.52	.	2.12	.	.	.	8.29	.	.	.	.	0.0055	0.065	.	5.46	.	.
1	VS R9/1	33.48	42.9	.	0.86	.	2.29	.	.	.	9.64	.	.	.	.	0.0051	0.059	.	3.47	.	.
1	GIOP-110	33.21	.	.	0.0893	.	1.417	.	0.0159	.	1.778	0.021	.	0.0152	.	0.0928	0.0042	.	50.09	.	0.0141
1	GIOP-98	32.63	.	.	0.1008	.	1.409	.	0.0121	.	1.875	0.0179	.	0.0163	.	0.1103	0.0273	.	50.88	.	0.138
1	GIOP-107	32.23	.	.	0.246	.	3.523	.	0.0135	.	1.257	0.037	.	0.0279	.	0.0497	0.1871	.	49.76	.	0.014
1	GIOP-113	32.11	.	.	0.5359	.	2.403	.	0.0218	.	2.343	0.1712	.	0.0276	.	0.0793	0.453	.	48.98	.	0.0298
1	GIOP-99	31.7	.	.	0.2553	.	1.5672	.	0.039	.	1.967	0.0248	.	0.0197	.	0.1006	0.003	.	51.54	.	0.0278
1	GIOP-105	31.04	.	.	0.438	.	1.841	.	0.075	.	2.289	0.0446	.	0.0238	.	0.0876	0.1507	.	51.51	.	0.0374
1	IRSID 607-1	30.89	.	2.48	.	13.74	.	.	.	0.77	.	0.254	.	.	.	0.529	0.050	3.07	.	0.123	.
1	GIOP-93	30.04	.	.	0.512	.	2.964	.	0.0228	.	3.394	0.0507	.	0.0431	.	0.0848	0.2003	.	50.32	.	0.0857

#	Number	Fe	FeO	Al	Al <sub>2</sub> O <sub>3</sub>	Ca	CaO	K	K <sub>2</sub> O	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	P	S	Si	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>
1	VS R24/2	33.73	.	.	1.52	.	2.12	.	.	.	8.29	.	.	.	.	0.0055	0.065	.	5.46	.	.
1	VS R9/1	33.48	42.9	.	0.86	.	2.29	.	.	.	9.64	.	.	.	.	0.0051	0.059	.	3.47	.	.
1	GIOP-110	33.21	.	.	0.0893	.	1.417	.	0.0159	.	1.778	0.021	.	0.0152	.	0.0928	0.0042	.	50.09	.	0.0141
1	GIOP-98	32.63	.	.	0.1008	.	1.409	.	0.0121	.	1.875	0.0179	.	0.0163	.	0.1103	0.0273	.	50.88	.	0.138
1	GIOP-107	32.23	.	.	0.246	.	3.523	.	0.0135	.	1.257	0.037	.	0.0279	.	0.0497	0.1871	.	49.76	.	0.014
1	GIOP-113	32.11	.	.	0.5359	.	2.403	.	0.0218	.	2.343	0.1712	.	0.0276	.	0.0793	0.453	.	48.98	.	0.0298
1	GIOP-99	31.7	.	.	0.2553	.	1.5672	.	0.039	.	1.967	0.0248	.	0.0197	.	0.1006	0.003	.	51.54	.	0.0278
1	GIOP-105	31.04	.	.	0.438	.	1.841	.	0.075	.	2.289	0.0446	.	0.0238	.	0.0876	0.1507	.	51.51	.	0.0374
1	IRSID 607-1	30.89	.	2.48	.	13.74	.	.	.	0.77	.	0.254	.	.	.	0.529	0.050	3.07	.	0.123	.
1	GIOP-93	30.04	.	.	0.512	.	2.964	.	0.0228	.	3.394	0.0507	.	0.0431	.	0.0848	0.2003	.	50.32	.	0.0857

  

Number	As	Ba	CO <sub>2</sub>	Cl	Co	Cr	Cr <sub>2</sub> O <sub>3</sub>	Cu	Ni	NiO	Pb	V	V <sub>2</sub> O <sub>5</sub>	Zn	ZnO	Zr	LOI	Units	Other	
IRSID 612-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.
NCS DC18020	0.051	.	.	.	.	.	.	.	.	.	0.208	.	.	0.223	.	.	.	100 g	.	
GIOP-131	(0.001)	0.0081	.	0.004	(0.0015)	0.009	.	(0.0017)	0.00236	.	(0.0016)	0.0166	.	0.00326	.	0.0173	5.405	10 g	Sr: 0.0086	
NCS DC73003	.	.	.	.	.	.	.	0.028	.	.	.	.	.	.	.	.	.	50 g	.	
NCS DC28065	.	.	.	.	0.085	1.71	.	.	1.30	.	.	.	.	.	.	.	.	50 g	.	
KZ 182-89	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
VS R8/3	.	.	.	.	(0.06)	.	2.53	.	.	0.67	.	.	.	.	.	.	.	75 g	.	
IMZ 265/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
GIOP-129	(0.001)	0.0074	.	0.0043	0.00113	0.01	.	0.0026	0.0026	.	(0.0027)	0.0187	.	0.0033	.	0.01952	5.916	10 g	Sr: 0.0112	
IRSID 601-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
NCS DC13033	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	.	
KZ 183-89	.	3.10	.	.	.	.	.	.	.	0.026	.	.	.	.	.	.	.	100 g	Ge: 36.6*	
VS R20/3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
NCS DC28069	.	.	.	.	0.13	1.48	.	.	1.50	.	.	.	.	.	.	.	.	50 g	.	
NCS DC11013	0.0003	.	.	.	.	.	.	0.0031	.	0.028	.	.	.	0.0045	.	.	.	70 g	.	
VS R24/2	.	.	CO <sub>2</sub> : (11.0)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 or 125 g	.	
VS R9/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
GIOP-110	(0.0032)	(0.0046)	.	(0.0047)	(0.0032)	(0.0048)	.	(0.0055)	(0.0064)	.	(0.0022)	(0.001)	.	0.0031	.	(0.0015)	-1.17	10 g	.	
GIOP-98	(0.0044)	0.0067	.	(0.0045)	(0.0037)	(<0.01)	.	(0.0047)	(0.004)	.	(0.0062)	(0.001)	.	(0.0041)	.	(0.002)	-1.217	10 g	.	
GIOP-107	(0.0044)	(0.0047)	.	0.0058	(0.0028)	(0.0026)	.	(0.0045)	(0.0032)	.	(0.0032)	(0.0017)	.	0.0047	.	(0.0022)	-1.224	10 g	.	
GIOP-113	(0.0033)	(0.0042)	.	0.0117	0.0034	(0.0019)	.	(0.0048)	(0.0048)	.	(0.0042)	(0.0021)	.	0.0107	.	(0.0021)	-0.719	10 g	.	
GIOP-99	(0.0055)	(0.0041)	.	(0.0045)	(0.0032)	(0.0046)	.	(0.0051)	(0.003)	.	(0.0032)	(0.0016)	.	(0.0036)	.	(0.0023)	-0.984	10 g	.	
GIOP-105	(0.004)	0.0077	.	0.0078	(0.0032)	(0.0036)	.	(0.004)	(0.003)	.	(0.0026)	(0.0023)	.	(0.0049)	.	(0.0021)	-0.997	10 g	.	
IRSID 607-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
GIOP-93	.	.	.	0.0096	0.0063	0.0144	.	0.0098	0.0153	.	.	.	.	0.019	.	.	.	-0.686	10 g	.

Number	As	Ba	CO <sub>2</sub>	Cl	Co	Cr	Cr <sub>2</sub> O <sub>3</sub>	Cu	Ni	NiO	Pb	V	V <sub>2</sub> O <sub>5</sub>	Zn	ZnO	Zr	LOI	Units	Other
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## CRM IRON ORE, chart 9 of 9

# = class, where 1 = CRM and 2 = RM analysis listed in mass % except \* which is mg/kg

#	Number	Fe	FeO	Al	Al <sub>2</sub> O <sub>3</sub>	Ca	CaO	K	K <sub>2</sub> O	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	P	S	Si	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>
1	IMZ 266/1	29.04	.	.	3.13	.	3.42	.	.	.	0.95	.	0.078	.	.	0.030	0.10	.	44.94	.	.
1	GIOP-104	29.83	.	.	0.526	.	2.168	.	0.0409	.	2.535	0.0762	.	0.0235	.	0.1065	0.2414	.	52.59	.	0.0283
1	GIOP-112	29.46	.	.	0.405	.	2.047	.	0.0267	.	2.323	0.0678	.	0.0248	.	0.0876	0.3007	.	53.57	.	0.0207
1	GIOP-97	28.234	.	.	0.746	.	3.028	.	0.0522	.	2.093	0.0742	.	0.0552	.	0.0396	0.554	.	54.4	.	0.0279
1	VS R39	28.03	.	.	3.92	.	1.69	.	1.29	.	1.97	.	0.069	.	0.083	0.073	0.245	.	49.1	.	0.155
1	GIOP-96	27.442	.	.	0.723	.	2.884	.	0.051	.	2.819	0.107	.	0.038	.	0.0507	0.94	.	54.38	.	0.0289
1	NCS DC28071	25.15	20.15	.	6.68	.	11.80	.	.	.	12.48	0.54	.	.	.	0.017	0.22	.	29.18	.	0.17
1	GIOP-95	24.215	34.86	.	1.259	.	4.804	.	0.0806	.	4.374	0.2045	.	0.049	.	0.066	0.497	.	54.85	.	0.0584
1	ECRM 651-1	23.85	.	2.25	.	16.15	.	0.27	.	1.04	.	0.97	.	0.05	.	0.35	0.40	3.46	.	0.10	.
1	GIOP-139	22.43	.	.	4.974	.	1.316	.	2.617	.	1.978	0.068	.	0.5068	.	0.0995	0.39	.	53.76	.	0.1922
1	NCS DC73001	20.17	(7.5)	.	3.57	.	2.84	.	0.53	.	1.68	0.168	.	.	0.28	0.045	0.051	.	60.86	0.085	.
1	IMZ 267/1	19.75	.	.	4.05	.	4.73	.	.	.	1.22	(0.16)	0.16	.	.	0.030	0.17	.	53.72	.	.
1	NCS DC28070	19.43	10.20	.	7.10	.	20.02	.	.	.	11.58	0.50	.	.	.	0.024	0.35	.	28.78	.	0.24
1	NCS DC28068	16.83	0.10	.	2.06	.	0.16	.	.	.	21.32	0.40	.	.	.	0.0018	0.025	.	34.93	.	0.043
1	GIOP-128	16.494	.	.	34.64	.	0.0207	.	0.1797	.	0.035	0.0336	.	0.0194	.	0.012	0.0518	.	21.726	.	1.581

#	Number	Fe	FeO	Al	Al <sub>2</sub> O <sub>3</sub>	Ca	CaO	K	K <sub>2</sub> O	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	P	S	Si	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>	
	Number	As	Ba	Cl	Co	Cr	Cu	Ni	Pb	V	V <sub>2</sub> O <sub>5</sub>	Zn	Zr	LOI	Units	Other						
	IMZ 266/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g
	GIOP-104	(0.006)	(0.0047)	0.0099	(0.0031)	(0.0013)	(0.0043)	(0.0045)	(0.0042)	(0.0016)	.	0.006	(0.0017)	-0.992	10 g							
	GIOP-112	(0.0063)	(0.0038)	0.0104	(0.0033)	(0.0016)	(0.0045)	(0.0031)	(0.0045)	(0.0013)	.	0.0061	(0.002)	-0.922	10 g							
	GIOP-97	(0.0085)	(0.0037)	0.0095	(0.003)	(0.0011)	0.0062	(0.004)	(0.0041)	(0.0012)	.	0.006	(0.0021)	-0.92	10 g							
	VS R39	23.1% Iron Magnetite	.	.	.	.	.	.	.	.	.	.	.	.	100 g	Fe <sub>2</sub> O <sub>3</sub> : 14.96						
	GIOP-96	(0.0081)	(0.0059)	0.0201	(0.0032)	(0.0034)	(0.0064)	(0.0046)	(0.004)	(0.0018)	.	0.0076	(0.0027)	-0.454	10 g							
	NCS DC28071	.	.	0.066	1.16	.	1.41	.	.	.	.	.	.	.	50 g							
	GIOP-95	(0.0084)	(0.002)	0.0184	(0.0031)	(0.0031)	0.005	(0.0055)	(0.0056)	(0.003)	.	0.0087	(0.002)	-0.546	10 g							
	ECRM 651-1	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g							
	GIOP-139	0.0075	0.0183	(0.006)	(0.0017)	(0.0023)	0.0041	(0.0019)	0.0054	0.00332	.	0.155	0.0081	1.63	10 g	Sr: 0.0101						
	NCS DC73001	.	.	.	.	.	0.0028	.	.	.	.	.	.	.	50 g							
	IMZ 267/1	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g							
	NCS DC28070	.	.	.	0.055	0.81	.	1.07	.	.	.	.	.	.	50 g							
	NCS DC28068	.	.	.	0.064	0.81	.	1.74	.	.	.	.	.	.	50 g							
	GIOP-128	0.0034	(0.0063)	0.0085	(0.0095)	0.0151	(0.004)	(0.0038)	(0.0066)	0.0424	.	(0.0033)	0.049	17.964	10 g	Sr: 0.0047						

## CRM COARSE AND RAW IRON ORE

2kg of raw, coarse material

Number	Fe	Al <sub>2</sub> O <sub>3</sub>	CaO	K <sub>2</sub> O	MgO	Mn	Na	P	S	SiO <sub>2</sub>	Sr	TiO <sub>2</sub>	LOI
GIOC-10	61.30	2.12	0.023	0.009	0.052	0.262	(0.012)	0.066	0.021	3.04	(0.002)	0.068	6.52
GIOC-6	61.26	2.17	0.021	(0.008)	0.050	0.263	(0.015)	0.068	(0.020)	3.10	(0.003)	0.067	6.50
GIOC-11	60.13	2.03	0.046	0.010	0.089	0.259	(0.011)	0.070	0.026	3.48	0.009	0.089	7.67
GIOC-14	60.10	1.21	0.027	0.009	0.076	0.154	(0.012)	0.074	0.041	5.78	(0.002)	0.081	6.38
GIOC-12	58.59	1.94	0.037	0.020	0.089	0.113	(0.015)	0.054	0.031	3.90	(0.002)	0.170	9.70
GIOC-16	57.72	2.69	0.041	0.040	0.096	0.537	(0.016)	0.069	0.026	5.13	(0.002)	0.183	8.30
GIOC-9	57.48	2.39	0.131	0.010	0.138	0.150	(0.012)	0.044	0.016	5.43	0.041	0.146	9.22
GIOC-15	57.43	3.40	0.047	0.021	0.080	0.361	(0.011)	0.117	0.068	4.24	(0.002)	0.166	9.01
GIOC-8	57.28	2.42	0.120	0.006	0.145	0.072	(0.011)	0.040	0.014	5.38	0.051	0.147	9.66

Number	As	Ba	Cl	Co	Cr	Cu	Ni	Pb	Sn	V	Zn	Zr
GIOC-10	(0.001)	(0.007)	0.010	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)	(0.001)	(0.001)	(0.002)	(0.002)
GIOC-6	(0.008)	(0.012)	(0.013)	(0.003)	(0.006)	(0.015)	(0.013)	(0.002)	(0.002)	(0.001)	(0.004)	(0.003)
GIOC-11	0.007	(0.006)	0.008	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.003)	(0.003)
GIOC-14	0.022	(0.005)	(0.005)	(0.002)	0.004	(0.003)	(0.003)	(0.002)	0.004	(0.003)	(0.002)	(0.002)
GIOC-12	0.011	(0.004)	(0.005)	(0.005)	0.007	(0.004)	(0.005)	(0.003)	(0.001)	0.007	(0.002)	(0.004)
GIOC-16	(0.002)	(0.007)	0.007	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.001)	0.004	(0.004)	(0.005)
GIOC-9	0.002	(0.003)	(0.004)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	0.004	0.007	(0.005)
GIOC-15	0.007	(0.005)	0.008	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.001)	0.003	(0.003)	0.007
GIOC-8	0.002	(0.002)	(0.004)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.006)	(0.003)	0.007	(0.005)

## IRON ORE SINTER

# = class, where 1 = CRM and 2 = RM analysis listed in mass %

# Number	Fe	FeO	Al	Al <sub>2</sub> O <sub>3</sub>	C	CO <sub>2</sub>	Ca	CaO	Cr <sub>2</sub> O <sub>3</sub>	Cu	CuO	F	K	K <sub>2</sub> O	Mg	MgO	LOI 900°C
2 DH 5630	60.62	4.86	.	1.134	.	.	.	6.99	.	.	.	.	.	0.040	.	0.654	.
2 DH 5635	59.22	5.27	.	1.392	.	.	.	6.11	0.031	.	.	.	.	0.066	.	0.882	1.27
2 DH 5631	58.54	5.41	.	1.43	.	.	.	6.28	.	.	.	.	.	0.247	.	2.01	.
1 NCS DC14203	57.63	10.80	.	1.37	.	.	.	8.17	.	0.0063	.	.	.	0.065	.	1.65	.
2 DH 5616	57.29	6.58	.	1.331	.	.	.	9.51	0.045	.	.	.	.	0.045	.	1.491	.
1 JSS 851-5	56.67	.	0.89	.	.	.	7.94	.	Cr:0.0163	0.0034	.	Fe II: 5.99	.	0.48	.	.	0.041
1 NCS DC28046	56.14	9.17	.	2.07	.	.	.	10.35	.	.	.	.	.	0.125	.	2.21	.
1 NCS DC14009a	55.58	20.06	.	2.38	.	.	.	3.62	.	0.017	.	.	.	0.316	.	5.99	.
1 NCS DC28046a	55.49	7.93	.	1.84	.	.	.	11.66	.	0.0034	.	.	.	0.045	.	2.83	.
1 NCS DC11024	55.37	(8.20)	.	2.19	.	.	.	10.76	.	.	.	.	.	0.082	.	2.14	.
2 BS 104	55.32	.	.	1.26	.	.	.	8.72	.	.	.	.	.	(0.15)	.	3.06	.
1 NCS DC28038	55.19	6.23	.	1.83	.	.	.	9.19	.	.	.	.	.	0.070	.	2.22	.
1 NCS DC28023a	53.10	7.49	.	2.76	.	.	.	11.78	.	.	.	.	.	0.079	.	2.69	.
2 DH 5632	55.03	4.06	.	1.281	.	.	.	10.79	.	.	.	.	.	0.174	.	2.070	.
1 BS 104A	54.8	.	.	1.04	0.22	.	.	10.5	.	.	.	.	.	0.14	.	1.24	.
1 BCS 377/6	54.78	.	0.783	.	.	.	5.74	.	Cr:0.0154	.	.	.	.	.	0.907	.	.
1 NCS DC14204	54.62	9.26	.	1.49	.	.	.	9.29	.	0.014	.	.	.	0.046	.	1.74	.
1 NCS DC28023b	53.74	8.52	.	3.05	As:0.020	.	Cr:0.021	9.67	.	0.017	.	.	.	0.145	.	3.45	.
1 NCS DC28050	53.26	9.53	.	2.24	.	.	.	11.31	.	.	.	.	.	0.084	.	2.70	.
1 NCS DC14202	52.77	6.55	.	2.54	.	.	.	11.33	.	0.012	.	.	.	0.078	.	2.02	.
1 NCS DC28049	52.16	8.06	.	2.17	.	.	.	13.05	.	.	.	.	.	0.082	.	1.63	.
1 NCS DC14206	51.13	9.22	.	2.44	.	.	.	9.46	.	(0.007)	.	.	.	0.080	.	4.40	.
1 NCS DC28047	50.04	8.07	.	2.11	.	.	.	13.72	.	.	.	.	.	0.091	.	2.08	.
1 ECRM 676-1	39.76	.	3.40	.	.	.	12.78	.	.	.	.	0.10	0.43	.	1.16	.	.

continued analysis listed in mass % except \* which is mg/kg

Number	Mn	MnO	Na	Na <sub>2</sub> O	Ni*	NiO	P	P <sub>2</sub> O <sub>5</sub>	PbO	S	Si	SiO <sub>2</sub>	SrO	Ti	TiO <sub>2</sub>	V	V <sub>2</sub> O <sub>5</sub>	ZnO	Units
DH 5630	0.298	.	.	0.032	.	.	.	0.112	.	0.011	.	3.98	.	.	0.085	.	.	0.016	100 g
DH 5635	0.368	.	.	0.047	.	.	.	0.120	.	0.013	.	4.81	.	.	0.224	.	.	0.010	100 g
DH 5631	0.945	.	.	.	.	.	.	0.107	.	.	.	5.08	.	.	0.076	.	.	0.040	100 g
NCS DC14203	0.174	.	.	0.046	.	.	0.102	.	.	0.025	.	5.38	.	0.113	.	.	.	.	50 g
DH 5616	0.477	.	.	0.025	.	.	.	0.140	.	.	.	5.18	.	.	0.101	.	0.018	0.013	100 g
JSS 851-5	0.241	.	.	.	58	.	0.060	.	.	0.016	2.48	.	0.065	.	0.0084	.	.	Zn:0.0075	100 g
NCS DC28046	0.227	.	.	0.048	.	.	0.064	.	.	0.032	.	5.54	.	0.076	.	.	.	.	70 g
NCS DC14009a	.	0.097	.	0.068	.	.	0.017	.	.	0.106	.	9.95	.	.	0.266	.	.	0.011	50 g
NCS DC28046a	.	0.289	.	0.034	.	.	0.045	.	.	0.040	.	4.85	.	.	0.109	.	.	0.0078	50 g
NCS DC11024	.	0.36	.	0.045	.	.	0.056	.	.	0.017	.	5.64	.	.	0.125	.	.	0.0062	70 g
BS 104	.	0.79	.	(0.06)	.	.	.	0.127	.	0.011	.	7.70	.	.	0.08	.	.	.	100 g
NCS DC28038	0.222	.	.	0.057	.	.	0.057	.	.	0.028	.	6.79	.	0.123	.	.	.	.	70 g
NCS DC28023a	.	0.740	.	0.049	.	.	0.059	.	.	0.042	.	6.49	.	.	0.144	.	.	.	50 g
DH 5632	0.708	.	.	.	.	.	0.104	.	0.059	.	5.55	.	.	0.068	.	.	.	0.026	100 g
BS 104A	.	1.06	.	0.022	.	.	.	0.101	.	0.015	.	7.97	.	.	0.094	.	.	17025	100 g
BCS 377/6	0.604	.	.	.	.	.	0.0586	Pb:0.1485	.	2.982	.	.	0.1001	.	0.0178	.	.	Zn:1.002	100 g
NCS DC14204	0.193	.	.	0.019	.	.	0.039	.	0.024	.	7.94	.	0.092	.	.	.	.	.	50 g
NCS DC28023b	.	0.185	.	0.090	.	.	0.036	Pb:0.012	0.022	.	7.11	.	.	0.290	.	last	0.018	50 g	
NCS DC28050	0.286	.	.	0.44	.	.	0.049	.	0.075	.	6.24	.	.	0.082	.	.	.	.	70 g
NCS DC14202	0.199	.	.	0.033	.	.	0.060	.	0.033	.	7.51	.	0.062	.	.	.	.	.	50 g
NCS DC28049	0.440	.	.	0.38	.	.	0.024	.	0.096	.	6.92	.	0.067	.	.	.	.	.	70 g
NCS DC14206	0.179	.	.	0.040	.	.	0.066	.	0.059	.	8.58	.	0.094	.	.	.	.	.	50 g
NCS DC28047	0.390	.	.	0.53	.	.	0.028	.	0.125	.	7.60	.	0.067	.	.	.	.	.	70 g
ECRM 676-1	0.83	.	0.095	.	.	.	0.59	.	0.12	6.40	.	.	0.19	.	.	0.070	.	.	100 g

## CRM

## KAOLIN

NCS: 50 g units

UNS: 100 g units

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	TiO <sub>2</sub>	LOI
UNS KK	47.06	36.77	0.236	0.982	12.75	1.063	0.192	0.015	0.032	.	.	0.166	.
NCS DC60123a	45.30	37.70	0.064	0.35	15.26	0.042	0.021	0.0018	0.045	0.16	0.76	0.060	14.81
NCS DC60122a	43.41	34.77	0.038	1.50	13.24	0.78	0.069	0.0020	0.045	0.21	5.51	0.25	17.31

**CRM KIMBERLITE WITH EXTENSIVE ANALYSIS**

analysis listed in mass %														70 g units					
Number	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub> T	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI					
NCS DC71312	3.73	(16.78)	12.64	3.71	(6.53)	(4.47)	0.49	17.56	(0.1)	0.30	0.68	35.88	0.71	20.73					
continued analysis listed in mg/kg except % which is mass %																			
Number	Ag	As	B	Ba	Be	Bi	Cd	Ce	Cl%	Co	Cr	Cs	Cu	Dy	Er	Eu	F%	Ga	Gd
NCS DC71312	(0.06)	3.5	(31.8)	(0.177)	1.3	(0.1)	0.46	127	(0.04)	40.0	795	5.2	26.2	2.6	(1.2)	1.6	(0.11)	7.1	4.7
Number	Ge	Hf	Hg	Ho	La	Li	Lu	Mn%	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc	Se	Sm
NCS DC71312	0.89	4.9	0.010	0.49	69.8	75.7	0.16	(0.09)	1.4	60.4	49.0	516	20.7	13.8	28.4	(0.22)	10.9	0.10	6.5
Number	Sn	Sr	Ta	Tb	Th	Tm	U	V	W	Y	Yb	Zn	Zr						
NCS DC71312	1.7	262	3.9	0.54	10.8	0.17	2.2	86	2.4	11.6	1.1	190	182						

**CRM LATERITE - NICKEL ORE**

analysis listed in mass %, ICP values by fusion ICP, C and S: &lt;0.01% from IR combustion furnace, all others fusion XRF including Cl: &lt;50 ppm 10g or 1kg

Number	Ni	Co	Al <sub>2</sub> O <sub>3</sub>	C	CaO	Cr <sub>2</sub> O <sub>3</sub>	Cu	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	Zn	LOI
OREAS 195	2.94	0.0477	3.13	0.08	0.390	0.958	<0.0050	18.29	<0.01	19.01	0.288	0.034	<0.01	<0.01	44.00	0.037	0.0300	9.71
OREAS 195 ICP	2.89	0.0465	3.07	.	0.397	0.938	(0.0050)	18.16	<0.1	18.88	0.285	(0.03)	<0.01	<0.05	43.30	0.037	0.0293	.
OREAS 194	2.13	0.0428	2.74	0.07	0.311	0.819	(0.0040)	16.47	<0.01	22.83	0.261	(0.03)	<0.01	<0.01	43.02	0.035	0.0174	10.53
OREAS 194 ICP	2.10	0.0424	2.73	.	0.32	0.814	0.0041	16.42	<0.01	22.77	0.262	0.027	<0.01	<0.05	42.90	0.033	0.0184	.
OREAS 193	1.93	0.0495	3.08	0.07	0.362	0.962	<0.0050	19.51	<0.01	20.25	0.317	(0.03)	0.012	<0.01	42.72	0.053	0.0219	9.87
OREAS 193 ICP	1.91	0.0483	3.05	.	0.373	0.956	(0.0040)	19.49	(0.08)	20.26	0.316	0.030	<0.02	<0.05	42.49	0.051	0.0199	.
OREAS 192	1.77	0.0404	2.76	0.07	0.313	0.913	<0.0050	18.10	<0.01	21.32	0.277	0.028	<0.01	(0.004)	43.58	0.036	0.0176	10.17
OREAS 192 ICP	1.75	0.0398	2.75	.	0.316	0.910	(0.0038)	18.14	<0.1	21.26	0.278	0.022	<0.02	<0.02	43.45	0.033	0.0193	.
OREAS 191	1.75	0.0665	4.27	0.09	0.276	1.22	(0.0050)	24.86	<0.01	10.06	0.397	(0.02)	<0.01	<0.01	47.97	0.052	0.0302	8.10
OREAS 191 ICP	1.73	0.0652	4.19	.	0.287	1.21	(0.0050)	24.63	(0.1)	9.95	0.397	0.018	<0.02	<0.05	47.67	0.050	0.0297	.
OREAS 190	1.64	0.0889	6.00	0.07	0.133	1.73	(0.0070)	35.48	<0.01	6.91	0.577	(0.02)	<0.01	<0.01	38.22	0.064	0.0353	8.38
OREAS 190 ICP	1.62	0.0875	5.86	.	0.133	1.71	0.0068	35.40	<0.01	6.85	0.574	(0.01)	<0.02	<0.02	38.06	0.062	0.0327	.
OREAS 189	1.48	0.0326	2.09	0.10	0.326	0.765	<0.0050	15.04	<0.01	23.09	0.227	(0.03)	<0.01	<0.01	46.20	0.029	0.0125	10.13
OREAS 189 ICP	1.47	0.0327	2.08	.	0.328	0.764	(0.0030)	14.94	(0.08)	23.06	0.228	0.021	<0.02	<0.05	46.08	0.026	0.0103	.
OREAS 187	1.37	0.0636	2.80	0.11	0.341	0.987	(0.0040)	19.45	<0.01	17.99	0.356	<0.03	<0.01	<0.01	46.66	0.033	0.0196	9.27
OREAS 187 ICP	1.37	0.0629	2.77	.	0.352	0.987	<0.0050	19.40	<0.1	17.96	0.358	<0.03	<0.02	<0.05	46.37	(0.03)	0.0190	.
OREAS 186	1.23	0.0692	5.19	0.07	0.562	1.42	0.0061	32.04	<0.01	4.89	0.522	(0.02)	(0.01)	<0.01	46.29	0.069	0.0265	6.83
OREAS 186 ICP	1.22	0.0680	5.11	.	0.564	1.41	0.0057	31.72	<0.1	4.82	0.519	<0.01	<0.02	<0.05	46.24	0.070	0.0276	.
OREAS 185	1.14	0.0388	2.48	0.10	0.385	0.914	<0.0050	18.42	<0.01	20.22	0.297	0.027	<0.01	<0.01	45.93	0.033	0.0143	9.61
OREAS 185 ICP	1.12	0.0385	2.47	.	0.39	0.91	<0.0050	18.27	<0.01	20.17	0.295	0.024	<0.02	<0.05	45.58	0.031	0.0128	.
OREAS 184	1.02	0.0903	4.62	0.07	0.216	1.75	0.0070	39.30	<0.01	3.05	0.676	<0.01	0.017	<0.01	42.25	0.060	0.0278	6.24
OREAS 184 ICP	1.02	0.0899	4.58	.	0.231	1.75	0.0060	39.42	<0.1	3.00	0.678	<0.01	(0.02)	<0.05	42.19	0.058	0.0287	.
OREAS 183	0.995	0.0225	1.60	0.22	0.710	0.653	<0.0030	12.73	<0.01	27.31	0.180	(0.03)	0.005	<0.01	44.49	0.023	0.0078	10.90
OREAS 183 ICP	0.983	0.0222	1.60	.	0.72	0.651	0.0021	12.72	<0.1	27.43	0.181	0.030	<0.01	<0.02	44.13	0.020	0.0082	.
OREAS 182	0.707	0.0728	4.07	0.09	0.251	1.29	0.0052	29.40	<0.01	9.16	0.580	0.019	0.010	0.006	46.77	0.053	0.0181	7.14
OREAS 182 ICP	0.706	0.0723	4.02	.	0.253	1.28	0.0049	29.62	<0.1	9.12	0.587	0.014	<0.02	<0.05	46.54	0.051	0.0189	.

**RM LEAD BASILICATE**

analysis listed in mass %											25 or 100 g units
Number	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	PbO	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	
CERAM AN28	2.46	0.05	0.018	0.05	<0.01	0.05	64.33	32.76	<0.01	0.15	

**CRM LEAD ORE TAILINGS WITH EXTENSIVE ANALYSIS**

analysis listed mass %											* BCS 362 lists AQUA REGIA results where indicated										GBW: 50 g units		BCS: 100 g units	
Number	Al <sub>2</sub> O <sub>3</sub>	CaO	Cu	F	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Mn <sub>3</sub> O <sub>4</sub>	Na <sub>2</sub> O	Pb	PbO	S	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	Zn	ZnO	LOI					
GBW 07235	12.88	19.51	0.20	0.27	4.37	1.42	1.62	1.40	.	1.61	4.17	.	0.86	43.63	.	0.53	0.062	.	.					
BCS 362 *	0.667	44.21	0.0056*	.	0.483	0.14	0.068	.	0.829	0.084	2.30*	2.63	1.48	9.03	0.034	0.047	2.03*	2.59	32.81					

continued analysis listed in mg/kg

Number	Ag	As	Bi	Cd	Ce	Cr	Cs	Dy	Eu	Er	Ga	Gd	Ge	Ho	In	La	Li	Lu
GBW 07235	14.7	85.1	15.6	3.2	78.3	(29)	(6)	3.0	1.2	1.5	16.7	3.7	0.90	0.61	0.12	40.5	(19)	0.24
BCS 362 *	.	30*	.	200*	.	11*	.	.	.	.	.	.	.	.	.	.	.	.

  

Number	Mo	Nd	Ni	Pr	Rb	Sb	Sc	Se	Sm	Sn	Tb	Te	Th	Tl	Tm	W	Y	Yb	pH
GBW 07235	1.6	28.2	27.7	8.1	(55)	39.3	7.5	1.7	5.1	3.0	0.58	3.9	10.2	0.43	0.23	17.6	15.4	1.5	.
BCS 362 *	.	.	12*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8.14*

**CRM LEAD ORE analysis listed in mass %**

Number	Pb	Ag	Cu	Fe	Ba	Ni	S	Zn	Zr	Units
KZ 6586-93	3.5	0.0019	0.013	2.03	0.38	.	0.55	0.045	0.019	100 g
GBM919-16	1.7662	0.01541	0.0164	.	.	0.0134	0.29	0.3397	.	10 or 250 g
KZ 5177-90	1.84	0.00181	.	.	10.3	.	2.96	.	.	100 g

**CRM LEAD ORE analysis listed in mass % 25 g units**

Number	Ag	Al <sub>2</sub> O <sub>3</sub>	As	Bi	CaO	Cd	Cu	Fe	MgO	Mn	Pb	S	Sb	SiO <sub>2</sub>	Zn
NCS DC28116	0.022	2.56	0.068	0.085	17.16	0.0097	0.85	6.78	1.28	0.029	15.09	19.26	0.0084	7.92	1.44

**CRM LEAD ORE analysis listed in mass % except\* which is mg/kg**

Number	Pb	S	Zn	Ag	Al	As	Au*	Ba*	C	Ca	Cd	Co*	Cr	Cu	Fe
CAN CPB-3	58.02	(17.03)	5.96	0.2790	0.203	(0.0391)	(0.119)	(60)	1.03	0.059	0.065	13.6	0.0102	0.240	8.45

Number	Hg*	K	La*	Mg	Mn	Na	Ni*	Sb	SiO <sub>2</sub>	Sn*	Sr*	Th*	Y*	LOI	Units
CAN CPB-3	40.8	(0.09)	(2)	0.106	(0.421)	(0.01)	16.8	0.58	2.62	(6)	(3)	(0.4)	(2)	(0.15)	100g

**CRM LIMESTONE AND DOLOMITE**

analysis listed in mass %															100 g
Number	CaO	CO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	BaO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO <sub>2</sub>	Na <sub>2</sub> O	SiO <sub>2</sub>	SO <sub>3</sub>	SrO	TiO <sub>2</sub>	LOI
DK KSTM 1	46.57	36.11	3.24	0.0049	1.24	0.57	0.56	0.47	0.14	0.04	8.79	0.12	0.1394	0.16	38.07
DK KSTM 2	55.04	43.20	0.19	0.002142	0.12	0.11	0.05	0.39	0.04	0.02	0.51	0.05	0.0197	0.01	43.57
DK KSTM 3	55.17	43.33	0.13	0.001178	0.07	0.07	0.02	0.48	0.02	0.02	0.28	0.02	0.0214	0.01	43.44
DK KSTM 4	30.23	45.53	0.14	0.002180	0.12	0.11	0.03	21.65	0.06	0.04	0.46	0.03	0.009052	0.01	47.25

continued analysis listed in mg/kg

Number	As	Cd	Co	Cr	Cu	Hg	Ni	Pb	Sb	Se	Zn
DK KSTM 1	2.01	0.11	6.04	11.72	8.45	0.015	18.58	5.69	0.08	0.02	23.59
DK KSTM 2	2.20	0.17	0.62	1.70	1.07	0.01	1.85	33.84	0.13	0.01	12.71
DK KSTM 3	0.32	0.11	0.45	1.21	1.02	0.01	0.85	0.67	0.76	0.01	2.56
DK KSTM 4	0.74	0.14	0.27	2.04	1.62	0.025	1.31	17.62	0.04	0.01	16.98

**CRM LIMESTONE WITH EXTENSIVE ANALYSIS**

analysis listed in mass % CGL: 100 g JLs: 20 g NCS: 50 g

Number	CaO	MgO	CO <sub>2</sub>	SiO <sub>2</sub>	LOI	Al <sub>2</sub> O <sub>3</sub>	Org.C	FeO	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O <sup>-</sup>	H <sub>2</sub> O <sup>+</sup>	K <sub>2</sub> O	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	Ti%	TiO <sub>2</sub>
JLs-1	55.09	0.606	43.58	0.120	.	0.0207	Fe <sub>2</sub> O <sub>3</sub> :0.0178	0.0168	0.105	(0.140)	0.00297	0.00209	0.00194	0.0295	S:0.0123	.	.	(0.0020)
CGL 020	50.32	1.385	.	5.76	40.29	1.16	.	0.349	H <sub>2</sub> O:(0.16)	0.229	0.0231	0.228	0.0659	.	.	.	.	0.043
NCS DC70301	47.89	6.76	44.39	0.55	43.92	0.17	(0.03)	0.15	0.193	(0.20)	0.37	0.043	0.009	0.022	0.008	0.017	0.0066	0.011
NCS DC70302	41.95	11.62	44.89	0.72	44.75	0.22	(0.03)	0.16	0.205	(0.20)	0.31	0.052	0.009	0.029	0.014	0.013	0.0132	0.022
NCS DC70308	38.08	14.96	45.62	1.17	44.61	0.18	(0.04)	0.05	0.448	(0.17)	0.42	0.026	0.027	0.030	0.009	0.041	0.0054	0.009
NCS DC70305	30.93	20.14	45.58	1.15	45.73	0.29	(0.07)	0.07	0.17	(0.07)	0.39	0.16	0.012	0.036	0.035	0.33	0.0078	0.013

analysis listed in mg/kg except % which is mass %

Number	Ag	As	B	Ba	Be	Bi	Br	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	Eu	F	Ga	Gd
JLs-1	(0.0013)	(0.145)	.	476	.	.	.	0.159	0.521	.	0.0825	3.37	0.0201	0.268	0.0283	.	0.0072	57.5	.	(0.03)
CGL 020	.	.	.	51	0.58	.	.	(0.04)	6.08	.	1.1	5.3	2.01	1.3	0.528	0.298	0.143	.	1.48	0.611
NCS DC70301	0.020	0.50	(1.9)	9.7	0.08	0.015	(0.2)	0.10	1.4	34	0.45	4.8	0.07	2.2	0.12	0.09	0.037	76	0.3	0.13
NCS DC70302	0.021	0.29	(2.2)	11.6	0.12	0.020	(0.3)	0.09	1.9	34	0.5	5.6	0.09	2.2	0.15	0.12	0.052	91	0.33	0.16
NCS DC70308	0.035	5.5	(2.3)	10.6	0.15	0.012	0.9	0.39	1.5	123	0.5	9.7	0.10	2.9	0.20	0.15	0.049	179	0.4	0.19
NCS DC70305	(0.016)	0.96	(6.4)	0.52%	0.08	0.025	6.1	0.02	2.5	343	0.52	3.4	0.13	2.8	0.17	0.10	0.14	459	0.31	0.22

Number	Ge	Hf	Hg	Ho	I	In	La	Li	Lu	Mn	Mo	Nb	Nd	Ni	P	Pb	Pr	Rb	Sb
JLs-1	0.126	.	(0.0056)	.	.	.	0.153	(0.2)	0.022	.	.	(1.0)	(0.136)	0.362	.	(0.7)	(0.032)	(0.18)	(0.0166)
CGL 020	.	0.395	.	0.103	.	.	3.71	9.7	0.0412	.	(0.13)	0.8	3.32	5	.	2.9	0.85	11.5	(0.25)
NCS DC70301	0.11	1.4	0.004	0.034	(0.5)	(0.03)	0.9	2.9	0.019	70	0.35	0.3	0.66	5.8	35	2.9	0.22	1.2	0.08
NCS DC70302	0.12	2.1	0.015	0.034	(0.3)	(0.02)	1.2	3.1	0.022	70	0.26	0.46	0.86	4.3	62	3.9	0.24	1.6	0.09
NCS DC70308	0.11	3.1	0.031	0.046	(0.2)	(0.02)	0.9	3.0	0.035	209	0.80	0.4	0.89	5.6	40	7.8	0.21	1.1	0.59
NCS DC70305	0.12	0.13	0.006	0.034	(0.2)	(0.02)	1.3	3.1	0.015	93	0.19	0.4	1.10	2.9	155	2.9	0.28	2.6	0.06

Number	Sc	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W%	Y	Yb	Zn	Zr%
JLs-1	0.0307	.	0.135	.	295	(0.014)	(0.0041)	.	0.0287	(0.003)	.	1.75	3.59	.	0.223	0.0164	3.19	(0.000419)
CGL 020	0.71	.	0.638	0.66	1018	0.093	0.092	.	0.71	(0.083)	0.0437	1.08	5.9	8ppm	3.43	0.276	8	(0.0016)
NCS DC70301	0.40	0.014	0.15	(0.7)	227	(0.06)	0.022	0.008	0.25	0.022	0.018	0.59	4.8	0.17	1.2	0.11	8.1	0.00537
NCS DC70302	0.5	0.015	0.19	(0.6)	191	0.05	0.031	0.008	0.25	0.023	0.020	0.39	5.0	0.18	1.4	0.13	9.5	0.00768
NCS DC70308	0.5	0.10	0.21	(0.9)	85	0.030	0.035	0.016	0.29	0.02	0.030	1.13	7.5	0.13	1.8	0.19	35.7	0.0113
NCS DC70305	0.4	0.013	0.26	(0.7)	158	0.06	0.032	0.008	0.45	0.04	0.017	0.70	5.1	0.17	1.1	0.10	3.6	0.00049

**CRM LIMESTONE**

Number	Al	Ca	Fe	Mg	Mn	P	S	Si	Ti	Units
IRSID 702-1	0.21	21.48	0.440	12.37	0.098	0.024	0.027	1.04	0.013	100 g

**CRM LIMESTONE AND DOLOMITE**

analysis listed in mass % FLX: RM, 30g NCS: CRM, 50g

Number	CaO	MgO	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	Mn <sub>2</sub> O <sub>3</sub>	MnO	Na <sub>2</sub> O	P	S	SO <sub>3</sub>	SrO	TiO <sub>2</sub>	LOI
FLX 136	55.06	0.377	0.548	0.181	0.126	0.051	0.038	.	.	.	.	0.033	0.022	.	.
NCS DC28246	54.92	0.37	0.47	0.203	0.107	.	.	0.0081	.	0.0017	0.010	.	0.017	0.0092	43.54
NCS DC28160	54.20	0.82	0.960	0.328	0.146	0.084	.	0.0049	0.006	0.0019	0.019	.	0.018	0.016	43.27
NCS DC28157	53.79	1.17	1.32	0.225	0.151	0.066	.	0.0037	0.0058	0.0027	0.020	.	0.018	0.014	43.22
NCS DC28161	53.76	1.50	0.835	0.242	0.143	0.048	.	0.0058	0.006	0.0012	0.018	.	0.017	0.011	43.37
NCS DC28245	53.40	1.90	0.37	0.17	0.125	.	.	0.0092	.	0.0015	0.014	.	0.024	0.0085	43.93
NCS DC28159	51.95	1.23	2.36	0.811	0.296	0.165	.	0.0077	0.009	0.0017	0.016	.	0.020	0.036	42.39
NCS DC28244	51.32	2.94	1.49	0.39	0.171	.	.	0.0026	.	0.0022	0.0082	.	0.018	0.018	43.47
NCS DC28156	51.22	2.43	3.32	0.340	0.181	0.094	.	0.0042	0.0074	0.0019	0.030	.	0.021	0.020	42.26
NCS DC28154	50.61	2.88	3.02	0.622	0.289	0.164	.	0.0054	0.026	0.0028	0.055	.	0.024	0.032	41.92
NCS DC28158	48.56	4.31	3.99	0.657	0.302	0.184	.	0.0055	0.028	0.0044	0.044	.	0.022	0.051	41.70
NCS DC28247	47.82	6.13	0.70	0.222	0.201	.	.	0.0095	.	0.0066	0.014	.	0.018	0.013	44.46
NCS DC28152	46.71	6.55	2.42	0.374	0.25	0.050	.	0.0046	0.011	0.0017	0.042	.	0.016	0.023	43.22
NCS DC28155	46.09	5.98	4.60	0.283	0.187	0.038	.	0.0046	0.010	0.0016	0.033	.	0.020	0.015	42.55
NCS DC28248	45.88	7.68	0.76	0.240	0.229	.	.	0.010	.	0.0078	0.016	.	0.018	0.014	44.51
NCS DC28153	41.81	10.37	2.35	0.543	0.417	0.074	.	0.0070	0.011	0.0032	0.050	.	0.014	0.031	43.81
NCS DC28163	30.22	20.85	1.87	0.205	0.244	0.018	.	0.015	0.012	0.0015	0.038	.	0.013	0.0079	45.31
NCS DC28164	30.15	20.91	2.16	0.250	0.248	0.027	.	0.016	0.011	0.0013	0.039	.	0.013	0.012	45.04
NCS DC28165	29.50	20.43	5.22	0.706	0.357	0.033	.	0.018	0.023	0.0020	0.056	.	0.016	0.021	43.07
NCS DC28162	28.73	19.76	8.42	1.20	0.475	0.039	.	0.020	0.033	0.0028	0.072	.	0.019	0.036	40.56

Number	CaO	MgO	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	Mn <sub>2</sub> O <sub>3</sub>	MnO	Na <sub>2</sub> O	P	S	SO <sub>3</sub>	SrO	TiO <sub>2</sub>	LOI
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## LIMESTONE AND DOLOMITE

analysis listed in mass %

GUW, UL: 50 g

GBW, NCS: 70 g

others: 100 g

Number	CaO	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
SRM 1d	52.85	0.526	.	.	0.3191	.	.	0.1358	0.301	.	0.0109	0.0413	4.080	0.0306	41.57
UL CCH1	52.05	0.32	.	.	0.18	.	.	0.08	2.71	0.01	0.05	0.05	0.95	0.02	43.20
NCS DC73375	51.1	0.68	39.8	(0.06)	.	0.21	(0.4)	0.15	0.71	.	0.03	.	6.65	.	40.2
GUW KH	47.8	2.39	37.6	0.33	0.92	.	.	0.41	0.74	0.088	.	0.121	8.60	(0.130)	.
GUW KH2	47.64	2.365	37.51	(0.31)	0.855	.	(1.26)	0.437	0.656	0.0848	0.106	0.117	8.66	0.130	.
GUW KH3	47.6	2.40	37.6	0.32	0.87	.	(1.4)	0.43	0.65	0.080	0.10	0.117	8.59	0.130	38.6
VS 3193-85	38.5	1.87	.	1.89	.	2.48	.	0.49	6.04	0.28	0.48	0.027	12.35	0.09	.
VS 3193-89	38.46	1.89	.	1.8	.	2.43	.	0.49	5.97	0.28	0.46	0.030	12.40	0.093	.
GBW 07108	35.67	5.03	32.4	1.64	.	2.52	+(2.12)	0.78	5.19	.	(0.08)	.	15.60	.	34.1
JDo-1	33.96	0.0174	46.50	(0.071)	0.0222	0.0208	+0.395 -0.145	0.00232	18.47	0.00657	0.0129	0.0343	0.216	.	.
VS 813-89	29.48	0.43	45.6	0.36	0.47	.	0.4	0.35	20.75	0.050	0.07	0.011	2.69	0.025	.
VS 3192-89	21.56	5.48	.	1.8	.	3.15	.	2.75	12.89	0.30	1.38	0.060	19.92	0.28	.

analysis listed in mg/kg except % which is mass % and \* which is ng/g

Number	Ag	As	Au*	B	Ba	Be	Bi	Br	Carbon%	Cd	Ce	Cl	Co	Cr	Cs	Cu
SRM 1d	.	.	.	BaO: 33	(0.1)	.	.	.	11.50	(0.3)	(4)	(130)	.	.	(0.4)	.
UL CCH1	(<1)	(1.3)	.	(10)	26	(<4)	(<5)	.	.	.	3.7	(370)	0.23	(5.4)	(0.13)	(<10)
NCS DC73375	(0.025)	0.66	.	(12)	9	0.14	0.032	(0.3)	(0.15 Org)	0.016	4.6	(24)	0.8	3.4	(0.10)	2.2
GUW KH	.	.	.	50	.	.	.	.	.	.	.	.	5.3	15	1.4	10
GUW KH2	.	.	.	46.3	.	.	.	.	.	.	18.1	(10)	.	14.2	12.2	8
GUW KH3	.	.	.	.	.	.	.	.	(0.14 Org)	.	.	.	.	.	.	.
VS 3193-85	.	.	.	(10)	60	(1)	.	.	.	.	18	.	2.2	13	(0.7)	4
VS 3193-89	.	.	.	.	50	.	.	.	.	.	16	.	2.3	9	.	4
GBW 07108	0.043	4.7	(0.94)	16	120	0.8	0.16	.	9.0 tot (0.11 org)	0.07	25	78	9	32	3.2	23
JDo-1	(0.0019)	(0.114)	trace	6.14	.	.	.	(0.79)	(12.760)	0.644	2.49	.	0.168	7.93	.	1.41
VS 813-89	.	.	.	5	30	1.3	.	.	.	.	.	.	3.0	6	.	8
VS 3192-89	.	.	.	400	.	.	.	.	.	.	27	.	12	30	.	29

Number	Dy	Er	Eu	F	Ga	Gd	Ge	Hf	Hg	Ho	I	In	La	Li	Li <sub>2</sub> O	Lu	Mn	Mo
SRM 1d	(0.6)	(0.4)	(0.1)	(160)	(1)	(0.5)	.	.	.	(0.1)	.	.	(4)	.	.	.	209	.
UL CCH1	(0.27)	.	0.17	(367)	(<4)	(0.38)	(<10)	0.11	.	(0.4)	.	(<5)	5.0	0.03	.	.	.	(<5)
NCS DC73375	0.28	(0.17)	0.082	249	0.87	0.36	0.14	0.22	0.005	(0.045)	(0.1)	(0.02)	2.3	4.8	.	0.023	28	0.18
GUW KH	.	.	0.5	570	.	.	.	0.78	.	.	.	.	.	8.6	.	0.12	.	.
GUW KH2	.	.	0.47	610	.	.	.	.	.	.	.	.	.	(7)	.	0.127	.	.
GUW KH3	.	.	.	(610)	.	.	.	.	.	.	.	.	.	.	(21)	.	.	.
VS 3193-85	.	.	.	.	.	other impurities: 37.46%	.	.	.	.	.	.	(7)	.	.	(0.1)	.	.
VS 3193-89	.	.	.	.	.	.	.	.	.	.	.	.	8	.	.	.	.	.
GBW 07108	1.6	1.0	0.51	406	7.1	1.9	0.67	1.8	0.016	0.33	0.23	(0.04)	15	20	.	0.14	434	0.38
JDo-1	0.814	.	0.176	246	.	(1.3)	.	(0.0897)	(0.0095)	(0.42)	.	.	7.93	(0.4)	.	0.0494	.	(0.78)
VS 813-89	.	.	.	200	.	.	.	.	.	.	.	.	.	.	.	.	.	.
VS 3192-89	.	.	.	.	.	.	.	.	.	.	.	.	13	40	.	.	.	0.08

Number	Nb	Nd	Ni	P	Pd	Pb	Pr	Pt	Ra	Rb	S	SO <sub>3</sub> %	Sb	Sc	Se	Sm	Sn
SRM 1d	(0.7)	(3)	(4)	.	.	.	(0.6)	.	.	(6)	1028	.	.	.	.	(0.5)	(1)
UL CCH1	.	4.2	11	.	.	6	.	.	.	(2.6)	1283	.	(0.25)	0.45	.	0.77	(<5)
NCS DC73375	0.8	1.96	(4)	57	N:(68)	5	0.60	.	.	4.0	36	.	0.072	(0.7)	0.021	0.40	(0.5)
GUW KH	.	.	20	.	.	.	.	.	.	25	.	.	.	3	.	2.2	.
GUW KH2	.	.	20.3	.	.	(6)	.	.	.	22	.	.	.	2.83	.	.	.
GUW KH3	.	.	.	.	.	.	.	.	.	.	900	(0.2)	.	.	.	.	.
VS 3193-85	(8)	.	7	.	.	16	.	.	.	15	.	.	.	(2)	.	.	.
VS 3193-89	7	.	5	.	.	10	.	.	.	15	.	.	.	2.2	.	.	.
GBW 07108	6.6	12.0	18	226	.	18	3.4	.	.	32	(370)	.	0.43	6.0	0.09	2.4	(0.98)
JDo-1	(0.4)	5.25	2.90	trace	.	(0.95)	0.956	trace	.	(1.75)	(90.5)	.	(0.036)	0.136	(0.0468)	0.788	.
VS 813-89	.	.	5	.	.	8	.	.	2e-10	5	200	.	.	.	.	.	.
VS 3192-89	37	.	18	.	.	13	.	.	.	57	.	.	.	8	.	.	1.7

Number	Sr	SrO	Ta	Tb	Te	Th	Ti%	Tl	Tm	U	V	W	Y	Yb	Zn	ZnO	Zr
SRM 1d	.	303	.	(0.09)	.	(0.5)	.	.	.	(1)	(10)	.	(5)	(0.3)	.	22	.
UL CCH1	267	.	(0.03)	0.11	.	0.30	.	.	.	3.9	27	.	(7)	0.24	29	.	(35)
NCS DC73375	107	.	(0.05)	0.054	.	0.86	0.230	(0.03)	(0.024)	0.24	5.4	0.13	1.9	0.15	7	.	11
GUW KH	545	.	0.19	.	.	2.6	.	.	.	.	24	.	.	0.86	22	.	35
GUW KH2	532	.	.	.	.	2.08	.	.	.	(8)	.	.	.	.	22.9	.	.
GUW KH3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
VS 3193-85	500	.	.	.	.	(2)	.	.	.	(1)	24	.	(9)	(1)	25	.	26
VS 3193-89	440	.	.	.	.	1.8	.	.	.	1.0	.	.	.	0.9	30	.	27
GBW 07108	913	.	0.42	0.35	(0.024)	4.1	0.1960	0.33	0.17	1.9	36	0.67	9.1	0.90	52	.	62
JDo-1	116	.	(0.009)	0.116	.	0.0429	.	(0.003)	(0.059)	0.858	3.14	.	10.3	0.323	35.4	.	6.21
VS 813-89	90	.	.	.	.	1.0	.	.	.	1.5	25	.	.	.	30	.	30
VS 3192-89	44	.	.	.	.	15	.	.	.	0.8	22	.	.	2.5	30	.	70

**LIMESTONE AND DOLOMITE**

# = class, where 1 = CRM and 2 = RM

f.SiO<sub>2</sub> = free SiO<sub>2</sub>

#	Number	CaO	Al <sub>2</sub> O <sub>3</sub>	Fe	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P	P <sub>2</sub> O <sub>5</sub>	S	SO <sub>3</sub>	SiO <sub>2</sub>	f.SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
1	NCS DC16006	65.20	0.885	.	0.46	0.19	4.55	0.013	0.021	0.0054	.	0.101	.	3.72	.	.	25.06
1	VS W1073	55.8	0.012	.	.	.	0.32	.	.	0.0035	.	0.0053	.	0.050	.	.	.
1	ECRM 752-1	55.4	0.12	.	0.045	0.02	0.15	0.01	(<0.03)	.	(0.01)	0.007	.	0.70	.	0.009	43.4
1	BCS 513	55.59	0.108	.	0.0275	0.0150	0.182	0.0095	(<0.3)	.	(0.005)	0.0097	.	0.228	.	(0.004)	43.61
1	DK 1a	55.4	0.05	.	0.04	0.01	0.39	0.01	0.01	.	.	.	0.02	0.64	.	<0.01	43.3
1	NCS DC14014b	55.12	0.079	.	0.341	0.0030	0.73	0.0058	0.0075	0.0013	.	0.010	.	0.073	.	Ti:0.0010	43.53
1	NM 711	55.10	.	.	.	.	0.50	.	.	.	.	.	.	0.52	.	.	43.48
2	DH X3513	55.06	0.097	.	0.082	0.029	0.466	0.017	0.003	.	0.007	.	0.012	0.289	.	0.006	43.70
1	NCS DC60107b	54.71	0.24	.	0.098	0.049	0.66	0.0098	0.0063	.	0.0055	.	0.024	0.43	0.16	0.010	43.30
1	VB K1	54.58	0.11	.	0.097	(0.028)	0.72	0.0095	0.020	.	(0.016)	.	(0.051)	0.44	.	(0.011)	43.70
1	NCS DC14017b	54.11	0.61	.	0.319	0.0038	0.79	0.0074	0.021	0.0017	.	0.182	.	0.85	.	Ti:0.0021	42.79
1	GBW 03105a	54.03	0.24	.	0.11	0.084	0.81	0.0067	0.017	.	0.0081	.	0.010	1.09	0.67	0.010	43.12
1	NM 172	52.78	0.27	.	0.27	0.10	1.58	0.013	.	.	.	0.0089	.	1.92	.	0.011	42.57
1	NCS DC28205	52.42	0.39	.	0.197	.	1.92	0.0054	.	0.0019	.	0.012	.	2.17	.	0.0093	42.53
1	NCS DC60108a	51.61	0.33	.	0.17	0.17	2.25	0.0089	0.017	.	0.0061	.	0.016	2.09	1.38	0.015	42.84
1	NCS DC14015b	51.41	0.74	.	0.838	0.0062	2.31	0.013	0.0073	0.0021	.	0.273	.	2.06	.	Ti:0.0071	41.79
1	NCS DC28204	50.72	0.18	.	0.208	.	3.96	0.012	0.012	0.0076	.	0.016	.	0.83	.	0.0060	43.70
1	NCS DC60109a	50.09	0.94	.	0.58	(0.42)	1.79	(0.014)	(0.027)	.	0.033	.	(0.054)	4.05	(2.02)	(0.052)	41.53
2	DH X3515	48.91	0.787	.	1.293	0.187	0.379	0.028	0.032	.	0.036	.	0.055	8.75	.	0.048	38.96
1	NCS DC62002d	48.16	1.67	.	1.17	0.61	0.93	0.09	0.09	.	.	.	0.06	7.88	.	0.12	38.96
1	NCS DC60110a	47.07	0.60	.	0.38	(0.20)	5.81	(0.012)	(0.016)	.	(0.037)	.	(0.032)	2.25	(1.21)	(0.030)	43.22
1	DK 1b	43.6	3.20	.	1.25	0.96	3.00	0.02	0.13	.	.	.	0.13	9.5	.	0.15	37.7
1	VB K2	43.19	3.93	.	1.39	0.82	0.65	0.025	0.064	.	.	.	0.22	13.38	.	(0.21)	35.61
1	NCS DC14050	42.62	0.36	.	0.260	0.021	9.45	0.015	0.015	0.0033	.	0.039	.	7.97	.	Ti:0.0096	38.80
1	IPT 122	32.0	1.24	.	0.65	0.43	17.5	0.042	0.019	.	0.048	.	.	4.3	.	0.06	43.3
1	VS K4/4	31.2	0.47	.	0.56	.	20.1	0.034	.	.	.	.	.	0.96	.	.	44.3
1	SRM 88b *	29.95	0.336	.	0.277	0.1030	21.03	0.0160	0.0290	.	0.0044	.	.	1.13	.	(0.016)	(46.98)
1	DK 2a **	29.2	0.91	.	1.01	0.37	19.5	0.06	0.04	.	.	.	0.06	4.3	.	0.07	44.3

continued

Number	CO <sub>2</sub>	Cl <sup>-</sup>	Cr	Cr <sub>2</sub> O <sub>3</sub>	Cu	Pb	SrO	Zn	Ins.Res	Units
NCS DC16006	.	.	.	.	.	.	.	.	.	15 g
VS W1073	.	.	.	.	.	.	.	.	.	75 g
ECRM 752-1	.	.	.	.	.	0.0009	0.019	0.0014	.	100 g
BCS 513	.	.	.	0.0012	.	.	0.0176	.	.	100 g
DK 1a	.	.	.	.	.	.	.	.	.	60 g
NCS DC14014b	.	.	.	.	.	.	Sr:0.025	.	.	50 g
NM 711	.	.	.	.	.	.	.	.	.	100 g
DH X3513	43.80	.	.	.	.	.	0.019	.	.	100 g
NCS DC60107b	(43.28)	0.014	.	.	.	.	.	.	.	50 g
VB K1	(43.54)	.	(0.0025)	.	(0.00055)	.	.	.	.	100 g
NCS DC14017b	.	.	.	.	.	.	Sr:0.024	.	.	50 g
GBW 03105a	(43.12)	0.0028	.	.	.	.	.	.	.	50 g
NM 172	.	.	.	.	.	.	.	.	.	100 g
NCS DC28205	.	.	.	.	.	.	0.023	.	.	50 or 100 g
NCS DC60108a	(42.59)	0.0066	.	.	.	.	.	.	.	50 g
NCS DC14015b	.	.	.	.	.	.	Sr:0.023	.	.	50 g
NCS DC28204	.	.	.	.	.	.	0.046	.	.	50 or 100 g
NCS DC60109a	(41.32)	(0.0062)	.	.	.	.	.	.	.	50 g
DH X3515	.	.	.	.	.	.	0.050	.	.	100 g
NCS DC62002d	.	.	.	.	.	.	.	.	.	20 g
NCS DC60110a	(43.02)	(0.0054)	.	.	.	.	.	.	.	50 g
DK 1b	.	.	.	.	.	.	.	.	.	60 g
VB K2	.	.	.	.	.	.	.	.	.	100 g
NCS DC14050	.	.	.	.	.	.	Sr:0.017	.	.	50 g
IPT 122	.	.	.	.	.	.	0.018	.	.	80 g
VS K4/4	.	.	.	.	.	.	.	.	1.30	75 g
SRM 88b *	46.37	.	.	.	.	.	0.0076	.	.	75 g
DK 2a **	.	.	.	.	.	.	.	.	.	60 g

-H<sub>2</sub>O @ 900°C: 0.099

\* SRM 88b lists Mn as MnO  
\*\* DK 2a lists Mn<sub>3</sub>O<sub>4</sub> as MnO

**CRM SYNTHETIC LIMESTONE WITH TRACE ELEMENTS**

Material base: CaCO<sub>3</sub> 85%, MgCO<sub>3</sub> 8%, SiO<sub>2</sub> 5.2%, Al<sub>2</sub>O<sub>3</sub> 1.1%, Fe<sub>2</sub>O<sub>3</sub> 0.3%, Na<sub>2</sub>SO<sub>4</sub> 0.2%, K<sub>2</sub>SO<sub>4</sub> 0.2% analysis listed in mg/kg

70 g units

Number	Ag	As	B	Ba	Be	Bi	Cd	Ce	Co	Cr	Cu	Ga	La	Li	Mn
GBW 07712	(0.030)	2.2	2.2	24	0.22	0.23	(0.023)	2.8	2.3	2.3	2.2	2.8	2.6	3.2	37
GBW 07713	0.060	5.2	5	54	0.52	0.53	0.053	5.8	5.3	5.3	5.2	5.8	5.6	6.2	67
GBW 07714	0.11	10.2	10	104	1.0	1.0	0.10	11	10.3	10.3	10.2	10.8	10.6	11.2	117
GBW 07715	0.21	20	20	204	2.0	2.0	0.20	21	20.3	20.3	20	20.8	20.6	21	217
GBW 07717	1.0	100	100	1000	10	10	1.0	101	100	100	100	101	101	101	1020
GBW 07718	2.0	200	200	2000	20	20	2.0	200	200	200	200	200	200	200	2020
GBW 07719	5.0	500	500	5000	50	50	5.0	500	500	500	500	500	500	500	5000
GBW 07720	10	.	.	.	100	100	10	.	.	.	1000	.	.	1000	10000

continued

Number	Mo	Nb	Ni	Pb	Sb	Sn	Sr	Ti	V	W	Y	Yb	Zn	Zr
GBW 07712	0.21	2.5	2.1	2.4	0.21	0.28	170	31	3.2	0.22	2.1	0.22	3.0	4.0
GBW 07713	0.51	5.5	5.1	5.4	0.51	0.58	200	61	6.2	0.52	5.1	0.52	6.0	7.0
GBW 07714	1.0	10.5	10	10.4	1.0	1.1	250	111	11.2	1.0	10	1.0	11	12
GBW 07715	2.0	20.5	20	20.4	2.0	2.1	350	210	21	2.0	20	2.0	21	22
GBW 07717	10	100	100	100	10	10	1150	1010	101	10	100	10	101	102
GBW 07718	20	200	200	200	20	20	2200	2000	200	20	200	20	200	202
GBW 07719	50	.	500	500	50	50	5200	5000	500	50	.	50	500	500
GBW 07720	100	.	.	1000	100	100	.	.	.	100	.	100	1000	.

**CRM LITHIUM ORE WITH EXTENSIVE ANALYSIS**

analysis listed in mass %														17025		100 g units	
Number	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub> T	K <sub>2</sub> O	Li <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	TiO <sub>2</sub>	Zn	LOI	Units		
<b>CGL 128</b>	13.66	0.746	0.663	6.28	0.578	0.033	0.603	(0.603)	(0.029)	(0.223)	73.40	(0.053)	0.0594	(2.14)	100 g		
continued analysis listed in mg/kg																	
Number	As	Ba	Bi	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd			
<b>CGL 128</b>	61.75	83.51	185	(3.64)	(46.93)	(0.401)	(105)	(67.38)	186	(1.37)	(1.18)	(0.091)	(29.69)	(1.22)			
Number	Hf	Ho	Ind	La	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc			
<b>CGL 128</b>	(5.64)	(0.313)	(0.303)	(28.92)	(0.421)	(7.26)	(77.63)	(8.64)	(1.76)	558	(3.41)	(2135)	(20.50)	(9.62)			
Number	Sm	Sr	Ta	Tb	Te	Th	Tl	Tm	U	W	Y	Yb	Zr				
<b>CGL 128</b>	(2.26)	(11.43)	24.54	(9.74)	(0.208)	(1.12)	(24.20)	(14.65)	(0.240)	45.28	107	(12.33)	(2.19)	69.94			

**CRM LITHIUM ORE** analysis listed in mass % 10 g units

Number	Li	Ta	Al	Ca	Fe	K	Mg	Mn	Na	Nb	Si	SiO <sub>2</sub>	Sn	LOI
GTA-10	2.8622	0.0928	13.9	<0.2	0.59	1.0	0.09	0.0900	.	<0.04	30.1	.	0.0542	0.93
GTA-11	2.5760	0.0845	13.4	<0.5	1.00	1.3	0.18	0.0885	.	0.0267	30.2	.	0.0484	0.83
GTA-12	1.7412	0.0556	11.5	0.8	1.85	2.4	0.38	0.0770	.	0.0183	30.8	.	0.0325	1.05
GTA-13	1.4384	0.0458	10.8	0.8	2.06	2.8	0.40	0.0699	.	0.0153	30.8	.	0.0271	1.08
GTA-04	0.9275	.	8.11	0.24	1.38	2.85	.	0.0738	1.33	.	34.4	.	(0.0148)	.
GTA-05	0.8422	.	7.85	0.17	(0.88)	2.29	.	0.0749	2.27	.	34.5	.	(0.0070)	.
GTA-06	0.7843	.	8.03	0.17	(0.66)	2.58	.	0.1304	2.34	.	34.5	.	(0.0131)	.
GTA-03	0.7782	0.0173	8.22	0.19	1.01	2.95	.	0.1146	2.23	0.0060	.	72.0	0.0296	.
GTA-14	0.6362	0.0204	9.1	1.2	2.75	3.8	0.54	0.0590	.	0.0076	31.5	.	0.0122	1.18
GTA-09	0.4886	0.0148	8.46	0.24	0.63	1.79	.	0.1382	4.01	.	33.47	.	0.0094	.
GTA-01	0.3132	0.0415	7.59	0.25	0.52	2.18	.	0.0814	3.72	0.0047	.	73.4	0.0438	.
GTA-15	0.2434	0.0078	8.3	1.4	3.12	4.4	0.61	0.0523	.	<0.005	31.9	.	0.0048	1.20
GTA-02	0.1715	0.0691	8.31	0.31	0.48	2.49	.	0.0623	4.03	0.0052	.	71.8	0.0395	.
GTA-08	0.1121	0.0146	7.92	1.20	2.46	3.78	.	0.0639	0.258	.	31.88	.	0.0154	.
GTA-07	0.0502	0.0203	7.97	1.35	2.72	4.00	.	0.0576	2.55	.	31.41	.	0.0117	.

**CRM LITHIUM ORE**

analysis listed in mass %

Number	Li <sub>2</sub> O	Al <sub>2</sub> O <sub>3</sub>	CaO	Cs <sub>2</sub> O	F-	FeO	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Rb <sub>2</sub> O	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
NCS DC86314	3.89	24.53	0.063	0.30	5.08	(0.043)	0.30	(2.77+)	7.75	0.027	0.40	1.08	0.13	1.24	53.92	0.029	(5.34)
NCS DC86304	2.29	19.12	0.076	0.177	3.12	(0.020)	0.301	2.29-	4.80	0.036	0.252	2.33	0.237	0.735	64.64	0.028	4.06
NCS DC86303	0.460	14.76	0.335	0.037	0.667	(0.062)	0.394	1.06-	3.17	0.054	0.070	4.19	0.173	0.145	74.37	0.018	1.48

continued analysis listed in mg/kg except % which is mass %

Number	BeO%	CeO <sub>2</sub>	Dy <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>	Nb <sub>2</sub> O <sub>5</sub>	Nd <sub>2</sub> O <sub>3</sub>	Pr <sub>6</sub> O <sub>11</sub>
NCS DC86314	0.0164	(1.88)	0.50	0.24	0.10	0.56	0.094	1.16	0.036	81	1.66	0.46
NCS DC86304	0.026	2.6	0.64	0.26	0.13	0.75	(0.13)	(2.1)	0.034	61.1	2.8	0.63
NCS DC86303	0.018	9.0	2.5	1.2	(0.14)	2.1	0.45	5.1	0.18	27.0	5.0	1.3

Number	RE <sub>x</sub> O <sub>y</sub> *	Sc <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	Sn	Ta <sub>2</sub> O <sub>5</sub> %	Tb <sub>4</sub> O <sub>7</sub>	Tm <sub>2</sub> O <sub>3</sub>	W	Y <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Units
NCS DC86314	10.7	0.31	0.52	152	.	0.10	0.038	79.0	3.06	0.22	70 g
NCS DC86304	15.2	0.44	0.64	97.1	0.012	0.13	0.040	43.7	3.4	0.23	70 g
NCS DC86303	47.0	0.98	1.6	(36)	0.00494	0.43	0.18	8.9	16.9	1.3	70 g

\* RE<sub>x</sub>O<sub>y</sub> : Rare Earth Oxide**CRM LITHIUM ORE**

45 g units

Number	Li <sub>2</sub> O%
SRM 182	4.34
SRM 183	4.12



**CRM LUJAVRITE**

analysis listed in mass %

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	TiO <sub>2</sub>	Ba	Be	Co	Cr	Cu	Ga	Ge
VS 2124-81	56.13	16.96	1.25	1.14	5.52	6.23	0.74	0.254	9.26	0.92	0.080	0.00139	0.00063	0.00125	0.00111	0.0063	0.00013

continued

Number	La	Li	Mo	Nb	Ni	Pb	Rb	Sn	Sr	V	Y	Yb	Zn	Units
VS 2124-81	0.040	0.0037	0.00028	0.034	0.00078	0.0020	0.0250	0.0014	0.080	0.0086	0.0081	0.00057	0.012	40 g

**CRM LOW BORON MAGNESITE**

Number	Al	B	Ca	Cr	Fe	K	Mg	Mn	Na	P	Si	Ti	Units
ECRM 779-1	0.105	0.0116	1.691	(0.0030)	3.73	(0.0020)	(54.57)	0.503	(0.0058)	0.0267	0.182	0.0081	100 g

**CRM MAGNESITE**

analysis listed in mass %

100 g units

analysis listed in mg/kg

Number	MgO	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	FeO	K <sub>2</sub> O	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	Ba	Ce	Co	Cr	Cu	Ni	Sr	Zn
SARM 43	44.11	(0.06)	0.89	0.26	(0.1)	(0.04)	(0.1)	(0.05)	(0.02)	5.99	(0.01)	(25)	(20)	4	(195)	(15)	252	8	(10)

**MAGNESITE**

# = class, where 1 = CRM and 2 = RM

analysis listed in mass %

CERAM: 25 or 100g

NCS: 50g

NH: 75g

others: 100g

#	Number	MgO	Al <sub>2</sub> O <sub>3</sub>	B <sub>2</sub> O <sub>3</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MnO	Mn <sub>2</sub> O <sub>3</sub>	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	LOI	
1	BCS 389/1	97.89	0.104	.	0.880	.	0.607	.	0.100	.	.	0.0295	.	0.274	.	0.0052	.	
1	BCS 319/1	95.38	0.109	.	3.00	0.0035	0.291	.	0.108	.	.	.	.	1.093	.	0.0070	.	
2	CERAM AN37	94.00	.	0.09	1.46	0.005	1.80	<0.01	.	0.12	<0.05	0.02	.	1.39	.	0.03	.	
2	CERAM AN36	93.30	.	0.09	0.94	0.004	4.66	<0.01	.	0.11	<0.05	0.008	.	0.48	.	0.01	.	
1	ECRM 778-1	81.02	0.56	.	1.23	0.15	0.96	.	0.014	.	.	(0.009)	.	1.05	.	(0.013)	.	
1	NCS DC28090	46.40	0.10	.	0.53	.	0.65	0.0050	0.016	.	0.017	0.013	0.0027	0.32	0.005	0.0060	51.58	
1	USZ 37-2003	45.80	0.04	.	1.69	.	0.05	0.011	.	.	.	.	.	0.25	.	CO <sub>2</sub> : 48.31	51.35	
1	UNS MK	45.22	0.414	.	0.581	.	.	0.013	0.160	.	0.024	0.055	.	0.593	.	0.019	.	
1	NCS DC28089	43.45	1.14	.	1.52	.	1.74	0.037	0.095	.	0.018	0.036	0.015	4.13	0.0013	0.041	47.35	
1	NCS DC28089a	43.44	1.46	.	1.26	.	1.66	0.044	0.083	.	0.020	0.037	0.015	4.95	0.0014	0.048	46.57	
2	CERAM AN43	.	.	0.005	.	.	.	(0.06)	.	.	.	.	.	.	.	.	.	last
2	CERAM AN45	.	.	0.222	.	.	.	.	.	.	.	.	.	.	.	.	.	last

**RM MAGNESITE**

typical analysis listed in mass %

100 g units

Number	MgO	Al <sub>2</sub> O <sub>3</sub>	C tot.	CO <sub>2</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	Mn <sub>3</sub> O <sub>4</sub>	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	TiO <sub>2</sub>	-H <sub>2</sub> O at 900°C
DH 4208	47.83	41.66	0.353	0.580	2.06	0.040	1.49	0.037	0.070	0.077	0.007	5.09	0.066	0.894

continued

Number	V <sub>2</sub> O <sub>5</sub>	ZnO	ZrO <sub>2</sub>
DH 4208	0.001	0.006	0.091



**CRM MANGANESE NODULE**

analysis listed in mass % except \* which is mg/kg T = Total \* AMIS lists Mn by XRF and M/ICP

Number	MnO	MnO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	COrg	CO <sub>2</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	Density	Units
US NOD-P-1	37.6	.	4.8	.	.	3.1	8.3T	1.2	3.3	2.2	0.46	13.9	0.5	.	.	25 g
AMIS 0104*	35.31*	35.49*	2.20	.	.	1.34	20.78	0.26	(0.35)	(0.10)	(P: 192*)	18.30	0.27	(3.28)	4.32	100 g or 1kg
VS 5374-90	35.09T	41.7	5.68	0.18	0.43	2.82	9.28T	1.27	3.40	2.94	0.68	16.60	0.74	15.3	.	50 g
JMn-1	33.09	.	4.30	.	.	2.91	14.40T	0.94	3.12	2.80	0.54	14.11	1.06	.	.	100 g
VS 5375-90	25.16T	31.1	5.46	0.22	0.60	3.01	24.87T	0.83	2.24	2.40	0.80	14.50	1.91	13.8	.	50 g
US NOD-A-1	23.9	.	3.87	.	.	15.4	15.6T	0.6	4.76	1.0	1.40	3.81	0.53	.	.	25 g
VS 5376-90	19.85T	24.2	6.71	.	0.50	5.13	22.13T	1.18	2.29	2.24	1.61	22.30	1.56	11.4	.	100 g

  

Number	As	Au*	B*	Ba	Be*	Bi*	C*	Cd*	Ce	Cl	Co	Cr	Cr <sub>2</sub> O <sub>3</sub>	Cs*	Cu	Dy*
US NOD-P-1	.	.	.	0.3350	.	.	.	.	(0.0290)	.	0.2240	.	.	.	1.1500	(27)
AMIS 0104	(0.0116)	.	.	2.86	(2.1)	(0.61)	.	(0.78)	(0.02994)	.	0.0240	(0.01802)	(0.03)	(0.19)	(0.0192)	(10.6)
VS 5374-90	0.006	0.005	.	0.18	.	.	.	17	0.020	0.7	0.220	0.0018	.	.	1.01	.
JMn-1	0.00754	(0.00095)	(138)	0.1714	(7.8)	(4.3)	(905)	(15.5)	0.0277	.	0.1732	0.00266	.	0.60	1.1132	(28.3)
VS 5375-90	0.017	0.010	.	0.17	.	.	.	5	0.09	0.9	0.47	0.0019	.	.	0.22	.
US NOD-A-1	.	.	.	0.1670	.	.	.	.	(0.0730)	.	0.3110	.	.	.	0.1100	(23)
VS 5376-90	0.014	.	.	0.16	19	.	.	.	0.10	.	0.27	0.0067	.	.	0.13	.

  

Number	Er*	Eu*	Ga*	Gd*	Ge*	H <sub>2</sub> O+	Hf*	Ho*	In*	La	Li	Lu*	Mo	Nb	Nd	Ni
US NOD-P-1	(12)	(7.5)	.	(28)	.	.	.	.	.	(0.0104)	.	(1.8)	0.0760	.	(0.0120)	1.3400
AMIS 0104	(5.7)	(4.3)	(35.8)	(12.1)	(1.7)	.	(3.0)	(2.0)	(0.05)	(0.00444)	(0.00183)	(0.66)	(0.00047)	(0.00055)	(0.00557)	(0.00421)
VS 5374-90	.	.	.	.	.	.	.	.	.	0.009	0.014	.	0.052	0.0020	0.008	1.37
JMn-1	14.6	7.6	(37.1)	(29.8)	.	(7.90)	(6.2)	(5.8)	.	0.0122	(0.00717)	2.1	0.0318	(0.00276)	0.0137	1.2632
VS 5375-90	.	.	.	.	.	.	.	.	.	0.014	0.004	.	0.033	0.009	0.014	0.422
US NOD-A-1	(12)	(5)	.	(26)	.	.	.	.	.	(0.0120)	.	(2.2)	0.0448	.	(0.0094)	0.6360
VS 5376-90	.	.	.	.	.	.	.	.	.	0.012	0.0019	.	0.035	0.006	0.010	0.34

  

Number	Li	Lu*	Mo	Nb	Nd	Ni	Pb	Pd*	Pr*	Pt*	Rb*	S	Sb*	Sc
US NOD-P-1	.	(1.8)	0.0760	.	(0.0120)	1.3400	0.0560	.	.	.	.	.	.	.
AMIS 0104	(0.00183)	(0.66)	(0.00047)	(0.00055)	(0.00557)	(0.00421)	(0.00507)	.	(12.6)	.	(5.3)	(0.32)	(9.7)	(4.6)
VS 5374-90	0.014	.	0.052	0.0020	0.008	1.37	0.040	.	.	0.10	21	0.10	.	11
JMn-1	(0.00717)	2.1	0.0318	(0.00276)	0.0137	1.2632	0.0430	.	(31.4)	(0.110)	10.9	(0.0940)	37.5	(13.0)
VS 5375-90	0.004	.	0.033	0.009	0.014	0.422	0.098	0.003	.	0.21	10	0.16	.	13
US NOD-A-1	.	(2.2)	0.0448	.	(0.0094)	0.6360	0.0846	.	.	.	.	.	.	.
VS 5376-90	0.0019	.	0.035	0.006	0.010	0.34	0.105	.	.	.	19	0.16	.	19

  

Number	Sm	Sn*	Sr	Ta*	Tb*	Th*	Tl	Tm*	U*	V	W*	Y	Yb*	Zn	Zr
US NOD-P-1	(0.0030)	.	0.0680	.	.	.	.	.	.	0.0570	.	.	(1.3)	0.1600	.
AMIS 0104	(0.00128)	(2.0)	(0.0309)	(0.21)	(1.8)	(9.5)	(0.42*)	(0.78)	(8.1)	(0.0108)	(3.5)	(0.00412)	(4.9)	0.0142	(0.01341)
VS 5374-90	0.0022	.	0.064	.	.	17	.	4	0.043	.	.	0.011	13	0.12	0.032
JMn-1	0.00302	(4.4)	0.0792	(0.64)	4.8	11.7	.	2.1	5.0	0.0424	(45.3)	0.0111	13.8	0.1068	0.0344
VS 5375-90	0.003	.	0.11	.	.	38	.	.	8	0.048	.	0.014	14	0.058	0.060
US NOD-A-1	(0.0021)	.	0.1750	.	.	.	.	.	.	0.0770	.	.	(14)	0.0590	.
VS 5376-90	0.0027	.	0.11	.	.	28	0.010%	.	6	0.054	.	0.016	6	0.060	0.055

**CRM MANGANESE NODULE**

analysis in mass %

Number	SiO <sub>2</sub>	Co	Cu	T.Fe	T.Mn	Ni	Units
NM 2388	16.07	0.14	0.49	14.94	21.28	0.71	100 g

**CRM MARIPOLITE**

analysis listed in mass %

40 g units

Number	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MnO	Na <sub>2</sub> O	Nb	Rb	SiO <sub>2</sub>	TiO <sub>2</sub>
VS 2122-81	21.96	0.72	1.20	0.88	2.05	4.30	0.085	10.79	0.034	0.030	56.29	0.045

continued

analysis listed in mg/kg

Number	Ba	Be	Cr	Cu	Ga	Ge	La	Li	Mo	Ni	Pb	Sn	Sr	V	Y	Yb	Zn	Zr
VS 2122-81	170	86	9.8	21	80	1.4	130	4.3	5.2	6.5	25	15	120	13	64	5	69	70

**CRM MERCURY ORE**

analysis listed in mass %

100 g units

Number	Hg	Al <sub>2</sub> O <sub>3</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	SiO <sub>2</sub>	TiO <sub>2</sub>	Co	Cr	Cu	Ni	Sr	V	LOI
USZ 43-2006	0.0689	0.53	17.39	0.49	4.66	0.03	9.93	0.29	0.07	41.01	0.018	0.0047	0.21	0.0007	0.10	0.0382	0.0038	25.28

**MICROSAMPLES**

The USGS Microanalytical Reference Materials (MRMs) are designed for use in the quantitative analysis of geologic samples using direct solid sampling techniques such as Laser Ablation ICP-MS. Recommended and informational total element concentrations were obtained through international round robin analysis using both bulk and microanalytical data.

Samples are distributed in polished epoxy mounts and ready for immediate use. These MRMs are supplied as individual samples or as sets contained within a plastic holder. Accessories are also available which integrate the USGS MRM holder with standard sample chamber mounts for CETAC® and New Wave® laser ablation systems.

**MOUNTED MICROANALYTICAL REFERENCE MATERIALS**

Number	Material Type	Form	Comments	Mount Color
US MM BCR-2Ga	Basalt Glass	Epoxy Mount	Melted BCR-2	Colorless
US MM BHVO-2G	Basalt Glass	Epoxy Mount	Melted BHVO-2	Magenta
US MM BIR-1G	Basalt Glass	Epoxy Mount	Melted BIR-1	Yellow
US MM NKT-1G	Nephelinite Glass	Epoxy Mount	Melted NKT-1	Magenta
US MM TB-1G	Basalt Glass	Epoxy Mount	Melted TB-1	Orange
US MM GSC-1G	Synthetic Basalt Glass	Epoxy Mount	Traces ~ 3 ppm	Light Blue
US MM GSD-1G	Synthetic Basalt Glass	Epoxy Mount	Traces ~ 30 ppm	Medium Blue
US MM GSE-1G	Synthetic Basalt Glass	Epoxy Mount	Traces ~ 300 ppm	Dark Blue

**PRESSED POWDER MICROANALYTICAL REFERENCE MATERIALS**

Number	Material Type	Form	Comments
US MP MASS-1	Synthetic Polymetal Sulfide	Pressed Pellet	Pellet in 19 mm ring
US MP MACS-3	Synthetic Calcium Carbonate	Pressed Pellet	Pellet alone

**MICROANALYTICAL ACCESSORIES FOR LASER ABLATION**

Number	Description	Comments
US MA SH-V1	Sample Holder	Plastic, will hold 4 RM plugs
US MA CM-V1	Cetac system sample mount	Mount for sample holder to fit Cetac
US MA NWM-V1	New Wave system sample mount	Mount for sample holder to fit New Wave chambers
US MA RM-KIT-1	Contains 1 each of GSD-1G, BCR-2G, BHVO-2G, BIR-1G, and sample holder (SH-V-1)	



US MA SH-V1

US MA CM-V1

US MA NWM-V1

US MA RM-KIT-1

**RM MOLOCHITE**

analysis listed in mass %

25 g unit, last

Number	Al <sub>2</sub> O <sub>3</sub>	BaO	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Mn <sub>3</sub> O <sub>4</sub>	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	ZrO <sub>2</sub>
CERAM AN40	37.9	0.03	0.14	0.85	1.52	0.24	0.01	0.12	0.11	58.8	0.02	0.06	0.016

**CRM MOLYBDENUM ORE AND CONCENTRATE WITH EXTENSIVE ANALYSIS**

analysis listed in mass %

50 g units

Number	Mo	Al <sub>2</sub> O <sub>3</sub>	Ba	CaO	F	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	S	SiO <sub>2</sub>	TiO <sub>2</sub>	W	WO <sub>2</sub>	Zn	Zr
NCS DC93010a*	55.4	0.23	.	0.95	C:0.34	1.44	.	0.47	.	Cu:0.06	.	2.56	.	0.12	.	0.014	.
NCS DC73522	50.08	(1.16)	.	1.95	.	1.23	(0.06)	1.96	.	(0.21)	33.72	7.58	.	0.0732	.	0.0068	.
GBW 07238	1.51	3.46	.	31.44	4.08	21.34	0.046	0.86	1.40	0.075	1.64	34.10	0.13	0.36	.	0.000655	.
NCS DC73521	0.54	5.12	.	18.09	.	9.88	0.66	4.35	.	0.90	0.68	56.87	.	0.0557	.	0.0360	.
NCS DC73520	0.15	5.20	.	18.13	.	9.89	0.66	4.37	.	0.91	0.44	57.47	.	0.0518	.	0.0365	.
KZ 7025-93	0.067	.	0.27	.	.	.	.	.	.	.	.	.	.	.	0.04	.	0.013
NCS DC73519 *	0.066	5.20	.	18.37	.	10.05	0.66	4.29	.	0.90	0.38	57.23	.	0.0489	.	0.0357	.

continued analysis listed in mg/kg except % which is mass %

Number	Ag	As	Be	Bi	Cd	Co	Ce	Cr	Cu	Dy	Eu	Er	Ga	Gd	Ge	Ho	In	La	Li	Lu	Mn
NCS DC93010a*	.	.	.	52	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0.033
NCS DC73522	(2.1)	(2.2)	.	86	0.20	10.2	.	30	266	.	.	.	.	.	(0.67)	.	.	.	.	.	0.15
GBW 07238	0.09	1.6	.	2.2	0.12	.	20.8	(24)	93.6	1.8	0.59	1.0	25.1	1.9	19.0	0.36	2.9	7.1	(3.2)	0.16	.
NCS DC73521	0.13	4.7	.	8.2	0.52	13.2	.	23	48	.	.	.	.	.	6.2	.	.	.	.	.	0.91
NCS DC73520	0.10	4.8	.	7.4	0.52	12.9	.	23	46	.	.	.	.	.	6.0	.	.	.	.	.	0.91
KZ 7025-93	0.8	.	19	51	.	.	.	.	0.077%	.	.	.	.	.	.	.	.	.	.	.	.
NCS DC73519 *	(0.11)	5.2	.	6.9	0.50	13.3	.	23	46	.	.	.	.	.	6.2	.	.	.	.	.	0.92

Number	Nb	Nd	Ni	P	Pb	Pr	Re	Sb	Sc	Se	Sm	Sn	Tb	Te	Th	Tl	Tm	Y	Yb	
NCS DC93010a*	.	.	.	55	440	.	26	.	.	.	.	.	.	.	.	.	.	.	.	.
NCS DC73522	.	.	(20)	(130)	316	.	23	13.2	.	.	.	.	(11.9)	.	.	.	.	.	.	.
GBW 07238	11.3	17.8	.	18.7	3.0	(0.35)	1.2	3.4	2.1	2.1	86.7	0.34	0.40	2.3	0.06	0.14	11.4	1.0	.	
NCS DC73521	.	.	52	(1210)	13.7	.	0.31	0.73	.	.	.	4.7	.	.	.	.	.	.	.	.
NCS DC73520	.	.	52	(1231)	10.5	.	0.12	0.60	.	.	.	4.5	.	.	.	.	.	.	.	.
KZ 7025-93	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NCS DC73519 *	.	.	54	(1160)	9.1	.	(0.07)	0.58	.	.	.	4.7	.	.	.	.	.	.	.	.

**CRM MOLYBDENUM ORE AND CONCENTRATE**

% = mass % \* = mg/kg

Insol = Insoluble Residue

Number	Mo%	Ag*	As*	Bi*	Cu%	Fe%	Insol%	Na%	P%	Pb%	Re%	S%	Sb*	SiO <sub>2</sub> %	W*	Zn%	Units/g
SRM 423	58.61	(29)	.	(60)	0.0640	1.708	7.69	(0.2)	.	0.0433	(0.004)	(0.063)	(24)	.	.	(0.017)	50
CGL 202	51.5	.	(278)	.	(1.34)	(1.44)	.	.	(0.014)	(0.0160)	(0.05)	(35.66)	.	(4.50)	.	.	100
GMO-04	0.7949	1.93	4.52	95	0.0240	.	.	.	.	0.0046	.	.	8.9	.	.	0.0128	10 or 250
GMO-03	0.5329	1.47	3.50	72	0.0191	.	.	.	.	0.0037	.	.	6.8	.	.	0.0122	10 or 250
GMO-12	0.4797	1.04	3.5	50.0	0.01425	.	.	.	.	0.00346	.	0.39	4.41	.	1.2	0.0104	10 or 250
GMO-11	0.2937	0.89	3.3	40.2	0.01155	.	.	.	.	0.00319	.	0.26	3.40	.	0.8	0.0101	10 or 250
GMO-10	0.0953	0.55	2.6	15.3	0.00698	.	.	.	.	0.00262	.	0.13	1.36	.	0.6	0.0096	10 or 250
GMO-07	0.00447	6.10	74.00	0.3	0.0014	.	.	.	.	0.0011	.	.	0.1	.	last	0.0011	10 or 250
GMO-05	0.00277	0.88	12.71	11	0.0639	.	.	.	.	0.0013	.	.	0.5	.	.	0.0087	10 or 250

**RM MOLYBDENUM CONCENTRATE**

analysis listed in mass %

100 g units

Number	Mo	Al <sub>2</sub> O <sub>3</sub>	Tot.C	CaO	Cr <sub>2</sub> O <sub>3</sub>	CuO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	S	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	V <sub>2</sub> O <sub>5</sub>	ZnO
DH 4707	61.08	0.702	0.040	1.61	0.004	0.504	1.80	0.182	0.117	0.008	0.045	0.069	4.38	.	0.040	.	0.064
DH 4706	57.55	1.178	0.016	0.644	.	0.106	3.83	0.407	0.207	0.036	1.009	0.050	7.52	.	0.092	.	.

## CRM MULTI-METAL ORE

analysis listed in mass %													50 g units	
Number	Al <sub>2</sub> O <sub>3</sub>	As	CaO	Cu	Fe	K <sub>2</sub> O	MgO	Mn	Na <sub>2</sub> O	Pb	S	SiO <sub>2</sub>	Zn	
NCS DC73510	(2.5)	0.15	6.5	0.096	19.6	0.78	0.59	0.066	(0.03)	5.13	29.0	14.1	13.9	

continued analysis listed in mg/kg except

Number	Ag	Bi	Cd	Ga	Ge	Hg	In	Mo	Sb	Tl	W
NCS DC73510	148	(5)	400	62	25	114	(7.5)	(1.9)	260	(0.3)	(1.9)

## CRM MULTI-METAL ORE

analysis in mass % except g/T for grams per ton and \* for mg/kg

Number	Ag	Al <sub>2</sub> O <sub>3</sub>	As	Bi	Cd	Cu	Fe	Hg*	Pb	S	Sb	SiO <sub>2</sub>	Sn	Zn	LOI	Units
NCS DC29114	0.03679	(1.42)	0.138	.	0.066	0.071	(11.48T)	(270)	<b>22.96</b>	(15.92)	0.044	(20.20)	.	16.22	(12.14)	50 g
NCS DC29112	0.0362	(7.83)	0.082	.	.	0.10	(11.61T)	(0.233)	<b>2.93</b>	(8.17)	0.011	(59.40)	.	0.51	(10.49)	50 g
NCS DC29113	0.0103	(3.97)	0.040	.	.	0.075	(8.65T)	(0.074)	<b>2.19</b>	(6.02)	0.00383	(31.99)	.	1.54	(13.40)	50 g
NCS DC35008	19.8 g/T	.	0.084	.	.	0.037	22.62	.	<b>2.07</b>	.	0.013	.	0.125	0.51	.	60 g
NCS DC29115	0.000530	(3.25)	0.0095	.	0.119	0.021	(3.93T)	(84.8)	<b>1.25</b>	(16.30)	0.00205	(41.23)	.	30.19	(9.52)	50 g
NCS DC29111	0.00129	(9.96)	0.0090	.	0.019	0.020	(2.62T)	(12.6)	<b>0.48</b>	(3.13)	0.00090	(69.88)	.	4.94	(3.70)	50 g
NCS DC35009	.	6.70	2.17	0.120	.	1.09	.	.	<b>0.095</b>	.	.	4.99	0.930	1.49	.	60 g

T = Total Fe as Fe<sub>2</sub>O<sub>3</sub>

## CRM MULTI-METAL ORE WITH EXTENSIVE ANALYSIS

analysis listed in mass %													CAN PTC-1b shows classical and instrumental values for Cu and Ni #				SiO <sub>2</sub> *	RTS-5: 100 g	others: 200 g
Number	Al	As	Ca	Cu	Fe	Mg	Mo	Ni	Pb	S	Si	Sn	W	Zn	LOI				
CAN RTS-5	6.25	0.1286	3.86	0.0647	11.9	3.31	(0.0001338)	0.1104	0.00663	1.924	19.20	.	.	0.0105	(9.90)				
CAN MP-2a	5.99	(0.558)	3.22	0.0459	5.00	0.0923	0.1586	(0.00098)	0.277	0.716	31.2	0.0537	0.338	0.566	(4)				
CAN SU-1b	4.30	0.000249	2.21	1.185	25.54	1.790	(0.0004)	1.953	0.0058	14.14	15.23	.	.	0.0235	(8)				
CAN PTC-1b	(0.7518)	0.0222	(0.571)	7.919,7.97#	36.78	0.441	(0.0011)	11.256,11.29#	0.0795	29.95	2.468	(0.0120)	.	0.2083	(13.44)				
CAN MP-1b	2.30	2.47	3.069	8.19	0.024	0.0285	.	.	2.091	13.79	16.79*	1.61	(0.1100)	16.67	.				
CAN RTS-5	6.25	0.1286	3.86	0.0647	11.9	3.31	(0.0001338)	0.1104	0.00663	1.924	19.20	.	.	0.0105	(9.90)				

continued analysis listed in mg/kg except % for mass %

Number	Ag	Au	Ba	Be	Bi	C%	Cd	Ce	Co	Cr	Cs	Dy	Er	Eu	Ga	Gd	Ge
CAN RTS-5	1.50	0.408	252	(0.7)	(2.05)	(1.617)	.	(17.0)	76.9	261	(1.0)	(2)	(2)	(0.6)	(14)	.	.
CAN MP-2a	4.82	(0.06)	12.3	1.25	989	(0.04)	14.5	357	5.50	150	5.78	32.5	(22.8)	(0.1)	(26.2)	24.8	(8)
CAN SU-1b	6.39	(0.2)	(350)	(0.4)	(2.73)	(0.04)	(3)	(35)	672	(320)	(0.3)	(1.4)	(0.7)	(0.7)	(10)	(2)	.
CAN PTC-1b	53.1	1.99	(61.5)	.	.	.	(38)	.	3253	(40)	.	.	.	.	.	.	.
CAN MP-1b	470	.	.	.	954	(0.028)	527	.	(4)	.	.	.	.	(1)	.	.	.

Number	H <sub>2</sub> O%	Hf	Ho	In	Ir	K%	La	Li	Lu	Mn%	Na%	Nb	Nd	P%	Pd	Pr	Pt
CAN RTS-5	(1.4)	.	.	.	.	0.850	(9.7)	(16.9)	(0.3)	0.1092	1.285	(4)	(8)	0.0369	(0.14)	.	(0.2)
CAN MP-2a	.	9.40	(7.04)	(12.09)	.	(1.226)	157	81	4.36	0.1018	(0.03)	97	117.9	(0.0090)	.	38.5	.
CAN SU-1b	.	.	(0.3)	.	.	(0.6)	(17)	.	(0.09)	0.0703	(1.6)	(3)	(15)	(0.06)	0.791	.	0.491
CAN PTC-1b	0.81	.	.	(0.2)	(0.15)	.	.	.	(0.0193)	(0.17)	.	.	.	.	9.46	.	6.47
CAN MP-1b	.	(6)	.	(565)	.	(0.2)	.	.	(4)	(0.0480)	.	.	.	(0.02)	.	.	.

Number	Rb	Rh	Sb	Sc	Se	Sm	Sr	Ta	Tb	Te	Th	Ti	Tl	Tm	U	V	Y	Yb	Zr
CAN RTS-5	(30.5)	.	SO : (1.23%)	.	(8.03)	.	130.6	.	.	.	(2.25)	3132	.	.	.	(61.2)	(10.1)	.	.
CAN MP-2a	229	.	(7.84)	4.87	.	26.7	12.3	.	.	.	61.3	268	(3.16)	4.10	37	.	(229)	28.8	134
CAN SU-1b	(13)	.	(0.2)	(9)	(20.7)	(3)	(280)	11.6	4.82	(5.75)	.	.	(0.3)	.	(0.2)	(82.5)	(7)	(0.6)	.
CAN PTC-1b	.	(0.5)	(6)	(120)	.	(30)	.	.	(30)	.	.	(696)	.	.	.	(20)	(3)	.	.
CAN MP-1b	.	.	(54.0)	(3)	.	.	.	.	(5)	.	(50)	.	.	.	(20)	.	.	.	(150)





**CRM MULTI-METAL ORE**

10 or 250 g units

Number	Pb%	Cu%	Ni%	S%	Zn%	Ag*	As*	Co*
GBM900-8	0.0010	0.0046	3.8468	.	0.0053	4.7	8	50
GBM320-4	0.0009	0.3238	0.0743	.	0.0090	0.5	32	49
GBM320-5	0.0009	0.1259	0.0021	.	0.0037	0.6	2	57
GBM901-4	0.0009	0.0946	0.0018	.	0.0069	0.7	6	21
GBM910-15	0.0009	0.0381	0.5621	0.1	0.0062	1.1	.	.
GBM397-9	0.0009	0.0059	0.0042	.	0.0073	0.9	11	.
GBM998-9	0.0009	0.0023	0.0013	.	0.0027	101.9	7	8
GBM307-2	0.0009	0.0089	0.0034	.	0.0094	0.5	8	31
GBM314-6	0.0008	0.4290	0.0072	.	0.0117	0.6	14	205
GBM916-7	0.0008	0.3170	0.0769	.	0.0090	0.3	31	49
GBM316-7	0.0008	0.2742	0.0849	.	0.0077	0.5	44	52
GBM907-9	0.0008	0.0365	0.5442	.	0.0053	0.8	12	305
GBM906-7	0.0008	0.0362	0.5562	.	0.0051	0.9	25	210
GBM305-5	0.0008	0.0194	0.1785	.	0.0056	0.5	67	51
GBM998-5	0.0008	0.0056	0.0025	.	0.0084	0.6	10	28
GBM910-8	0.0008	0.0055	0.0024	.	0.0087	0.7	5	28
GBM915-2	0.0007	0.0065	0.0036	.	0.0119	9.9	8	37
GBM307-4	0.0007	0.0059	0.0025	.	0.0077	3.9	6	25
GBM314-10	0.0006	0.0061	0.0036	.	0.0121	0.7	4	39
GBM313-8	0.0006	0.0058	0.0035	.	0.0114	0.4	2	36
GBM910-9	0.0006	0.0055	0.0023	.	0.0081	0.5	2	27
GBM911-8	0.0006	0.0055	0.0023	.	0.0088	0.7	4	27
GBM918-6	0.0005	0.0478	0.1437	.	0.0370	1.4	12	71
GBM912-4	0.0005	0.0054	0.0025	.	0.0084	0.4	3	26
GBM318-3	0.0005	0.0054	0.9874	.	0.0327	0.5	3	807
GBM318-7	0.0002	0.0003	0.0002	.	0.0002	0.1	2	1
GBM316-5	0.0004	0.0057	0.0036	.	0.0114	0.4	1	37

Number	Pb%	Cu%	Ni%	S%	Zn%	Ag*	As*	Co*
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**NICKEL ORE**

listed in mass % except \* which is mg/kg

GBM: CRM, 10 or 250g

IGS, NCS: CRM, 50g

JSM: RM, 50g

Number	Ni	Cd	Co	Cr	Cu	Fe	Mn	Pb	S	Zn	Ag*	Al <sub>2</sub> O <sub>3</sub>	CaO	MgO	P	SiO <sub>2</sub>	Ti
GBM909-15	11.5901	.	.	.	1.3120	.	.	0.2120	26.7	2.6608	13.5	.	.	.	.	.	.
NCS DC28072	5.71	0.047	0.042	0.015	0.270	23.73	0.037	0.040	2.51	4.65	.	3.91	6.47	1.14	1.61	21.10	0.15
NCS DC28079	3.98	0.028	0.041	0.364	0.169	20.74	0.147	0.030	1.41	2.85	.	3.55	4.54	8.67	1.08	27.48	0.098
GBM911-14	3.2361	.	.	.	0.2856	.	.	0.0091	10.5	0.0180	1.7	.	.	.	.	.	.
GBM312-16	2.7983	.	.	.	0.3082	.	.	0.0059	9.8	0.0142	1.8	.	.	.	.	.	.
GBM910-13	2.6969	.	.	.	0.2306	.	.	0.0034	8.2	0.0152	1.9	.	.	.	.	.	.
GBM911-15	2.2856	.	.	.	0.5003	.	.	0.0253	8.1	0.0288	2.9	.	.	.	.	.	.
JSM 0800-1	2.27	.	0.053	0.70	.	14.2	.	.	.	.	0.98	0.030	26.2	.	.	35.7	.
NCS DC28078	2.18	(<0.0015)	0.055	0.76	0.0058	14.89	0.254	0.0020	0.034	0.079	.	1.59	0.46	21.28	0.029	39.20	0.027
JSM 0800-2	2.07	.	0.036	0.57	.	11.5	.	.	.	.	1.27	0.37	23.3	.	.	45.4	.
GBM915-11	2.0568	.	.	.	1.4092	.	.	0.0183	6.95	0.3387	4.3	.	.	.	.	.	.
GBM915-12	2.0155	.	.	.	0.9137	.	.	0.0051	6.35	0.0573	2.5	.	.	.	.	.	.
GBM307-13	1.9995	.	.	.	0.1251	.	.	0.0045	6.78	0.0117	.	.	.	.	.	.	.
NCS DC28077	1.97	(<0.0015)	0.060	0.823	0.0016	14.84	0.263	0.0015	0.016	0.021	.	1.03	0.14	25.49	0.0043	36.00	0.017
IGS 21	1.97	.	0.069	.	0.798	23.40	.	.	.	.	.	.	.	.	.	.	.
GBM918-11	1.9404	.	.	.	0.4736	.	.	0.0054	6.87	0.1265	53.6	.	.	.	.	.	.
JSM 0800-3	1.90	.	0.072	0.84	.	15.0	.	.	.	.	.	0.84	0.034	26.1	.	34.9	.
NCS DC28076	1.86	(<0.0015)	0.065	0.92	0.0017	15.20	0.282	0.0016	0.016	0.021	.	1.04	0.10	25.70	(<0.007)	34.70	0.015
NCS DC28075	1.70	(<0.0015)	0.043	0.80	0.0025	14.92	0.294	0.0013	0.014	0.019	.	2.00	0.385	21.05	0.0043	38.77	0.039
GBM919-14	1.6566	.	.	.	0.0288	.	.	0.0361	2.90	0.1391	1.1	.	.	.	.	.	.
GBM309-6	1.6113	.	0.0909	.	0.0277	.	.	0.0341	.	0.1344	1.2	.	As:0.0018	.	.	.	.
GBM915-14	1.3070	.	.	.	1.7404	.	.	0.0095	2.08	0.0067	18.5	.	.	.	.	.	.
NCS DC28080	1.30	(<0.0025)	0.033	1.38	0.0071	34.55	0.192	0.0019	0.180	0.022	.	6.53	0.070	10.54	0.020	15.48	0.092
GBM318-8	1.2863	.	0.3258	.	1.7336	.	.	0.0097	.	0.0035	18.5	.	As:0.5606	.	.	.	.
GBM316-16	1.2733	.	.	.	0.0050	.	.	0.0012	0.10	0.0243	1.2	.	.	.	.	.	.
GBM316-15	1.2308	.	.	.	0.0056	.	.	0.0022	0.10	0.0257	1.0	.	.	.	.	.	.
NCS DC28073	1.17	(<0.0015)	0.042	0.95	0.0049	18.57	0.327	0.0024	0.024	0.019	.	2.90	0.82	20.75	(<0.007)	37.41	0.024
GBM918-12	1.1398	.	.	.	0.2138	.	.	0.0023	11.44	0.0838	9.6	.	.	.	.	.	.
GBM918-3	1.1270	.	0.0498	.	0.2153	.	.	0.0021	.	0.0816	9.4	.	As:0.0020	.	.	.	.
GBM919-15	1.1621	.	.	.	0.0158	.	.	0.0111	0.81	0.0670	1.6	.	.	.	.	.	.
NCS DC28074	0.892	(<0.0020)	0.014	1.84	0.012	46.99	0.149	0.0023	0.288	0.023	.	10.29	0.033	0.51	0.030	2.52	0.145
GBM305-16	0.6503	.	.	.	0.0381	.	.	0.0026	.	0.0092	.	.	.	.	.	.	.

**CRM****NICKEL ORE**

analysis in mg/kg except % which is mass %

Number	Ag	Au	Cu%	Ir	Ni%	Os	Pd	Pt	Rh	Ru	Units
VS 1702-86	23.4	0.84	(3)	0.11	5.4	0.06	30.0	8.6	0.98	0.34	100 g

## CRM NICKEL SULPHIDE ORE

analysis listed as mass % except \*\* for ppb, \* indicates certified as element instead of oxide, much more detail on certificates, 10 or 60g units

Number	Ni	Co	Fe	S	Al <sub>2</sub> O <sub>3</sub>	As	Ca	Cr	Cu	K	MgO	Mn	Na	P	SiO <sub>2</sub>	Ti	Au**	Pd**	Pt**	
OREAS 78	25.79	23.74	.	28.61	.	.	.	.	.	.	.	.	.	.	.	.	.	.	LOI: (2.36)	
OREAS 77b	11.24	0.1604	29.21	22.29	1.86*	.	3.11	0.0341	0.3163	0.344	2.67*	0.068	0.406	.	9.24*	0.065	.	.	.	
OREAS 77a	10.71	0.1675	34.0	26.83	1.48	0.0162	.	0.0840	0.4400	.	7.27	.	.	.	13.3	.	61	566	1088	
OREAS 76b	7.78	0.1103	21.76	15.18	2.58*	.	3.115	0.0663	.	0.474	5.80*	0.079	0.510	0.0139	13.74*	0.103	.	.	.	
OREAS 76a	7.40	0.1215	24.6	18.0	1.78	0.0117	.	0.1283	0.2974	.	16.5	.	.	.	21.7	.	41	403	701	
OREAS 75b	5.38	0.0788	17.17	10.79	2.79*	.	3.03	0.0942	0.1483	0.410	8.75*	0.097	.	0.0187	15.67*	0.139	.	.	.	
OREAS 75a	5.25	0.0894	19.1	12.5	1.99	0.0080	.	0.1552	0.2005	.	22.3	.	.	.	27.3	.	34	280	353	
OREAS 74b	3.39	0.0502	12.40	6.57	3.55*	.	3.09	0.0981	0.0947	0.691	9.23*	.	0.692	0.0195	19.36*	0.1555	.	.	.	
OREAS 74a	3.24	0.0581	13.7	7.48	2.21	0.00496	.	0.1780	0.1240	.	27.9	.	.	.	32.4	.	21	172	223	
OREAS 14p	2.09	.	.	.	.	.	.	.	0.997	.	.	.	.	.	.	.	.	51	150	99
OREAS 73b	1.50	0.0246	8.63	2.90	3.77*	.	3.15	0.1172	0.0430	0.586	11.80*	0.115	0.736	0.024	20.89*	0.191	.	.	.	
OREAS 72b	0.709	0.0126	6.80	1.44	4.75*	.	2.83	0.0971	0.0193	1.09	9.61*	0.1004	0.958	0.0267	23.92*	0.213	.	.	.	
OREAS 70b	0.223	.	5.51	0.286	3.81*	.	3.07	0.1243	.	0.585	13.54*	0.115	.	0.024	22.42*	0.178	.	.	.	

## RM NIOBIUM ORE

analysis listed in mass %

100g units

Number	Nb <sub>2</sub> O <sub>5</sub>	Al <sub>2</sub> O <sub>3</sub>	BaO	CO <sub>2</sub>	CaO	CeO <sub>2</sub>	F	Fe	K <sub>2</sub> O	La <sub>2</sub> O <sub>3</sub>	MgO	MnO	Na <sub>2</sub> O	Nd <sub>2</sub> O <sub>3</sub>	P <sub>2</sub> O <sub>5</sub>
FQZ 1807	61.95	0.382	0.192	0.056	13.18	0.567	4.12	2.29	0.320	0.150	0.150	0.310	5.42	0.209	0.112
DH X1803	60.62	0.291	0.201	0.097	13.02	0.556	3.65	3.50	0.233	0.153	0.136	0.325	5.28	0.207	0.102
FQZ 1808	56.71	0.614	0.277	0.139	11.67	0.588	4.02	5.41	0.463	0.185	0.177	0.383	4.73	0.214	0.134
DH X1806	0.095	0.945	0.046	36.82	27.77	0.086	.	5.44	0.525	0.040	16.16	1.12	0.061	0.038	1.75

continued

Number	S	SiO <sub>2</sub>	SrO	Ta <sub>2</sub> O <sub>5</sub>	ThO <sub>2</sub>	TiO <sub>2</sub>	U <sub>3</sub> O <sub>8</sub>	V <sub>2</sub> O <sub>5</sub>	Y <sub>2</sub> O <sub>3</sub>	ZnO	ZrO <sub>2</sub>	-H <sub>2</sub> O 900°C
FQZ 1807	0.052	2.28	1.18	0.276	0.734	3.86	0.190	0.056	0.098	0.005	0.868	0.611
DH X1803	0.051	1.91	1.20	0.273	0.770	4.26	0.202	0.073	0.085	0.001	0.847	.
FQZ 1808	0.056	3.52	1.31	0.265	0.802	3.92	0.153	0.075	0.074	0.003	0.837	0.668
DH X1806	0.798	3.38	0.274	(0.001)	0.010	0.089	(0.002)	(0.009)	(0.009)	0.013	0.027	.

## CRM NIOBIUM ORE

certified analysis

analysis listed in mass %

informational values

200 g units

Number	Nb	Al	Ca	Fe	K	Mg	Mn	Na	P	Pb	S	Si	Sr	Zn	LOI
CAN OKA-1	0.37	0.9	31.3	2.8	0.3	1.3	1.1	0.2	1.1	1.1	0.6	2.4	1.0	0.05	31.9

## CRM NOBLE METAL ORE

analysis listed in mg/kg except % which is mass %

Number	Ag	Au	Cu%	Fe%	Ir	Ni	Pd	Pt	Rh	Ru	S	Al <sub>2</sub> O <sub>3</sub>	CaO	Co	Cr <sub>2</sub> O <sub>3</sub>	MgO	SiO <sub>2</sub>	Units	
CAN PTM-1a	(135)	3.30	.	.	(0.35)	.	10.01	7.31	(0.92)	(0.7)	.	.	.	.	.	.	.	400 g	last
SARM 186	.	2.58	1.25	10.9	3.01	2.29	28.1	67.1	7.63	11.4	(4.59)	.	0.18	.	.	Si:21.0	.	1 kg	
SARM 171	.	1.67	0.88	(10.96)	(0.14)	1.57	11.23	9.26	0.65	(1.03)	4.04	.	(0.045)	.	.	Si(21.82)	.	1 kg	
SARM 142	.	0.23	(0.08)	.	(0.06)	(0.16)	1.35	2.83	0.18	0.33	.	.	.	.	(0.70)	.	.	3 kg	
SARM 143	.	0.21	(0.08)	.	(0.06)	(0.15)	1.25	2.57	0.17	0.31	.	.	.	.	(0.57)	.	.	3 kg	
SARM 189	.	0.04	.	.	(0.19)	.	0.90	1.77	0.30	(0.50)	(0.02)	13.4	(4.15)	.	17.0	13.7	31.4	1 kg	
SARM 72	.	0.13	(0.039)	17.8	(0.28)	0.17	4.24	3.97	0.83	1.18	0.11	(15.3)	(1.79)	(0.024)	31	11.6	14.1	2.5 kg	last
SARM 75	.	(0.053)	.	.	.	0.23	0.61	0.32	.	.	(0.39)	.	.	.	.	.	.	3 kg	last
CAN WPR-1a	1.02	(0.05)	0.299	11.34	(0.02)	0.439	0.614	0.452	.	.	1.768	.	.	more data under	Peridotite	.	.	400 g	
SARM 107	.	0.046	.	.	(0.14)	.	0.926	1.99	0.320	0.626	.	.	.	.	.	.	.	3 kg	
SARM 81	.	(0.034)	.	.	(0.18)	.	1.46	2.50	0.490	(0.76)	.	.	.	.	.	.	.	3 kg	last
CAN PTA-1	.	.	.	.	.	.	.	3.05	.	.	.	.	.	.	.	.	.	400 g	

## CRM NOBLE METAL ORE - CERTIFIED BY ANALYTICAL METHOD

analysis listed in mg/kg										analysis listed in mass %									
Ni = Nickel Sulfide, Pb = Lead Extraction										AR = Aqua Regia, M = M/ICP, X = XRF									
Number	Pd(Ni)	Pd(Pb)	Pt(Ni)	Pt(Pb)	Rh(Ni)	Ru(Ni)	Au(Ni)	Au(Pb)	Ir(Ni)	Co(M)	Co(AR)	Cu(M)	Cu(AR)	Cu(X)	Ni(M)	Ni(AR)	Ni(X)		
AMIS 0314	11.74	11.35	34.17	32.20	(1.89)	5.13	2.50	2.53	(0.91)	0.0242	0.0212	0.7326	0.7115	0.7183	0.8790	0.8429	0.9073		
AMIS 0354	(1.33)	1.34	(2.19)	2.25	(0.25)	(0.39)	(0.68)	0.71	(0.08)	(0.0145)	(0.00911)	0.0582	0.0586	0.0587	(0.1839)	0.1493	(0.1886)		
AMIS 0209	0.64	0.63	1.20	1.21	(0.09)	(0.17)	(0.09)	(0.09)	(0.031)	0.0049	0.0030	0.0447	0.0449	(0.0445)	0.0909	0.0747	.		
AMIS 0443	.	0.97	.	0.78	(0.07)	.	.	.	.	0.00988	(0.00700)	0.0951	0.0935	0.0879	0.1918	0.1678	(0.1833)		
AMIS 0451	.	(0.254)	(0.534)	(0.518)	.	.	.	(0.044)	.	(0.0142)	(0.001312)	0.00755	0.00757	.	0.0903	0.0214	.		

analysis listed in mass %										S by combustion, rest by XRF									
SP.G = Specific Gravity										4E = sum Pd + Pt + Rh + Au									
100 g units																			
Number	Al <sub>2</sub> O <sub>3</sub>	CaO	Co	Cr	Cr <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	S	SiO <sub>2</sub>	TiO <sub>2</sub>	Sp.G	LOI	4E g/t			
AMIS 0314	7.75	5.46	(0.0271)	.	0.96	15.68	0.14	17.04	0.15	0.58	3.49	44.23	0.22	3.11	(4.92)	50.30			
AMIS 0354	5.50	4.01	.	.	1.94	18.32	0.09	23.65	0.24	0.37	0.36	44.63	0.59	3.330	.	4.45			
AMIS 0209	5.80	3.10	.	.	0.48	4.74	0.14	6.38	(0.07)	0.46	0.20	77.84	0.11	2.84	(0.29)	2.02			
AMIS 0443	8.10	7.08	.	.	1.72	11.61	0.26	20.06	0.32	0.62	.	44.67	0.25	3.03	(4.77)	1.96			
AMIS 0451	11.61	4.05	.	.	13.42	16.89	0.13	16.69	(0.19)	0.62	.	36.19	0.46	3.46	.	0.83	last		

## CRM NOBLE METAL ORE

analysis listed in ppb (ng/g)										mass % except * which is mg/kg									
										GPP: 10g or 1kg NCS: 500g or 1kg CAN WMS-1A: 200g other CAN: 400g									
Number	Au	Ir	Os	Pd	Pt	Rh	Ru	Hg		Al <sub>2</sub> O <sub>3</sub>	As*	Cr*	Cu	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MnO	Ni	S	
NCS DC29116	(2310)	1.6	1.9	1680	2430	1.9	1.5	(0.70)		(1.47)	(12.24)	(0.17)	3.58	(13.10)	(0.12)	(0.11)	1.78	(7.44)	
NCS DC29119	(2120)	1.9	1.6	1330	4440	1.4	0.71	(7.01)		(0.87)	(537.6)	(0.06)	0.62	(1.59)	(0.12)	(0.047)	1.76	(0.19)	
GPP-10	1576	.	.	2008	2349	.	.	.		.	.	.	.	.	.	.	.	.	
NCS DC29118	(1450)	3.2	3.0	700	900	3.2	3.5	(1.01)		(4.90)	(21.58)	(0.093)	3.25	(24.09)	(0.35)	(0.13)	1.76	(13.41)	
NCS DC29118	(1450)	3.2	3.0	700	900	3.2	3.5	(1.01)		(4.90)	(21.58)	(0.093)	3.25	(24.09)	(0.35)	(0.13)	1.76	(13.41)	
NCS DC29117	(1430)	4.4	3.7	600	10610	3.6	4.2	(1.39)		(4.50)	(22.6)	(0.16)	3.01	(26.66)	(0.39)	(0.12)	0.053	(13.57)	
GPP-06	980	.	.	709	938	.	.	.		.	.	.	.	.	.	.	.	.	
GPP-02	929	.	.	523	505	.	.	.		.	.	.	.	.	.	.	.	.	
GPP-14	909	.	.	481	503	.	.	.		.	.	.	.	.	.	.	.	.	
GPP-05	859	.	.	699	912	.	.	.		.	.	.	.	.	.	.	.	.	
GPP-11	722	.	.	567	592	.	.	.		.	.	.	.	.	.	.	.	last	
GPP-13	612	.	.	390	307	.	.	.		.	.	.	.	.	.	.	.	.	
GPP-09	603	.	.	408	343	.	.	.		.	.	.	.	.	.	.	.	.	
CAN WMS-1A	300	(322)	(150)	1450	1910	222	(145)	.		Al:1.350	30.9	(68)	1.396	45.4 Fe	.	.	.	28.17	
NCS DC29120	(170)	23.6	8.2	400	380	18.0	7.8	(58.1)		(2.83)	(66.0)	(0.30)	0.11	(9.30)	(0.12)	(0.14)	0.22	(0.17)	
GPP-04	80	.	.	98	88	.	.	.		.	.	.	.	.	.	.	.	.	
GPP-12	50	.	.	47	48	.	.	.		.	.	.	.	.	.	.	.	.	
GPP-08	49	.	.	45	54	.	.	.		.	.	.	.	.	.	.	.	last	
CAN UMT-1	48	8.8	.	106	128	9.5	10.9	.		.	.	.	.	.	.	.	.	.	
NCS DC73357	(45)	28	15.6	568	440	22	13	.		.	.	.	.	.	.	.	.	.	
GPP-07	25	.	.	23	28	.	.	.		.	.	.	.	.	.	.	.	last	
NCS DC73353	10	0.05	0.06	2.3	1.6	0.95	(0.10)	.		.	.	.	.	.	.	.	.	.	
CAN TDB-1	6.3	.	.	22.4	5.8	.	.	.		.	.	.	.	.	.	.	.	.	
GPP-03	4	.	.	7	8	.	.	.		.	.	.	.	.	.	.	.	.	
CAN WGB-1	2.9	(0.33)	.	13.9	6.1	(0.32)	(0.3)	.		.	291	.	.	6.71	0.94	MgO: 9.40	.	.	
NCS DC73358	(1.8)	1.2	0.64	15.2	14.7	1.1	0.66	.		.	.	.	.	.	.	.	.	.	
NCS DC73354	1.1	4.3	9.6	4.6	6.4	1.3	14.8	.		.	.	.	.	.	.	.	.	.	
NCS DC73352	0.9	0.032	0.05	0.26	0.26	0.017	(0.05)	.		.	.	.	.	.	.	.	.	.	
NCS DC73356	.	136	353	11.3	20	10	527	.		.	.	.	.	.	.	.	.	.	
NCS DC73398	.	28	43	570	1900	7.3	74	.		.	.	.	.	.	.	.	.	.	
NCS DC73399	.	2.1	(2)	1670	5700	1.5	(2)	.		.	.	.	.	.	.	.	.	.	

Number	Au	Ir	Os	Pd	Pt	Rh	Ru	Hg	Al <sub>2</sub> O <sub>3</sub>	As*	Cr*	Cu	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MnO	Ni	S
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**CRM OBSIDIAN**

analysis listed in mass %												35 g units		analysis listed in mg/kg							
Number	Al <sub>2</sub> O <sub>3</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	Cu	Ni	Pb	Rb	Sr	Th	Ti	U		
SRM 278	14.15	0.983	1.36	2.04	4.16	(0.23)	0.052	4.84	0.036	73.05	0.245	5.9	3.6	16.4	127.5	63.5	12.4	0.54	4.58		

**RM OLIVINE WITH EXTENSIVE ANALYSIS**

analysis listed in mass %														100 g units		
Number	Al <sub>2</sub> O <sub>3</sub>	CaO	Co	Cr	TFe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	Ni	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI		
IAG MUH-1	1.33	1.21	0.0106	(0.2710)	8.59	0.012	38.2	0.117	0.10	0.210	0.007	40.3	0.034	9.38		
continued analysis listed in mg/kg																
Number	As	Ba	Ce	Cs	Cu	Dy	Er	Eu	Ga	Gd	Hf	Ho	La	Li	Lu	Nb
IAG MUH-1	(3.6)	4.9	(0.20)	0.099	19	0.153	0.108	0.026	1.38	(0.110)	0.04	0.035	(0.134)	(1.8)	0.019	(0.062)
Number	Nd	Pb	Pr	Rb	Sb	Sc	Sm	Sr	Tb	Th	Tm	U	V	Y	Yb	Zn
IAG MUH-1	0.177	(0.42)	0.035	0.27	(0.134)	9.0	0.067	(8.5)	0.0212	0.018	0.0170	(0.014)	(41)	(0.97)	0.118	44

**RM OLIVINE**

typical analysis listed in mass %															100 g units	
Number	MgO	SiO <sub>2</sub>	Fe	Al <sub>2</sub> O <sub>3</sub>	C tot	CO <sub>2</sub>	CaO	Co <sub>3</sub> O <sub>4</sub>	Cr <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	Mn <sub>3</sub> O <sub>4</sub>	NiO	P <sub>2</sub> O <sub>5</sub>	TiO <sub>2</sub>	-H <sub>2</sub> O at 900°C	
DH 4912	49.18	41.6	5.07	0.432	0.054	0.046	0.081	0.016	0.383	0.014	0.103	0.354	.	0.002	1.25	

**CRM OOZE**

Number	Type	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Ba	CO <sub>2</sub>	CaO	Ce	Cr	FeO	T.Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	TiO <sub>2</sub>	LOI	
VS 5370-90	<b>Calcareous</b>	11.90	3.60	0.010	32.20	39.23	.	0.0034	0.17	2.44	0.51	3.44	0.218	1.86	0.23	0.30	36.6	
VS 5371-90	<b>Siliceous</b>	59.60	8.96	0.15	2.70	6.40	0.033	0.0080	1.2	5.05	1.39	3.16	0.37	4.52	0.12	0.59	9.6	
continued analysis listed in mass %																		
Number	As	B	Org.C	Cu	Ni	S	Sn	Sr	V	Zn	Zr							
VS 5370-90	.	.	.	0.0030	0.0038	0.19	0.021	0.12	0.0057	0.010	0.008							
VS 5371-90	0.0020	0.007	0.34	0.014	0.010	0.17	0.00032	0.034	0.0085	0.0090	0.010							
continued analysis listed in mg/kg																		
Number	Au	Be	Co	Cs	Ga	La	Li	Mo	Nb	Nd	Pb	Rb	Sc	Sm	Th	U	Y	Yb
VS 5370-90	.	1.0	12	.	5	7	13	4	.	.	11	11	6	.	3	.	9	.
VS 5371-90	0.004	1.6	30	3.0	11	15	18	2.8	10	13	24	46	17	2.5	5	1.5	16	2.2

## PEGMATITE WITH EXTENSIVE ANALYSIS

analysis listed in mass %										IAG: RM, ~35 g units			NCS: CRM, 70 g units			VS: CRM, 50 g units		
Number	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	F	FeO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O <sup>+</sup>	K <sub>2</sub> O	MgO	Mn	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	
VS 6318-92	18.81	.	0.43	0.107	0.49	0.80T	.	1.33	0.27	.	0.054	8.44	0.29	.	68.06	0.100	0.91	
NCS DC71313	13.19	(0.05)	(0.1)	(0.03)	(0.04)	(0.24T)	(1.02)	6.22	0.13	(0.01)	.	1.60	0.18	0.07	76.40	0.61	1.27	
IAG OU-9	12.35	.	0.29	.	.	0.74	.	1.36	.	.	0.11	4.17	0.03	.	79.5	0.057	0.78	

continued analysis listed in mg/kg except % which is mass %

Number	Ag	As	B	Ba	Be	Bi	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd
VS 6318-92	.	.	.	.	56	.	.	.	.	13	95	.	.	.	.	35	.
NCS DC71313	(0.09)	3.1	(1.9)	(728)	1.3	(0.07)	0.15	(5)	(1.5)	4.8	1.8	4.2	0.20	0.12	(0.16)	13.5	0.22
IAG OU-9	.	.	.	8.75	.	.	.	7.24	.	.	403.3	.	1.70	0.30	0.05	56.6	2.53

Number	Ge	Hf	Hg	Ho	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc	Se
VS 6318-92	8.6	.	.	.	.	220	.	.	72	.	.	.	.	450	.	.	.
NCS DC71313	1.5	(0.8)	(0.008)	(0.04)	(3.3)	14.4	0.03	(0.29)	14.6	1.5	(1.6)	34.6	0.48	155	0.64	(2.85)	(0.015)
IAG OU-9	4.95	.	.	0.15	2.03	694.6	0.04	.	155.3	5.07	.	.	1.24	2501	7.67	2.77	.

Number	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
VS 6318-92	.	600	68	69	.	.	.	.	.	.	.	.	.	49	56
NCS DC71313	(0.24)	3.5	45.5	1.3	(0.04)	0.66	.	(0.02)	(0.75)	44.5	3.2	1.6	0.21	20.3	22.6
IAG OU-9	3.15	.	.	124.7	0.46	5.08	13.8	0.05	4.37	.	6.1	8.14	.	28.15	.

## CRM PERIDOTITE WITH EXTENSIVE ANALYSIS

analysis listed in mass %

Number	Al	Al <sub>2</sub> O <sub>3</sub>	C	Ca	CaO	Co	CO <sub>2</sub>	Cr	Cu	Fe	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	FeO	H <sub>2</sub> O <sup>-</sup>	H <sub>2</sub> O <sup>+</sup>	K	K <sub>2</sub> O
VS 2111-81	.	1.84	.	.	1.26	0.0159	0.69	0.320	0.0140	.	.	11.58	8.83	.	.	.	0.044
CAN WPR-1a	2.621	.	(0.15)	2.528	.	0.0213	.	(0.322)	0.299	11.34	.	.	.	.	.	0.156	.

Number	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	Ni	P	P <sub>2</sub> O <sub>5</sub>	S	Si	SiO <sub>2</sub>	Ti	TiO <sub>2</sub>	V	Zn	LOI
VS 2111-81	.	37.12	.	0.183	.	0.105	0.160	.	.	0.030	.	45.54	.	0.107	0.0039	0.0137	.
CAN WPR-1a	(15.22)	.	0.138	.	(0.050)	.	0.439	0.0303	.	1.768	17.62	.	0.3527	.	0.0135	0.0160	(8.42)

analysis listed in mg/kg

Number	Ag	As	Au	B	Ba	Be	Bi	Cd	Ce	Cl	Cs	Dy	Er	Eu	F	Ga	Gd
VS 2111-81	.	.	.	.	66	.	.	.	.	.	.	.	.	.	.	5.9	.
CAN WPR-1a	1.02	9.3	(0.05)	.	70.6	(0.2)	0.122	0.598	9.69	.	2.38	1.624	0.886	0.497	.	7.04	1.76

Number	Ge	Hf	Hg	Ho	In	Ir	La	Li	Lu	Mo	Nb	Nd	Os	Pb	Pd	Pr
VS 2111-81	1.6	.	.	.	.	.	.	.	.	1.3	.	.	.	6.7	.	.
CAN WPR-1a	(0.3)	1.142	(0.05)	0.322	(0.0899)	(0.2)	4.04	25.6	0.121	(0.9)	(3.88)	6.26	.	7.92	0.614	1.362

Number	Pt	Rb	Re	Ru	Sb	Sc	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Tl	Tm
VS 2111-81	.	.	.	.	.	11.3	.	.	3.2	.	.	.	.	.	.	.
CAN WPR-1a	0.452	7.06	.	.	3.13	17.3	(7.7)	1.617	(1.16)	19.5	(0.242)	0.269	(0.958)	(0.64)	(0.0752)	0.126

Number	U	W	Y	Yb	Zr	Units
VS 2111-81	.	.	.	1.5	21	40 g
CAN WPR-1a	.	.	8.39	0.79	(41.8)	400 g

**CRM PHOSPHATE ROCK**

* CaO+SrO	** AFPC Method	(s) = soluble analysis listed in mass %																GPO: 10 g units	SRM: 90 g units	others: 100 g units
Number	P <sub>2</sub> O <sub>5</sub>	CaO	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	F	Fe <sub>2</sub> O <sub>3</sub>	TFe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	S	SO <sub>3</sub>	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	LOI			
SARM 32	39.96	54.44	(0.05)	1.61	2.49	0.14	.	.	0.50	(0.026)	.	.	.	(0.4)	0.52	.	.			
GBW 07210	36.89	51.32*	0.58	2.15	3.54	.	1.04	0.17	0.43	0.024	0.33	.	.	3.26	0.077	0.037	.			
IPT 18B	35.7	52.6	0.35	.	1.33	0.21	.	0.23	1.65(s)	.	0.14(s)	.	.	1.15	0.48(s)	.	.			
SRM 120c	33.34**	48.02**	1.30	3.27**	3.82**	1.08	.	0.147	0.32**	0.027	0.52	(0.37)	.	5.5**	(0.1)	0.103	.			
BCR 032	32.98	51.76	0.55	5.10	4.04	0.231	.	.	0.403	.	.	.	1.84	2.09	.	.	.			
SRM 694	30.2	43.6	1.8	.	3.2	0.79	.	0.51	0.33	0.0116	0.86	.	.	11.2	.	(0.11)	.			
GPO-01	28.66	40.08	6.92	.	.	3.412	.	0.10	0.83	0.093	0.307	.	1.318	4.381	.	0.37	12.45			
USZ 14-94	26.38	38.85	0.85	5.84	.	.	0.63	0.092	2.26	.	.	.	.	20.57	.	.	6.43			
GPO-15	25.22	45.12	0.74	.	.	0.803	.	0.25	2.90	0.010	1.039	.	2.426	7.77	.	0.05	12.32			
GPO-14	24.52	44.77	0.78	.	.	0.819	.	0.26	3.07	0.047	0.979	.	2.284	8.13	.	0.05	12.96			
GBW 07211	20.86	40.71*	2.58	18.46	2.05	.	1.08	0.28	8.19	0.015	0.059	0.79	.	3.61	0.16	0.14	.			
USZ HF	13.81	33.80	.	.	.	.	0.37	0.077	8.30	.	0.12	.	.	28.04	.	.	.			
GBW 07212	6.06	19.42*	4.06	16.41	0.51	.	3.08	2.63	7.12	0.026	0.14	.	.	38.80	0.055	0.48	.			
GPO-13	4.94	6.84	10.02	.	.	5.391	.	3.75	0.68	0.030	1.454	.	0.239	62.622	.	0.16	3.43			

continued

analysis listed in mass %							analysis listed in mg/kg														
Number	BaO	CdO	U	U <sub>3</sub> O <sub>8</sub>	V <sub>2</sub> O <sub>3</sub>	V <sub>2</sub> O <sub>5</sub>	As	B	Cd	Cl	Co	Cr	Cu	Hg	I	Mn	Ni	Ti	V	Zn	
SARM 32	.	.	.	.	.	.	.	.	.	(640)	.	.	.	.	.	.	.	.	.	.	.
GBW 07210	.	.	.	.	.	.	.	.	.	.	.	.	.	.	52	.	.	.	.	.	.
IPT 18B	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SRM 120c	.	.	.	0.0135	0.016	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BCR 032	.	.	.	.	.	.	9.5	22.6	20.8	.	0.59	257	33.7	0.0551	.	18.8	34.6	171	153	253	
SRM 694	.	0.015	0.01414	.	.	0.31	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
GPO-01	0.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	last of stock
USZ 14-94	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
GPO-15	0.015	.	(0.00568)	.	.	.	.	.	.	.	.	.	.	.	52	.	.	.	.	.	last of stock
GPO-14	0.015	.	(0.00566)	.	.	.	.	.	.	.	.	.	.	.	52	.	.	.	.	.	last of stock
GBW 07211	.	.	.	.	.	.	.	.	.	.	.	.	.	.	59	.	.	.	.	.	.
USZ HF	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
GBW 07212	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
GPO-13	0.01	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	last of stock

**CRM PLAGIOGNEISS WITH EXTENSIVE ANALYSIS**

analysis listed in mass %																		100 g units					
Number	Al <sub>2</sub> O <sub>3</sub>	Ba	CO <sub>2</sub>	CaO	Cr	F	FeO	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	Zr	LOI					
VS 8871-2007	15.90	0.091	(0.13)	2.85	0.0182	0.0573	4.14	6.06	(1.1)	3.56	2.59	0.069	2.25	0.080	64.92	0.70	0.0234	0.76					
analysis listed in mg/kg																							
Number	Ag	As	B	Be	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Ge	Hf	Ho	La	Li	Lu	Mo	
VS 8871-2007	(0.09)	(2.0)	(100)	0.97	(0.10)	104	19.7	182	0.32	31	3.3	2.1	1.8	18.5	4.7	(1.1)	6.2	0.69	53	21	0.31	1.7	
Number	Nb	Nd	Ni	Pb	Pr	Rb	S	Sb	Sc	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn
VS 8871-2007	10.0	43.8	60	14.2	11.5	55	(74)	(0.05)	14.3	6.9	(0.6)	364	0.40	0.6	11.3	0.31	0.33	0.8	98	(0.3)	17.8	2.02	81

**CRM PROPHILITE**

analysis listed in mass %														50 g units	
Number	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	
JCRM R802	32.3	0.04	0.23	.	.	0.07	<0.01	.	0.09	0.05	.	60.7	0.19	6.0	
NCS DC60127	23.58	0.17	.	1.94	4.15	0.38	0.087	0.0037	0.34	0.20	0.61	66.84	0.70	5.48	
NCS DC60128	22.20	0.066	.	0.22	5.57	0.028	0.041	0.0040	0.043	0.11	0.17	70.34	0.18	6.34	

## CRM QUARTZ

analysis listed in mass %

T = Total

SRM: 5 g US: 25 g

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub> T	K <sub>2</sub> O	MgO	Mn	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	TiO <sub>2</sub>	Respirable Crystalline Phase
US QLO-1A	65.6	16.2	3.17	2.97	1.02	4.35	3.60	1.00	.	4.20	0.25	0.62	.
SRM 1878b	.	.	.	.	.	.	.	.	.	.	.	.	96.56 +/- 0.40%

continued analysis, for SUS only, listed in mg/kg

Number	Ag	As	B	Ba	Br	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	Eu	F	Ge	La	Li	Lu	
US QLO-1A	0.064	(3.5)	36	1370	(2.1)	54	220	7.2	3.2	1.8	29	3.8	2.3	1.43	280	(1.3)	27	25	0.37	
Number	Mo	Nb	Nd	Pb	Rb	S	Sm	Sn	Sr	Ta	Tb	Th	Tm	U	V	W	Y	Yb	Zn	Zr
US QLO-1A	2.6	10	(26)	20	74	(30)	4.9	2.3	340	0.82	0.71	4.5	0.37	1.9	54	0.58	24	2.3	61	185

## CRM RARE EARTH ORE WITH EXTENSIVE ANALYSIS

\* = mass percent, \* = mg/kg

AMIS: 100 g or 1 kg

GRE: 10 g

USZ: 100 g units

Number	As*	Ba	Be*	Ce%	Co*	Cr*	Cs*	Cu*	Dy*	Er*	Eu*	Ga*	Gd*	Hf*	Ho*
GRE-06	.	3442*	.	15.41	.	.	.	.	615	111	1773	.	3197	.	70.67
AMIS 0185	(31.01)	(6%)	.	4.075	(6.06)	(48)	(0.2)	(15.35)	(27.1)	(4.24)	(0.009)	(183)	(244)	(1.35)	(3.2)
USZ 25-2006	156	917*	.	2.90	32.46	.	.	128	206	79.50	211	.	553	.	36.60
USZ 42-2006	224	307*	.	2.76	7.89	(34)	(55)	27.37	57.63	(23.88)	87.22	.	(295)	.	7.86
GRE-02	.	.	.	1.6797	.	.	.	.	28.56	7.96	139.9	.	262.2	.	2.87
GRE-01	.	.	.	1.2960	.	.	.	.	20.86	5.16	85.1	.	163.5	.	2.13
USZ 44-2007	43.7	95*	.	0.10	(13.31)	200	1.05	13	165	(112)	8.3	64	117	400	37
GRE-05	.	100.89	.	0.012105	.	.	.	.	195.6	149.16	3.29	99.91	74	310.7	44.7

continued AMIS 0185 lists La by XRF and M/ICP, some informational values rounded, contains 22 other informational values

Number	La%	Li*	Lu*	Mo*	Nb*	Nd%	Ni*	P%	Pb%	Pr%	Rb*	Sc*	Sm%	Sn%	Sr%
GRE-06	9.14	.	6.81	.	.	7.12	.	(8.14)	.	1.92	.	114	(0.83)	.	.
AMIS 0185	3.003, 2.976	(18.50)	(0.56)	(22.33)	(73)	0.9238	(12.57)	.	(0.0145)	0.3471	(4.70)	(15.4)	0.0556	(1.13)	(5.3344)
USZ 25-2006	1.93	.	7.64	(23.86)	.	0.88	70.80	.	0.11	0.28	43	.	0.09	.	2.24
USZ 42-2006	2.11	21.78	.	34.40	31	0.65	13.18	.	0.16	0.23	67.12	(15.17)	0.0539	.	0.49
GRE-02	0.9786	.	0.42	.	383.6	0.7048	.	0.19955	.	0.1883	.	76.7	0.07692	.	.
GRE-01	0.8246	.	0.36	.	1669.8	0.4278	.	0.03059	.	0.12732	.	49.84	0.04222	.	.
USZ 44-2007	0.0434	37	.	(12.6)	(1700)	0.0434	(10.4)	.	0.0149	0.0122	641	.	0.0120	0.0126	0.0158
GRE-05	0.002738	(241)	19.32	.	2832	0.006839	.	.	.	0.001779	.	.	0.004614	0.0308	.

Number	Ta*	Tb*	Th*	Ti%	Tm*	U*	V*	W*	Y*	Yb*	Zn%	Zr%
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GRE-06	.	229	1540	Tl*(0.53)	10.27	30.22	.	.	1424	46.32	0.1450	(0.0168)
AMIS 0185	(0.16)	(15.3)	(237)	.	.	(46)	(54)	(1)	(62)	(2.75)	(0.0622)	(0.0057)
USZ 25-2006	.	54.60	217	.	.	138.6	.	.	959	54.52	0.06	.
USZ 42-2006	.	(45)	946	.	.	(52)	115	(19)	167	17.85	0.0469	(0.01)
GRE-02	5.58	14.62	.	0.2628	0.527	.	.	.	55.97	2.96	.	0.01363 last
GRE-01	14.1	9.98	.	1.921	0.397	.	.	.	49.81	2.42	.	0.06594
USZ 44-2007	123	25	202	.	57	88	1102	123	1102	123	0.0534	1.58
GRE-05	181.9	24.55	314.51	.	23.39	42.8	.	9.04	1076.3	145.28	.	0.7133

continued analysis for AMIS, GRE-06 and USZ listed in mass % REOx = Total Rare Earths

Number	RE <sub>x</sub> O <sub>y</sub>	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaF <sub>2</sub>	CaO	F%	FeO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O-	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	Density
AMIS 0185	.	2.22	.	.	11.48	(Fe:3.59)	.	5.29	.	.	(0.10)	4.69	(1.09)	(0.17)	1.74	S:1.93	21.53	(0.081)	20.69	3.28
USZ 25-2006	7.56	2.47	1.04	(32.90)	25.51	(1.89)	0.14	13.45	(0.67)	.	0.91	0.50	0.14	0.92	19.26	4.58	14.86	0.15	6.78	.
USZ 42-2006	8.27	2.72	29.00	.	32.68	(1.61)	(0.08)	5.71	(0.19)	(2.03)	1.55	2.78	1.67	0.25	0.22	(0.14)	11.86	0.20	30.56	.
USZ 44-2007	.	10.93	.	(2.20)	2.03	(0.98)	(0.36)	3.38	(0.18)	(0.68)	3.70	(0.05)	0.06	3.46	(0.03)	.	71.38	0.31	(1.64)	.

Number	Al	Ca	Fe	K	Mg	Mn	S	Si	TiO <sub>2</sub>
GRE-06	1.22	1.88	14.42	(0.08)	0.34	0.7396	0.35	0.8388	0.59

## CRM RARE EARTH ORE

analysis listed in mass %

Number	RE <sub>x</sub> O <sub>y</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	F-	FeO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
NCS DC86318	4.30	(14.26)	0.29	0.017	0.20	2.24	3.60	5.52	(0.11)	0.052	0.66	(0.020)	66.90	0.17	5.43
NCS DC86317	1.83	16.59	(0.11)	0.15	0.18	0.71	4.63	4.03	0.13	0.10	0.13	(0.0073)	70.92	(0.018)	5.42
NCS DC86312	0.784	19.00	0.029	0.014	(0.072)	3.46	6.64	2.11	0.231	0.069	0.064	(0.029)	66.72	0.530	6.80
NCS DC86311	0.486	14.65	(0.031)	0.034	(0.039)	1.13	3.61	4.92	0.080	0.016	0.155	(0.0025)	74.34	(0.023)	3.70
NCS DC86310	0.085	14.70	(0.026)	0.034	0.054	1.15	3.61	4.98	0.077	0.017	0.158	(0.0027)	74.55	0.022	3.77
NCS DC86309	0.092	19.04	(0.033)	0.016	(0.071)	3.49	6.64	2.13	0.229	0.070	0.062	0.029	67.28	0.537	6.73

Number	CeO <sub>2</sub>	Cs <sub>2</sub> O	Dy <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub>	Li <sub>2</sub> O	Lu <sub>2</sub> O <sub>3</sub>
NCS DC86318	0.053	0.00126	0.37	0.20	0.00219	0.25	(0.064)	0.23	0.0121	0.030
NCS DC86317	0.021	0.0148	0.12	0.068	0.000956	0.091	(0.023)	0.25	0.0396	0.00645
NCS DC86312	0.023	0.00055	0.021	0.011	0.00750	0.026	0.00409	0.277	0.00398	0.00136
NCS DC86311	0.00348	0.00178	0.036	0.022	0.00018	(0.027)	0.00750	0.011	0.015	0.00304
NCS DC86310	0.00217	0.00177	0.00563	0.00364	0.000036	0.00324	0.00120	0.00200	0.015	0.00055
NCS DC86309	0.00915	0.00056	0.00273	(0.016)	0.00081	0.00317	0.00057	0.031	0.00403	0.00020

Number	Nd <sub>2</sub> O <sub>3</sub>	Pr <sub>6</sub> O <sub>11</sub>	Rb <sub>2</sub> O	Sc <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	Tb <sub>4</sub> O <sub>7</sub>	Th	Tm <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Units
NCS DC86318	0.40	0.089	0.0404	0.00072	0.20	0.055	0.00670	0.031	2.16	0.21	70 g
NCS DC86317	0.24	0.066	0.12	0.00101	0.066	0.019	0.00210	0.00829	0.80	0.051	70 g
NCS DC86312	0.186	0.054	0.011	0.00118	0.033	0.00407	0.00236	0.00151	0.124	0.0100	70 g
NCS DC86311	0.022	(0.0045)	0.067	0.00089	0.015	0.00577	0.00390	0.00316	0.303	0.022	70 g
NCS DC86310	0.00276	0.00063	0.069	0.00095	0.00157	0.00082	0.00405	0.00057	0.057	0.00366	70 g
NCS DC86309	0.017	0.00492	0.012	0.00113	0.00338	0.00054	0.00245	0.00024	(0.018)	0.00141	70 g



CRM		RARE EARTH ORE																		
		analysis listed in mass % and mg/kg * RE <sub>x</sub> O <sub>y</sub> = total rare earth oxides																		
Number	RE <sub>x</sub> O <sub>y</sub> %	CeO <sub>2</sub> %	Dy*	Er*	Eu <sub>2</sub> O <sub>3</sub> %	Gd <sub>2</sub> O <sub>3</sub> %	Ho*	La <sub>2</sub> O <sub>3</sub> %	Lu*	Nd <sub>2</sub> O <sub>3</sub> %	Pr <sub>2</sub> O <sub>3</sub> %	Sc*	Sm <sub>2</sub> O <sub>3</sub> %	Tb*	ThO <sub>2</sub> %	Tm*	Y <sub>2</sub> O <sub>3</sub> %	Yb*		
UNS TRV	13.82	6.64	(207.1)	(41.2)	0.042	(0.089)	(41.5)	(4.23)	(6.7)	(1.94)	(0.71)	(22.5)	0.22	(82.3)	(0.29)	(14.8)	(0.048)	(21.6)		
continued		analysis listed in mass % T = total																		
Number	Al <sub>2</sub> O <sub>3</sub>	BaO	CO <sub>2</sub>	CaO	F	FeO	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	T.S	SO <sub>3</sub>	SiO <sub>2</sub>	SrO	TiO <sub>2</sub>	LOI	
UNS TRV	(0.52)	17.02	(16.5)	13.54	1.57	3.61	8.34	(1.24)	0.15	2.27	1.15	(0.07)	(0.12)	6.05	(13.58)	(2.47)	5.92	0.079	17.16	
continued		analysis listed in mg/kg																		
Number	Ag	As	Be	Bi	Cd	Co	Cr	Cu	Li	Mo	Ni	Pb	V	Zn	Units					
UNS TRV	(6.7)	(335)	(4.2)	(72.9)	(7.5)	(26.5)	(40.6)	(41.5)	(28.8)	71.4	(44.0)	(332.9)	(74.2)	767.9	100 g					

CRM		RARE EARTH ORE															100 g units	
		analysis listed in mass %																
Number	Al	Ba	C	Ca	Fe	H <sub>2</sub> O	K	Mg	Mn	Na	P	S	Si	Zr	LOI			
CAN REE-1	3.59	0.01001	(0.0786)	2.30	(4.16)	(0.6)	3.09	(0.895)	(0.155)	1.445	0.0261	(0.03)	31.36	1.91	(2)			
CAN REE-2	0.761	5.02	(9.06)	13.68	12.14	(0.4)	(0.0172)	6.26	1.316	(0.120)	0.461	1.745	1.377	(0.00322)	31.38			
CAN REE-3	4.372	0.00691	(0.08)	1.644	8.28	(0.1)	3.76	0.0594	(0.313)	(2.328)	0.0201	(0.04)	29.66	1.8660	0.346			
continued		analysis listed in mg/kg																
Number	Ag	As	Be	Bi	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd			
CAN REE-1	.	124	(590)	(0.652)	.	3960	1.58	277	1.07	79.7	847	701	23.5	(64)	433			
CAN REE-2	(1)	.	(3.31)	(2.00)	(1.11)	9610	7.71	(32.7)	(0.09)	(5.55)	69.2	14.0	96.6	(60)	(219)			
CAN REE-3	(2)	.	82.3	(1.171)	(4.2)	4540	(0.92)	82	1.118	16.3	330.3	187.2	20.85	(80)	346			
Number	Ge	Hf	Ho	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb			
CAN REE-1	(3)	479	208	(0.2)	1661	(205)	(92.4)	(36.6)	4050	1456	24.7	1137	435	1047	(3.16)			
CAN REE-2	(7)	(0.95)	7.87	(1.403)	5130	9.61	(0.92)	(154)	(1060)	3660	(13.1)	(40.8)	1075	1.22	(0.89)			
CAN REE-3	.	448	65.0	(0.4)	2121	(60)	21.53	59.7	1073	2083	10.83	534	550	887	(0.2)			
Number	Sc	Sm	Sn	Sr	Ta	Tb	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn		
CAN REE-1	(8)	381	498	129	(231)	106.2	719	(3840)	(1.85)	106	137	(9.9)	(10)	5480	678	(1870)		
CAN REE-2	57.5	410	24.1	2300	1.17	20.3	737	1969	(0.240)	1.383	3.73	(79)	9.9	176	(7.2)	(420)		
CAN REE-3	(3)	398	121.1	133.7	60.7	55.2	135.5	3202	(2.341)	25.8	(29.9)	(4)	(1)	1.725	159.4	1499		



## CRM SANDSTONE

analysis listed in mass % and \* mg/kg

Number	S%	Cu%	Ag*	Re*	Units
KZ 8077-94	0.33	0.11	10.2	0.14	100 g
KZ 8076-94	.	0.036	0.64	0.023	100 g

## SANDSTONE WITH EXTENSIVE ANALYSIS

analysis listed in mass %

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	C(org)	C(tot)	CO <sub>2</sub>	CaO	F	FeO	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	TiO <sub>2</sub>	LOI
GBW 07106	90.36	3.52	(0.05)	(0.10)	(0.19)	0.30	0.0183	0.61	3.22	1.01	0.65	0.082	.	0.061	.	.	1.10
UL PRI-1	68.60	10.84	.	.	(2.62)	2.49	(0.0383)	(2.07)	3.32	.	3.79	3.24	0.04	1.71	0.18	0.71	4.99
IAG OU-8	54.120	6.548	.	.	.	16.711	.	.	1.304	.	2.967	1.879	0.138	0.677	.	0.244	15.301

continued		analysis listed in mg/kg except * which is ng/g											continued									analysis listed in mg/kg except * which is ng/g								
Number	Ag	As	Au*	B	Ba	Be	Bi	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Ge	Hf									
GBW 07106	0.062	9.1	(1.8)	34	143	0.97	0.18	0.060	48	(44)	6.4	20	1.8	19	4.1	2.0	1.02	5.3	4.5	1.16	6.6									
UL PRI-1	.	(4.7)	.	(52)	531	1.4	(0.1)	.	82	.	7.4	78	(2.2)	(3.5)	4.3	(2.7)	1.29	(13)	5.3	(<5)	10.7									
IAG OU-8	.	.	.	.	528	1.42	(0.043)	.	41.8	.	.	(21.5)	3.23	8.36	2.25	1.59	0.67	6.28	2.32	(1.10)	4.72									

Number	Hg	Ho	I	In	La	Li	Lu	Mn	Mo	Nb	Nd	Ni	P	Pb	Pr	Rb	S	Sb
GBW 07106	0.008	0.75	(0.2)	(0.026)	21	11.1	0.30	155	0.76	5.9	21	16.6	970	7.6	5.4	29	860	0.60
UL PRI-1	.	(1)	.	(<1)	38	.	0.41	.	(0.7)	13	36	21	.	(13)	(9.5)	90	(357)	(0.3)
IAG OU-8	.	0.51	.	.	13.8	10.3	0.26	.	.	(4.46)	12.4	.	.	9.64	3.12	64.6	.	0.22

Number	Sc	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Class	Units
GBW 07106	4.2	0.08	4.7	1.1	58	0.38	0.79	0.038	7.0	1580	0.36	0.32	2.1	33	1.2	21.5	1.9	20	214	CRM	70 g
UL PRI-1	9.7	.	6.6	(2)	88	1	0.85	.	11.3	.	(0.2)	(0.39)	2.5	65	(2.2)	25	2.8	47	386	CRM	50 g
IAG OU-8	(3.63)	.	2.42	.	264.4	0.32	0.36	.	9.5	.	1.01	0.24	0.74	29.8	.	16.0	1.66	.	182.7	RM	~35 g

## CRM SCHIST

analysis listed in mass %

UL: 50 g units

UNS, VS: 100 g units

US: 25 g units

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	BaO	CO <sub>2</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub> T	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SrO	TiO <sub>2</sub>	LOI
US SDC-1	65.8	15.8	.	.	1.40	3.93	2.62	6.32	.	3.28	1.69	.	2.05	0.16	.	1.01	.
VS 3191-85	63.40	16.71	.	.	0.09	4.65	.	7.6	.	3.56	2.52	0.13	0.08	0.030	.	1.01	4.54
UNS MI	62.19	14.54	0.10	2.13	1.96	(6)	.	6.41	(12)	2.15	3.28	0.25	3.33	(10)	0.016	0.71	(16)
UL SB01	55.16	18.24	.	.	1.76	(5.61)	.	7.15	.	3.55	(1.97)	0.18	0.66	0.17	.	0.94	9.67

continued		analysis listed in mg/kg															
Number	Ag	As	B	Ba	Be	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	Eu	F	
US SDC-1	.	0.22	(13)	630	3	.	93	(32)	18	64	4	30	(6.7)	(4.1)	(1.7)	600	
VS 3191-85	.	.	100	950	3.5	.	90	.	27	70	(7)	46	.	.	.	.	
UNS MI	(0.006)	(0.007)	(0.005)	.	(0.006)	0.0100	.	.	0.0120	0.1073	.	0.0438	.	.	.	.	
UL SB01	.	(32)	.	549	(3.2)	.	101	.	22	116	(6.8)	33	(5.1)	(3.4)	1.64	.	

Number	Ga	Gd	Ge	Hf	Hg	Ho	La	Li	Lu	Mn	Mo	Nb	Nd	Ni	Pb	Pr	Rb	S
US SDC-1	21	7	.	8.3	(0.2)	(1.5)	42	34	.	880	.	(21)	40	(38)	25	.	127	.
VS 3191-85	(15)	.	(2)	.	.	.	(60)	(0.6)	.	(1.6)	16	.	45	15	.	5	150	.
UNS MI	(0.010)	.	.	.	.	.	.	.	.	(0.003)	.	0.0372	0.0945	.	0.0539	3300	.	
UL SB01	(23)	6.2	.	5	.	(1.3)	48	.	0.49	.	.	17	42	60	27	11.1	163	.

Number	Sb	Sc	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
US SDC-1	0.54	17	8.2	3.0	180	(1.2)	(1.2)	12	(0.7)	(0.65)	3.1	102	(0.80)	.	(4)	103	290
VS 3191-85	.	22	.	(4)	39	.	.	(12)	.	(2)	100	.	48	5	100	230	.
UNS MI	.	.	.	.	.	.	.	.	.	.	0.1052	(0.003)	0.0198	(0.003)	3000	0.1518	.
UL SB01	.	17	7.8	.	150	1.4	1	15.2	.	(0.43)	3.1	153	.	32	3.2	82	183

RM	SEDIMENT														analysis listed in mass %	
Number	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	Type			
IAG OU-10	10.97	.	2.34	4.92	1.28	1.77	0.120	2.43	0.090	73.12	0.534	(2.20)	Longmyndian Greywacke			
IAG UoK	6.2	14.94	16.31	2.1	1.3	2.9	0.0644	1.058	0.13	53.24	0.423	16.03	Loess			
analysis listed in mg/kg																
Number	As	Ba	Be	Bi	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	
IAG OU-10	.	311	(1.1)	.	(2.8)	(38.0)	12.0	34.0	1.68	22.3	3.65	2.2	1.00	12.0	3.7	
IAG UoK	6.7	200.97	1.102	0.1	.	53	5.95	105.7	2.72	11.31	4.02	2.382	0.888	7.087	4.465	
Number	Hf	Ho	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc	Sm	Sr
IAG OU-10	3.3	0.75	18.8	(26.0)	0.34	(0.98)	7.6	18.7	(17.7)	26.9	4.7	35.9	.	11.3	(3.9)	174
IAG UoK	(9.10)	0.80	25.54	21.90	0.37	(1.40)	8.61	24.32	42.71	11.34	6.24	51.2	0.580	(5.93)	5.01	278.5
Number	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Units			
IAG OU-10	0.56	0.61	5.0	(0.23)	0.34	1.09	77	.	20.5	2.2	54	123	~35 g			
IAG UoK	(0.73)	0.687	8.111	0.338	0.339	2.697	(37.56)	(1.45)	23.18	2.420	34.4	.	~60 g			

## LAKE SEDIMENT - SEQUENTIAL EXTRACTION METHOD

BCR 701, CRM 20g	Cd	Cr	Cu	Ni	Pb	Zn
Step 1	7.34	2.26	49.3	15.4	3.18	205
Step 2	3.77	45.7	124	26.6	126	114
Step 3	0.27	143	55.2	15.3	9.3	45.7
Concentration	(0.13)	(62.5)	(38.5)	(41.4)	(11.0)	(95)

## LAKE SEDIMENT WITH ACID EXTRACTION

Number	Analysis	Al	As	Ba	Ca	Cd*	Co	Cr	Cu	Fe	K	La	CRM, powder 20 g
NIES 31	whole material	9.17	(0.00139)	(0.0338)	1.25	(0.342)	(0.00181)	0.00433	0.00531	5.38	(0.991)	(0.00204)	
NIES 31	acid extract	.	.	.	.	(0.285)	.	(0.00337)	0.00506	.	.	.	
Number	Analysis	Mg	Mn	Na	Ni	P	Pb	Sc	Sr	Ti	V	Zn	
NIES 31	whole material	(0.836)	0.0978	0.882	0.00253	0.0925	0.00251	(0.00191)	(0.0125)	0.442	0.0154	0.0121	
NIES 31	acid extract	.	0.0881	.	0.00222	.	0.00220	.	.	.	0.0133	0.0110	

## CRM LAKE SEDIMENT

Number	Al <sub>2</sub> O <sub>3</sub>	C	CaO	Fe	FeO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O-	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	Other			
JLk-1	16.73	.	0.686	.	2.191	4.251	3.701	6.372	2.805	1.736	0.266	1.051	0.208	0.1052	57.16	0.668	.	T.Fe <sub>2</sub> O <sub>3</sub> : 6.929			
VS 7176-95	14.22	.	7.09	.	3.50	5.39T	(0.22)	.	1.51	3.12	0.12	3.11	0.139	.	62.46	0.76	1.78	CO <sub>2</sub> : <sup>3</sup> (0.74)			
VS 7126-94	13.57	(2.24)	1.85	.	1.60	7.02T	(2.15)	(4.5)	2.21	2.00	0.40	1.96	0.345	0.165	61.07	0.69	8.34	SO <sub>4</sub> : (0.35)			
AE SL 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Ca: 11.1100			
BCR 280R	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.			
continued analysis listed in mg/kg except % which is mass %																					
Number	Ag	Al%	As	Au	B	Ba	Be	Bi	Br	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	F	Ga	
JLk-1	.	.	26.8	.	.	574	.	.	.	.	87.9	18.0	69.0	10.9	62.9	6.57	3.59	1.27	589	.	
VS 7176-95	(0.04)	.	.	.	(12)	530	(1.3)	.	.	.	(41)	17	158	.	18	.	.	(1.4)	(380)	.	
VS 7126-94	(0.17)	.	18	(0.004)	34	710	2.7	.	.	.	80	18	66	6	52	(4.6)	(2.6)	1.4	600	16	
AE SL 3	.	2.4500	3.2	.	.	.	.	.	5.6	.	45.5	.	.	1.38	.	2.22	.	0.66	.	.	
BCR 280R	33.4	.	.	.	.	.	.	.	.	0.85	.	16.8	126	.	53	1.46	69	224	.	.	
Number	Gd	Ge	Hf	Hg	Ho	K%	La	Li	Lu	Mg%	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pr	Rb	
JLk-1	6.02	.	3.78	.	1.06	.	40.6	.	0.571	.	.	.	15.8	35.7	35.0	.	43.7	8.53	147	.	
VS 7176-95	.	.	.	.	.	.	19	8.5	.	.	.	.	10	.	31	.	14	.	39	.	
VS 7126-94	(5.8)	1.4	3.9	(0.03)	(1)	.	45	37	0.40	.	2.9	12	39	54	.	21	(8)	93	.		
AE SL 3	.	.	9.1	.	.	0.8740	22.5	.	0.3	2.7000	.	6690	.	21.5	.	.	.	.	38.8	.	
BCR 280R	.	.	1.46	.	.	.	.	.	.	.	.	.	.	.	69	.	.	.	.	.	
Number	Sb	Sc	Se	Sm	Sn	Sr	Ta	Tb	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Units (g)	
JLk-1	.	15.9	.	7.87	.	67.5	1.57	1.23	19.5	.	1.17	.	3.83	117	.	40.0	3.99	152	137	20	
VS 7176-95	.	19	.	.	3.7	580	.	.	.	.	.	.	.	105	.	24	2.7	64	204	100	
VS 7126-94	(0.95)	13	(0.97)	7	3.2	266	0.84	0.9	12.7	.	.	.	(0.42)	12.0	110	(4.3)	30	2.9	96	156	100
AE SL 3	0.56	3.91	.	3.83	.	0.47	0.7	0.49	7	2610	.	.	2.3	.	.	.	1.89	.	.	25	
BCR 280R	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	224	.	30	

## CRM ESTUARY AND MARINE SEDIMENT

analysis listed in mg/kg except % which is mass %

Number	Hg	CH <sub>3</sub> Hg	Ag	Al%	As	Ba	Be	Ca%	Cd	Ce	Co	Cr	Cu	Fe%	Ga
ERM-CC580	132 tot	0.075	.	.	.	.	.	.	.	.	.	.	.	.	.
NMIJ 7302a	0.52	.	0.49	.	22.1	.	.	.	1.32	.	12.4	145	57.8	.	.
BCR 277R	0.128	.	.	.	18.3	.	.	.	0.61	.	22.5	188	63	.	.
NMIJ 7303a	0.067	.	0.098	.	8.6	.	.	.	0.342	.	11.1	39.1	23.1	.	.
SRM 1646a	(0.04)	.	(<0.3)	2.297	6.23	(210)	(<1)	0.519	0.148	(34)	(5)	40.9	10.01	2.008	(5)

  

Number	K%	La	Li	Mg%	Mn	Mo	Na%	Nd	Ni	P%	Pb	Rb	S%	Sb	Sc	Se
ERM-CC580	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NMIJ 7302a	.	.	.	.	1.98	.	.	.	25.8	.	82.7	.	.	1.22	.	0.61
BCR 277R	.	.	.	.	.	.	.	.	130	.	.	.	.	.	.	.
NMIJ 7303a	.	.	.	.	0.96	.	.	.	21.8	.	31.3	.	.	0.69	.	0.24
SRM 1646a	0.864	(17)	(18)	0.388	2345	.	0.741	(15)	22.5	0.027	11.7	(38)	0.352	(0.3)	(5)	0.193

  

Number	Si%	Sn	Sr	Th	Ti%	Tl	U	V	Zn	Units
ERM-CC580	.	.	.	.	.	.	.	.	.	40 g
NMIJ 7302a	.	18.5	.	.	.	.	.	.	401	60 g
BCR 277R	.	.	.	.	.	.	.	.	178	40 g
NMIJ 7303a	.	4.21	.	.	.	.	.	.	107	60 g
SRM 1646a	40.0	(1)	(68)	(5.8)	0.456	(<0.5)	(2)	44.84	48.9	70 g

## CRM MARINE SEDIMENT

analysis listed in mass %

T = Total

Number	Al <sub>2</sub> O <sub>3</sub>	C(org)	T.C	CO <sub>3</sub> <sup>2-</sup>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
JMs-1	15.82	.	1.69	.	2.13	2.12	4.54	6.90	6.79	2.24	2.87	0.102	4.07	0.18	1.32T	53.74	0.70	15.44
JMs-2	14.18	.	0.39	.	4.68	<0.04	10.96	10.96	7.13	2.70	3.24	2.26	5.79	1.26	0.29T	41.78	1.40	19.15
SRM 2702	8.41	(3.27)	(3.36)	.	(0.343)	.	.	7.91	.	2.054	(0.990)	0.1757	0.681	0.1552	(1.5T)	.	0.884	.
SRM 2703	8.33	.	.	.	(0.31)	.	.	7.38	.	2.08	(1.0)	0.1734	0.693	(0.16)	.	.	0.880	.
NRC MESS-4	7.91	.	(1.79)	.	1.31	.	.	3.79	.	2.38	1.58	0.0298	1.26	0.104	0.158	27.8	0.384	.
NRC PACS-3	6.58	.	.	.	1.89	.	.	4.106	.	1.253	1.402	0.0432	3.52	0.0937	1.17	26.1	0.442	.
NRC HISS-1	0.73	.	.	.	1.14	.	.	0.246	.	0.332	0.075	0.00661	0.373	.	.	(44)	0.076	.
BCR 320R	.	.	.	.	.	.	.	2.5700	.	.	.	0.0910	.	.	.	.	.	.

continued analysis listed in mg/kg except % which is mass % SRM 2703 is intended for small sample techniques &lt;10mg

Number	Ag	As	B	Ba%	Be	Bi	Br	Cd	Ce	Cl%	Co	Cr	Cs	Cu	Dy	Er	Eu
JMs-1	.	18	81	0.0307	1.3	.	.	.	.	2.69	18.1	133	5.9	88	.	.	.
JMs-2	.	35	106	0.1856	1.8	.	.	.	.	4.05	226	78	3.0	447	.	.	.
SRM 2702	(0.622)	45.3	.	0.03974	(3.0)	.	.	0.817	123.4	.	27.76	352	(7.1)	(117.7)	.	.	.
SRM 2703	(0.59)	45.5	.	0.0416	.	.	.	0.811	125.5	.	27.70	.	(7.7)	(120)	.	.	.
NRC MESS-4	0.161	21.7	.	(0.0920)	2.09	(2.7)	(60)	0.28	(72)	1.31%	13.0	94.3	(10)	32.9	.	.	(1.3)
NRC PACS-3	(1.10)	30.3	.	.	1.06	.	.	2.23	.	.	(12.1)	90.6	.	326	.	.	.
NRC HISS-1	0.016	0.801	.	.	0.129	.	.	0.024	.	(0.35)	(0.65)	30.0	.	2.29	.	.	.
BCR 320R	.	21.7	.	.	.	.	.	2.64	.	.	9.7	59	.	46.3	.	.	.

  

Number	Ga	Gd	Hf	Hg	Ho	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc
JMs-1	.	.	.	.	.	0.101	.	62	.	.	.	.	53	49	.	88	1.4	.
JMs-2	.	.	.	.	.	0.178	.	43	.	.	.	.	311	88	.	65	4.5	.
SRM 2702	(24.3)	.	(12.6)	0.4474	.	.	73.5	(78.2)	.	(10.8)	(63)	(56)	75.4	132.8	.	127.7	5.60	25.9
SRM 2703	.	.	(11.8)	0.474	.	.	75.9	.	.	(11)	(63)	(72)	(75)	130	.	130	5.62	25.95
NRC MESS-4	(18) Ge:	(0.16)	(3.0)	(0.08)	.	(0.10)	(35)	65.3	(0.11)	(2.53)	(12)	(42)	42.8	21.5	.	(180)	1.07	(13.4)
NRC PACS-3	.	.	.	2.98	.	.	.	31.9	.	(5.9)	.	.	39.5	188.0	.	.	14.7	.
NRC HISS-1	.	.	.	(0.01)	.	.	.	2.83	.	(0.13)	.	.	2.16	3.13	.	.	(0.13)	.
BCR 320R	.	.	.	0.85	.	.	.	.	.	.	.	.	27.1	85	.	.	.	5.2

\* BUTILYN CONTENT DETAILED ON CERTIFICATES

Number	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Units
JMs-1	.	.	.	154	.	.	0.132	.	.	.	.	127	.	24.3	.	264	132	100 g
JMs-2	.	.	.	454	.	.	1.38	.	.	.	.	183	.	254	.	166	220	100 g
SRM 2702	(4.95)	(10.8)	31.6	119.7	.	.	.	20.51	0.8267	.	(10.4)	357.6	(6.2)	.	.	485.3	.	50 g
SRM 2703	(4.9)	(10.8)	(32)	(118)	.	.	.	20.22	(0.83)	.	8.99	360	(6.4)	.	.	480	.	5 g last
NRC MESS-4 *	(1.5)	(5.5)	2.35	132	(1)	.	(0.1)	(12)	0.85	.	3.4	216	(1.3)	(20)	(2)	147	(96)	50 g Re:(0.004)
NRC PACS-3 *	.	.	22.0	267	.	.	.	.	.	.	(2.6)	129	.	.	.	376	.	50 g
NRC HISS-1	0.050	.	(0.11)	96.9	.	.	.	(0.06)	.	.	(0.26)	6.80	.	.	.	4.94	.	100 g
BCR 320R	.	.	.	.	.	.	.	5.3	0.65	.	1.56	46.5	.	.	.	319	.	40 g

## RIVER SEDIMENT

analysis listed in mg/kg except % which is mass %																				SRM 1944: CRM, 50 g					SRM 8704: RM, 50 g				
Number	Ag	Al%	As	Au	Ba	Be	Br	C%	Ca%	Cd	Ce	Cl%	Co	Cr	Cs	Cu	Eu	Hf	Hg	Fe									
SRM 1944	6.4	5.33	18.9	(0.1)	.	1.6	86	.	1.0	8.8	(65)	1.4	14	266	3	380	(1.3)	.	3.4	3.53%									
SRM 8704	.	6.10	(17)	.	413	.	.	3.351	2.641	2.94	66.5	.	13.57	121.9	5.83	.	1.31	8.4	.	3.97%									
continued																													
Number	K%	Mg%	Mn	Na%	Ni	Pb	Rb	Sb	Sc	Se	Si%	Sn	Th	Ti%	Tl	U	V	Zn											
SRM 1944	1.6	(1.0)	505	1.9	76.1	330	75	(5)	10.2	1.4	31	42	(13)	0.4300	0.59	(3.1)	100	656											
SRM 8704	2.001	1.200	544	0.553	12.9	150	.	3.07	11.26	.	.	.	9.07	0.457	.	3.09	94.6	408											

## CRM STREAM SEDIMENT

analysis listed in mass %																		BCR: 40 g			JSd 1-3: 20 g			JSd-4: 100 g			SARM: 100 g units		
Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Org.C	CO <sub>2</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O+	H <sub>2</sub> O-	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	TiO <sub>2</sub>	LOI												
JSd-3	76.00	9.908	.	.	0.560	1.161	3.057	4.368	2.838	0.964	1.971	1.17	0.149	0.411	0.0817	0.403	.												
JSd-1	66.55	14.65	.	(0.0867)	3.034	1.363	3.526	5.059	(2.301)	0.836	2.183	1.813	0.0924	2.727	0.122	0.643	.												
JSd-2	60.78	12.31	.	(0.501)	3.658	5.955	4.552	11.65	2.554	0.451	1.145	2.731	0.120	2.438	0.105	0.614	.												
JSd-4	51.12	13.22	.	.	5.57	(2.08)	.	8.06	.	.	1.40	4.04	0.107	2.28	0.45	0.64	.												
SARM 46	35.90	6.71	.	.	1.32	(18.0)	28.16	.	.	.	0.35	3.16	1.14	0.28	0.11	0.60	.												
BCR 667	estuary sediment		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.												
continued analysis listed in mg/kg except * which is ng/g and % which is mass %																													
Number	Ag	As	Au*	B	Ba	Be	Bi	Br	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	Eu	F	Fe									
JSd-3	(3.38)	252	(5.66)	.	462	.	.	.	42.0	.	12.7	35.3	30.6	426	2.22	1.07	0.686	3200	.	.									
JSd-1	(0.036)	2.42	(0.64)	.	520	1.40	.	.	34.4	.	11.2	21.5	1.89	22.0	2.23	0.906	0.925	306	.	.									
JSd-2	(1.04)	38.6	(54.6)	.	1199	.	.	.	23.4	.	48.4	108	1.07	1117	2.86	1.48	0.81	259	.	.									
JSd-4	.	.	.	.	(888)	.	.	.	.	.	(21)	(1215)	.	(486)	.	.	.	.	.	.									
SARM 46	.	.	.	.	(180)	.	.	.	(110)	.	56	559	566	.	.	.	.	.	.	.									
BCR 667	.	.	.	.	.	.	.	(99.7)	(0.67)	56.7	(23.0)	(178)	(7.8)	(60)	4.01	2.35	1.00	.	(44.48)	.									
continued																													
Number	Gd	Ge	Hf	Hg*	Ho	I	In	La	Li	Lu	Mn	Mo	Nb	Nd	Ni	P	Pb	Pr	Rb	S									
JSd-3	.	.	3.21	(254)	.	.	.	19.8	151	0.196	.	.	7.80	15.7	19.6	.	82.1	3.09	285	(399)									
JSd-1	2.71	.	3.55	(15.5)	.	.	.	18.1	22.8	0.186	.	.	11.1	17.6	7.04	.	12.9	4.05	67.4	(68)									
JSd-2	.	.	2.70	(106)	.	.	.	11.3	(19.2)	0.252	.	11.5	4.56	13.2	92.8	.	146	2.40	26.9	1.31%									
JSd-4	.	.	.	.	.	.	.	(16)	(32)	.	.	.	.	.	(114)	.	(240)	.	(57)	.									
SARM 46	.	.	.	.	.	.	.	.	.	.	(10)	.	.	.	(125)	.	(1.3)	.	(20)	(0.17%)									
BCR 667	4.41	.	.	.	0.80	.	.	27.8	.	0.325	(920)	.	.	25.0	(128)	.	(31.9)	6.1	.	.									
continued																													
Number	Sb	Sc	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Ti%	Tl	Tm	U	V	W	Y	Yb	Zn	Zr									
JSd-3	.	10.5	.	3.26	.	58.7	0.687	0.368	.	7.79	.	.	.	1.66	70.4	.	14.9	1.40	136	124									
JSd-1	.	10.9	.	3.48	.	340	0.893	0.431	.	4.44	.	.	.	1.00	76.0	.	14.8	1.18	96.5	132									
JSd-2	.	17.5	.	2.68	.	202	.	0.440	.	2.33	.	.	.	1.10	125	.	17.4	1.67	2056	111									
JSd-4	.	(17)	.	.	.	(220)	.	.	.	.	.	.	.	.	(152)	.	(21)	.	(1485)	(90)									
SARM 46	.	.	.	.	.	25	.	.	.	.	.	.	.	.	225	.	(20)	.	0.59%	101									
BCR 667	(0.96)	13.7	(1.59)	4.66	.	.	(0.876)	0.682	.	10.0	.	.	0.326	2.26	.	.	.	2.20	(175)	.									

## CRM STREAM SEDIMENT

analysis listed in mass %																	DC360xx: 75 g units		DC730xx: 70 g units	
Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	C	C.Org	CO <sub>2</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub> T	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	Mn	N	Na <sub>2</sub> O	P	S	Ti			
NCS DC73017	77.42	11.44	(0.25)	0.20	(0.11)	0.85	(0.2)	1.86	(1.0)	3.89	0.18	0.122	0.0218	2.53	0.0234	0.0066	0.151			
NCS DC73015	74.33	11.65	(0.46)	(0.08)	(1.34)	2.85	(0.57)	1.79	0.98	2.96	0.71	0.0290	(0.0079)	2.85	0.0335	0.0087	0.146			
NCS DC73014	69.40	11.06	(0.48)	0.28	(0.76)	2.96	(1.83)	7.00	2.31	2.35	1.70	0.142	(0.0150)	1.40	0.0568	0.0432	0.32			
NCS DC73018	66.02	11.25	1.01	0.34	2.57	3.82	(2.1)	6.31	3.23	2.41	2.34	0.0798	0.0291	0.83	0.0459	0.0110	0.53			
continued analysis listed in mg/kg except % which is mass %																				
Number	Ag	As	B	Ba	Be	Bi	Br	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	Eu	F	Ga	
NCS DC73017	0.044	4.4	5.5	1054	1.6	0.33	1.0	0.095	32	(30)	12.5	8.4	1.5	3.9	1.3	0.8	0.54	131	12.0	
NCS DC73015	0.050	3.6	48	600	3.6	0.48	0.61	0.093	24	33	4.4	21	7.2	7.2	1.7	0.93	0.62	279	12.4	
NCS DC73014	0.14	14.3	53	455	2.2	0.51	0.8	0.34	47	53	10.2	61	5.8	132	4.1	2.5	1.20	550	14.6	
NCS DC73018	0.092	3.0	14	567	1.9	0.22	1.0	0.12	90	62	19.5	79	4.6	43	6.5	3.7	1.4	664	16.5	
Number	Gd	Ge	Hf	Hg	Ho	I	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc	
NCS DC73017	1.4	1.21	2.7	0.016	0.26	0.46	(0.014)	11.8	8.1	0.14	0.64	9.5	8.9	4.7	22	2.5	81	0.29	2.1	
NCS DC73015	1.7	1.64	2.1	(0.007)	0.33	0.27	0.018	13.9	40	0.16	0.33	5.1	9.8	7.0	31	2.9	118	0.16	4.9	
NCS DC73014	4.1	1.87	3.8	0.018	0.83	0.47	0.14	24	20.7	0.42	0.94	9.4	22	18.9	210	5.9	96	1.18	11.4	
NCS DC73018	7.0	1.45	7.8	(0.014)	1.27	0.4	0.068	45	43	0.60	0.84	15.3	40	70	19	11.0	121	0.15	16.9	
Number	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr			
NCS DC73017	0.072	1.6	(1.0)	167	0.81	0.22	(0.03)	5.4	0.44	0.13	1.1	28	0.58	7.0	0.83	19	100			
NCS DC73015	0.053	1.9	2.3	253	0.72	0.29	(0.02)	4.1	0.83	0.16	1.9	31	0.66	9.7	1.0	27	71			
NCS DC73014	0.47	4.5	2.5	171	0.65	0.68	(0.05)	8.3	0.91	0.40	2.2	77	2.0	23	2.6	209	132			
NCS DC73018	0.24	7.5	1.9	117	1.04	1.14	(0.05)	15.4	0.77	0.59	3.5	120	1.7	34	3.8	74	275			

**CRM**                      **STREAM SEDIMENT**

analysis listed in mass %

T = total Fe reported

Number	Al2O3	Ba	CaO	Cr2O3	Cu	FeO	T.Fe2O3	K2O	MgO	MnO	Na2O	P2O5	Pb	S	SiO2	TiO2	Zn	Zr
SARM 52	9.38	(0.0410)	0.37	0.19	0.0219	(4.0)	19.71	0.25	0.60	0.27	(0.1)	0.09	0.12	(0.02)	57.81	1.30	0.0264	0.0250

continued

analysis listed in mg/kg except % for mass %

Number	Ce	Co	Ga	Nb	Ni	Rb	Sr	Th	V	Y	Units
SARM 52	(210)	81	(15)	11	182	20	25	(11)	346	20	100 g

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## CRM SEDIMENT

analysis listed in mass % 348x series: 100 g units 536x series: 50 g units

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	TiO <sub>2</sub>	LOI
VS 3486-86	70.54	11.29	.	0.52	.	(3.5)	5.24	2.21	0.48	0.11	1.67	0.28	0.43	0.62	.
VS 5361-90	70.5	11.31	.	0.48	1.3	.	5.24	2.23	0.49	0.105	1.65	0.27	0.44	0.61	5.5
VS 5365-90	60.4	16.49	0.13	0.40	3.3	.	8.80	2.44	1.62	0.132	1.57	0.19	0.03	0.98	6.8
VS 3484-86	51.95	16.76	.	1.13	(2.2)	(3.5)	6.33	2.51	1.53	0.071	1.37	0.18	0.05	0.85	(17.17)
VS 5363-90	51.9	16.65	.	1.11	2.2	.	6.28	2.50	1.54	0.070	1.34	0.19	0.04	0.83	17.1
VS 5362-90	45.4	11.58	.	7.04	1.5	.	4.59	2.96	5.72	0.074	0.85	0.14	0.04	0.63	20.3
VS 3485-86	25.07	5.03	.	17.76	(0.24)	(0.2)	10.59	1.13	11.70	0.50	0.61	1.82	0.05	0.27	(25.14)
VS 5364-90	25.0	4.98	21.6	17.83	0.4	.	10.56	1.13	11.7	0.48	0.63	1.82	0.05	0.26	25.1

continued analysis listed in mg/kg except % which is mass %

Number	Ag	As%	Au	B%	Ba%	Be%	Bi%	Cd	Ce	Co	Cr	Cs	Cu%	F%	Ga	Ge	La%
VS 3486-86	.	.	.	0.016	0.039	0.00036	.	9	.	9	0.0076	.	0.025	.	16	.	0.0032
VS 5361-90	35	0.8	0.11	0.015	0.038	0.004	0.009	9	0.004	9.0	0.0075	17	0.025	0.21	16	15	0.0030
VS 5365-90	.	.	.	0.007	0.055	0.0003	.	.	0.006	29	0.013	4	0.0049	.	17	.	0.0032
VS 3484-86	(0.7)	(0.004)	(0.025)	(0.008)	0.058	0.00023	.	(1.9)	.	18	0.0120	.	0.0052	.	17	.	0.0034
VS 5363-90	0.10	0.004	0.016	0.008	0.050	0.00021	.	.	.	17	0.012	6	0.0050	0.09	17	12	0.0029
VS 5362-90	0.06	.	0.03	0.008	0.050	0.00020	.	.	0.005	13	0.0065	4	0.0044	0.12	12	12	0.0030
VS 3485-86	2.6	(0.009)	1.3	(0.0014)	0.035	0.00025	.	(3.5)	.	11	0.0028	.	0.026	.	9	.	0.026
VS 5364-90	2.3	0.006	1.2	0.0013	0.034	0.0003	0.0006	3	0.05	12	0.0029	4	0.024	0.19	8	16	0.022

Number	Li%	Mo	Nb	Ni	Pb%	Rb%	Sb%	Sc	Sn%	Sr%	V%	W%	Y%	Yb	Zn%	Zr%	Others
VS 3486-86	0.015	.	17	25	0.011	0.019	0.017	8	0.04	0.020	0.006	.	0.0016	2.24	0.039	0.021	
VS 5361-90	0.014	2.7	17	24	0.010	0.019	0.015	8	0.040	0.018	0.0058	0.20	0.0018	2.5	0.039	0.020	
VS 5365-90	0.007	2.1	13	72	0.0024	0.0080	.	18	0.00036	0.013	0.018	.	0.0030	4	0.012	0.021	Nd: 25, Sm: 4
VS 3484-86	0.0012	(3)	60	58	0.0016	0.010	.	15	0.00044	0.020	0.014	.	0.0030	3.2	0.009	(0.018)	
VS 5363-90	0.006	1.1	10	55	0.0015	0.0095	.	16	0.00040	0.019	0.014	.	0.0023	3	0.0086	0.018	
VS 5362-90	0.009	1.0	12	31	0.0014	0.0085	.	11	0.00040	0.025	0.0087	.	0.0020	2.6	0.0054	0.015	
VS 3485-86	0.0020	29	(7)	19	(0.020)	0.004	.	9	0.0004	0.018	0.007	.	0.004	3.3	0.014	0.007	
VS 5364-90	0.0020	27	7	18	0.015	0.0045	.	7	0.00033	0.017	0.0075	0.0025	0.0040	2.9	0.014	0.007	Th: 40

## CRM SEDIMENT

analysis listed in mass %

M2: 85 g others: 80 g units

Number	Al <sub>2</sub> O <sub>3</sub>	Ba	Tot.C	CaO	T.Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Pb	S	SiO <sub>2</sub>	TiO <sub>2</sub>	Zn	LOI
US SDAR-M2	12.47	0.0990	.	0.84	2.63	5.00	(0.49)	0.134	2.58	(0.079)	0.0808	(0.0970)	73.45	0.300	0.0760	(1.6)
US SDAR-H1	11.83	0.0866	(0.9)	1.46	6.45	4.17	1.53	0.515	(1.1)	0.185	0.3890	.	65.45	0.560	0.3680	.
US SDAR-L2	11.58	0.0809	(0.1500)	1.06	3.63	4.10	(0.43)	0.099	2.66	0.080	0.0183	.	74.48	0.620	0.0201	(0.94)

continued analysis listed in mg/kg

Number	Ag	As	Be	Bi	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Ge	Hf
US SDAR-M2	(15)	(76)	6.6	1.05	5.1	98.8	12.4	49.6	1.02	236	5.88	3.58	1.44	17.6	6.28	(1.5)	7.29
US SDAR-H1	(76)	(396)	(22)	(5.1)	(25)	89.3	55.6	.	4.78	1160	4.41	2.60	1.25	15.6	5.35	.	(6.9)
US SDAR-L2	(3.2)	16.9	3.38	0.26	(1.2)	140	5.41	26.0	1.14	50.8	9.83	5.98	1.44	17.0	9.73	(1.6)	(16)

Number	Hg	Ho	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pr	Rb	Sb	Sc	Se	Sm	Sn
US SDAR-M2	1.44	1.21	(2.1)	46.6	17.9	0.54	13.3	26.2	39.4	48.8	11.0	149	(107)	4.1	(2.7)	7.18	(2.4)
US SDAR-H1	(7.3)	0.900	(9.5)	44.9	50.5	0.398	64	21.9	36.2	230	9.97	152	(505)	(8.2)	(15)	6.39	(2.9)
US SDAR-L2	(0.33)	2.08	(0.47)	67.9	11.8	0.93	3.66	63.0	60.3	14.3	16.2	120	21.8	5.6	(0.9)	11.5	(3.2)

Number	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zr	Source
US SDAR-M2	144	1.8	0.97	(2.1)	14.2	(2.8)	0.54	2.53	25.2	(3.5)	32.7	3.63	259	river
US SDAR-H1	182	1.41	0.78	(9.5)	17.7	11.1	0.394	4.07	73.2	(13)	(25.4)	2.60	(258)	metalliferous
US SDAR-L2	150	3.81	1.58	(0.44)	22.0	0.99	0.92	3.34	35.0	(1.72)	54.6	6.10	618	blended

## CRM CONTAMINATED RIVER SEDIMENT

certified analysis listed in mg/kg

informational analysis listed in mass %

Number	As	Cd	Co	Cr	Cu	Hg	Ni	Pb	V	Zn	Al	C.Inorg	C.Org	Ca	Fe	K	Mg	Si	LOI	Units
BAM CC020	56.6	20.8	32.8	290	560	27.4	158	255	53	2030	5.5	0.2	9.7	2.9	5.1	1.7	0.9	25.3	18.5	52 g

## CRM TIBET SEDIMENT

analysis listed in mass %														T = Total			50 g units		
Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Ba	CaO	F	Fe <sub>2</sub> O <sub>3</sub> T	K <sub>2</sub> O	MgO	Mn	MnO	Na <sub>2</sub> O	P	P <sub>2</sub> O <sub>5</sub>	Sr	Ti	TiO <sub>2</sub>			
NCS DC70318	73.37	12.73	0.0437	1.32	0.0456	3.19	3.56	1.07	0.0422	0.055	2.09	0.0420	0.097	0.0165	0.253	0.422			
NCS DC70319	71.23	13.22	0.0470	1.40	0.0459	4.11	3.65	0.70	0.0527	0.069	2.72	0.0484	0.111	0.0256	0.344	0.589			
NCS DC70320	70.36	13.95	0.0483	2.40	0.0505	3.20	3.18	0.93	0.0451	0.059	3.26	0.0564	0.129	0.0404	0.274	0.461			
NCS DC70313	69.70	13.19	0.0508	0.39	0.0622	5.85	2.56	1.58	0.0876	0.113	1.23	0.0613	0.140	0.00593	0.439	0.725			
NCS DC70315	66.50	10.17	0.0384	6.50	0.0539	3.70	2.26	1.14	0.0567	0.074	1.17	0.0501	0.115	0.0132	0.290	0.491			
NCS DC70323	60.95	11.89	0.0475	7.77	0.0555	5.47	2.01	0.78	0.0608	0.078	1.09	0.0542	0.124	0.0327	0.339	0.558			

continued analysis listed in mg/kg except \* for ng/g and % for mass percent

Number	Ag	As	Au*	B	Be	Bi	Br	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd
NCS DC70318	0.06	18.0	1.4	30.6	3.32	0.49	0.9	0.10	89.6	207	6.7	47.6	20.2	16.2	4.92	2.90	1.07	16.3	5.83
NCS DC70319	0.21	19.6	1.2	66.2	2.31	0.80	1.4	0.19	78.1	244	7.6	22.6	15.0	151	3.91	2.39	0.97	15.8	4.57
NCS DC70320	0.14	12.3	1.1	41.5	2.56	0.70	1.1	0.17	60	152	7.3	24.4	13.0	49.0	2.94	1.64	0.96	16.9	3.74
NCS DC70313	0.09	22.0	1.4	77.0	2.34	0.50	1.0	0.54	74.0	63	17.9	93.8	11.9	27.1	4.73	2.81	1.21	17.8	5.40
NCS DC70315	0.10	22.5	1.6	59.5	2.13	0.46	1.5	0.33	71.3	96.7	9.2	37.5	7.9	16.6	4.40	2.60	1.04	14.1	5.15
NCS DC70323	0.10	54.6	2.9	134	3.88	0.48	1.3	0.08	90.1	71	13.2	59.0	42.5	44.0	5.56	2.98	1.40	17.1	6.58

Number	Ge	Hf	Hg	Ho	I	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pd*	Pr	Pt*	Rb
NCS DC70318	1.33	6.7	0.030	0.97	(0.3)	(0.04)	47.8	36.6	0.44	0.59	14.7	35.8	16.9	35.8	(0.4)	9.78	(0.3)	180
NCS DC70319	1.13	9.5	0.028	0.79	(0.3)	(0.04)	42.6	26.1	0.39	7.0	16.1	30.6	9.5	46.8	(0.3)	8.57	(0.3)	154
NCS DC70320	1.12	5.5	0.012	0.58	(0.3)	(0.04)	32.5	25.6	0.25	2.7	10.5	25.7	11.1	45.4	(0.3)	6.94	(0.3)	136
NCS DC70313	1.34	6.5	0.033	0.95	(0.8)	(0.06)	38.8	53.9	0.41	0.60	15.9	31.1	51.9	61.9	(0.6)	8.33	(0.4)	115
NCS DC70315	1.09	6.0	0.026	0.87	(0.5)	(0.05)	37.0	27.9	0.38	0.83	15.6	29.3	20.1	31.7	(0.4)	8.10	(0.3)	104
NCS DC70323	1.66	6.3	0.066	1.06	(0.5)	(0.07)	42.6	69.8	0.38	0.66	15.5	36.3	37.2	27.7	(0.8)	10.1	(0.6)	110

Number	S	Sb	Sc	Se	Sm	Sn	Ta	Tb	Te	Tm	Th	Tl	U	V	W	Y	Yb	Zn	Zr
NCS DC70318	(48)	0.84	7.3	0.05	6.62	3.8	1.8	0.91	(0.03)	0.46	25.1	1.0	4.8	52.5	4.1	26.5	2.83	54.1	225
NCS DC70319	(480)	2.70	6.2	0.18	5.42	2.7	1.8	0.70	0.10	0.38	25.5	1.1	4.8	74.7	9.3	21.6	2.55	62.9	299
NCS DC70320	(183)	1.27	6.0	0.11	4.49	2.0	1.2	0.54	0.07	0.25	16.7	0.91	3.6	59.4	4.2	15.3	1.63	61.1	184
NCS DC70313	(123)	1.91	12.0	0.16	5.99	14.9	1.2	0.83	0.05	0.43	12.1	0.64	2.6	101	2.6	24.4	2.73	176	222
NCS DC70315	(177)	0.82	7.9	0.12	5.61	3.3	1.3	0.78	(0.03)	0.40	12.3	0.62	2.5	57.4	2.4	23.7	2.55	91.1	206
NCS DC70323	(528)	10.4	10.5	0.39	7.19	4.6	1.2	1.01	0.15	0.44	15.6	0.66	2.1	85.0	6.5	29.5	2.67	77.1	210

## CRM SERPENTINITE

analysis listed in mass %														T = total			GUV: 50 g units			all others: 100 g units		
Number	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>	FeO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	Ni	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI						
NCS DC21001	3.34	.	2.97	.	T.Fe:5.47	.	.	.	34.25	0.131	.	.	P:0.012	41.37	0.180	8.86						
SARM 47	1.09	.	(0.1)	0.29	(0.4)	4.14	.	(0.02)	42.09	0.06	(0.05)	0.2221	(0.02)	36.30	(0.01)	.						
GUV SW	0.66	0.28	0.18	.	2.00	7.40	13.6	(0.0014)	38.5	0.084	0.013	0.22	(0.0017)	39.04	0.016	.						
USZ 24-99	(0.475)	(0.84)	(0.681)	.	(0.27)	8.00T	(0.58-)	(0.018)	38.22	0.082	(0.038)	0.2300	(0.023)	38.54	(0.022)	13.33						

continued analysis listed in mg/kg except % which is mass %

Number	As	B	Ba	Ce	Co	Cr%	Cs	Cu	F	Ga	Li <sub>2</sub> O	Nd	Pb	Rb	S	Sc	Sn	Sr	U	V	W	Y	Zn
NCS DC21001	.	.	.	.	.	.	.	.	.	.	.	.	.	0.066%	.	.	.	.	.	.	.	.	.
SARM 47	.	.	(75)	(20)	79	.	(5)	(5)	.	(5)	.	(60)	(6)	(5)	(3)	(5)	(3)	(3)	.	(16)	.	(5)	45
GUV SW	(5)	37	19	.	102	0.24	(5)	7	66	(4)	(3)	(4)	(6)	(5)	(3)	(5)	(5)	(5)	(5)	20	(5)	.	58
USZ 24-99	.	.	.	.	106	0.2780	.	.	.	.	.	.	.	.	.	.	.	7.3	0.80	33.4	.	.	39

**CRM SHALE WITH EXTENSIVE ANALYSIS**

analysis listed in mass %

\* Provisional Analysis

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub> T	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	TiO <sub>2</sub>	ZrO <sub>2</sub> +HfO <sub>2</sub>	LOI	Units
GBW 03104	69.63	14.82	0.13	0.22	(0.40)	5.67	.	(3.71)	3.76	0.67	0.024	0.20	0.043	0.028	0.68	.	4.17	60 g
NCS DC60106a	69.34	15.03	0.12	0.19	0.37	5.65	.	(3.73)	3.49	0.64	0.020	0.16	0.043	0.029	0.68	.	4.54	50 g
GUV TS	62.8	15.96	(0.03)	0.12	0.70	7.40	.	4.01	4.86	1.77	0.037	0.078	0.28	.	0.69	.	.	50 g
US SCO-2 *	61.87	13.13	.	3.94	.	.	4.64	.	2.45	2.85	.	1.02	0.181	0.565	.	.	.	50 g
VS 8549-04	61.21	16.80	1.41	1.14	(3.17)	.	5.57	.	3.72	2.67	0.057	0.95	0.086	(1.53)	0.91	.	6.00	100 g
UL AWI 1	60.46	16.44	.	0.69	(5.52)	7.21	.	.	3.06	(2.09)	0.14	0.74	(0.15)	.	0.92	.	7.75	50 g
GBW 07107	59.23	18.82	(0.10)	0.60	1.39	.	7.60	+5.6	4.16	2.01	.	0.35	.	.	.	.	(5.95)	70 g
VS 8550-04	57.60	15.53	(3.8)	1.06	(5.3)	.	7.47	.	2.85	3.06	0.110	1.28	0.115	.	0.88	.	(9.5)	100 g
SARM 41	56.67	13.50	.	1.50	(0.3)	4.23	.	.	1.39	8.10	0.06	0.93	0.05	.	0.55	.	.	100 g
US SBC-1 *	47.64	21.0	.	2.95	.	.	9.71	.	3.45	2.60	0.15	0.15	0.37	.	0.855	.	10.2	50 g
US ShPYR-1 *	28.7	6.14	.	14.9	Fe:1.75	.	2.50	.	1.53	5.23	.	1.85	0.28	0.22	.	.	.	200 g
US SGR-1b	28.24	6.52	.	8.38	(1.41)	(1.46)	3.03	.	1.66	4.44	.	2.99	0.328	.	0.253	.	.	30 g
US ShBOC-1 *	25.13	4.00	.	32.95	.	.	1.61	.	0.34	0.42	0.012	0.05	0.099	.	0.18	.	31.6	80 g
JCRM R651	21.74	71.7	.	0.19	.	1.48	.	.	0.65	0.10	.	0.03	0.19	.	3.15	0.18	0.58	100 g

continued analysis listed in mg/kg except % which is mass % and \*\* which is ng/g # US SBC-1 also contains 0.85% inorganic C

Number	Ag	As	Au	B	Ba%	Be	Bi	C Org%	T.C%	Cd	Ce	Cl%	Co	Cr	Cs	Cu
GBW 03104	.	.	.	.	.	.	.	.	.	.	.	0.014	.	.	.	.
NCS DC60106a	.	.	.	.	.	.	.	.	.	.	.	0.011	.	.	.	.
GUV TS	(0.8)	27.5	.	74	(0.18)	4	.	1.42	.	.	(168)	.	41	280	13	460
US SCO-2 *	.	11.8	.	.	0.0580	1.75	.	.	.	.	54.5	.	10.8	68.3	7.1	23.5
VS 8549-04	0.10	40	0.10	103	0.072	2.0	.	(1.31)	.	(0.27)	58	.	13	128	4.4	34
UL AWI 1	.	(15)	.	.	0.0378	(2.7)	.	.	.	.	80	.	20	119	(7)	34
GBW 07107	0.047	1.4	(1.0**)	154	0.0450	3.0	0.23	(0.16)	(0.19)	0.033	109	0.0041	21	99	14	42
VS 8550-04	0.47	46	2.5	(118)	0.0376	(2.4)	.	(0.93)	.	(0.4)	53	.	20	116	4.0	39
SARM 41	.	.	.	.	0.820	.	.	.	.	.	(60)	.	(15)	123	.	53
US SBC-1 *	.	25.7	.	.	0.0788	3.2	0.7	1.23#	2.08	0.4	108	.	22.7	109	8.2	31
US ShPYR-1 *	.	50	.	.	0.0538	.	.	(13.7)	(20.1)	.	32	.	.	.	.	42
US SGR-1b	.	67	.	54	0.0290	.	.	(3.2N)	(28)	(0.9)	36	(0.0032)	12	30	5.2	66
US ShBOC-1 *	.	(15.1)	.	.	0.00730	(1.0)	(0.24)	4.61	11.9	2.0	24.8	.	6.4	29.6	3.1	33.8
JCRM R651	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

N = inorganic C

Number	Dy	Er	Eu	F	Ga	Gd	Ge	Hf	Hg	Ho	I	In	La	Li	Lu	Mn	Mo
GBW 03104	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NCS DC60106a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
GUV TS	.	.	(3.2)	1150	21	.	.	(7)	.	.	.	.	(80)	40	(3.6)	.	130
US SCO-2 *	3.9	2.3	1.1	.	15.7	4.4	.	.	.	0.78	.	.	28.4	38.2	0.34	.	1.2
VS 8549-04	5.6	(3.3)	1.2	(0.12%)	21	6.1	(2.1)	4.1	.	(1.1)	.	.	30	56	0.44	.	1.7
UL AWI 1	5.1	2.9	1.47	.	22	6	.	6.3	.	1.1	.	.	38	.	0.45	.	.
GBW 07107	5.1	2.7	1.7	1290	26	6.7	3.1	2.9	0.010	0.98	0.24	0.082	62	44	0.41	173	0.35
VS 8550-04	(4.4)	(2.4)	1.2	.	18	4.5	(2.1)	4.7	.	(0.92)	.	.	28	50	0.40	.	(0.95)
SARM 41	.	.	.	.	(20)	.	.	.	.	.	.	.	.	.	.	.	(5)
US SBC-1 *	7.1	3.8	1.98	.	27	8.5	.	3.7	.	1.4	.	.	52.5	163	0.54	.	2.4
US ShPYR-1 *	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	294	23
US SGR-1b	(1.9)	1.1	0.56	1960	(12)	(2)	.	1.4	(0.3)	(0.4)	.	.	20	147	.	267	35
US ShBOC-1 *	1.67	0.97	0.45	.	6.27	1.95	.	(1.18)	.	0.34	.	.	13.5	24.1	0.15	.	47.8
JCRM R651	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Number	N	Nb	Nd	Ni	P	Pb	Pd	Pr	Pt	Rb	Rh	S%	Sb	Sc	Se	Sm	
GBW 03104	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
NCS DC60106a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
GUV TS	.	(13)	(108)	170	.	33	.	.	.	230	.	.	0.022	(8.2)	22	(22.9)	
US SCO-2 *	.	11.2	25	27.8	.	20	.	6.6	.	101	.	.	0.9	11.4	.	4.9	
VS 8549-04	.	11	28	39	.	8.2	(0.0013)	(6.5)	(0.0012)	0.014%	.	.	0.62	.	23	5.7	
UL AWI 1	.	17	37	61	.	(24)	.	9.3	.	130	.	.	.	.	16	7	
GBW 07107	540	14.3	48	37	690	8.7	.	13.6	.	205	.	.	(0.0066)	0.18	18.5	0.075	8.4
VS 8550-04	.	12	25	50	.	14.9	(0.0023)	6.2	(0.0022)	112	(0.001)	.	1.02	(1)	20	.	5.4
SARM 41	.	(8)	.	122	.	(30)	.	.	.	59	.	.	(0.15)	.	.	.	.
US SBC-1 *	.	15.3	49.2	82.8	.	35	.	12.6	.	147	.	.	0.715	1.01	20	.	9.6
US ShPYR-1 *	.	.	.	19	1200	24	.	.	.	64	.	.	.	.	.	.	.
US SGR-1b	.	(5.2)	16	(29)	.	38	.	.	.	.	.	.	1.53 T	3.4	4.6	(3.5)	2.7
US ShBOC-1 *	.	(5.6)	11	74.9	.	(6.1)	.	2.94	.	16.9	.	.	1.64	3.28	(3.6)	.	2.1
JCRM R651	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Number	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
GBW 03104	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NCS DC60106a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
GUV TS	(4.1)	88	(0.97)	(2.4)	.	(9.1)	.	.	.	(22)	960	.	150	(15)	63	290
US SCO-2 *	.	195	0.82	0.68	.	9	.	.	0.34	3.2	117	.	23.1	2.2	97	.
VS 8549-04	2.2	150	0.86	0.95	.	8.2	.	.	(0.5)	2.1	148	(3.5)	28	2.9	96	176
UL AWI 1	.	108	1.2	0.94	.	12	.	.	0.42	3	134	.	29	3	99	223
GBW 07107	2.0	90	0.9	1.02	(0.023)	12.8	3950	0.71	0.43	1.5	87	0.79	26	2.6	55	96
VS 8550-04	(3.2)	142	(0.7)	(0.74)	.	7.1	.	.	(0.33)	1.65	122	(3.3)	26	2.7	97	176
SARM 41	.	54	.	.	.	(12)	.	.	.	.	139	.	17	.	76	146
US SBC-1 *	3.3	178	1.1	1.2	.	15.8	.	0.89	0.56	5.76	220	1.6	36.5	3.64	186	134
US ShPYR-1 *	.	753	.	.	.	5	1300	.	.	4	92	.	.	.	62	.
US SGR-1b	(1.9)	420	.	.	.	4.8	.	.	(0.18)	5.4	130	2.6	(13)	(0.94)	74	(53)
US ShBOC-1 *	(3.8)	1078	.	0.29	.	2.74	.	(2.7)	0.15	(9)	419	.	9.6	0.98	97.8	52.6
JCRM R651	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

last

Sample US ShPYR-1 also shows much more information on the certificate, such as oil yield, particle size, programmed prolysis and mineralogy.

**SILLIMANITE**

# = class, where 1 = CRM and 2 = RM

#	Number	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	Li <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	TiO <sub>2</sub>	LOI	Units
2	CERAM 2CAS12	63.8	33.9	0.25	0.31	0.13	.	0.12	.	0.15	1.31	0.13	25 or 100 g
1	BCS 309	61.1	34.1	0.22	1.51	0.46	(0.01)	0.17	(0.03)	0.34	1.92	.	100 g

**CRM SILLIMANITE SCHIST**

analysis listed in mass %

Number	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	FeO	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	100 g units
SARM 44	58.80	0.14	2.06	(1.0)	(0.18)	(0.1)	(0.03)	(0.05)	(0.10)	34.84	1.83	

continued analysis listed in mg/kg

Number	Ba	Ce	Co	Cr	Cu	Ga	Mo	Nb	Ni	Pb	Rb	Sr	Th	V	Y	Zn	Zr
SARM 44	(50)	(220)	(8)	384	(10)	(55)	(15)	96	(15)	(30)	13	5	50	395	84	271	406

**CRM SILICEOUS MINERAL SETS**

available in SETS/3, as grouped

50 g units

Number	Material	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	TiO <sub>2</sub>	LOI
JCRM R702	<b>Albite</b>	67.69	19.64	0.546	0.058	0.137	0.103	0.004	11.31	0.139	.	0.030	0.23
JCRM R703	<b>Potassium Feldspar</b>	66.99	17.93	0.095	0.082	11.02	0.040	0.003	3.32	0.008	.	0.005	0.36
JCRM R803	<b>Prophyllite</b>	68.52	23.95	0.033	0.047	2.32	0.017	0.0014	0.165	0.018	0.02	0.104	4.40
JCRM R604	<b>Gairome Clay</b>	47.88	35.37	0.216	1.357	0.468	0.251	0.006	0.083	0.020	(0.014)	0.865	13.37
JCRM R605	<b>Kaolin</b>	49.77	35.64	0.004	0.283	(0.008)	0.004	.	0.032	0.105	(0.023)	0.068	13.90
JCRM R751	<b>Pottery Stone</b>	79.32	14.15	0.033	0.340	(3.00)	0.049	0.003	0.121	0.009	(0.0010)	0.010	2.73

Also see our Industrial Materials catalog for more Siliceous Materials  
<http://www.brammerstandard.com/pdf/industrial.pdf>

**CRM SILT**

analysis listed in mass %

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Co <sub>2</sub>	CaO	FeO	T.Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	TiO <sub>2</sub>	L.O.I.	Units
VS 5366-90	60.9	14.35	2.4	2.95	1.9	5.44	3.58	2.54	0.088	2.33	0.18	0.08	0.62	6.5	50 g
VS 3133-85	60.85	14.40	.	2.95	.	5.45	3.56	2.54	0.087	2.33	0.18	(0.10)	0.62	6.39	100 g
VS 3132-85	60.54	16.46	.	0.41	.	8.76	2.43	1.60	0.13	1.61	0.19	(0.027)	0.98	6.78	100 g
VS 3131-85	47.0	9.48	.	7.76	.	5.92	2.26	6.06	0.30	0.53	0.13	(0.037)	0.50	20.10	100 g
VS 5367-90	46.7	9.45	9.8	7.74	1.1	5.88	2.24	6.0	0.30	0.53	0.13	0.03	0.50	20.0	50 g

continued analysis listed mass %

Number	As	B	Ba	Ce	Cr	Cu	Li	Ni	Rb	Sb	Sr	V	Zn	Zr
VS 5366-90	0.04	0.007	0.09	0.007	0.008	0.019	0.0035	0.0036	0.011	0.013	0.027	0.011	0.0094	0.023
VS 3133-85	(0.043)	0.006	0.091	0.008	0.0088	0.019	0.0037	0.0036	0.012	(0.0015)	0.028	0.011	0.009	0.023
VS 3132-85	(0.0038)	0.007	0.057	(0.006)	0.014	0.0048	0.00716	0.0072	0.0077	(0.00019)	0.013	0.018	0.012	0.022
VS 3131-85	(0.0016)	0.007	0.062	(0.006)	0.0068	0.0037	0.0096	0.0040	0.0061	.	0.025	0.011	0.005	0.013
VS 5367-90	.	0.008	0.059	0.005	0.0062	0.0037	0.009	0.0040	0.0062	.	0.025	0.0097	0.0049	0.013

continued analysis listed in mg/kg

Number	Ag	Be	Cd	Co	Cs	Ga	Ge	La	Mo	Nb	Nd	Pb	Sc	Sm	Sn	W	Y	Yb
VS 5366-90	.	4	.	13	5	18	.	55	6.5	11	30	55	12	5	5	12	25	2.9
VS 3133-85	(0.8)	3.7	(1.5)	13	5.8	16	1.4	61	10	17	.	58	17	.	5	.	26	3.3
VS 3132-85	(0.17)	2.8	(0.2)	30	4.1	16	1.6	43	2.5	13	.	23	20	.	3.9	.	30	4.3
VS 3131-85	(0.2)	2.4	(2.3)	21	4	11	(1.2)	(38)	2.4	11	.	20	11	.	5	.	22	(2.8)
VS 5367-90	.	2.1	.	21	3.2	11	.	35	2.1	9	15	17	10	3	3.6	.	21	3

## CRM SILVER ORE

analysis listed in mass % except \* which is mg/kg

GBM: 10 or 250g USZ: 250g KZ: 100g SRM: 200g

Number	Ag*	Ba	Cu	Fe	Fe <sub>2</sub> O <sub>3</sub>	Pb	S	SO <sub>3</sub>	Zn	Al <sub>2</sub> O <sub>3</sub>	As	Bi	CO <sub>2</sub>	CaO	Cd	Co*	F	Ge*
USZ 9-92	740	.	2.25	.	.	0.041	.	.	0.20	.	.	.	.	.	.	.	.	.
USZ 8-91	331	.	0.83	.	48.40	0.13	.	6.85	0.59	2.11	0.53	0.11	.	0.25	0.0020	.	.	.
USZ 7-91	169	.	0.46	.	.	0.101	.	.	0.42	.	.	.	.	.	0.0015	.	.	.
KZ 6587-93	60.2	33.6	0.019	2.5	.	2.86	11.5	.	2.72	.	0.016	.	.	.	0.012	.	.	.
GBM310-2	45.5	.	0.6936	.	.	0.6577	.	.	2.0680	.	0.0078	.	.	.	.	39	.	.
KZ 3031-84	37.4	.	3.37	15.17T	.	.	2.78	.	.	4.93	.	.	2.87	28.05	.	.	0.056	.
GBM310-1	19.0	.	0.5825	.	.	0.3046	.	.	0.9772	.	0.0362	.	.	.	.	36	.	.
KZ 6586-93	19	0.38	0.013	2.03	.	3.5	0.55	.	0.045	.	.	.	.	.	.	.	0.054	.
KZ 6588-93	13.7	0.42	.	3.67	.	1.57	5.88	.	4.68	.	.	.	.	.	0.013	.	.	4.4
KZ 47-85	8.7	.	0.42	21.0	.	.	2.70	.	.	.	.	.	.	.	.	.	.	.
KZ 3030-84	8.6	.	.	13.84T	.	.	2.04	.	.	10.85	.	.	1.04	18.94	.	.	0.048	.
SRM 886	8.25	.	.	.	.	.	1.466	.	.	.	.	.	.	.	.	.	.	.
KZ 48-85	7.3	.	1.98	15.9T	.	.	1.94	.	.	5.47	.	.	2.73	29.75	.	.	0.054	.
KZ 8079-94	3.7	.	0.73	.	.	0.62	1.25	.	0.41	.	.	.	.	.	0.016	.	.	.
KZ 3029-84	2.1	.	0.30	3.11T	.	.	1.59	.	.	15.18	.	.	.	.	.	.	0.074	.
KZ 8078-94	1.6	.	0.38	.	.	0.21	0.75	.	0.15	.	.	.	.	.	0.0036	.	.	.

continued

Number	K <sub>2</sub> O	MgO	MnO	Mo	Na <sub>2</sub> O	Ni	P <sub>2</sub> O <sub>5</sub>	Re*	Sb	Se*	SiO <sub>2</sub>	Sr	Te*	TiO <sub>2</sub>	Zr
USZ 9-92	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USZ 8-91	0.53	1.48	2.77	.	.	.	0.54	.	0.50	.	17.80	.	.	0.12	.
USZ 7-91	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 6587-93	.	.	.	.	.	.	.	.	0.013	.	.	0.69	.	.	.
GBM310-2	.	.	.	.	.	0.0029	.	.	.	.	.	.	.	.	.
KZ 3031-84	0.26	1.33	0.33	0.18	0.18	.	.	0.40	.	13.1	33.56	.	9.1	0.19	.
GBM310-1	.	.	.	.	.	0.0346	.	.	.	.	.	.	.	.	.
KZ 6586-93	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0.019
KZ 6588-93	.	.	.	.	.	.	.	0.0066	.	.	.	0.029	.	.	.
KZ 47-85	.	.	.	0.012	.	.	.	.	.	.	.	.	.	.	.
KZ 3030-84	0.48	2.06	0.41	0.38	0.16	.	0.17	0.30	.	.	42.32	.	.	0.54	.
SRM 886	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 48-85	0.13	0.66	0.36	.	0.10	.	0.11	0.04	.	5.7	33.77	.	.	0.147	.
KZ 8079-94	.	.	.	.	.	.	.	0.29	.	.	.	.	.	.	.
KZ 3029-84	4.06	.	0.081	0.0086	1.95	.	0.094	0.043	.	.	68.09	.	.	0.42	.
KZ 8078-94	.	.	.	.	.	.	.	0.072	.	.	.	.	.	.	.

## SLATE WITH EXTENSIVE ANALYSIS

# = class, where 1 = CRM and 2 = RM analysis listed in mass %

#	Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	TiO <sub>2</sub>	LOI
1	GUW TB2	60.4	20.5	.	0.20	5.4	6.95T	3.6+	0.86	1.86	0.047	1.29	0.095	.	0.93	3.46
1	GUW TB	60.23	20.64	0.14	.	5.43	6.90	3.78+	3.87	(1.93)	(0.052)	1.32	0.097	.	0.93	.
1	JSL-1	59.47	17.60	(0.769)	1.479	4.523	1.875	+3.92 -0.654	2.845	2.413	0.0599	2.184	0.202	.	0.725	.
1	JSL-2	59.45	18.17	(1.236)	1.885	5.048	0.959	+4.158 -0.362	3.008	2.385	0.0818	1.344	0.164	0.1467	0.754	.
2	IAG OU-6	57.35	20.45	(0.23)	0.74	(1.65)	8.94T	(0.14-)	3.03	2.41	0.28	1.76	0.12	.	0.99	3.62

continued analysis listed in mg/kg

Number	As	Ba	Be	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	F	Ga	Gd	Hf	Ho	La	Li	Lu
GUW TB2	.	649	.	14	92	11	49	.	.	.	.	.	.	.	.	.	.	109	.
GUW TB	10.5	780	4.1	104	14	82	9	49	1.8	.	.	740	25	.	5	.	61	111	0.45
JSL-1	14.9	305	2.28	60.6	15.5	60.9	7.60	40.8	(5.11)	.	1.22	598	.	.	4.63	0.688	29.3	(50.7)	0.442
JSL-2	11.4	302	2.68	69.6	15.7	64.7	8.24	44.5	4.71	.	1.14	678	.	.	5.54	(0.671)	32.7	52.6	0.404
IAG OU-6	13.23	480	(2.53)	77.1	29.2	70.7	8.10	40.4	5.06	2.93	1.36	.	24.17	5.30	4.70	1.04	33.2	(95.3)	0.45

Number	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm
GUW TB2	.	.	39	.	.	185	.	.	.	5	159	.	.	.	.	.
GUW TB	.	50	40	8	.	180	3.4	16	8.4	6	160	1.4	.	18	.	.
JSL-1	9.53	28.8	37.6	17.4	6.07	117	.	16.7	6.02	.	193	0.842	0.717	9.97	.	.
JSL-2	12.3	32.0	40.6	19.7	(6.44)	118	.	16.8	5.95	.	230	1.04	0.727	11.5	.	.
IAG OU-6	14.49	30.2	40.2	28.80	7.91	121.3	(0.56)	23.1	6.01	2.67	131.7	1.02	0.86	11.3	(0.54)	(0.45)

Number	U	V	Y	Yb	Zn	Zr	Units
GUW TB2	.	96	.	3.8	94	180	50 g
GUW TB	.	107	39	3.3	94	180	50 g
JSL-1	2.63	131	30.0	2.81	108	174	100 g
JSL-2	2.92	122	31.3	3.15	101	191	100 g
IAG OU-6	1.92	129.8	27.75	2.98	111.4	174.2	~35 g

B: 0.0090% W: 0.00022%

**CRM SOIL - AQUA REGIA METHOD**

certified analysis listed in mg/kg

Number	As	Cd	Co	Cr	Cu	Hg	Mn	Ni	Pb	Zn	Units	Method Used
BAM U110 *	13.0	7.0	14.5	190	262	49.3	580	95.6	185	990	60 g	ISO 11466

informational analysis listed in mass %

Number	Si	Al	Ca	Fe	K	S	Mg	Dry Matter	LOI	Org.C	Inorg.C	Tot.C	H	N
BAM U110 *	25.7	5.1	4.1	2.8	1.9	1.1	1.0	97.3 @ 105°C	13.3 @ 550°C	6.7	0.8	7.5	1.2	0.4

\* BAM U110 spectroscopic analysis also certified, see "Soil - Contaminated"

**CRM MERCURY IN SOIL**

analysis listed in mass % except \* which is mg/kg

30 or 50 g

Number	Hg*	Al <sub>2</sub> O <sub>3</sub>	C	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	N	Na <sub>2</sub> O	S	SiO <sub>2</sub>	TiO <sub>2</sub>	Dry Mass
USZ 305	2.75	(13.38)	(1.31)	(4.02)	(4.95)	(2.88)	(2.10)	(0.104)	(0.085)	(1.63)	(0.071)	(61.89)	(0.659)	(98.90%)
USZ 304	1.52	(11.96)	(1.42)	(4.55)	(4.22)	(2.85)	(1.79)	(0.082)	(0.075)	(1.99)	(0.093)	(64.11)	(0.605)	(99.21%)
USZ 303	0.157	(13.10)	(1.19)	(3.39)	(4.68)	(2.98)	(1.68)	(0.097)	(0.088)	(1.84)	(0.021)	(64.39)	(0.65)	(99.05%)

**CRM AGRICULTURAL SOIL**

analysis listed in mass % except \* which is mg/kg

50 g units

Number	C	C.Org	Al <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	Ti	K <sub>2</sub> O	MgO	CaO	N	Na <sub>2</sub> O	P	S	SiO <sub>2</sub>	Mn	Ag*	As*	B*	Ba*
NCS ZC71020	3.85	2.10	14.34	12.09	1.78	1.61	0.906	0.541	0.268	0.187	0.141	0.117	53.61	0.0560	0.093	14.9	63	184
NCS ZC71021	2.02	1.12	14.26	6.59	0.570	3.25	1.12	0.377	0.211	0.168	0.106	0.0437	63.8	0.120	0.155	83	106	531
NCS ZC71022	1.37	0.710	17.68	9.77	0.618	2.25	1.09	0.483	0.158	0.146	0.0704	0.0327	55.9	0.675	0.16	55.7	77	471
NCS ZC71023	0.66	0.368	14.08	4.81	0.372	2.57	1.54	2.15	0.623*	3.216	0.0811	0.0160	66.9	0.0594	0.094	4.45	23.3	733
NCS ZC71024	1.60	0.84	13.26	4.42	0.431	2.66	1.29	1.67	0.129	1.99	0.0613	0.0677	66.9	0.0820	1.07	30.0	44.6	783
NCS ZC71025	1.81	0.995	14.15	5.37	0.435	2.45	1.76	1.98	0.170	2.47	0.152	0.0379	63.1	0.0848	0.399	9.88	34.9	765

continued analysis in mg/kg

Number	Be	Bi	Br	Cd	Ce	Cl	Co	Cr	Cu	Dy	Er	Eu	F	F.Sol	Ga	Gd	Ge	Hg	Ho
NCS ZC71020	3.40	0.483	4.6	0.57	116	51	32.8	152	98	8.8	4.6	2.80	878	2.29	23.1	9.7	1.59	0.249	1.72
NCS ZC71021	2.57	0.611	4.2	1.47	98	52	19.9	86.1	32.6	5.4	3.22	1.25	960	2.3	19.3	5.4	1.62	12.2	1.13
NCS ZC71022	3.83	0.85	4.0	12.1	107	42	23.9	106	52.2	7.6	4.23	1.87	883	1.91	25.8	8.0	1.89	0.395	1.53
NCS ZC71023	1.78	0.173	2.86	0.130	59.3	104	13.8	82.8	25.2	3.48	1.97	1.24	485	6.1	16.9	4.11	1.21	0.029	0.692
NCS ZC71024	2.11	2.38	9.0	26.2	77.8	410	13.4	61	63.1	4.42	2.57	1.32	503	10.9	16.6	5.11	1.54	4.64	0.88
NCS ZC71025	2.09	1.06	5.5	1.99	71.7	140	16.3	95.2	54.2	4.33	2.44	1.4	521	6.2	18.0	5.01	1.27	0.309	0.86

Number	I	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc	Se	Sm	Sn	Sr
NCS ZC71020	1.85	60	56	0.61	3.62	52	57	77.7	26.3	14.3	55	1.36	22.2	1.42	11.1	3.60	96
NCS ZC71021	1.96	45	52.1	0.51	2.37	19.7	34.8	38.1	248	9.5	131	6.3	13.4	0.659	6.4	3.94	80.3
NCS ZC71022	4.85	55.6	67	0.64	2.87	21.3	48	56.1	215	12.8	147	2.2	17.8	0.598	9.3	4.62	42.2
NCS ZC71023	1.63	31.1	21.8	0.305	0.69	11.8	27.8	29.9	19.7	7.33	87.1	0.41	10.8	0.143	5.06	2.22	343
NCS ZC71024	2.54	41.5	35.1	0.404	14.1	14.3	34.3	26.8	182	9.66	99	2.87	9.8	0.75	6.06	4.53	196
NCS ZC71025	2.59	38.2	31.9	0.364	1.35	13.8	33.4	38.3	53.9	8.85	97.7	1.95	11.9	0.451	6.03	5.22	267

Number	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
NCS ZC71020	1.58	11.5	0.43	0.68	6.1	289	1.51	45.2	4.2	185	369
NCS ZC71021	0.92	18.5	1.42	0.51	4.74	112	2.37	29.3	3.26	201	278
NCS ZC71022	1.31	19.7	1.15	0.66	5.91	175	2.87	40.8	4.2	941	277
NCS ZC71023	0.632	8.0	0.528	0.306	1.49	81.4	1.02	18.0	1.93	62.7	278
NCS ZC71024	0.79	11.4	0.865	0.395	2.26	79	3.28	23.3	2.54	100	335
NCS ZC71025	0.781	9.8	0.625	0.367	2.06	91	2.06	22.7	2.36	159	219

**CRM SOIL**

analysis listed in mass %

100 g units

Number	Al <sub>2</sub> O <sub>3</sub>	CaO	T.Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
JSO-1	17.99	2.56	11.49	0.34	2.11	0.202	0.66	0.48	.	38.28	1.23	.
USZ 15-94	14.66	2.49	5.65	2.49	1.52	0.103	3.06	0.154	(0.03)	63.28	0.87	(5.22)
USZ 16-94	14.41	2.49	4.99	2.60	1.45	0.109	3.10	0.16	(0.02)	64.37	0.86	(4.81)

continued

analysis listed in mg/kg

Number	As	B	Ba	Be	Bi	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Hg	Ho	In
JSO-1	.	(12)	(269)	.	.	.	.	(32)	(71)	(1.5)	(169)	.	.	.	.	.	.	.	.
USZ 15-94	9.46	.	657	2.17	(0.32)	(0.13)	67.84	14.01	68.88	(3.74)	29.40	(4.43)	(2.61)	(1.43)	(17.92)	(5.54)	(0.02)	(0.96)	(0.07)
USZ 16-94	6.51	.	658	2.44	(0.27)	(0.14)	71.79	(12.88)	357.36	(3.86)	20.51	(4.86)	(2.88)	(1.45)	(17.47)	(5.94)	(0.03)	(1.02)	(0.06)

Number	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc	Sm	Sn	Sr	Ta	Tb	Th
JSO-1	.	(11.2)	.	.	.	.	(39)	(13)	.	(14.5)	.	.	.	.	(196)	.	.	.
USZ 15-94	(33.9)	(23.09)	(0.31)	1.11	(12.21)	(32.46)	31.55	17.26	(8.5)	80.49	(1.09)	11.18	(6.08)	(2.55)	387	(1.19)	(0.75)	8.69
USZ 16-94	(35.12)	22.59	(0.37)	1.03	13.31	(34.61)	43.09	17.88	(9.1)	84.38	(0.78)	11.33	(6.97)	(2.66)	387	(1.17)	(0.78)	9.71

Number	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
JSO-1	.	.	.	(300)	.	(24.9)	.	(105)	(96)
USZ 15-94	(0.42)	(0.32)	1.84	97	(1.36)	22.15	(2.58)	74.67	(298)
USZ 16-94	(0.47)	(0.35)	2.25	87.30	(1.53)	24.43	(2.84)	72.83	(388)

**CRM SOIL SET**

available in SET/6 ONLY analysis listed in mg/kg% 25 g units

Number	As	Cd	Cr	Hg	Pb	Se
JSAC 0466	1093	1199	1483	113.5	1214	1175
JSAC 0465	550	607.4	738	57.8	612.4	587
JSAC 0464	271.1	301.0	499	28.6	302.7	291.9
JSAC 0463	137.6	146.8	244	14.76	151.6	141.5
JSAC 0462	71.5	74.2	149.6	7.27	73.7	71.6
JSAC 0461	21.53	(0.30)	97.2	0.075	24.4	(0.44)

**CRM SOIL (TILL) REFERENCE MATERIALS WITH ACID EXTRACTION**

analysis listed in mass %

100 g units

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Mn	MnO	Na <sub>2</sub> O	P	P <sub>2</sub> O <sub>5</sub>	S	Ti	TiO <sub>2</sub>	LOI 1000°C	LOI 500°C	Sum
CAN TILL-3	69.1	12.2	2.63	2.78	3.92	2.42	1.71	0.0520	0.06	2.64	0.0490	0.11	<0.05	0.2910	0.49	4.6	3.6	99.88
CAN TILL-1	60.9	13.7	2.72	4.81	6.82	2.22	2.15	0.1420	0.18	2.71	0.0930	0.22	<0.05	0.5990	0.98	7.3	6.3	99.90
CAN TILL-2	60.8	16.0	1.27	3.84	5.39	3.07	1.83	0.0780	0.10	2.19	0.0750	0.17	<0.05	0.5300	0.88	8.1	6.8	99.80

continued

analysis in mg/kg except % for mass percent and \* for parts per billion

Number	As	Au*	Ba	Be	Bi	Br	Ce	Co	Cr	Cs	Cu	Eu	Er	Hf	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Rb	Sb	Sc
CAN TILL-3	87	6	489	2.0	<5	4.5	42	15	123	1.7	22	<1.0	1.4	8	21	21	0.2	2	7	16	39	26	55	0.9	10
CAN TILL-1	18	13	702	2.4	<5	6.4	71	18	65	1.0	47	1.3	3.6	13	28	15	0.6	2	10	26	24	22	44	7.8	13
CAN TILL-2	26	2	540	4.0	<5	12.2	98	15	74	12.	150	1.0	3.7	11	44	47	0.6	14	20	36	32	31	143	0.8	12

continued

partial extraction elements from dilute acid

Number	Sm	Sr	Ta	Tb	Th	U	V	W	Y	Yb	Zn	Zr	Ag	Co	Cu	Fe%	Mn	Mo	Ni	Pb	Zn
CAN TILL-3	3.3	300	<0.5	<0.5	4.6	2.1	62	<1	17	1.5	56	230	49	10	23	2.2	310	1	32	17	43
CAN TILL-1	5.9	291	0.7	1.1	5.6	2.2	99	<1	38	3.9	98	502	<0.2	12	49	3.4	1020	1	17	14	71
CAN TILL-2	7.4	144	1.9	1.2	18.4	5.7	77	5	40	3.7	130	390	12	12	152	3.4	570	13	30	24	116

continued

partial extraction elements from concentrated acid

Number	Ag	As	Ba	Bi	Cd	Co	Cr	Cu	Fe%	Hg*	Mn	Mo	Ni	Pb	V	Zn
CAN TILL-3	1.6	84	43	<3	<0.2	11	73	23	2.0	107	310	<2	32	16	33	43
CAN TILL-1	0.2	13	84	<3	<0.2	12	30	48	3.1	92	950	<2	18	12	48	70
CAN TILL-2	0.2	22	95	4	0.3	13	40	149	3.2	74	530	11	31	21	38	116

last

## CRM SOIL

analysis listed in mass %

100 g units

Number	Type	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	TiO <sub>2</sub>	As	B
VS 2498-83	Sandy, Turf-Ash	91.24	3.36	0.27	0.99	1.23	0.13	0.011	0.51	0.036	0.29	0.0003	0.003
VS 2499-83	Sandy, Turf-Ash	91.24	3.36	0.27	0.99	1.23	0.13	0.011	0.51	0.036	0.29	0.0017	0.003
VS 2507-83	Black	71.49	9.81	1.60	3.48	2.42	0.95	0.079	0.81	0.18	0.74	0.0008	0.0056
VS 2508-83	Black	71.49	9.81	1.60	3.48	2.42	0.95	0.079	0.81	0.18	0.74	0.0021	0.0056
VS 2509-83	Black	71.49	9.81	1.60	3.48	2.42	0.95	0.079	0.81	0.18	0.74	0.004	0.0056
VS 2501-83	Red	59.18	17.01	0.17	7.86	0.98	0.92	0.051	0.15	0.10	1.56	0.0010	0.006
VS 2502-83	Red	59.18	17.01	0.17	7.86	0.98	0.92	0.051	0.15	0.10	1.56	0.003	0.006
VS 2503-83	Red	59.18	17.01	0.17	7.86	0.98	0.92	0.051	0.15	0.10	1.56	0.005	0.006
VS 2504-83	Grey	52.65	11.48	11.47	4.60	2.09	2.99	0.089	1.64	0.17	0.64	0.0013	0.0063
VS 2505-83	Grey	52.65	11.48	11.47	4.60	2.09	2.99	0.089	1.64	0.17	0.64	0.0029	0.0063
VS 2506-83	Grey	52.65	11.48	11.47	4.60	2.09	2.99	0.089	1.64	0.17	0.64	0.006	0.0063

continued

analysis listed in mass % except \* which is mg/kg

Number	Ba	Be*	Cd*	Ce	Co	Cr	Cs*	Cu	F	Ga*	Hg*	La*	Li	Mo*
VS 2498-83	0.031	1.1	0.1	0.0017	0.00020	0.010	1.6	0.0009	.	5	0.03	10	0.00035	1.5
VS 2499-83	0.031	10	1.3	0.0017	0.0045	0.010	1.6	0.010	.	5	0.13	10	0.00035	7
VS 2507-83	0.050	2.0	0.10	0.007	0.0009	0.0083	4	0.0025	0.028	11	0.05	36	0.0023	1.2
VS 2508-83	0.050	9	1.8	0.007	0.0046	0.0083	4	0.011	0.028	11	0.21	36	0.0023	6
VS 2509-83	0.050	24	4.5	0.007	0.013	0.0083	4	0.027	0.028	11	0.4	36	0.0023	11
VS 2501-83	0.027	1.6	0.12	0.007	0.0014	0.018	9	0.0047	0.04	15	0.08	30	0.005	3
VS 2502-83	0.027	10	2.6	0.007	0.0063	0.018	9	0.017	0.04	15	0.26	30	0.005	8
VS 2503-83	0.027	25	5	0.007	0.015	0.018	9	0.031	0.04	15	0.4	30	0.005	13
VS 2504-83	0.050	2.2	0.3	0.006	0.0012	0.0084	5	0.0034	0.05	13	0.025	29	0.0032	1.4
VS 2505-83	0.050	8	2.1	0.006	0.0057	0.0084	5	0.012	0.05	13	0.18	29	0.0032	6
VS 2506-83	0.050	26	5.5	0.006	0.015	0.0084	5	0.029	0.05	13	0.4	29	0.0032	13

Number	Nb*	Ni	Pb	Rb*	S	Sc*	Se*	Sn	Sr	V	Y*	Yb*	Zn	Zr
VS 2498-83	12	0.0010	0.0008	32	.	2.6	(0.8)	0.00019	0.0069	0.0014	13	1.5	0.0010	0.035
VS 2499-83	12	0.0087	0.0087	32	.	2.6	(0.8)	0.0019	0.0069	0.0014	13	1.5	0.014	0.035
VS 2507-83	14	0.0032	0.0018	88	0.05	11	(3)	0.0003	0.011	0.0072	31	4.1	0.0056	0.047
VS 2508-83	14	0.011	0.009	88	0.05	11	(3)	0.0020	0.011	0.0072	31	4.1	0.018	0.047
VS 2509-83	14	0.030	0.026	88	0.05	11	(3)	0.006	0.011	0.0072	31	4.1	0.046	0.047
VS 2501-83	25	0.0054	0.0023	80	0.04	15	(3)	0.0005	0.005	0.018	27	3.6	0.0087	0.034
VS 2502-83	25	0.016	0.015	80	0.04	15	(3)	0.0022	0.005	0.018	27	3.6	0.027	0.034
VS 2503-83	25	0.038	0.028	80	0.04	15	(3)	0.006	0.005	0.018	27	3.6	0.061	0.034
VS 2504-83	13	0.0045	0.0017	81	0.04	14	(1)	0.0004	0.031	0.009	26	3.3	0.0070	0.019
VS 2505-83	13	0.013	0.010	81	0.04	14	(1)	0.0020	0.031	0.009	26	3.3	0.017	0.019
VS 2506-83	13	0.032	0.028	81	0.04	14	(1)	0.006	0.031	0.009	26	3.3	0.039	0.019

## CRM SOIL

analysis listed in mass %

Number	Si	Al	Ca	Fe	K	Mg	Mn	N	Na	P	Ti	Units
GBW 08302	30.57	7.11	2.59	3.34	2.12	1.53	0.0677	0.128	1.52	0.086	0.40	15 g
BCR 142R	.	.	.	.	.	.	0.0970	.	.	.	.	40 g
ERM-CC690	.	.	.	.	.	.	.	.	.	.	.	70 g

continued

analysis listed in mg/kg except % which is mass %

Number	As	B	Ba	Be	Br	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Hf	Hg	In	La	Lu	
GBW 08302	3.8	(25)	(509)	2.96	(1.3)	0.081	83.6	13.1	60.8	(7.3)	24.6	(5)	(239)	1.4	(13)	.	(7.3)	(0.018)	(0.06)	41.9	(0.48)	
BCR 142R	.	.	.	.	.	0.34	.	12.1	(113)	.	69.7	.	.	.	.	.	.	0.067	.	.	.	.
ERM-CC690	.	.	.	.	.	.	49.1	.	.	.	.	2.90	.	.	.	3.2	.	.	.	24.4	.	

Number	Mo	Nd	Ni	Pb	Pr	Rb	Sb	Sc	Se	Sm	Sr	Ta	Tb	Th	Tm	U	V	W	Y	Yb	Zn	
GBW 08302	(0.8)	42.3	31.1	14.2	(9)	135	(0.4)	10.8	0.16	7.1	163	(1.1)	(0.9)	17.6	.	3.84	77.5	(3.5)	(25)	3.1	58	
BCR 142R	.	.	64.5	40.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(101)	.
ERM-CC690	.	19.1	.	.	.	.	.	7.9	.	3.5	.	.	0.50	7.6	0.232	1.90	.	.	.	1.57	.	



## CRM SOIL

analysis listed in mass %

70 g units

Number	Al <sub>2</sub> O <sub>3</sub>	C(tot)	CaO	CO <sub>2</sub>	C.Org	T.Fe <sub>2</sub> O <sub>3</sub>	FeO	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	Mn	N	Na <sub>2</sub> O	P	S	SiO <sub>2</sub>	Ti	LOI
NCS DC73319a	12.9	7.8	2.7	.	(6.8)	4.4	(2.25)	(4.3)	2.85	1.17	0.131	0.32	1.65	0.23	0.0726	56.6	0.326	15.8
NCS DC73320a	11.7	1.37	4.0	2.4	0.71	4.2	(0.78)	2.8	3.03	1.40	0.092	0.075	2.67	0.0512	0.0316	65.9	0.28	5.8
NCS DC73321a	12.9	0.69	0.84	.	0.65	2.6	(0.55)	2.6	2.91	0.61	0.033	0.085	2.54	0.042	(0.0146)	72.9	0.22	3.7
NCS DC73322a	16.9	0.46	(0.13)	.	0.42	6.9	(0.43)	6.3	3.00	1.33	0.030	0.073	(0.1)	0.031	0.0130	63.3	0.46	(6.97)
NCS DC73323a	16.8	(0.2)	(0.07)	.	(0.2)	9.8	(0.19)	7.0	2.14	0.70	0.051	0.059	(0.1)	0.0353	0.0839	61.5	0.61	7.2
NCS DC73324a	26.6	0.23	0.13	.	(0.2)	12.3	(0.1)	12	0.44	0.20	0.23	0.021	(0.14)	0.024	0.0534	45.3	0.43	(13.22)
NCS DC73325a	27.3	1.3	(0.2)	.	1.18	18.0	(1.46)	13.6	0.35	0.31	0.19	0.13	(0.1)	0.21	0.0432	33.7	2.06	15.3
NCS DC73326a	11.8	1.91	7.5	5.3	0.50	4.3	1.23	3.4	2.30	2.00	0.063	0.06	1.71	0.068	0.0187	60.1	0.37	8.9

analysis listed in mg/kg

Number	Ag	As	B	Ba	Be	Bi	Br	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	Eu	F	Ga	Gd
NCS DC73319a	0.81	33	69	700	3.3	1.4	4.1	2.5	71	(87)	10.3	44	7.2	42	6.0	3.8	0.89	513	18.1	5.5
NCS DC73320a	0.072	18	27	1187	2.6	0.29	4.6	0.2	123	(51)	11.1	52	4.7	20	4.5	2.5	1.8	723	14.8	6.2
NCS DC73321a	0.075	6.2	21	1117	1.7	0.21	3.8	0.079	45	(73)	6.9	35	3.2	13.4	2.8	1.7	0.8	354	15.7	3.1
NCS DC73322a	0.059	9.6	88	312	2.4	1.8	2.8	0.11	99	(30)	20	81	12.5	43	4.4	2.5	1.2	1127	23	5.5
NCS DC73323a	4.6	242	108	343	1.8	23	(1.5)	0.16	85	(31)	18	113	18	147	5.1	3.2	1.0	601	25	4.5
NCS DC73324a	0.24	88	28	181	6.9	89	(1.1)	(0.5)	85	110	20	86	9.4	358	5.4	3.7	0.39	1526	40	4.2
NCS DC73325a	0.08	(4.2)	(19)	237	2.9	(0.37)	6.4	(0.23)	113	(54)	93	379	2.9	84	5.7	2.4	3.0	341	39	8.3
NCS DC73326a	0.067	13.2	51	492	2.0	0.31	3.7	0.14	68	68	12.3	65	7.3	24	4.9	2.7	1.2	555	15.1	5.5

Number	Ge	Hf	Hg	Ho	I	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc	Se
NCS DC73319a	1.3	6.5	0.31	1.3	2.0	0.12	39	28	0.57	2.0	15.3	30.8	16.9	339	8.5	137	2.4	8.3	0.22)
NCS DC73320a	1.2	6.3	0.017	0.9	2.6	0.048	61	22	0.38	1.6	35	55	24	27	14.8	95	0.86	9.5	0.26
NCS DC73321a	1.2	7.1	0.116	0.58	2.5	0.033	21	18	0.28	0.5	10.6	19	15	28	4.9	85	0.69	5.6	0.12
NCS DC73322a	1.7	6.9	0.072	0.85	4.0	0.095	54	27	0.40	0.70	16.1	40	36	37	11.2	152	1.4	15.9	0.31
NCS DC73323a	2.3	8.3	0.7	1.1	2.8	1.4	35	51	0.49	2.3	20	27	38	245	7.3	142	14.9	16.9	0.75
NCS DC73324a	6.2	6.5	0.086	1.1	13.2	4.1	31	43	0.80	169	38	20	75	478	5.6	118	14	17	0.47
NCS DC73325a	1.5	8.9	0.058	1.0	19.0	0.11	56	23	0.30	3.2	80	47	217	18.3	11.7	28	0.53	25	0.34
NCS DC73326a	1.3	6.9	0.027	0.98	1.6	0.053	35	33	0.042	0.76	13.1	31	30	21	8.0	96	1.2	11.5	0.098

Number	Sm	Sn	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
NCS DC73319a	5.9	9.8	192	1.3	0.98	(0.06)	13.1	1.2	0.61	6.3	61	3.5	38	3.8	475	218
NCS DC73320a	7.9	2.0	249	(0.86)	0.89	(0.037)	13.3	0.63	0.38	1.9	65	1.9	25	2.5	58	219
NCS DC73321a	3.5	2.6	325	1.2	0.50	(0.04)	6.7	0.51	0.28	1.2	45	1.1	16	1.8	39	247
NCS DC73322a	6.8	5.6	58	1.4	0.84	(0.085)	19	1.0	0.4	3.0	125	2.9	23	2.6	92	234
NCS DC73323a	4.5	7.2	39	1.6	0.80	6.6	17.2	1.1	0.5	4.0	136	7.4	29	3.2	172	272
NCS DC73324a	4.7	439	30	16	0.84	(0.5)	35	3.6	0.7	28	108	132	33	5.2	1529	156
NCS DC73325a	9.3	5.0	37	5.7	1.2	(0.06)	10.5	0.3	0.33	2.6	240	2.3	25	2.0	187	370
NCS DC73326a	6.0	2.9	197	1.1	0.86	(0.034)	12.2	0.57	0.43	2.3	80	1.8	26	2.8	66	241



## CRM SOIL WITH EXTENSIVE ANALYSIS

analysis listed in mass %																	Org = Organic Sol = Soluble T = Total			50 g units	
Number	Al <sub>2</sub> O <sub>3</sub>	C	Org.C	CaO	F	T.Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Mn	N	Na <sub>2</sub> O	P	S	SiO <sub>2</sub>	Ti	Zn					
NCS ZC71008	10.31	7.90	4.73	15.0	0.0532	4.83	1.628	1.24	0.0648	0.281	0.709	0.0887	0.111	43.85	0.315	0.0201					
NCS ZC71009	15.41	2.81	2.75	1.000	0.0566	5.24	1.78	0.932	0.0438	0.276	1.00	0.0660	0.0502	62.54	0.493	0.0221					
NCS ZC71010	13.17	2.45	2.36	1.085	0.0520	4.97	1.732	0.973	0.0517	0.218	1.19	0.0833	0.0447	66.9	0.476	0.0230					
NCS ZC71011	9.45	1.11	1.07	0.412	0.0353	3.89	1.45	0.512	0.0424	0.120	0.475	0.0420	0.0364	77.1	0.571	0.00897					
NCS ZC71012	15.30	0.62	0.59	1.420	0.0762	9.06	3.11	0.783	0.0725	0.0613	1.11	0.106	0.301	61.5	0.410	0.0260					
NCS ZC71013	16.27	1.29	1.12	1.28	0.128	7.23	2.62	1.223	0.117	0.154	0.35	0.0863	0.0222	61.5	0.546	0.0117					
NCS ZC71014	11.77	1.56	1.04	3.65	0.0450	3.68	2.39	1.85	0.0503	0.107	2.17	0.105	0.0238	67.41	0.330	0.00644					
NCS ZC71015	11.94	1.23	1.18	1.22	0.0504	6.37	3.17	1.53	0.104	0.126	1.52	0.110	0.0470	67.4	0.495	0.0269					
NCS ZC71016	12.57	2.66	2.23	3.73	0.0757	4.78	2.74	3.76	0.0864	0.243	2.21	0.339	0.0644	59.7	0.397	0.0302					
NCS ZC71017	18.52	1.61	0.91	0.376	0.0547	4.74	2.65	0.609	0.0498	0.170	0.605	0.125	0.0308	61.8	0.536	0.0133					
NCS ZC71018	12.34	1.44	0.79	0.414	0.0441	5.98	1.79	1.34	0.0417	0.149	0.470	0.0607	0.0281	69.52	0.492	0.0261					
NCS ZC71019	10.52	0.84	0.468	1.51	0.0440	6.54	2.46	0.697	0.297	0.0693	0.428	0.0430	0.0468	72.28	0.306	0.0224					

  

Number	Ag	As	B	Ba	Be	Bi	Br	Cd	Ce	Cl	Co	Cr	Cu	Dy	Er	Eu	Sol.F
NCS ZC71008	0.56	22.5	41	448	2.15	1.68	4.5	2.02	67	94	13.4	70	76	4.13	2.36	1.14	8.3
NCS ZC71009	0.44	83.4	60	502	2.62	47.8	6.0	14.2	83	69	14.4	92	69.8	5.63	3.15	1.48	8.7
NCS ZC71010	0.91	12.5	66	480	2.32	0.58	5.2	0.276	79	119	13.7	78.2	104	5.53	3.1	1.44	6.8
NCS ZC71011	0.259	41.9	92	351	1.55	1.99	1.8	0.276	87	45	13.4	59.0	69	5.04	2.99	1.16	1.89
NCS ZC71012	7.5	222	50	713	1.75	6.0	1.8	0.62	70.2	52	9.17	27.5	301	3.23	1.79	1.44	1.53
NCS ZC71013	0.128	19.3	70	386	2.79	0.62	4.55	0.398	87	34	23.9	87.0	53.1	5.41	3.16	1.4	4.3
NCS ZC71014	0.088	8.8	38.2	592	1.75	0.259	5.2	0.238	56.5	91	10.1	60.6	21.7	3.79	2.19	1.12	7.2
NCS ZC71015	5.4	398	64.1	713	1.90	10.9	4.5	2.14	70	74	15.0	65.3	76	4.59	2.64	1.36	8.7
NCS ZC71016	0.46	13.8	29.8	863	1.99	0.559	5.1	2.71	73.8	98	12.5	60.0	244	3.87	2.11	1.41	3.3
NCS ZC71017	0.162	6.2	26.2	515	3.70	0.77	3.93	0.293	135	74	11.7	39.9	56.3	6.7	3.68	1.69	5.1
NCS ZC71018	1.61	349	65	511	2.12	3.29	2.83	2.58	83	54	16.1	215	244	4.39	2.55	1.21	2.2
NCS ZC71019	2.21	8.9	11.5	521	2.25	9.6	2.1	0.636	61	52	8.74	43.5	74	3.43	2.04	0.87	3.9

  

Number	Ga	Gd	Ge	Hg	Ho	I	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb
NCS ZC71008	13.2	4.55	1.33	0.205	0.83	2.77	36.7	38.4	0.361	4.28	11.5	28.7	28.7	92	7.7	78	3.4
NCS ZC71009	19.5	6.15	1.61	0.62	1.12	2.19	45.5	46.7	0.459	1.1	17.0	37.8	40.9	372	10.0	114	22.1
NCS ZC71010	16.7	6.03	1.48	3.44	1.09	1.58	42.7	41.1	0.456	0.63	16.4	36.9	34.7	153	9.9	101	2.03
NCS ZC71011	12.6	5.27	1.35	0.074	1.02	1.11	42.3	29.9	0.45	1.40	19.5	34.2	19.2	42.4	9.3	72	1.62
NCS ZC71012	21.5	4.20	1.35	0.087	0.63	1.37	40.3	18.7	0.272	26.4	14.8	29.1	9.9	340	8.0	109	27.3
NCS ZC71013	21.8	5.8	1.72	0.133	1.12	3.54	43.0	49.0	0.49	1.42	18.1	37.1	43.9	40.9	9.9	129	2.08
NCS ZC71014	14.2	4.20	1.22	0.052	0.76	2.72	30.5	23.9	0.339	0.54	10.9	26.1	23.9	23.2	7.0	85.6	0.69
NCS ZC71015	15.5	5.04	1.4	0.101	0.92	2.38	36.5	33.3	0.406	1.30	16.5	32.0	29.9	1050	8.46	98.1	6.3
NCS ZC71016	16.0	4.77	1.27	0.061	0.76	2.73	39.5	23.7	0.314	2.53	13.1	33.3	22.8	50.9	8.9	85.1	0.84
NCS ZC71017	24.2	7.8	1.4	0.157	1.26	1.79	69.8	25.1	0.57	2.49	24.2	53	17.2	60	14.9	154	0.72
NCS ZC71018	15.8	4.8	1.69	0.231	0.90	1.96	46	43.3	0.396	2.67	18.9	33.3	90.6	166	9.3	99	7.8
NCS ZC71019	14.7	3.65	2.09	0.085	0.70	2.86	32.7	21.6	0.340	7.3	19.4	24.5	10.9	467	6.9	127	0.59

  

Number	Sc	Se	Sm	Sn	Sr	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zr
NCS ZC71008	10.0	1.96	5.40	7.6	236	0.74	11.0	1.26	0.363	3.19	86.6	4.6	23.7	2.3	169
NCS ZC71009	15.4	1.86	7.03	27.9	99.3	0.99	15.0	1.28	0.479	2.93	112	2.56	30	3.01	232
NCS ZC71010	12.6	0.44	6.95	54	103	0.97	13.5	0.65	0.47	2.64	95.1	2.31	29.1	2.95	270
NCS ZC71011	9.3	0.412	6.20	5.1	72.1	0.85	13.5	0.536	0.461	2.86	81.4	3.13	28.1	2.92	377
NCS ZC71012	7.3	2.82	5.08	10.0	260	0.606	9.9	0.977	0.274	3.19	91	4.63	16.7	1.76	222
NCS ZC71013	16.2	0.52	6.7	11.0	120	0.93	14.6	0.94	0.49	3.73	132	2.28	28.8	3.13	212
NCS ZC71014	9.4	0.259	4.92	2.63	262	0.667	8.1	0.558	0.337	1.46	66.4	1.39	20.4	2.17	246
NCS ZC71015	10.8	0.62	5.92	2.95	163	0.81	9.9	0.598	0.408	2.07	88	3.25	23.9	2.61	296
NCS ZC71016	9.7	0.495	5.78	2.3	304	0.710	7.52	0.699	0.321	1.93	76.1	2.57	20.1	2.05	247
NCS ZC71017	12.2	0.45	9.4	9.1	80	1.22	36.7	1.25	0.54	10.1	100	3.92	34.5	3.6	304
NCS ZC71018	11.5	1.19	5.88	5.6	79	0.76	15.7	0.83	0.394	4.27	96	6.7	22.4	2.5	276
NCS ZC71019	7.2	2.02	4.5	20.3	74	0.60	13.9	1.06	0.326	3.14	55	8.7	17.8	2.2	287

**CRM SOIL - CONTAMINATED**

certified analysis listed in mg/kg

T = Total

Number	As	B	Be	Cd	Co	Cr	Cu	F	Hg	Mn	Ni	Pb	Se	V	Zn	Type	Units
BAM U110 *	15.8	.	.	7.3	16.2	230	263	.	51.5	621	101	197	.	.	1000		60 g
JSAC 0411	11.3	.	1.04	0.274	.	23.5	26.7	.	.	943	11	18.9	1.32	68.6	64.6	Volcanic Ash Soil	50 g
JSAC 0401	10.62	.	5.28	4.25	.	50.4	15.3	.	.	266	18.9	26	0.27	65.0	66.8	Brown Forest Soil	50 g

\* Aqua Regia values for BAM U110 listed under "Soil - Aqua Regia Method" in this catalog

**CRM SOIL - CONTAMINATED**

analysis listed in mass % except as noted

powder 75 g

Number	Hexavalent Cr	Cr	Fe	Mn	Al	Tot.Org.C	Ca	K	Mg	Na	Si	Ti	V	PH	Redox Potential
SRM 2701	0.05512	4.26	23.73	0.2137	(5.05)	(3.69)	(7.47)	(0.174)	(7.47)	(0.255)	(4.17)	(0.547)	(0.236)	9.6	(526 mV)

**CRM SOIL - CYANIDE**

analysis in mg/kg powder

Number	Total Cyanide	Uncertainty	Units
BAM U114	23.1	1.3	66 g last of stock

## SOIL - CONTAMINATED

# = class where 1 = CRM and 2 = RM analysis listed in mg/kg except % which is mass % CETEM: 80 g all others: 50-55 g units

# Number	Ag	Al%	As	Au	B	Ba	Be	Bi	Br	C%	Ca%	Cd	Ce	Co	Cr	Cs	Cu	Dy
2 SRM 2780a	72.5	8.43	65.9	6.6	(27)	930	(1.1)	(45)	.	(0.19)	0.247	(4.8)	67.7	16.5	205	8.3	240	(3.1)
1 SRM 2710a	(40)	5.95	1,540	(0.2)	(20)	792	.	.	.	.	0.964	12.3	(60)	5.99	(23)	(8.25)	342	(3)
1 IRNT SVM **	(4)	(8.96)	13.6	.	(70)	582	(500)	.	(5)	.	(0.692)	0.214	(100)	15.4	79.8	(6)	30.0	(5)
1 IRNT SSP **	(5)	(7.48)	14.0	.	.	315	.	.	.	.	6.34	0.285	.	15.6	75.3	.	30.9	.
1 SRM 2709a	.	7.37	(10.5)	.	(74)	979	.	.	.	.	1.91	0.371	(42)	12.8	130	(5.0)	(33.9)	(3)
1 SRM 2586	.	6.652	8.7	.	.	413	(1.4)	.	.	.	2.218	2.71	58	(35)	301	.	(81)	(5.4)
1 SRM 2587	.	5.86	13.7	.	.	568	(9.2)	.	.	.	0.927	1.92	(57)	(14)	92	.	(160)	.

continued

Number	Er	Eu	Fe%	Ga	Gd	Ge	Hf	Hg	Ho	In	K%	La	Li	Lu	Mg%	Mn%	Mo
SRM 2780a	(2.0)	(0.9)	8.75	(21)	(3.2)	(<6)	(5.5)	(0.2)	(0.7)	(1.65)	3.99	34.4	(14)	(0.33)	0.465	0.0490	25.0
SRM 2710a	.	(0.82)	4.32	.	(3.0)	.	(7)	9.88	.	.	2.17	30.6	.	(0.3)	0.734	0.214	.
IRNT SVM **	.	(2)	3.73	.	(7)	.	(10)	0.171	.	.	3.08	(60)	(30)	(500)	(0.593)	0.0897	.
IRNT SSP **	.	.	3.73	.	.	.	.	0.0874	.	.	2.63	.	.	.	(1.19)	0.0734	.
SRM 2709a	.	(0.83)	3.36	.	(3.0)	.	(4)	(0.9)	.	.	2.11	(21.7)	.	(0.3)	1.46	0.0529	.
SRM 2586	(3.3)	(1.5)	5.161	(14)	(5.8)	.	.	0.367	(1.1)	.	0.976	29.7	(25)	.	1.707	0.1000	.
SRM 2587	.	.	2.813	(13)	.	.	.	0.29	.	.	1.583	(29)	(32)	.	0.6690	0.0651	.

continued

Number	Na%	Nb	Nd	Ni	P%	Pb%	Pr	Rb	Re	S%	Sb	Sc	Se	Si%	Sm	Sn	Sr
SRM 2780a	0.108	(20)	28.3	95	0.0286	0.665	(8)	220	(0.003)	8.85	18.3	15.6	(6)	24.1	4.7	(7.2)	121
SRM 2710a	0.894	.	(22)	(8)	0.105	0.552	.	(117)	.	.	52.5	(9.9)	(1)	31.1	(4.0)	.	255
IRNT SVM **	(0.3)	.	(50)	30.8	(0.000013)	0.00196	.	(200)	.	.	4.58	(15)	(300)	25	(10)	.	(82.0)
IRNT SSP **	.	.	.	37.4	.	0.00413	.	.	.	.	2.11	.	.	.	.	.	274
SRM 2709a	1.22	.	(17)	(85)	0.0688	0.00173	.	(99)	.	.	1.55	(11.1)	(1.5)	30.3	(4)	.	239
SRM 2586	0.468	(6)	26.4	(75)	0.1001	0.0432	(7.3)	.	.	.	.	(24)	(0.6)	29.15	(6.1)	.	84.1
SRM 2587	1.127	(14)	(25)	(36)	0.0970	0.3242	.	.	.	.	.	(11)	.	33.13	.	.	126

continued

Number	Ta	Tb	Te	Th	Ti%	Tl	Tm	U	V	W	Y	Yb	Zn%	Zr	
SRM 2780a	(1.2)	(0.5)	(22)	12.0	0.643	(5.5)	(0.31)	4.0	152	(17.4)	(18)	(2)	0.102	206	LOI: (11.1)
SRM 2710a	(0.9)	(0.5)	.	(18.1)	0.311	(1.52)	.	9.11	(82)	(190)	.	(2)	0.418	(200)	.
IRNT SVM **	(1)	(1)	.	(20)	0.55	(<200)	.	(3)	98.3	(3)	.	(4)	0.00888	(350)	last
IRNT SSP **	.	.	.	.	.	.	.	.	89.7	.	.	.	0.0119	(200)	last
SRM 2709a	(0.7)	(0.5)	.	(10.9)	0.336	(0.58)	.	(3.15)	110	.	.	(2)	(0.0103)	195	last
SRM 2586	.	(0.09)	.	(7)	0.605	.	(0.5)	.	(160)	.	(21)	2.64	0.0352	.	.
SRM 2587	.	.	.	(7.5)	0.3920	.	.	.	(78)	.	(15)	(1.6)	0.03358	.	.

\*\* IRNT certificates expired, however use and sales continue without problems worldwide

## RM STEATITE

analysis listed in mass % 25 or 100 g units

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	TiO <sub>2</sub>	LOI
CERAM 2CAS14	62.7	0.149	0.249	0.314	0.002	31.28	0.008	0.005	5.10

**CRM SULPHUR**

Number	Recommended S Value (%)	95% Confidence Limits		Standard Deviation of Laboratories (%)		Number of Sets	Results	Units
		Low%	High%	Between	Within			
CAN HCC-1	33.92	33.80	34.03	0.14	0.095	9	53	50 g
CAN INM-1	22.17	21.97	22.37	0.24	0.051	9	53	50 g

**CRM SULPHUR IN VARIOUS FORMS - SEE ALSO "MULTI-METAL ORE"**

analysis listed in mass %

Number	Type	S	SO <sub>4</sub>	Al	CO <sub>2</sub>	Ca	Cu	Fe	H <sub>2</sub> O	Mg	Pb	Si	Zn	LOI	Units
NCS DC71307	Sulphide	52.72	.	.	.	.	0.0431	46.08	.	.	(0.00234)	.	0.0219	.	5 g
NCS DC71308	Sulphide	34.69	.	.	.	.	33.30	30.30	.	.	0.0128	.	0.30	.	5 g
CAN HCC-1	Concentrate	33.92	.	.	.	.	.	.	.	.	.	.	.	.	50 g
NCS DC71310	Sulphide	32.33	.	.	.	.	0.10	2.14	.	.	0.099	.	62.51	.	5 g
CAN WMS-1A	Sulphide	28.17	.	1.350	.	3.09	1.396	45.4	(0.2)	(0.331)	(0.0033)	(4.7)	(0.0130)	.	200 g
CAN INM-1	Concentrate	22.17	.	.	.	.	.	.	.	.	.	.	.	.	50 g
NCS DC71309	Sulphide	13.30	.	.	.	.	0.00624	0.0127	.	.	84.26	.	0.0533	.	5 g
CAN RTS-3a	Ore Tailings	9.59	(1.1)	5.12	0.04	2.14	0.2353	20.49	.	2.483	0.0209	18.28	0.2890	(10.6)	100 g

continued analysis listed in mass %

Number	C	Cd	Co	K	Mn	Na	Ni	P	Sb	Sn	Ti
NCS DC71307	.	0.000071	(0.00039)	.	0.00289	.	0.00340	.	0.00011	(0.00027)	.
NCS DC71308	.	0.00202	0.00751	.	0.00475	.	0.00413	.	(0.00027)	(0.00058)	.
CAN HCC-1	.	.	.	.	.	.	.	.	.	.	.
NCS DC71310	.	0.15	0.0491	.	0.0169	.	0.00432	.	0.0249	(0.00032)	.
CAN WMS-1A	(0.1)	(0.00014)	(0.145)	(0.0991)	(0.0600)	(0.0329)	3.02	(0.018)	(0.000692)	(0.00023)	(0.0840)
CAN INM-1	.	.	.	.	.	.	.	.	.	.	.
NCS DC71309	.	0.00165	(0.00004)	.	.	.	.	.	0.43	0.11	.
CAN RTS-3a	(0.04)	0.000921	0.0143	0.460	0.1585	0.684	0.00613	0.0446	0.000283	.	0.351

continued analysis listed in mg/kg

Number	Ag	As	Au	Ba	Bi	Cr	Ga	Ge	In	Pd	Pt	Se	Sr	Te	Tl	Zr
NCS DC71307	0.59	(14.4)	.	.	2.9	.	0.44	(0.2)	.	.	.	5.8	.	0.95	.	.
NCS DC71308	846	(3.1)	.	.	16.1	.	(0.3)	.	(66.6)	.	.	48.3	.	10.4	.	.
CAN HCC-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NCS DC71310	5.0	(3.3)	.	.	6.1	.	251	6.0	21.0	.	.	(3.0)	.	(0.3)	.	.
CAN WMS-1A	(3.7)	30.9	0.300	(70)	(1.2)	(68)	(4)	.	(0.2)	1.45	1.91	(87)	(31.3)	.	.	(20)
CAN INM-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NCS DC71309	0.97%	5.3	.	.	1.4	.	(0.3)	1.47	0.29	.	.	.	.	(0.07)	0.65	.
CAN RTS-3a	11.1	18.2	0.561	106	31.3	176	(30)	.	(1.6)	(0.004)	.	44.8	44.7	(2.0)	(3)	78

**CRM SULPHUR ORE**

analysis listed in mass %

Number	Al <sub>2</sub> O <sub>3</sub>	BaO	CaO	Cu	T.Fe	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	TiO <sub>2</sub>	Zn	LOI	Units
UNS MII	10.63	0.049	0.49	0.21	6.79	2.22	2.06	0.11	0.93	(12)	(7)	(16)	0.50	1.79	(10)	100 g

continued analysis listed in mg/kg

Number	Ag	As	B	Cd	Co	Cr	Cs	Eu	Ga	Hf	La	Mo	Ni
UNS MII	(0.012)	0.0901	(0.005)	0.0767	0.0223	(0.012)	(0.003)	(0.003)	(0.008)	(0.003)	(0.003)	(0.003)	0.0329

Number	Pb	Rb	Sb	Sc	Sr	Ta	Th	U	V	W	Y	Yb	Zr
UNS MII	0.868	(0.005)	(0.004)	(0.003)	0.0259	(0.003)	(0.006)	(0.004)	0.0845	(0.004)	(0.008)	(0.006)	(0.008)

## CRM SULPHUR ORE

Number	S%	C%
GS908-4	30.08	.
GS914-3	29.86	0.38
GS314-1	29.11	1.41
GS399-10	28.22	.
GS310-2	27.59	.
GS315-7	26.90	0.36
GS900-2	26.62	.
GS300-5	26.54	.
GS310-1	26.44	.
GS301-2	25.86	.
GS316-8	25.59	0.07
GS300-7	24.85	.
GS317-4	24.43	0.25
GS307-8	23.98	.
GS916-8	23.76	0.60
GS916-6	19.20	0.48
GS317-2	18.66	0.48
GS316-7	18.13	0.41
GS916-7	17.67	0.52
GS317-3	16.76	0.67
GS317-5	15.53	8.46
GS916-9	14.55	0.60
GS912-8	11.63	2.91
GS913-3	10.95	0.03
GS310-7	10.92	.
GS312-7	10.53	2.63
GS916-4	9.95	0.86
GS312-6	9.80	3.10
GS315-10	8.40	0.16
GS910-4	8.27	.
GS913-1	7.90	0.06
GS314-8	7.82	0.26
GS907-4	7.68	.
GS908-7	7.55	.
GS917-1	7.33	0.47
GS913-5	7.30	0.03
GS913-6	7.22	0.04
GS913-7	7.18	0.04
GS307-7	7.04	.
GS915-10	6.90	0.13
GS302-6	6.75	2.84
GS913-4	6.58	0.04
GS913-8	6.56	0.04
GS314-10	6.50	0.37
GS914-6	6.35	1.18
GS301-1	6.13	.
GS310-8	5.91	.
GS907-6	5.77	.
GS905-3	5.64	.
GS913-2	5.49	0.06
GS914-4	5.44	1.00
GS300-2	5.16	.
GS315-2	4.91	0.18
GS314-4	4.87	0.24
GS905-8	4.38	.
GS915-5	3.88	0.12
GS902-3	3.84	.
GS912-7	3.52	0.09
GS314-3	3.37	0.36
GS914-7	3.34	0.04
GS901-1	3.20	.
GS310-3	3.30	.
GS917-2	3.09	0.40
GS916-10	2.90	0.03
GS311-2	2.88	.
GS907-7	2.82	.
GS310-6	2.64	.
GS314-2	2.56	5.15
GS903-3	2.54	.
GS311-1	2.35	.
GS902-7	2.32	.
Number	S%	C%

## CRM SULPHUR ORE

Number	S%	C%
GS399-5	2.29	.
GS305-1	2.20	.
GS310-5	2.20	.
GS916-3	2.17	0.26
GS915-1	2.06	0.08
GS916-5	2.05	0.07
GS302-5	1.98	.
GS311-9	1.98	.
GS302-9	1.94	.
GS313-9	1.89	0.08
GS911-8	1.76	.
GS997-10	1.74	.
GS305-6	1.71	.
GS901-8	1.65	.
GS910-6	1.50	.
GS300-4	1.43	.
GS305-5	1.41	.
GS305-7	1.41	.
GS313-8	1.24	0.94
GS916-1	1.18	0.59
GS310-4	1.17	.
GS311-3	1.12	.
GS398-2	1.10	.
GS914-5	1.08	1.39
GS312-4	1.05	0.04
GS315-9	0.94	0.34
GS900-3	0.92	.
GS910-3	0.92	.
GS910-7	0.86	.
GS313-7	0.78	0.74
GS305-2	0.76	.
GS312-8	0.75	0.03
GS900-4	0.71	.
GS302-3	0.68	.
GS906-9	0.68	.
GS312-1	0.67	0.05
GS314-9	0.64	1.13
GS903-1	0.63	.
GS910-9	0.63	.
GS309-1	0.61	.
GS303-7	0.59	.
GS316-4	0.58	0.09
GS916-2	0.56	0.17
GS314-6	0.56	0.15
GS316-2	0.56	0.08
GS311-4	0.54	.
GS917-5	0.53	0.30
GS912-3	0.52	0.07
GS305-10	0.51	.
GS312-3	0.47	0.06
GS301-6	0.40	.
GS300-8	0.37	.
GS917-4	0.36	0.05
GS316-1	0.36	0.04
GS316-3	0.34	0.06
GS303-9	0.31	.
GS312-5	0.28	0.88
GS915-2	0.28	0.13
GS303-10	0.27	.
GS310-10	0.27	.
GS914-2	0.26	0.06
GS313-3	0.25	0.13
GS315-8	0.25	0.19
GS914-10	0.24	0.21
GS903-6	0.23	.
GS317-1	0.21	0.15
GS906-6	0.21	.
GS312-9	0.21	0.03
GS915-3	0.19	0.11
GS914-1	0.18	0.04
GS906-5	0.18	.
GS398-6	0.16	.
GS915-8	0.13	0.07
GS915-9	0.12	0.04
GS917-8	0.11	5.78
GS912-1	0.09	0.03
GS917-9	0.09	5.56
Number	S%	C%

## CRM SULPHUR ORE

Number	S%	C%
GS915-6	0.09	0.04
GS316-9	0.08	0.06
GS316-10	0.08	0.03
GS311-5	0.07	.
GS317-8	0.06	0.04
GS912-2	0.06	0.03
GS307-2	0.06	.
GS316-5	0.05	0.46
GS316-6	0.05	0.45
GS912-10	0.05	0.11
GS912-6	0.05	0.06
GS317-6	0.05	0.05
GS915-4	0.05	0.03
GS313-1	0.05	0.03
GS910-5	0.05	.
GS911-5	0.05	.
GS911-9	0.05	.
GS315-4	0.04	0.11
GS912-9	0.04	0.12
GS314-7	0.04	0.09
GS313-10	0.04	0.06
GS917-3	0.04	0.05
GS315-3	0.04	0.04
GS317-10	0.04	0.04
GS312-10	0.04	0.03
GS312-2	0.04	0.22
GS910-2	0.04	.
GS313-4	0.03	0.26
GS313-5	0.03	0.25
GS313-6	0.03	0.12
GS912-5	0.03	0.10
GS313-2	0.03	0.03
Number	S%	C%

for all GS Sulfur Ore samples,  
unit size is 10 g powder

## CRM SYENITE WITH EXTENSIVE ANALYSIS

analysis listed in mass % \* Provisional Analysis <sup>87</sup>Sr/<sup>86</sup>Sr ratio: 0.70375 GBW, US: 50 g all others: 100 g units

Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CO <sub>2</sub>	CaO	Cl	F	FeO	Fe <sub>2</sub> O <sub>3</sub>	T.Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	TiO <sub>2</sub>	LOI
SARM 2	63.63	17.34	0.27	0.68	.	CO <sub>2</sub> :0.09	0.30	1.11	1.40	+0.22	15.35	0.46	BaO:0.27	0.43	0.27	.	(0.04)	.
US-STM-2 *	60.98	18.4	.	1.09	(0.0570)	.	(2.08)	.	5.39	T.Fe+3.77	4.07	0.12	Mn+0.1640	8.90	0.17	.	0.16	.
JSy-1	60.02	23.17	.	0.25	.	.	.	.	0.084	.	4.82	0.016	0.0024	10.74	.	.	.	.
VS 6104-91	57.86	16.68	(0.20)	6.94	.	0.082	2.51	.	5.41	(-0.05, +0.28)	4.77	1.25	0.14	4.51	0.39	(0.017)	0.78	(0.38)
GBW 07109	54.48	17.72	0.26	1.39	0.059	0.048	1.23	6.04	.	2.38	7.48	0.65	0.12	7.16	0.018	0.011	0.48	.
CGL 015	52.20	24.59	.	1.98	.	(0.10)	2.60	.	4.67	(-0.104, +0.58)	4.44	0.37	(0.100)	9.76	0.139	.	0.37	1.05
CAN-SY-5	49.83	14.35	C+0.171	7.039	.	.	.	10.61	.	0.142	4.170	3.13	0.1283	4.15	2.04	0.421	1.777	0.86

continued analysis listed in mg/kg except % which is mass %

Number	Ag	As	B	Ba	Be	Bi	Br	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Ge
SARM 2	.	.	.	.	.	.	.	.	11.9	(3)	12	.	19	(0.4)	.	0.30	11	.	.
US-STM-2 *	(1.2)	.	(5.4)	639	9.7	.	.	.	256	.	.	1.52	.	(8.01)	(4.4)	3.45	34	(8)	.
JSy-1	.	.	.	15.7	.	.	.	.	2.6	.	2.0	0.69	1.3	0.37	0.30	0.16	23.5	7.0	0.95
VS 6104-91	(0.03)	(12)	(7)	0.69%	1.9	.	.	.	219	8	16	(1)	5	(6.9)	(2.5)	4.5	17	(10)	(1.2)
GBW 07109	.	6.27	31.8	251	17.2	0.37	1.21	0.07	242	4.59	3.6	2.05	11.8	4.70	2.48	2.35	35.8	.	.
CGL 015	.	.	.	1305	(1.86)	.	.	.	58.24	(5.33)	25.6	(1.31)	6.40	(4.49)	(2.69)	(1.36)	22.63	(4.75)	.
CAN-SY-5	.	.	.	6480	4.62	.	.	.	459	23.1	151.5	0.612	37.9	11.33	5.38	7.64	21.6	19.8	.

Number	Hf	Hg	Ho	I	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc
SARM 2	.	.	.	.	.	(5)	.	.	Mn:80	.	(6)	(7)	(5)	.	530	.	.
US-STM-2 *	27	.	(1.55)	.	154	36	0.60	6.2	267	81	(4.8)	12	25	114	.	.	.
JSy-1	1.2	.	0.094	.	1.2	10.5	0.076	.	0.51	1.2	1.1	4.9	0.32	66.3	0.15	.	
VS 6104-91	5	.	(1)	.	108	10.5	0.33	1.1	20	102	8.4	21	(23)	56	.	4	
GBW 07109	34.0	0.005	0.96	0.14	0.15	149	32.9	0.43	0.26	66.9	65.1	1.75	196	22.5	130	0.15	2.22
CGL 015	(3.15)	.	(0.93)	.	27.48	64.95	(0.42)	(1.51)	22.63	27.34	(3.4)	7.00	(6.99)	85.36	(0.14)	2.76	
CAN-SY-5	15.3	.	2.04	.	225	49.5	0.702	8.893	22.2	208.1	79.8	65.9	55.3	76.9	0.524	12.37	

Number	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
SARM 2	.	(1)	.	62	.	.	.	1.0	Ti:265	.	10	.	.	(0.07)	(10)	(33)	
US-STM-2 *	.	12.0	(6.6)	782	16	(1.38)	.	27	.	0.55	(7.6)	(5.5)	(2.2)	43	4.2	223	1280
JSy-1	.	0.27	0.17	19.3	.	.	0.23	.	0.053	0.20	2.1	.	.	2.6	0.41	3.2	70.2
VS 6104-91	.	16	(1.9)	0.52%	(1.8)	(1.7)	.	(12)	.	(0.45)	(2)	79	.	25	2.3	109	185
GBW 07109	0.05	9.7	6.50	1160	1.96	1.02	0.012	79.3	0.76	0.46	14.6	179	1.24	24.7	2.56	112	1540
CGL 015	(5.09)	.	(0.93)	312	(1.21)	(0.76)	.	(4.63)	(0.32)	(0.4)	(1.59)	(5.8)	(4.36)	25.32	2.66	75.42	157
CAN-SY-5	.	31.1	2.56	3100	1.06	2.26	.	25.2	0.614	0.725	5.09	131.8	.	56.3	4.64	130.9	769

## NEPHELINE SYENITE

# = class, where 1 = CRM and 2 = RM analysis listed in mass % GBW: 50 g units all others: 100 g units

#	Number	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Ba	CO <sub>2</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	Sr	TiO <sub>2</sub>	LOI
1	GBW 03124	60.64	20.05	.	.	0.52	0.28	1.37	2.34+	5.06	0.13	0.050	8.97	0.020	(0.011)	.	0.12	2.37
2	BCS 201a	57.3	23.54	.	.	1.07	.	0.12	.	8.90	0.025	.	7.53	0.025	.	.	0.05	0.76
1	USZ 45-2007	51.88	22.58	0.0447	(1.16)	2.28	0.80	2.63	.	9.10	0.24	0.14	6.78	0.04	.	0.01740	0.37	3.35
1	VS 728-75	40.18	28.5	.	1.6	7.13	(1.43)	3.25T	(1.9+)	(3.3)	1.01	(0.04)	12.2	0.51	0.084	.	0.24	.
1	GBW 03125	39.42	29.67	.	2.97	5.98	1.24	0.33	1.78+	4.72	0.92	0.031	12.59	0.072	(0.064)	.	0.14	.

continued analysis in mg/kg except % which is mass %

Number	As	Ce	Cr	Cu	F%	Ga	La%	Li	Nb%	Pb	Rb%	Th	U	V	Y	Zn%	Zr%
GBW 03124	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BCS 201a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USZ 45-2007	23.8	30.8	44	(2.6)	(0.26)	23	0.0163	54	0.0040	114	0.0207	61.6	12.4	30	23	0.0098	0.0600
VS 728-75	.	.	.	.	.	.	.	.	.	.	.	.	Fe <sub>2</sub> O <sub>3</sub> : (1.66%)	.	.	InsRes: (3.5%)	.
GBW 03125	.	.	.	.	.	.	.	.	.	.	.	.	2.3	.	.	.	.





**TITANIUM ORE**

analysis listed in mass %

#	Number	Ilmenite	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	C	CaO	Co	Cr	Cr <sub>2</sub> O <sub>3</sub>	Fe	FeO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O
2	OSO Ki-370-99	95.41	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1	NCS HC26619	.	98.21	0.65	0.011	.	.	.	.	.	.	0.006	.	.	.	.
1	DSZU 123.22-95	.	65.33	3.17	.	0.51	.	.	1.32	16.10	.	.	.	0.53	0.92	.
1	DSZU 123.21-95	.	59.48	1.02	.	0.40	.	.	0.15	26.76	.	.	.	0.38	0.51	.
1	VS R31	.	56.5	1.99	.	.	.	.	2.59	24.4	.	.	.	.	.	.
1	NCS DC28139	.	55.68	2.30	.	0.070	0.0026	.	2.80	22.04	9.15	.	.	1.09	1.26	.
1	DSZU 103.39-07	.	53.9	0.66	.	.	.	.	0.04	29.1	.	.	.	0.56	0.63	.
1	NCS DC26705	.	51.35	0.75	0.043	0.16	.	.	(0.07)	31.40	23.81	.	.	0.84	0.90	.
1	NCS DC28142	.	50.06	1.30	.	0.68	0.011	.	0.84	30.23	28.85	.	.	1.52	0.875	.
1	NCS DC19019	.	49.78	0.53	.	0.028	.	.	0.054	34.56	25.05	.	.	0.32	1.55	.
1	NCS DC28138	.	47.82	0.68	.	0.68	0.0087	.	0.014	34.79	39.14	.	.	2.11	0.652	.
1	NCS DC28140	.	45.73	0.95	.	2.23	0.051	.	0.012	33.02	36.68	.	.	1.68	0.882	.
1	NCS DC19017	.	45.71	1.64	.	1.75	.	.	0.014	29.12	32.56	.	.	5.18	0.709	.
1	NCS DC28141	.	45.61	0.867	.	1.65	0.0098	.	0.0067	33.58	37.51	.	.	1.74	0.799	.
1	AMIS 0454 * Ti: 26.78	44.45	0.731	.	.	0.216	.	(0.0713)	(0.114)	see below	52.53	(0.045)	0.74	1.19	(0.03)	.
1	NCS DC28137	.	40.66	1.35	.	4.78	0.010	.	0.0064	30.31	33.33	.	.	1.30	1.20	.
1	NCS DC28143	.	35.60	1.65	.	6.25	0.013	.	0.0077	29.29	29.34	.	.	1.55	1.02	.
1	NCS DC19018	.	33.94	4.47	.	3.14	.	.	0.0085	27.30	29.70	.	.	6.88	0.524	.
1	NCS DC28136	.	27.23	2.31	.	9.49	0.015	.	0.0078	26.50	23.62	.	.	2.34	0.802	.
1	CGL 129	17025	14.88	9.79	.	1.16	0.0209	0.3068	.	61.86	.	61.86T	0.137	3.05	0.240	(0.086)
1	NCS DC28134	.	7.11	8.67	.	12.39	0.0052	.	0.0084	14.85	12.45	.	.	6.33	0.216	.
1	NCS DC28135	.	6.14	8.82	.	9.87	0.0079	.	0.0095	15.07	12.77	.	.	6.78	0.187	.

Number	Ni	P	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	Sr	V	V <sub>2</sub> O <sub>5</sub>	Zn	Zr	LOI	Units
OSO Ki-370-99	.	.	.	.	.	.	.	.	.	.	.	1 kg of ~3mm material
NCS HC26619	.	.	.	0.006	.	.	.	.	.	.	.	20 g
DSZU 123.22-95	.	.	0.15	0.0090	1.45	.	.	0.18	.	.	.	100 g
DSZU 123.21-95	.	.	0.24	0.96	3.00	.	.	0.26	.	.	.	100 g
VS R31	.	.	0.25	.	1.24	.	.	.	.	.	.	100 g
NCS DC28139	0.0007	0.047	.	0.025	1.54	.	.	0.266	0.017	.	Cu:0.0093	50 g
DSZU 103.39-07	.	.	0.10	0.59	1.88	.	.	0.25	.	.	.	100 g
NCS DC26705	.	0.045	.	0.004	1.98	.	.	0.22	.	.	.	40 g
NCS DC28142	0.0021	0.048	.	0.172	2.04	.	.	0.700	0.017	.	Cu:0.0073	50 g
NCS DC19019	.	0.0048	.	0.010	0.578	.	.	0.137	.	.	.	100 g
NCS DC28138	0.0029	0.0076	.	0.184	2.65	.	.	0.095	0.016	.	Cu:0.0056	50 g
NCS DC28140	0.0051	0.048	.	0.74	4.85	.	.	0.203	0.016	.	Cu:0.013	50 g
NCS DC19017	.	0.117	.	0.0080	5.99	.	.	0.090	.	.	.	100 g
NCS DC28141	0.0046	0.047	.	0.536	4.16	.	.	0.188	0.015	.	Cu:0.011	50 g
AMIS 0454 *	.	.	(0.030)	.	2.23	.	.	(0.24)	ZrO2:(0.12)	Nb:(0.0576)	.	100 g Density: 4.63
NCS DC28137	0.0084	0.117	.	1.52	9.21	.	.	0.068	0.014	.	Cu:0.022	50 g
NCS DC28143	0.011	0.476	.	2.76	10.41	.	.	0.505	0.016	.	Cu:0.027	50 g
NCS DC19018	.	0.558	.	0.028	11.73	.	.	0.101	.	.	.	100 g
NCS DC28136	0.013	1.07	.	4.77	14.41	.	.	0.066	0.015	.	Cu:0.038	50 g
CGL 129	0.0306	.	0.022	.	7.77	0.0152	0.02818	.	0.0575	0.00354	(-0.25)	150 g
NCS DC28134	0.0037	0.883	.	0.196	38.43	.	.	0.062	0.019	.	Cu:0.0082	50 g
NCS DC28135	0.0098	0.232	.	0.021	42.61	.	.	0.092	0.018	.	Cu:0.016	50 g

\* AMIS 0454 certifies Fe by XRF 36.50%, Titration 37.14%, and M/ICP 36.37%.

Special Note: more Titanium Powders are in our "Other Chips & Powders Catalog."

**RM ILMENITE** typical analysis listed in mass % 100 g

Number	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	C	CaO	Co <sub>3</sub> O <sub>4</sub>	Cr <sub>2</sub> O <sub>3</sub>	CuO	Fe	K <sub>2</sub> O	MgO	Mn	NiO	P <sub>2</sub> O <sub>3</sub>	S	SiO <sub>2</sub>	SrO	V <sub>2</sub> O <sub>5</sub>	ZnO	ZrO <sub>2</sub>
DH 6706	32.37	4.46	0.044	1.179	0.024	0.143	0.017	36.83	0.118	2.82	0.094	0.049	0.017	0.288	7.31	0.016	0.285	0.020	0.044

**CRM TUNGSTEN ORE**

analysis listed in mass % except * which is mg/kg																	CAN: 200 g	GW: 10 g	IGS: 65 g	NCS: 50 g	all others: 100 g	
Number	W	WO <sub>3</sub>	Ag*	As	Be	Bi	Cu	Fe	Ge*	Mo	Nb	P	Pb	S	SiO <sub>2</sub>	Sn	Other					
VS 1710-79	.	71.96	.	.	.	0.146	.	.	.	.	.	.	.	.	.	.	.					
NCS DC35018	.	70.50	.	0.028	.	Ca:4.93	0.019	.	.	0.011	.	0.038	.	0.72	1.94	0.020	.					
SRM 2430	.	70.26	.	0.002	.	0.078	.	.	.	0.22	.	0.017	.	0.26	.	.	.					
NCS DC35019	.	69.19	.	0.052	.	Ca:1.94	0.038	.	.	0.010	.	0.021	.	0.21	1.70	0.13	.					
NCS DC35021	.	69.13	.	.	.	.	0.065	.	Mn:0.042	0.031	.	0.044	.	0.73	.	.	.					
SRM 277	.	67.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
NCS DC35020	.	67.18	.	0.083	.	Ca:1.62	0.044	.	.	0.012	.	0.024	.	0.25	1.98	0.14	.					
NCS DC35022	.	66.02	.	.	.	.	0.0034	.	Mn:0.029	0.073	.	0.0079	.	0.35	.	.	.					
NCS DC35023	.	57.01	.	.	.	.	0.13	.	Mn:0.12	0.012	.	0.091	.	1.24	.	.	.					
CAN CT-1	1.04	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
CAN BH-1	0.422	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
KZ 7027-93	0.17	.	.	.	.	0.015	.	.	.	0.0093	0.0014	.	.	.	.	.	Zr: 0.013					
GW-03	0.1744	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
GW-02	0.1231	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
KZ 7026-93	0.11	1.2	.	.	0.0022	0.018	0.052	.	3.6	0.00098	0.0015	.	Sr:0.017	.	.	.	Sr: 0.017					
CAN TLG-1	0.083	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
IGS 27	0.036	.	.	.	.	.	.	1.76	.	0.276	.	.	.	.	.	.	.					
VS 1714-79	.	1.04	10.3	.	.	0.089	.	.	.	0.041	.	.	.	.	.	0.113	.					
VS 1715-79	.	0.60	.	.	0.013	0.054	0.020	.	3.1	0.026	.	.	0.049	.	.	0.068	Zn: 0.038					
VS 2040-81	.	0.49	.	.	.	0.0058	0.053	0.94	.	0.016	.	.	.	.	.	.	.					
VS 2042-81	.	0.38	.	.	.	0.0032	0.105	4.17	.	0.039	.	.	.	.	.	.	.					
VS 2039-81	.	0.22	.	.	.	0.023	0.27	2.47	.	0.0026	.	.	.	.	.	.	.					
VS 1713-79	.	0.17	5.5	.	0.0058	0.015	.	.	2.9	0.011	.	.	.	.	.	0.028	.					
VS 1711-79	.	0.036	.	.	0.0022	0.0044	.	.	.	0.0026	.	.	.	.	.	0.0071	.					

**CRM TUNGSTEN ORE**

analysis listed in mass %																	T = Total				GBW: 50 g	USZ: 100 g units											
Number	WO <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	As	Bi	CaO	Cy	F	FeO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Mo	Na <sub>2</sub> O	Pb	Rb	S	SiO <sub>2</sub>															
USZ 26-99	0.41	14.14	0.09	0.0067	1.95	.	.	3.72	5.59T	4.32	2.04	0.12	0.079	2.13	0.0076	0.106	.	64.87															
GBW 07241	.	11.15	.	0.068	4.17	0.096	4.84	.	5.60	1.58	0.14	0.090	0.098	0.12	.	(0.05)	1.90	71.27															
GBW 07240	.	8.24	0.18	0.011	37.73	0.79	9.91	.	7.79	1.94	1.45	0.97	.	0.16	0.26	(0.08)	3.12	13.27															
analysis listed in mass %																	analysis listed in mg/kg except % which is mass %																
Number	Sn	TiO <sub>2</sub>	Zn	Ag	As	Cd	Ce	Co	Cu%	Dy	Eu	Er	Ga	Gd	Ge	Ho	In	La															
USZ 26-99	(0.016)	0.82	0.017	.	.	.	.	11	0.022	.	.	.	.	.	.	.	.	.															
GBW 07241	0.17	0.044	0.010	1.8	69.6	0.94	60.3	.	.	20.7	0.17	13.1	16.5	14.8	11.2	4.5	1.3	1.8															
GBW 07240	0.14	0.079	0.29	8.3	.	26.1	10.0	.	.	0.46	0.15	0.23	17.8	0.64	2.5	0.11	8.7	5.0															
analysis listed in mg/kg except % which is mass %																																	
Number	Lu	Mo	Nd	Ni	Pb	Pr	Sb	Sc	Se	Sm	Sr	Tb	Te	Th	Tl	Tm	Y	V%	Yb	Zr%													
USZ 26-99	.	.	35	.	.	(20)	.	.	.	.	78	.	.	.	.	.	.	0.010	.	0.017													
GBW 07241	2.4	.	32.9	2.8	81.2	7.9	3.1	5.4	0.96	12.5	.	3.3	2.9	28.3	1.8	2.2	128	.	14.9	.													
GBW 07240	0.06	4.2	4.0	4.1	.	1.1	5.1	1.8	0.39	0.79	.	0.15	0.66	2.2	5.0	0.04	2.8	.	0.28	.													

**CRM TUNGSTEN ORE**

analysis in mass % except * is mg/kg											more information on certificates					10g, 60g, 500g, or 1 kg units				
Number	W	WO <sub>3</sub>	Au*	Cu	Fe	FeO	Fe <sub>3</sub> O <sub>4</sub>	Mo	SiO <sub>2</sub>	Sn	Mass Recovered									
OREAS 701	2.43	3.07	1.11	0.491	23.98	17.35	17.95	0.0254	33.95	0.0197	20.80									
OREAS 700	1.13	1.42	0.506	0.202	16.06	12.07	10.91	0.0081	47.30	0.0182	11.28									

**RM TUNGSTEN ORE**

analysis listed in mass %																	10 x 100 g units		
Number	W	Ag	Al <sub>2</sub> O <sub>3</sub>	Bi	C	CaO	Cu	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Mo	Na <sub>2</sub> O	S	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI			
CDN W-2	2.78	.	(3.1)	0.32	.	(10.1)	0.45	(43.4)	(1.0)	(5.2)	.	(0.8)	.	(27.9)	(0.1)	(5.7)			
CDN W-3	1.73	.	(2.4)	0.2142	.	(8.4)	0.44	(49.5)	(0.6)	(3.9)	.	(0.8)	.	(25.3)	(0.1)	(6.5)			
CDN W-5	0.391	.	(12.7)	.	(0.2)	(28.9)	.	(11.9)	(0.1)	(1.0)	.	(0.1)	.	(41.6)	(0.1)	(0.9)			
CDN W-4	0.366	(0.319)	(12.7)	.	.	(3.8)	0.139	(13.7)	(2.4)	(2.3)	0.110	(2.0)	(0.3)	(56.2)	(0.5)	(4.5)			

**RM ULTRAMAFIC ROCK - KOMATIITE**

analysis listed in mass %

Number	Al <sub>2</sub> O <sub>3</sub>	CaO	T.Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
IAG OKUM	7.97	7.85	11.81	0.044	21.2	0.188	1.13	0.026	44.1	0.380	(4.49)

continued analysis listed in mg/kg

	Ba	Be	Ce	Co	Cr	Cs	Cu
	(6.2)	(0.065)	1.27	88	2460	0.184	43

continued analysis listed in mg/kg

Number	Dy	Er	Eu	Ga	Gd	Hf	Ho	La	Li	Lu	Nb	Nd	Ni	Pb	Pr	Rb
IAG OKUM	1.61	1.04	0.300	8.7	(1.17)	0.55	0.355	0.41	(4.4)	0.148	0.37	1.49	88	(0.26)	0.235	0.96

Number	Sb	Sc	Sm	Sn	Sr	Ta	Tb	Th	Tm	U	V	Y	Yb	Zn	Zr	Units
IAG OKUM	(0.079)	27	0.71	(0.25)	16	0.026	(0.229)	0.031	(0.155)	(0.012)	167	9.0	1.00	61	17	100 g

**CRM URANIUM ORE**

analysis listed in mass % powder 10 g

Number	U	Cu	Fe
GU-10	0.1876	.	.
GU-09	0.1134	.	.
GU-08	0.03124	.	.
GU-07	0.02429	.	.
GU-11	0.003467	.	.
GU-03	0.00048	0.00210	3.5
GU-04	0.00042	.	.
GU-06	0.000382	.	.
GU-05	0.000356	.	.

**CRM URTITE**

analysis listed in mass %

40 g units

Number	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	FeO	P <sub>2</sub> O <sub>5</sub>	Ba	Sr
VS 2123-81	42.80	1.79	26.47	2.67	0.084	0.14	3.73	13.33	5.16	1.40	0.388	0.035	0.100

continued analysis listed in mg/kg

Number	Be	Co	Cr	Cu	Ga	La	Li	Mo	Nb	Ni	Pb	Rb	Sn	V	Y	Yb	Zn	Zr
VS 2123-81	5.1	8.1	9.7	24	48	100	8.9	2.3	97	6.5	5.8	79	3.4	86	26	1.7	44	220

**CRM VANADIUM ORE**

analysis listed in mass %

10 g units

Number	V <sub>2</sub> O <sub>5</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>	Fe	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	SiO <sub>2</sub>	TiO <sub>2</sub>	Co	Cu	Ni	P	S	Zn	LOI
GV-01	1.233	5.57	0.079	0.721	48.95	0.010	1.30	0.148	0.015	4.27	14.104	0.019	0.022	0.067	0.005	0.067	0.037	2.07
GV-02	0.790	11.24	2.484	0.560	34.41	0.080	2.80	0.161	0.573	19.76	9.174	0.017	0.033	0.061	0.018	0.220	0.030	2.76
GV-06	0.343	7.18	6.204	0.007	25.93	0.464	9.73	0.326	0.627	30.57	6.549	0.014	0.007	0.016	0.102	0.018	0.027	0.91
GV-03	0.327	16.78	2.966	0.044	20.24	0.183	3.59	0.176	0.843	33.96	4.302	0.013	0.013	0.048	0.023	0.073	0.016	7.44
GV-05	0.223	7.53	4.004	0.008	23.97	0.440	14.33	0.350	1.272	34.61	4.121	0.017	0.006	0.022	0.099	0.013	0.024	-1.28
GV-04	0.089	11.93	8.822	<0.01	13.15	1.809	4.21	0.263	3.008	45.99	3.568	0.005	0.013	0.004	0.348	0.086	0.020	0.47

**RM VOLCANIC TUFF WITH EXTENSIVE ANALYSIS**

analysis listed in mass %

~35 g units

Number	Al <sub>2</sub> O <sub>3</sub>	Ba	CaO	FeO	T.Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	Sr	TiO <sub>2</sub>	V	LOI
IAG OU-1	15.136	0.01314	6.488	4.995	8.987	0.215	4.727	0.129	2.463	0.050	58.247	0.010476	0.440	0.022223	3.058

continued analysis listed in mg/kg

Number	As	Be	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Hf	Ho	La	Li
IAG OU-1	8.221	0.43	0.17	12.49	24.41	27.65	0.14	61.55	3.40	2.40	0.52	13.63	2.78	1.65	0.80	5.60	20.35

Number	Lu	Nb	Nd	Ni	Rb	Sb	Sc	Sm	Ta	Tb	Th	Tm	U	Y	Yb	Zn	Zr
IAG OU-1	0.39	2.3	7.32	13.00	2.05	0.22	32.69	2.13	0.15	0.49	1.68	0.37	0.40	21.63	2.49	74.40	55.00

**CRM WOLLASTONITE**

analysis listed in mass %											50 g units		
Number	Al <sub>2</sub> O <sub>3</sub>	CaO	FeO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	S	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
GBW 03123	0.39	40.39	0.28	0.10	0.14	0.95	0.096	0.052	0.052	(0.010)	50.50	0.022	6.93

**CRM ZEOLITE WITH EXTENSIVE ANALYSIS**

analysis listed in mass %															T = Total		
Number	Al <sub>2</sub> O <sub>3</sub>	Ba	CaO	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O-	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Rb	SiO <sub>2</sub>	Sr	TiO <sub>2</sub>	Zr	LOI	Units
FLX CRM104	33.74	.	0.063	0.014	.	.	.	.	20.06	.	.	45.98	.	.	.	(22.64)	35 g
USZ 49-2009	12.98	0.0371	1.34	1.27T	.	3.19	0.573	0.033	3.44	0.032	0.0106	67.44	0.0635	0.158	0.0177	8.80	70 g
<b>CGL 017</b>	12.91	0.0383	1.30	0.802T	(4.17)	3.21	(0.55)	0.007	3.35	0.030	0.0107	67.64	0.0651	0.161	(0.0179)	(9.77)	70 g
NH Zeolite 1	12.21	0.0779	4.51	1.75T	.	2.19	1.41	0.045	0.612	0.055	0.00957	67.11	0.0617	0.190	0.0158	.	50 g

continued analysis listed in mg/kg

Number	As	Be	Bi	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Hf	Hg	Ho
FLX CRM104	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USZ 49-2009	60.5	(2.75)	(11.7)	(7.85)	74.8	20.3	12.7	4.73	79.3	(3.46)	(1.83)	(0.50)	13.8	(3.81)	(5.38)	(1.85)	(0.66)
<b>CGL 017</b>	(63)	(2.6)	.	.	(77)	(0.94)	(7.9)	.	(2.9)	(3.5)	(1.91)	(0.49)	14.84	(4.3)	(7.9)	.	(0.67)
NH Zeolite 1	1.96	1.96	.	.	52.3	.	.	3.88	5.12	.	.	.	13.9	.	.	0.329	.

Number	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Sb	Sc	Sm	Sn	Ta	Tb	Th	Tm
FLX CRM104	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USZ 49-2009	37.2	(6.07)	(0.27)	(0.43)	14.1	27.3	14.6	84.2	(7.97)	(50.9)	3.27	(4.82)	(2.27)	(1.16)	(5.9)	17.2	(0.27)
<b>CGL 017</b>	(39.5)	(6.4)	(0.28)	.	14.17	(27.5)	(2.2)	21.78	(8.4)	.	(3.6)	(5.1)	(2.6)	(1.26)	(0.63)	(17.3)	(0.29)
NH Zeolite 1	32.6	.	.	.	.	.	.	20.8	.	0.379	.	.	.	.	.	.	.

Number	U	V	W	Y	Yb	Zn
FLX CRM104	.	.	.	.	.	.
USZ 49-2009	3.09	42.3	(1.52)	18.6	(1.81)	79.3
<b>CGL 017</b>	(3.1)	(11.1)	.	20.36	(1.8)	25.37
NH Zeolite 1	.	12.6	.	21.8	.	38.2

**17025**

## CRM ZINC ORE

analysis listed in mass % except \* which is mg/kg T = Total

Number	Zn	S	Al <sub>2</sub> O <sub>3</sub>	Ca	CaO	Cd	Cu	Fe	Hg*	Mg	MgO	Ni	Pb	Sb	SiO <sub>2</sub>
IMN TC/P10	60.6	3.07	0.14	.	2.54	.	.	6.7	.	.	1.38	.	2.31	.	0.56
CAN CZN-4	55.24	33.07	Al:0.0715	(0.0419)	.	0.2604	0.403	(9)	4.54	(0.0352)	.	(0.0016)	0.1861	(0.0010)	Si:0.295
BCS 520	52.50	31.78	0.334	.	0.125	.	0.568	9.88	.	.	0.266	.	0.820	.	1.78
NCS DC35017	46.93	.	.	.	2.65	0.199	.	0.432	.	.	1.46	.	1.69	.	6.65
GBM305-12	17.0581	.	.	.	.	.	0.0119	.	.	.	.	0.0042	0.4214	.	.
GBM310-13	10.8471	5.9	.	.	.	.	0.0334	.	.	.	.	0.0072	2.1599	.	.
GBM919-13	6.5874	5.78	.	.	.	.	1.6692	.	.	.	.	0.0056	0.3986	.	.
GBM916-11	6.0894	9.89	.	.	.	.	1.0864	.	.	.	.	0.0009	0.2843	.	.
IMN RG 8	5.4	0.57	0.9	.	26.45	0.047	.	6.34	.	.	12.16	.	0.84	.	2.64
GBM907-14	3.1882	2.90	.	.	.	.	0.8167	.	.	.	.	0.0061	0.1973	.	.
GBM311-11	3.1115	3.3	.	.	.	.	1.4504	.	.	.	.	0.0078	1.0730	.	.
IMN RB 7	3.07	(10.3)	.	.	24.35	0.033	.	8.28	.	.	15.26	.	(0.26)	.	(0.8)
GBM916-9	2.9716	.	.	.	.	.	0.5257	.	.	.	.	0.0026	0.2710	.	.
GBM919-12	1.6668	23.18	.	.	.	.	0.7274	.	.	.	.	0.0048	0.0206	.	.
BCR 109	.	.	.	.	.	0.46	0.946	14.51	0.96	0.020	.	.	0.738	.	.

continued

Number	Ag*	As	Au*	Bi*	C	Cl	Co	F	In	Mn	PbO	Se*	Sn	ZnO	Units
IMN TC/P10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	240 g last
CAN CZN-4	51.4	0.0356	(0.04)	(10)	(0.09)	(0.003)	0.00935	(0.004)	(0.020)	(0.009)	.	86.7	(0.05)	.	200 g
BCS 520	36	0.0228	.	.	.	.	.	.	.	.	.	.	.	.	100 g
NCS DC35017	0.013	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g
GBM305-12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 or 250 g
GBM310-13	30.8	.	.	.	.	.	.	.	.	.	.	.	.	.	10 or 250 g
GBM919-13	17.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
GBM916-11	68.0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
IMN RG 8	.	.	.	.	.	.	.	.	.	.	(0.72)	.	.	(4.36)	130 g
GBM907-14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 or 250 g
GBM311-11	19.6	.	.	.	.	.	.	.	.	.	.	.	.	.	10 or 250 g
IMN RB 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	170 g
GBM916-9	40.6	0.0233	.	.	.	.	0.0044	.	.	.	.	.	.	.	.
GBM919-12	5.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BCR 109	.	.	.	.	.	.	.	0.0081	.	.	.	.	.	.	10 or 250 g

## CRM ZINC ORE WITH EXTENSIVE ANALYSIS

analysis listed in mass % T = Total \* Provisional Analysis CGL: 200 g GBW: 50 g JZn-1: 100 g units

Number	Zn	Al <sub>2</sub> O <sub>3</sub>	CaO	T.C	Cu	F	Fe <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O-	H <sub>2</sub> O+	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Pb	S	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
CGL 207	49.14	0.112	0.850	.	0.1940	.	10.45T	.	.	.	(0.068)	6.20	(0.016)	(0.026)	0.3407	31.12	(1.73)	.	.
GBW 07237	2.75	2.80	1.91	.	0.71	1.20	3.50	.	.	0.99	0.082	0.026	0.56	.	0.25	2.87	82.95	0.017	.
JZn-1 *	2.22	6.32	18.1	(1.28)	(0.0029)	.	11.8	(0.61)	(1.71)	0.83	1.94	1.49	0.45	.	0.161	(1.30T)	(43.95)	0.20	(6.61)

continued analysis listed in mg/kg

Number	Ag	As	Ba	Be	Bi	Cd	Ce	Co	Cr	Cs	Dy	Eu	Er	Ga	Gd	Ge	Ho	In	La	Li	
CGL 207	33.43	167.7	(9.48)	(0.254)	309.6	910.5	(9.82)	424.4	(29.86)	(0.425)	.	.	.	(2.83)	.	(0.743)	.	152.9	(7.30)	.	
GBW 07237	13.5	12.4	.	.	56.4	29.3	2.3	.	(62)	.	0.49	0.06	0.28	8.0	0.31	1.4	0.13	0.23	1.3	(86)	
JZn-1 *	.	(99)	(208)	.	.	(114)	.	(24)	(21)	.	.	.	.	.	.	.	.	.	.	.	(19.5)

Number	Lu	Mo	Nd	Ni	Pr	Rb	Sb	Sc	Se	Sm	Sn	Sr	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	
CGL 207	.	255.6	.	11.18	(0.938)	.	(3.24)	.	.	.	.	(5.65)	.	.	(0.450)	.	.	7.86	(1.52)	.	.	.	.
GBW 07237	0.08	2.8	0.92	5.5	0.30	(73)	1.1	0.33	2.3	0.36	6.1	.	0.10	0.17	(1.1)	0.49	0.05	.	.	3.4	4.5	0.42	
JZn-1 *	.	.	.	(6)	.	(42)	(31)	.	.	.	.	(358)	.	.	.	.	.	.	(24)	.	.	.	.

## CRM ZINC ORE - EXTENSIVE CERTIFIED ANALYSIS ON CERTIFICATES

analysis listed in mass % except \* which is mg/kg

Number	Zn	Ag*	Au*	Cu	Pb	S	Units
OREAS 620	3.15	38.5	0.685	0.173	0.774	2.52	10 or 60 g

**CRM ZIRCONIUM ORE**

analysis listed in mass %

Number	ZrO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	F	FeO	Fe <sub>2</sub> O <sub>3</sub> (T)	H <sub>2</sub> O+	HfO <sub>2</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	RE <sub>x</sub> O <sub>y</sub> *	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI
NCS DC86316	4.68	(14.57)	0.63	0.027(F-)	0.10	0.38	0.49	0.084	3.90	0.079	0.021	4.20	0.040	0.0515	70.73	0.64	0.56
NCS DC86308	1.25	14.70	2.64	0.082	1.82	4.69	1.29	0.025	3.31	2.01	0.083	3.74	0.167	0.022	65.66	0.410	1.51
NCS DC86307	0.187	14.74	2.70	0.080	1.83	4.80	1.35	0.00421	3.37	2.10	0.085	3.83	0.163	0.018	66.02	0.420	1.55

continued analysis listed in mg/kg

Number	CeO <sub>2</sub>	Dy <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>	Nd <sub>2</sub> O <sub>3</sub>	Pr <sub>6</sub> O <sub>11</sub>	Sc <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	Tb <sub>4</sub> O <sub>7</sub>	Th	Tm <sub>2</sub> O <sub>3</sub>	W	Y <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Units
NCS DC86316	146	14.9	16.4	0.55	9.92	3.66	69.2	6.11	53.4	15.7	10.7	10.1	2.02	202	2.84	5.01	142	25.9	70 g
NCS DC86308	74.4	4.6	4.6	1.2	(4.1)	1.3	37.9	1.5	26.9	7.8	14.8	4.9	0.74	15.2	0.92	.	41.9	7.8	70 g
NCS DC86307	70.7	2.8	1.8	1.2	3.4	0.59	36.6	0.38	27.5	7.7	14.1	4.7	0.53	7.8	0.31	.	19.5	2.2	70 g

\* RE<sub>x</sub>O<sub>y</sub> : Rare Earth Oxide**ZIRCONIUM MATERIALS**

CERAM: 25 or 100 g IGS: 50 g NCS: 20 g all others: 100 g units

Number	ZrO <sub>2</sub>	HfO <sub>2</sub>	ZrO <sub>2</sub> + HfO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	LOI	Other
CRM														
NCS HC26618	.	.	99.48	0.009	0.17	0.054	.	0.093	.	.	0.11	.	.	
BCS 358	92.70	1.63	.	0.08	1.50	0.065	.	3.42	.	.	0.21	0.20	0.08	BaO: 0.10 SrO: 0.07
VS K7/3	.	.	92.2	(0.1)	5.39	0.73	.	.	.	.	0.65	.	.	
VS K8/2	65.9	.	.	1.16	.	0.081	.	.	.	0.110	32.3	0.163	.	S: 0.0064
IGS 35	65.86	1.368	.	.	.	.	.	.	.	.	.	0.27	.	
BCS 388	(64.9)	1.28	66.2	0.291	.	0.049	.	.	.	0.122	32.7	0.232	.	ThO <sub>2</sub> :0.019 U <sub>3</sub> O <sub>8</sub> :0.034 Y <sub>2</sub> O <sub>3</sub> : 0.136
SARM 13	64.01	1.29	.	0.61	(0.14)	0.187	.	(0.0440)	.	0.23	32.56	0.295	.	Th:2 (0.0300) <sub>3</sub> U:(0.0328) <sub>2</sub>
RM														
CERAM 2CAS15	(63.6)	(1.28)	65.0	0.38	0.28	0.07	0.01	0.07	0.02	.	33.9	0.20	0.23	
CERAM AN46	15.41	0.32	15.68	30.52	0.20	0.85	1.03	5.34	0.15	.	45.46	0.48	0.08	Li <sub>2</sub> O: 0.02
BCS 204A	.	.	53.8	0.74	0.15	0.18	0.017	0.012	0.014	0.77	37.6	2.22	0.50	SnO <sub>2</sub> : 1.69

## CRM ISO 17025 / 17034 ACCREDITED GEOLOGICAL SAMPLES

analysis in mass %

Number	Type	Al	Al <sub>2</sub> O <sub>3</sub>	Ca	CaO	Fe	T.Fe <sub>2</sub> O <sub>3</sub>	K	K <sub>2</sub> O	Mg	MgO	Mn	MnO	Na	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Si	SiO <sub>2</sub>
MBH-ASC-21-P	ANORTHOSITE	16.1	30.5	11.0	15.4	1.04	1.48	0.064	0.077	0.78	1.29	0.0167	0.0216	1.57	2.12	.	22.2	47.4
MBH-AU-ORE1-21-P	GOLD ORE	2.90	5.48	2.39	3.35	1.64	2.35	0.60	0.72	0.85	1.41	0.0066	0.0085	(0.0400)	.	0.143	36.8	78.8
MBH-BAS-MC-22-P	BASALT	8.84	16.7	7.05	9.87	8.6	12.3	0.69	0.83	4.80	7.96	0.145	0.187	2.49	3.36	0.722	21.8	46.6
MBH-FCT-21-P	DACITE	8.52	16.1	2.55	3.57	3.32	4.74	3.20	3.86	0.84	1.40	0.081	0.104	2.72	3.67	0.225	30.1	64.4
MBH-NSC-21-P	NORITE	13.4	25.4	10.0	14.0	2.34	3.34	0.041	0.049	4.08	6.77	0.046	0.059	0.91	1.23	.	22.5	48.1

continued analysis in mass %

Number	Ti	TiO <sub>2</sub>	LOI	Ag	As	Au	Ba	Bi	C%	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu
MBH-ASC-21-P	0.035	0.058	(1.34)	.	.	.	32	.	.	(0.03)	1.56	6.2	56	.	17.4	0.206	(0.1)	0.22
MBH-AU-ORE1-21-P	0.167	0.278	(6.3)	0.21	1079	8.9	2311	0.199	(1.03)	0.96	41	4.5	45	3.76	29.9	2.47	1.34	0.7
MBH-BAS-MC-22-P	1.12	1.86	(0.6)	.	(3.6)	.	836	.	.	(0.09)	104	50	86	0.22	55	4.8	2.3	2.4
MBH-FCT-21-P	0.344	0.573	(1.2)	(0.05)	3.3	.	924	(0.1)	.	(0.07)	84	10.3	(5)	.	9	3.9	2.22	1.33
MBH-NSC-21-P	0.038	0.064	(0.78)	.	.	.	16.3	.	.	.	(1)	21.8	586	.	11.4	0.22	0.18	0.134

remainder analysis in mg/gkg except as noted

Number	Ga	Gd	Ge	Hf	Hg	Ho	La	Li	Lu	Mo	Nb	Nd	Ni	P	Pb	Pr	Rb	Re	S
MBH-ASC-21-P	15.7	(0.2)	.	0.07	.	(0.04)	(0.9)	2	(0.02)	(0.1)	.	(0.7)	36	(30)	(0.6)	(0.2)	0.93	.	.
MBH-AU-ORE1-21-P	6.4	3.1	(0.1)	3.9	11.4	0.47	23.7	30.5	0.19	10.4	5.5	19.5	30	620	6.9	5.2	33.6	(0.008)	1.65
MBH-BAS-MC-22-P	20	(6.2)	(0.6)	3.6	.	0.9	53.5	(7.6)	(0.31)	1.6	42	47	91	3150	5.7	12	9.1	.	(140)
MBH-FCT-21-P	18.5	4.6	.	5.6	.	0.74	44.2	19.5	0.33	(0.7)	15.2	34.7	(4)	980	16	9.5	104	.	.
MBH-NSC-21-P	12.1	0.19	.	(0.1)	.	(0.05)	0.52	1.4	(0.05)	.	(0.2)	(0.5)	158	(30)	(0.3)	(0.1)	0.86	.	.

Number	Sb	Sc	Sm	Sn	Sr	Ta	Tb	Te	Th	Tl	U	V	W	Y	Yb	Zn	Zr	Units
MBH-ASC-21-P	.	4.4	(0.2)	.	151	.	(0.03)	.	.	.	.	24	.	1.18	(0.1)	9.5	(2.3)	75 g
MBH-AU-ORE1-21-P	106	4.3	3.6	2.6	35	0.38	0.43	0.29	5.6	17.7	4.9	136	32	15.1	1.23	90	153	200 g
MBH-BAS-MC-22-P	(0.08)	27.1	7.8	(1.3)	978	2.13	0.85	.	6	.	1.4	247	(0.32)	24.4	2	102	158	75 g
MBH-FCT-21-P	(0.3)	8.1	6	1.7	526	1.02	0.66	.	10.8	(0.4)	3.6	69	(0.6)	21.8	2.2	68	209	75 g
MBH-NSC-21-P	.	11	0.13	.	97	.	(0.03)	.	(0.09)	.	(0.04)	44	.	1.37	(0.2)	17.9	2.8	75 g