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CRM ALPHA ALUMINA

analysis listed in mass %				51 other trace elements on certificate							250 g units		
Number	Alpha-Alumina	Al ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SO ₃	SiO ₂	TiO ₂	LOI
IMS-135	99.04	(99.863)	<0.01	<0.01	<0.001	<0.01	<0.001	<0.01	(0.001)	(0.002)	(0.06)	(0.005)	(0.15)

ALUMINA

# = class, where 1 = CRM and 2 = RM				analysis listed in mass % except * which is mg/kg									T = Total			
#	Number	Al ₂ O ₃	Be*	CaO	Cr ₂ O ₃	Fe ₂ O ₃	K ₂ O	MgO	MnO*	Na ₂ O	P*	P ₂ O ₅	SiO ₂	TiO ₂	LOI	Units
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 ₃ :0.03		10.85	3.14	14.50	20 g

CRM ALUMINA SET SET/3 ONLY for R034, others set or individually trace informational Cl, NiO, SO₃ 50 g

Number	B ₂ O ₃	CaO	CuO	Fe ₂ O ₃	Ga ₂ O ₃	K ₂ O	MgO	Na ₂ O	SiO ₂	SrO	TiO ₂	ZnO	ZrO ₂	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 ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	ZrO ₂ +HfO ₂	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 ELECTROLYTE SET

analysis listed in mass %									powder 100 g	
Number	Al	Al ₂ O ₃	Ca	F	Fe ₂ O ₃	K	Li	Mg	SiO ₂	
NCS DC91030-1	14.16	4.63	2.06	49.94	0.242	2.37	0.491	0.406	0.134	
NCS DC91030-2	15.55	6.96	2.41	50.05	0.113	1.06	0.625	0.302	0.120	
NCS DC91030-3	14.58	3.41	3.36	52.88	0.024	1.63	0.235	0.339	(0.024)	
NCS DC91030-4	12.24	3.43	5.52	51.41	0.022	1.21	0.148	0.249	0.023	
NCS DC91030-5	12.74	1.97	5.14	52.72	0.017	1.40	0.171	0.284	0.026	
NCS DC91030-6	14.84	2.86	2.79	53.73	0.018	1.41	0.223	0.296	(0.021)	
NCS DC91030-7	12.59	2.19	1.15	52.66	0.017	0.084	0.028	0.952	(0.017)	

CRM ALUMINUM FLUORITE

analysis listed in mass %								100 g units	
Number	F	Al	Fe ₂ O ₃	Na	P ₂ O ₅	SiO ₂	SO ₄	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 ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	SiO ₂	TiO ₂	LOI
SARM 34	59.15	(0.13)	0.75	0.23	0.13	0.093	39.04	0.16	0.62

CRM ANORTHOSITE

analysis listed in mass %																		40 g units					
Number	SiO ₂	Al ₂ O ₃	Ba	CaO	CO ₂	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O	H ₂ O+	T.H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	TiO ₂					
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	0.7	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
last																							

CRM ANTIMONY ORE analysis listed in mass 200 g units

Number	Al	As	C	Ca	Cu	Fe	H ₂ 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 ₂ O ₃	CO ₂	CaO	F	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	P ₂ O ₅	S	SiO ₂	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 ₂ O ₃	CaO	T.Fe	FeO	MgO	P	S	SiO ₂	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 ₄	CaF ₂	Cu	T.Fe ₂ O ₃	Pb	Salt	SO ₃	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

CRM

BASALT WITH EXTENSIVE ANALYSIS

analysis listed in mass %

Number	SiO ₂	Al ₂ O ₃	CO ₂	CaO	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O	H ₂ O+	T.H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	TiO ₂
US BER-2	54.1	13.5	.	7.12	.	.	13.8	.	.	.	1.79	3.59	.	3.16	0.35	2.26
JB-2a	53.22	14.67	.	9.79	9.83	.	14.18	.	.	.	0.41	4.58	0.214	2.03	0.095	1.18
USZ 46-2008	51.85	14.50	.	5.41	6.15	9.85	.	.	.	.	3.99	6.33	0.13	4.40	0.85	2.11
JB-1b	51.11	14.38	.	9.6	5.16	3.29	9.02	1.06-	1.53	.	1.32	8.14	0.147	2.63	0.256	1.26
JB-3	50.96	17.20	.	9.79	7.85	3.20	11.82	0.07-	0.18	.	0.78	5.19	0.177	2.73	0.294	1.44
JB-3a	50.87	17.16	.	9.75	7.71	.	11.83	.	.	.	0.78	5.17	0.179	2.74	0.291	1.44
US BHVO-2	49.9	13.5	.	11.4	.	.	12.3	.	.	.	0.52	7.23	.	2.22	0.27	2.73
VS MO15	49.55	16.93	0.20	8.30	4.60	4.96	10.07	0.32-	1.34	1.66	1.51	5.23	0.059	4.35	0.39	1.68
GUV BM	49.51	16.25	1.35	6.47	7.28	9.67	.	3.62	.	.	0.20	7.47	0.140	4.65	0.106	1.14
VS 2116-81	49.15	16.53	(0.13)	18.87	7.71	1.07	.	1.34	.	.	0.98	6.56	0.164	3.74	0.40	1.65
SRM 688	48.4	17.36	.	(12.17)	7.64	10.35	.	.	.	.	0.187	(8.4)	.	2.15	0.134	1.17
CGL 014	48.34	13.03	.	8.88	(7.91)	.	12.66	(0.13)	(0.37)	.	1.72	8.03	0.15	3.63	0.70	2.68
US BIR-1a	47.96	15.5	.	13.3	8.34	2.06	11.3	.	.	.	0.030	9.70	0.175	1.82	0.021	0.96
VS MO14	46.85	17.06	0.0	9.60	6.83	3.26	10.85	0.81	1.73	2.54	(0.46)	8.05	0.15	3.00	0.37	1.62

Olivine

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

Number	Ag	Al%	As	Au*	B	Ba	Be	Bi	C	Ca%	Cd	Ce	Cl	Co	Cr	Cs	Cu
US BER-2	.	7.14	.	.	.	683	.	.	.	5.09	.	53	.	37	18	(1.1)	(19)
JB-2a	.	.	.	.	.	(222)	.	.	.	.	.	.	.	(39)	(28)	.	(272)
USZ 46-2008	.	.	.	.	.	772	2.81	.	.	.	.	103	.	36.3	222	1.15	32.21
JB-1b	.	.	1.24	.	.	.	1.3	.	419	.	.	.	.	40.3	439	1.21	55.5
JB-3	0.075	9.10	1.84	1.99	18.0	245	0.81	.	(120)	7.00	0.081	21.5	(259)	34.3	58.1	0.94	194
JB-3a	.	.	.	.	.	(244)	(0.69)	.	.	.	.	.	.	(35.5)	(57)	.	(195)
US BHVO-2	.	7.16	.	.	.	130	.	.	.	8.17	.	38	.	45	280	.	127
VS MO15	.	.	.	.	9.9	225	2.2	.	.	.	.	.	.	34	136	1.4	28
GUV BM	(0.8)	.	13	.	(12)	250	1.3	.	.	.	.	.	.	36	121	2.0	43
VS 2116-81	.	.	.	.	.	300	2.3	.	.	.	.	.	.	37	99	.	61
SRM 688	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CGL 014	.	.	.	.	.	474	.	.	.	.	.	67.51	.	46.50	188	(0.6)	64.00
US BIR-1a	.	.	(0.44)	.	(0.33)	(6)	(0.58)	.	.	.	.	1.9	(26)	52	370	.	125
VS MO14	.	.	.	.	8.7	172	1.9	.	.	.	.	.	.	50	152	1.5	66

Number	Dy	Er	Eu	F%	Fe	Ga	Gd	Ge	Hf	Hg	Ho	In	K%	La	Li	Lu	Mg%
US BER-2	.	.	2.0	(0.0440)	9.65	23	6.8	.	(4.8)	.	(1.33)	.	1.49	25	(9)	(0.51)	2.16
JB-2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(7.9)	.	.
USZ 46-2008	4.67	1.84	2.62	.	.	22.63	7.17	1.29	6.63	.	0.78	.	.	55.99	11.08	0.19	.
JB-1b	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10.8	.	.
JB-3	4.54	2.49	1.32	0.0253	8.27	19.8	4.67	1.12	2.67	(0.0024)	0.80	.	0.65	8.81	7.21	0.39	3.13
JB-3a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(7.3)	.	.
US BHVO-2	.	.	.	(0.0370)	8.63	21.7	(6.3)	.	4.1	.	(1.04)	.	0.43	15	(5)	(0.28)	4.36
VS MO15	.	.	.	0.1600	.	20	.	.	.	.	.	.	.	69	16	.	.
GUV BM	(4.6)	(2.7)	1.12	0.028	.	16	(5.8)	(1.3)	3.0	.	(1.4)	.	.	9	72	0.41	.
VS 2116-81	.	.	.	0.0480	.	22	.	1.1	.	.	.	.	.	4.0	9.3	.	.
SRM 688	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CGL 014	(5.23)	(2.21)	(2.48)	(0.08)	.	21.20	(7.3)	.	(5.25)	.	(0.91)	.	.	35.11	(9.33)	(0.22)	.
US BIR-1a	4	.	0.55	(0.0044)	.	(16)	2	.	0.6	.	.	.	.	0.63	3.6	(0.3)	.
VS MO14	.	.	.	0.0470	.	15	.	.	.	.	.	.	.	34	7.5	.	.

Number	Mn%	Mo	Na%	Nb	Nd	Ni	P%	Pb	Pr	Rb	S	Sb	Sc	Se	Si%	Sm	Sn
US BER-2	0.1520	248	2.34	.	28	.	0.15	(11)	(6.8)	48	.	.	33	.	25.3	(6.7)	.
JB-2a	.	.	.	.	.	(15.5)	.	.	(7.2)	.	.	.	.	.	.	.	.
USZ 46-2008	.	5.20	.	52.21	46.62	162	.	8.70	63.05	.	0.28	10.10	.	.	.	8.72	2.66
JB-1b	.	.	.	.	.	148	.	6.8	39.1	.	10	0.2	.	.	.	.	.
JB-3	0.137	1.09	2.03	2.47	15.6	36.2	0.128	5.58	3.11	15.1	9.86	0.12	33.8	(0.069)	23.82	4.27	0.94
JB-3a	.	.	.	.	.	(39)	.	(5.7)	.	(15.1)	.	.	.	.	.	.	.
US BHVO-2	0.1290	.	1.64	(18)	25.0	119	0.12	.	.	9.8	.	.	32	.	23.3	(6.2)	(1.9)
VS MO15	.	3.4	.	13	.	90	.	8.8	.	50	160	.	29	.	.	.	4.2
GUV BM	.	(0.8)	.	.	15	57	.	13	(3.0)	10	.	2.3	34	.	.	3.6	.
VS 2116-81	.	1.8	.	.	.	86	.	12	.	14	(90)	.	22	.	.	.	7.0
SRM 688	0.167	.	.	.	.	.	.	.	.	1.91	.	.	.	.	.	.	.
CGL 014	.	(2.92)	.	56.50	36.33	163	.	5.66	(8.19)	28.60	SO3:	(0.10)	19.33	.	.	(7.74)	.
US BIR-1a	.	.	.	(0.6)	2.5	170	.	(3)	.	.	.	(0.58)	44	.	.	(1.1)	.
VS MO14	.	2.5	.	11	.	111	.	8.6	.	4.0	60	.	25	.	.	.	2.4

Number	Sr	Ta	Tb	Th	Ti%	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	LOI	Units
US BER-2	346	.	(1.07)	6.2	1.35	.	(0.54)	1.69	416	.	37	3.5	127	188	.	50 g
JB-2a	(179)	.	.	.	.	.	.	.	(574)	.	(25.4)	.	(108)	(61.8)	.	100 g
USZ 46-2008	927	3.20	0.95	6.95	.	0.12	0.23	1.64	105	1.15	20.48	1.34	114	287	.	100 g
JB-1b	439	.	.	.	.	.	.	.	214	.	.	.	80	.	.	100 g
JB-3	403	0.15	0.73	1.27	0.86	0.048	0.42	0.48	372	(1.06)	26.9	2.55	100	97.8	.	20 g
JB-3a	(405)	.	.	.	.	.	.	.	(377)	.	(27.7)	.	(102)	(100)	.	100 g
US BHVO-2	389	(1.4)	(0.9)	(1.2)	1.63	.	.	.	317	.	26	(20)	103	172	.	50 g
VS MO15	554	.	.	.	.	.	.	.	234	.	39	2.6	33	152	.	40 g
GUV BM	220	(0.3)	0.9	(3.0)	.	.	.	(1.1)	190	0.9	27	3.0	120	100	.	50 g
VS 2116-81	500	.	.	.	.	.	.	.	150	.	29	2.6	82	190	.	40 g
SRM 688	169.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	60 g
CGL 014	741	(3.24)	(1.02)	(4.76)	.	.	(0.27)	(0.93)	197	(3.41)	23.60	(1.69)	133	201	(0.17)	100 g
US BIR-1a	110	.	.	.	.	.	.	.	310	.	16	1.7	70	18	.	25 g
VS MO14	468	.	.	.	.	.	.	.	181	.	39	3.0	108	162	.	40 g

BAUXITE

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

#	Number	Al ₂ O ₃	A.Al ₂ O ₃	CaO	Cr ₂ O ₃	Fe	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	F ₂ O ₅	SiO ₂	R.SiO ₂	TiO ₂	V ₂ O ₅	ZrO ₂	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	NCS DC14223	88.34	.	0.29	.	.	1.24	0.078	0.4	0.28	0.11	6.97	.	1.57	.	.	0.66
1	NCS DC14222	87.5	.	0.58	.	.	1.61	0.087	0.12	0.15	0.13	6.01	.	3.14	.	.	0.61
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 DC14221	83.61	.	0.45	.	.	1.71	0.2	0.18	0.036	0.22	10.07	.	3.27	.	.	0.098
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 DC14220	63.53	.	0.98	.	.	1.97	0.35	1.93	0.21	0.26	26.56	.	2.59	.	.	1.39
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	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	IMS PBS-75	46.76	.	0.022	0.045	.	19.15	0.024	0.070	0.027	0.070	15.90	.	2.53	0.060	0.122	15.22
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	IMS PBS-74	42.53	.	0.016	0.041	.	19.73	0.019	0.050	0.025	0.043	18.41	.	1.86	0.064	0.072	17.2
1	IMS PBS-62	40.39	.	0.038	0.068	.	27.44	0.039	0.066	0.034	0.051	9.59	.	3.77	0.118	0.099	18.33
1	GBAP-17	40.01	.	0.041	.	.	18.42	0.184	.	0.030	0.080	16.02	.	1.62	0.042	.	19.79
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
1	GBAP-18	39.77	.	0.010	.	.	18.44	0.256	.	0.015	0.049	19.00	.	1.35	0.059	.	20.8

Number Al₂O₃ A.Al₂O₃ CaO Cr₂O₃ Fe Fe₂O₃ K₂O MgO Na₂O F₂O₅ SiO₂ R.SiO₂ TiO₂ V₂O₅ ZrO₂ LOI

A.Al₂O₃: Available Alumina R.SiO₂: Reactive Silica * Includes HfO₂

Number	BaO	MnO	MnO ₂	SO ₃	ZnO	
BCS 394/1	.	.	.	.	.	
NCS HC28815	.	.	.	.	.	C: 0.018
NCS DC14223	.	.	.	.	.	
NCS DC14222	.	.	.	.	.	
JCRM R301	.	.	.	.	.	
NCS DC61105	.	.	.	.	.	
NCS DC14221	.	.	.	.	.	
NCS HC28814	.	0.011	.	.	.	C: 0.050
NCS DC91017	.	0.036	.	S:0.031	0.0018	Ga ₂ O ₃ : 0.0114
NCS HC28813	.	0.053	.	.	.	C: 0.099
NCS DC91018	.	0.012	.	S:0.040	0.0040	Ga ₂ O ₃ : 0.0106
NCS DC14220	.	.	.	.	.	
NCS HC28812	.	0.082	.	.	.	C: 0.14
DSZU 123.62-13	.	0.009	.	S:0.030	.	C: 0.10
NCS DC91019	.	0.021	.	S:0.033	0.0036	Ga ₂ O ₃ : 0.008
SRM 696	.	0.004	.	0.150	0.0014	
IPT 131	.	0.31	.	.	0.013	
BCS 395	.	.	.	.	.	
SRM 69b	.	0.110	.	0.551	0.0035	
SRM 698	.	0.38	.	0.143	0.029	
IMS PBS-75	(0.013)	0.042	.	0.061	.	17034
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
GBAP-16	(0.011)	0.022	.	0.068	.	CO ₂ : 0.19 Ga ₂ O ₃ : 0.009 100 g unit last of stock
IMS PBS-74	(0.009)	0.010	.	0.034	.	17034
IMS PBS-62	.	0.020	.	0.074	.	17034
GBAP-17	.	.	.	1.20	.	Ga ₂ O ₃ : 0.009
SRM 600	.	0.013	.	0.155	0.003	
GBAP-18	.	.	.	0.21	.	Ga ₂ O ₃ : 0.009
Number	BaO	MnO	MnO ₂	SO ₃	ZnO	

RM	BAUXITE				Al ₂ O ₃ : Available Alumina				C.Org: Organic Carbon				BXT-04, BXT-06 500 g units				others 100 g		
	Number	Al ₂ O ₃	C.Org	CaO	Cr ₂ O ₃	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SO ₃	SiO ₂	TiO ₂	V ₂ O ₅	ZnO	ZrO ₂	A.Al ₂ O ₃	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 ₂ O ₃	CaO	F		FeO	T.Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	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	50 g	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	50 or		
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	50 g		
continued		analysis listed in mg/kg																		
Number		CeO ₂	Dy ₂ O ₃	Er ₂ O ₃	Eu ₂ O ₃	Gd ₂ O ₃	Ho ₂ O ₃	La ₂ O ₃	Lu ₂ O ₃	Mo	Nd ₂ O ₃	Pr ₆ O ₁₁	RExOy*	Sc ₂ O ₃	Sm ₂ O ₃	Tb ₄ O ₇	Tm ₂ O ₃	W	Y ₂ O ₃	Yb ₂ O ₃
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 _x O _y : 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 ₂ O ₃	Al ₂ O ₃	BaO	CaO	F	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	SO ₃	SiO ₂	SrO	TiO ₂	LOI+H ₂ 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 ₂ O ₃	CaO	CO ₂	T.Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SiO ₂			
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 ₂ O ₃	BaO	CaO	F	Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	Na ₂ O	P ₂ O ₅	SiO ₂	SO ₃	SrO	TiO ₂	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 ₂ O ₃	CaO	T.Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	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 ₂ O ₃	Al ₂ O ₃	B ₂ O ₃	CaO	Fe	Fe ₂ O ₃	K ₂ O	Li ₂ O	MnO	Na ₂ O	P ₂ O ₅	SO ₃	SiO ₂	TiO ₂	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	
†GS 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 ₂ O ₃	Al ₂ O ₃	CaO	MgO	Fe	FeO	Fe ₂ O ₃	Mn	MnO	Mn ₃ O ₄	P	P ₂ O ₅	S	SO ₃	SiO ₂	Ti	TiO ₂								
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 ₂	Co	H ₂ O-	H ₂ O+	HfO ₂	K ₂ O	Na ₂ O	Ni	NiO	V	WO ₃	Zn	ZrO ₂	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 ₂ O ₅ : 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 ₂ O ₅ : 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	.		Co304: 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 Mn3O4 as MnO																
#	Number	SiO ₂	Al ₂ O ₃	CaO	Cl-	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SO ₃	TiO ₂	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 ₂ : 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 ₂ : (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 ₂ : (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 ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	P	SiO ₂	TiO ₂
NCS HC14809	72.39	0.19	0.93	0.24	0.42	0.16	0.043	21.81	3.64
NCS HC14808	57.47	0.15	0.46	1.69	0.14	0.46	0.022	37.41	1.45
NCS HC14807	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

Number	Cu	Ag*	Au*	C	F	Fe	Fe ₂ O ₃	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-1F	23.33	157.0	19.08	(0.06)	(0.0080)	29.50	.	(0.00116)	(0.00192)	0.2095	.	.	34.82	4.085	(19.15)
CGL 210	22.24	47.50	19.92	.	0.0451	28.05	.	0.2219	.	0.0744	.	.	32.77	0.2815	.
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 503e	0.531	1.52	0.709	(0.115)	.	4.11	(5.98)	0.0343	0.00476	0.0078	.	.	0.875	0.0261	(1.70)
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)

continued analysis listed in mass %

Number	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	P ₂ O ₅	SiO ₂	Ti	TiO ₂
VS 2891-84	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(21.74)	.	.
CGL 203	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(6)	.	.
CAN CCU-1F	0.1203	.	0.140	.	(0.0161)	.	0.383	.	0.00829	.	(0.02)	.	(0.0013)	.	2.015	(0.00528)	.
CGL 210	1.143	.	(0.16)	.	.	.	(0.25)	.	(0.02)	.	.	.	(0.01)	.	(6.77)	(0.0700)	.
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 503e	7.55	(14.46)	1.95	(2.71)	2.95	(3.54)	0.917	(1.60)	0.043	(0.055)	2.01	(2.79)	0.088	(0.200)	(65.22)	0.351	(0.600)
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)	.	.	.

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-1F	821	(7)	.	(0.649)	110.2	(0.80)	304.2	(7)	.	.	.	(3.39)	.	.	(0.8)	.
CGL 210	1197	(55.5)	.	.	(16.9)	.	(50.5)	(35.1)	.	.	(0.47)	(0.39)	.	.	.	.
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 503e	28.8	926	2.34	1.86	0.75	67	16.3	45.9	9.33	3.50	1.44	1.29	19.4	5.50	0.18	1.83
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)	.	.	.	.	.	.	.	.

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-1F	12.19	.	(5.71)	.	(0.4)	.	.	.	.	(0.3)	(0.005)	85.5	(0.5)	(211)	.	(9)
CGL 210	.	(0.19)	.	(5.11)	.	.	.	.	.	.	.	(128)	.	.	(1.19)	.
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 503e	.	0.58	0.38	33.3	46.3	0.19	11.0	31.0	7.83	146	0.016	236	9.66	6.03	6.21	4.51
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)	.	.

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-1F	(2)	49.9	.	.	.	1.51	.	(0.4)	(3)	(1.12)	(0.8)	.	.	200 g	H ₂ O%:(0.96)
CGL 210	.	.	.	.	.	.	.	(0.29)	.	.	.	.	.	200 g	
JCu-1 #	(75)	.	.	.	.	.	.	.	(9)	.	.	.	.	100 g	H ₂ 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 503e	229	0.97	0.69	0.85	12.3	0.82	0.20	3.47	79	10.6	14.9	1.18	57	10g 60g or 1kg	SO ₃ :(2.18)
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 ₂ 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	

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 ₂ O ₃	As	CaO	Cd	Co	Fe	MgO	Pb	S	Sb	SiO ₂	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 ₂ O ₃	As	CaO	Cd	Co	Fe	MgO	Pb	S	Sb	SiO ₂	Zn
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CRM COPPER ORE - EXTENSIVE ANALYSIS NOT SHOWN

analysis listed in mass % except * which is mg/kg											10g, 60g, or 1 kg	
Number	Cu	Ag*	Au*	Bi	Co	Ni	Pb	Rb	Se	Sn	Zn	Zr
OREAS 98 4	14.8	45.1	.	0.00972	0.0121	(0.00353)	0.0345	(0.00817)	0.0158	0.0206	0.1355	(0.00667)
OREAS 98 A	14.7	42.8	.	0.00928	0.0111	.	0.0343	.	0.0143	0.0171	0.1302	.
OREAS 935 I	12.43	43.73	.	0.0679	0.0085	(0.0156)	0.0233	(0.0089)	0.0105	0.0119	0.0721	(0.0074)
OREAS 935 4	12.55	43.87	(<0.1)	0.0709	0.0077	0.00297	0.0225	(0.0080)	0.0088	0.0108	0.0692	0.00474
OREAS 935 A	12.48	43.67	(0.04)	0.0680	0.0077	0.00262	0.0222	(0.00136)	0.0086	0.0096	0.0666	(0.00133)
OREAS 935 F	12.54	.	.	.	<0.0100	(0.00158)	(0.0255)	.	.	(0.0138)	0.0688	(0.0050)
OREAS 934 I	9.50	34.67	.	0.0517	0.0075	(0.00320)	0.0262	(0.0106)	0.0096	0.0095	0.0744	(0.0093)
OREAS 934 4	9.59	36.46	(<0.1)	0.0527	0.0071	0.00282	0.0240	(0.0097)	0.0085	0.0083	0.0724	0.0058
OREAS 934 A	9.58	34.40	(0.022)	0.0515	0.0067	0.00257	0.0242	(0.00145)	0.0080	0.0076	0.0692	(0.00162)
OREAS 934 F	9.51	.	.	.	<0.0100	(0.000917)	0.0242	.	.	(0.0116)	0.0718	(0.0073)
OREAS 933 I	8.34	29.32	.	0.0466	0.0063	(0.0108)	0.0197	(0.0103)	0.0079	0.0086	0.0617	(0.0101)
OREAS 933 4	8.37	31.05	(<0.1)	0.0451	0.0060	0.00281	0.0189	(0.0095)	0.0068	0.0073	0.0602	0.0063
OREAS 933 A	8.27	29.62	(0.027)	0.0449	0.0061	0.00281	0.0187	(0.00126)	0.0066	0.0066	0.0596	(0.00164)
OREAS 933 F	8.38	.	.	.	<0.0100	(0.000800)	0.0210	.	.	(0.0106)	0.0606	(0.0090)
OREAS 97 4	6.31	19.6	.	0.00401	0.00629	(0.00370)	0.0147	(0.0126)	0.00714	0.00957	0.0646	(0.00965)
OREAS 97 A	6.28	19.5	.	0.00403	0.00625	.	0.0142	.	0.00673	0.00838	0.0635	.
OREAS 932 I	6.17	23.00	.	0.0337	0.0062	(0.00303)	0.0195	(0.0122)	0.0073	0.0067	0.0590	(0.0114)
OREAS 932 4	6.13	22.41	(<0.1)	0.0324	0.0060	0.00274	0.0184	(0.0112)	0.0067	0.0058	0.0591	0.0073
OREAS 932 A	6.11	21.96	(0.012)	0.0322	0.0061	0.00282	0.0182	(0.00162)	0.0063	0.0051	0.0579	(0.00191)
OREAS 932 F	6.19	.	.	.	<0.0100	(0.00133)	0.0200	.	.	(0.0092)	0.0599	(0.0093)
OREAS 96 4	3.93	11.5	.	0.00263	0.00499	(0.00393)	0.0101	(0.0141)	0.00407	0.00656	0.0457	(0.0109)
OREAS 96 A	3.91	11.5	.	0.00279	0.00492	.	0.0100	.	0.00410	0.00528	0.0448	.
OREAS 931 I	3.83	13.62	.	0.0205	0.00466	(0.00362)	0.0155	(0.0134)	0.0050	<0.0060	0.0490	(0.0132)
OREAS 931 4	3.82	14.04	(<0.1)	0.0204	0.00469	0.00288	0.0147	(0.0128)	0.00435	0.00421	0.0480	(0.0085)
OREAS 931 A	3.81	14.18	(0.006)	0.0206	0.00453	0.00287	0.0146	(0.00153)	0.00422	0.00330	0.0472	(0.00199)
OREAS 931 F	3.82	.	.	.	<0.0050	(<0.0010)	(0.0159)	.	.	(0.0064)	0.0495	(0.0097)
OREAS 930 I	2.51	8.63	.	0.0138	0.00391	(<0.0050)	<0.0150	(0.0150)	0.00336	0.00351	0.0499	(0.0147)
OREAS 930 4	2.52	9.00	(<0.1)	0.0136	0.00374	0.00311	0.0141	(0.0136)	0.00301	0.00311	0.0492	0.0089
OREAS 930 A	2.51	9.13	(0.004)	0.0139	0.00364	0.00306	0.0142	(0.00181)	0.00286	0.00234	0.0488	(0.00220)
OREAS 930 F	2.51	.	.	.	<0.0100	(0.00217)	<0.0160	.	.	(0.0059)	0.0504	(0.0112)
OREAS 929 I	2.00	<8	.	0.0114	0.00362	(<0.0020)	0.0116	(0.0141)	0.00243	0.00311	0.0492	(0.0141)
OREAS 929 4	2.00	7.18	(<0.1)	0.0111	0.00336	0.00307	0.0130	(0.0129)	0.00241	0.00291	0.0477	0.0088
OREAS 929 A	2.02	7.03	(0.004)	0.0114	0.00336	0.00297	0.0131	(0.00175)	0.00240	0.00201	0.0468	(0.00211)
OREAS 929 F	2.02	.	.	.	(<0.0100)	(0.00275)	0.0143	.	.	(0.00458)	0.0486	(0.0127)
Number	Cu	Ag*	Au*	Bi	Co	Ni	Pb	Rb	Se	Sn	Zn	Zr
OREAS 928 I	1.52	<8	.	0.0083	0.00335	(0.00376)	0.0112	(0.0127)	<0.0020	0.00278	0.0432	(0.0141)
OREAS 928 4	1.53	5.39	(<0.100)	0.0079	0.00313	0.00296	0.0122	(0.0116)	0.00188	0.00262	0.0436	(0.0094)
OREAS 928 A	1.52	5.11	(0.006)	0.0080	0.00306	0.00281	0.0122	(0.00148)	0.00179	0.00157	0.0429	(0.00199)
OREAS 928 F	1.52	.	.	.	<0.0050	(0.00208)	(0.0133)	.	.	(0.00300)	0.0435	(0.0108)
OREAS 504b 4	1.11	3.07	1.61	0.000492	0.00209	0.00345	0.00262	0.0106	0.00124	0.00114	0.0108	0.0060 last
OREAS 504b A	1.10	2.98	1.56	0.000513	0.00187	0.00300	0.00201	0.0051	0.00116	0.00104	0.0096	0.00142 last
OREAS 927 I	1.09	.	.	0.0062	0.00310	0.00302	0.0214	0.0122	.	0.00238	0.0750	.
OREAS 927 4	1.08	4.08	.	0.0057	0.00287	0.00297	0.0209	0.0119	0.00157	0.00207	0.0716	0.0097
OREAS 927 A	1.06	3.90	<0.010	0.0059	0.00286	0.00280	0.0203	0.00147	0.00153	0.00122	0.0717	0.00201
OREAS 903 4 **	0.652	0.432	(<0.050)	0.00089	0.0131	0.0054	0.00113	0.0137	0.000606	0.000263	0.00243	0.0152
OREAS 903 A	0.671	0.349	(<0.005)	0.00088	0.0131	0.00487	0.000895	0.00126	0.000534	(0.00004)	0.00213	0.00182
OREAS 925 I	0.621	.	.	0.00336	0.00254	0.00355	0.0115	0.0166	.	0.00179	0.0459	.
OREAS 925 4	0.615	2.36	.	0.00313	0.00246	0.00348	0.0110	0.0163	0.000907	0.00149	0.0446	0.0106
OREAS 925 A	0.629	2.41	<0.005	0.00324	0.00238	0.00317	0.0111	0.00189	0.000891	0.000777	0.0437	0.00218
OREAS 503b	0.531	1.54	0.695	0.000261	0.00171	0.00387	0.00243	0.0163	0.000661	0.000752	0.0092	0.0071 last
OREAS 924 I	0.520	.	.	0.00293	0.00244	0.00385	0.0096	0.0173	.	0.00167	0.0389	.
OREAS 924 4	0.512	1.99	.	0.00273	0.00234	0.00360	0.0092	0.0172	0.000786	0.00136	0.0380	0.0109
OREAS 924 A	0.516	1.92	<0.005	0.00257	0.00227	0.00326	0.0092	0.00203	0.000732	0.000672	0.0370	0.00222
OREAS 923 I	0.4328	.	.	0.00212	0.00239	0.00407	0.0086	0.0169	.	0.00161	0.0358	.
OREAS 923 4	0.4230	1.60	.	0.00214	0.00231	0.00358	0.0083	0.0166	0.000654	0.00133	0.0345	0.0116
OREAS 923 A	0.4248	1.62	<0.005	0.00218	0.00222	0.00327	0.0081	0.00196	0.000599	0.000599	0.0335	0.00225
OREAS 501c	0.276	0.461	0.221	0.000069	0.00151	0.0060	0.00215	0.0196	0.000207	0.000338	0.0081	0.0081
OREAS 922 I	0.2215	.	.	0.00108	0.00209	0.00434	0.0064	0.0167	.	0.00100	0.0277	.
OREAS 922 4	0.2122	0.888	.	0.00101	0.00204	0.00379	0.0059	0.0164	0.000376	0.000995	0.0267	0.0127
OREAS 922 A	0.2176	0.851	<0.005	0.00103	0.00194	0.00343	0.0060	0.00227	0.000344	0.000383	0.0256	0.00223
OREAS 921 I	0.0293	.	.	<0.0002	0.00173	0.00419	0.00271	0.0178	.	<0.0010	0.0139	.
OREAS 921 4	0.0274	0.152	.	0.000120	0.00165	0.00411	0.00280	0.0176	<0.0002	0.000582	0.0132	0.0147
OREAS 921 A	0.0278	0.164	<0.005	0.000125	0.00155	0.00380	0.00260	0.00242	0.000104	0.000145	0.0124	0.00214
OREAS 501b 4	0.260	0.778	0.248	0.000154	0.00158	0.00415	0.00230	0.0184	(0.000363)	0.000558	0.0089	0.0077
OREAS 501b A	0.258	0.721	0.243	0.000160	0.00149	0.00375	0.000942	0.0126	0.000278	0.000465	0.0080	0.00109
OREAS 920 I	0.0113	.	.	<0.00008	0.00161	0.00440	0.00229	0.0179	.	<0.0006	0.0122	.
OREAS 920 4	0.0112	<0.2	.	0.000069	0.00156	0.00418	0.00235	0.0176	<0.0002	0.000504	0.0116	0.0151
OREAS 920 A	0.0110	0.099	<0.010	0.000068	0.00150	0.00384	0.00215	0.00248	0.000087	0.000121	0.0106	0.00213

** OREAS 903 also certifies Cu at 0.434% using acid leach

These samples also detail up to 74 additional elements, certificates available upon request.
Each sample is certified for a variety of methods: 4 = 4 ACID DIGESTION, A = AQUA REGIA, F = FUSION, I = ICP

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 ₂
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	GBM922-16	24.6093	326.3	.	0.0805	0.7508	26.31	1.2224	.	.	.	.	.	.	.	.	.
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	GBM319-12	19.5549	112.9	.	0.2069	0.2128	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	.	.	.	.	.	.	.	.	last
1	GBM908-11	17.7033	11.4	.	.	0.0547	29.78	2.3604	.	.	.	.	.	.	.	.	.
1	GBM314-16	16.0964	89.4	.	0.0661	0.0884	22.79	0.2898	.	.	.	.	.	.	.	.	.
1	GBM323-16	15.7320	220.6	.	0.3131	0.4159	23.85	3.4195	.	.	.	.	.	.	.	.	.
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	GBM321-16	6.9389	22.0	.	0.0065	0.0677	7.47	0.1007	.	.	.	.	.	.	.	.	.
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	.	.	.	5.68	.	.	.	.	.
1	NCS DC29109	3.84	59.9	0.046	.	0.024	(8.58)	0.083	.	.	.	.	.	(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	GBM922-14	2.8331	8.9	.	0.0041	0.0165	3.51	0.0949	.	.	.	.	.	.	.	.	.
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	GBM322-12	2.4118	19.8	.	0.0077	0.0024	0.03	0.0413	.	.	.	.	.	.	.	.	.
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	GBM323-11	2.2045	42.2	.	0.0055	0.0799	2.65	0.0909	.	.	.	.	.	.	.	.	.
1	GBM920-10	2.1707	41.9	0.0083	0.0037	0.0779	.	0.0890	.	.	94	.	.	.	.	.	.
1	GBM921-11	2.1510	15.6	.	0.0019	0.1469	1.22	0.2519	.	.	.	.	.	.	.	.	.
1	GBM916-13	2.0136	12.5	.	0.0023	0.0390	17.60	0.3795	.	.	.	.	.	.	.	.	.
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	GBM920-12	1.5542	5.3	.	0.0269	0.0053	21.84	0.0107	.	.	.	.	.	.	.	.	.
1	GBM920-2	1.5495	5.4	0.1607	0.0270	0.0038	.	0.0104	.	.	567	.	.	.	.	.	.
1	GBM920-13	1.5481	5.4	.	0.0284	0.0046	23.50	0.0110	.	.	.	.	.	.	.	.	.
1	GBM920-3	1.5471	5.3	0.1688	0.0283	0.0038	.	0.0103	.	.	594	.	.	.	.	.	.
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
1	GBM322-13	1.3016	4.1	.	0.0210	0.0098	6.32	0.0613	.	.	.	.	.	.	.	.	.
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	GBM922-13	1.0050	3.5	.	0.0052	0.0176	1.52	0.0931	.	.	.	.	.	.	.	.	.
1	NCS DC29108	0.90	14.9	0.00766	.	0.0080	(1.65)	0.020	.	.	.	.	(0.028)	.	.	11.7	.
1	NCS DC29107	0.2946	6.1	0.00414	.	0.00345	(0.68)	0.010	.	.	.	.	(0.15)	.	.	23.4	.
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 ₂ O ₃	As	Bi	CaO	Cd*	Co	F	Fe	MgO	Mn	Ni	Pb	S	SiO ₂	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 CORUNDUM analysis listed in listed in mass 50 g units

Number	Al ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	Na2O	P ₂ O ₅	SiO ₂	TiO ₂	LOI
NCS DC14225	99.04	0.029	0.043	0.002	0.012	0.45	0.016	0.061	0.024	0.29
NCS DC14226	99.02	0.028	0.040	0.003	0.013	0.43	0.013	0.061	0.020	0.34
NCS DC14224	96.00	0.31	0.21	0.048	0.28	0.014	0.024	0.68	2.28	(0.04)

analysis listed in mass %

Number	Al	CaO	F	Fe ₂ O ₃	Na	P ₂ O ₅	SO ₄ ²⁻	SiO ₂	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	(0.0662)	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

analysis listed in mass %

US: 25 g units

NCS: 70 g units

Number	Al ₂ O ₃	CO ₂	CaO	F	FeO	Fe ₂ O ₃	Fe ₂ O ₃ T	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	SO ₃	SiO ₂	TiO ₂	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	5.88	.	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-DE71311	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)	0.6

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 DE71311	2.0	470	1.8	1.1	4.9	0.36	1.2	268	1.4	24.5	2.2	(160)	359

analysis listed in mass %

T = Total

IAG: RM. ~35 g units

all others: CRM, 100 g units

Number	Al ₂ O ₃	CaO	CO ₂	Fe	FeO	Fe ₂ O ₃	H ₂ O+	H ₂ O-	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	LOI	Type
EN 5Y-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
US 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	10.2	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.

Number	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
GAN 3Y-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 ₂	Al ₂ O ₃	CaO	F	FeO	Fe ₂ O ₃	Fe ₂ O ₃ T	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	TiO ₂	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 ₂ O ₃	CO ₂	Cl	F	FeO	Fe ₂ O ₃	H ₂ O	K ₂ O	MnO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	LOI	Units		
UL DWA1	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 DWA1	.	(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 DWA1	.	(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 DWA1	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 ₂	Al ₂ O ₃	Cr ₂ O ₃	Fe ₂ O ₃	K ₂ O	MnO	Na ₂ O	P	P ₂ O ₅	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 DC14020b	35.73	15.28	4.21	0.92	.	0.533	0.017	0.022	0.015	0.0032	.	.
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 ₂ O ₃ : 0.052	.	.	.	.

Number	S	Sr	SrO	Ti	TiO ₂	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 DC14020b	0.030	0.026	.	0.025	.	.	42.69	70 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 Na₂O and 0.012 Nb₂O₅ 100 g units

Number	CaO	MgO	Al ₂ O ₃	Cr ₂ O ₃	Fe	K ₂ O	Mn ₃ O ₄	NiO	P ₂ O ₅	PbO	S	SiO ₂	SrO	TiO ₂	V ₂ O ₅	ZnO	ZrO ₂
DH 0710 *	35.36	35.30	0.28	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 ₂	Si	Al ₂ O ₃	Al	CO ₂	Tot.C	CaO	Ca	Co	Cr	Cr ₂ O ₃	T.Fe	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃
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 ₂ O	K ₂ O	Mg	MnO	Na	Na ₂ O	Ni	P ₂ O ₅	S	TiO ₂	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

H₂O+: (4.82)

FELDSPAR

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

#	Number	SiO ₂	Al ₂ O ₃	BaO	CaO	F	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	P ₂ O ₅	PbO	Rb ₂ O	SrO	TiO ₂	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			
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 ₂	Al ₂ O ₃	CO ₂	CaO	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O		K ₂ O	Li ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	Rb ₂ O	TiO ₂	LOI	Units
GUV 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
GUV 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	.	.	.	.	.	.	.	.	(0.13)	.	.	.

Number	Hf	Ho	K%	La	Li%	Mg%	Mn%	Mo	Na%	Nb	Nd	Ni	P%	Pb	Pr	Ra!	Rb%	S%
GUV 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%
GUV 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	⁸⁷ Sr/ ⁸⁶ Sr	⁸⁶ Sr/ ⁸⁸ 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 ₂	F	Al ₂ O ₃	BaO	CaCO ₃	CaO	Fe	Fe ₂ O ₃	K ₂ O	Na ₂ O	P	S	SiO ₂	Others
SRM 180	98.80	.	.	.	.	.	.	.	.	.	.	.	.	
SARM 15	97.84	.	.	.	0.95	.	.	(0.23)	.	.	0.007	.	(0.26)	MgCO ₃ : 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 ₂ : 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
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	
GBW 07252	92.57	.	.	.	(0.02)	.	.	0.124	0.029	0.006	0.0024	0.043	6.84	last of stock
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 ₃ :0.12	26.20	MgO: 0.18 TiO ₂ : 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 5133-89	4.17	.	.	.	1.10	.	.	.	.	.	.	.	.	

Number	CaF ₂	F	Al ₂ O ₃	BaO	CaCO ₃	CaO	Fe	Fe ₂ O ₃	K ₂ O	Na ₂ O	P	S	SiO ₂	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 ₂ O ₃	BaO	CO ₂	CuO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	SiO ₂	SO ₄	TiO ₂	ZnO	LOI 900°C
1	IGS 39	.	46.69	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	DH 2712	44.18	40.6	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	38.10	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	34.92	2.35	.	.	.	0.34	0.99	.	.	.	23.01	.	0.047	.	.
1	UNS FM **	35.89	34.03	(0.329)	3.89	(0.13)	.	0.496	0.097	(0.036)	.	(0.087)	22.59	.	0.018	.	.

Number	Bi*	Ce*	Cr*	Cr ₂ O ₃ %	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 ₂ :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 ₂	Al ₂ O ₃	CO ₂	CaO	F	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O	H ₂ O+	T.H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	TiO ₂					
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 ₂	Al ₂ O ₃	CO ₂	CaO	F	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	TiO ₂	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	.	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																

CRM GOLD ORE

ng/g (ppb) 10g or 1kg

Number	Au
GLG919-2	635.73
GLG321-2	329.99
GLG322-1	327.84
GLG320-1	322.15
GLG321-5	315.63
GLG920-3	276.79
GLG318-1	259.04
GLG319-3	238.19
GLG922-2	231.81
GLG313-3	227.70
GLG912-5	224.34
GLG917-3	222.13
GLG318-3	214.41
GLG911-5	209.21
GLG904-4	204.08
GLG322-2	202.03
GLG322-3	199.16
GLG315-5	194.82
GLG317-2	189.96
GLG313-4	183.83
GLG921-4	160.65
GLG922-1	158.89
GLG317-1	151.88
GLG316-2	150.84
GLG920-2	138.05
GLG921-3	127.92
GLG304-4	121.43
GLG919-1	120.71
GLG314-3	103.11
GLG314-5	95.23
GLG319-4	99.13
GLG317-3	94.60
GLG323-3	84.99
GLG922-3	83.98
GLG922-4	83.56
GLG313-5	83.36
GLG310-5	79.83
GLG919-3	76.60
GLG320-2	66.38
GLG323-5	59.61
GLG305-3	55.48
GLG320-3	52.09
GLG318-5	44.93
GLG919-5	34.78
GLG910-3	32.02
GLG322-5	30.91
GLG920-1	28.01
GLG319-1	25.63
GLG321-1	24.31
GLG913-2	22.75
GLG921-5	21.48
GLG312-1	20.65
GLG323-4	19.69
GLG321-4	19.52
GLG920-5	18.89
GLG920-4	16.60
GLG922-5	14.95
GLG915-1	14.01
GLG919-4	11.32
GLG322-4	10.96
GLG901-2	9.92
GLG912-1	6.86
GLG910-4	6.36
GLG916-1	5.06
GLG911-4	4.65
GLG910-1	4.89
GLG921-1	4.65
GLG921-2	4.37
GLG321-3	4.28
GLG907-1	4.18
GLG912-3	3.98
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
GLG323-2	3.43
GLG916-4	3.27
GLG302-4	3.23
GLG913-4	3.10
GLG318-2	3.03
GLG314-2	2.98
GLG323-1	2.88
GLG913-3	2.81
GLG312-2	2.78
GLG320-4	2.76
GLG316-3	2.75
GLG910-5	2.58
GLG912-2	2.54
GLG319-2	2.50

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
GBMS623-4	17.95	17.29	49.9	1263	106	22728	196	9476	3.88	19340
GBMS911-4	6.78	6.73	1.79	36	54	900	32	35	0.79	115
GBMS623-3	5.85	5.46	3.7	570	332	10792	77	322	5.16	35
GBMS304-4	5.67	5.29	3.4	535	.	9786	732	271	6.27	149
GBMS623-2	3.13	2.93	6.9	450	55	3422	265	241	1.18	583
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
GBMS304-5	1.62	1.59	0.8	99	68	2293	21	65	1.04	13
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
GBMS623-1	0.88	0.87	3.5	9	26	6004	25	45	0.75	127

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 1 kg, last

Number	Au	Pd*	Pt*
CDN GS-50	50.5	.	.
CDN GS-20A	21.12	.	.

CRM 17034 GOLD ORE

Number	Au (mg/kg)	Units
IMS-261	7.03	Powder 1 kg
IMS-247	4.24	Powder 1 kg
IMS-231	3.43	Powder 1 kg
IMS-230	2.19	Powder 1 kg
IMS-237	2.06	Coarse Material 500 g
IMS-267	2.00	Powder 1 kg
IMS-266	1.03	Powder 1 kg
IMS-255	0.89	Powder 1 kg
IMS-227	0.82	Powder 1 kg
IMS-236	0.72	Coarse Material 500 g
IMS-226	0.61	Powder 1 kg
IMS-265	0.31	Powder 1 kg
IMS-235	0.23	Coarse Material 500 g
IMS-225	0.21	Powder 1 kg

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
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
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
G912-7	7.29	7.33
G913-10	7.09	7.10
G312-5	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
G322-4	2.43	2.42
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
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	.
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
G908-4	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 lsited in mass % except * which is mg/kgfor U, M = /ICP and X = XRF D = Demsotu/Specific Gravity

Number	Au*	Al ₂ O ₃	CaO	Cr ₂ O ₃	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	S	SiO ₂	TiO ₂	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
CGL 205	21.48	10.72	.	.	.	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 5935-91	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 DC28102b	7.4	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
SRM 886	.	8.25	.	1.466	.	200 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
GLC323-2	4998	2410	
GLC323-1	4293	1825	
GLC922-1	3239	1581	
GLC323-3	3175	415	
GLC920-2	3161	473	last of stock
GLC921-1	2448	171	
GLC314-1	2031	947	
GLC922-3	1984	993	
GLC922-2	1102	558	
GBC319-4	808	225	
GBC323-2	789	225	
GBC917-2	770	219	
GBC323-1	713	208	
GBC321-2	713	207	
GBC917-3	628	195	
GBC922-3	546	225	
GBC323-3	475	67	
GBC911-3	470	596	last of stock
GBC902-3	285	83	last of stock
GBC314-1	51	38	last of stock
GBC922-2	19	34	

Number	Au	Ag
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RM GOLD AND SILVER ORE

data in mg/kg (ppm) 100 g, last

Number	Au	Ag
CDN GS-1Q	1.24	40.7

RM GOLD AND SILVER ORE

analysis listed in mg/kg (ppm) 1 kg, last

Number	Ag	Au	Au
CDN GS-8C	.	8.59 FA/Inst	8.62 FA/Grav

CRM GOLD AND SILVER ORE - CONTINUED ON THE NEXT PAGES

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

OREAS samples list multiple methods, more information upon request

Number	Au*	Ag*	As	Ba	Cu	Fe	Fe ₂ O ₃	Pb	S	SO ₃	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
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 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 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	.	.	.	.
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 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 ₂ O ₃	Pb	S	SO ₃	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 ₂ O ₃	C	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	P ₂ O ₅	Si	SiO ₂	Ti	TiO ₂
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
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 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 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	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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 22d	0.132	.	.	(0.010)	.	(0.008)	.	(0.009)	.	0.011	.	(0.009)	.	(0.001)	.	.	.	0.021	.
Number	Al	Al ₂ O ₃	C	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	P ₂ O ₅	Si	SiO ₂	Ti	TiO ₂

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	B	Be	Bi	Cd	Ce	Co	Cr	Cr ₂ O ₃	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	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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 7Ca	.	.	.	.	(90)	.	(502)	.	(10)	.	.	(1.4)	.	.	.	(4.4)	.
UNS AuM	.	.	.	.	.	.	47	.	.	.	.	.	12.9	.	.	.	.
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	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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 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 ₂ O ₃	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	.	.	.	.	.	.	.	.
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 70a	.	.	(50)	.	.	.	.	.	.	.	.	.	(168)	.	(14)	.	(10)
UNS AuM	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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	.	.	.	.	.	.	.	.
CAN CH-4	.	.	.	.	.	.	.	.	51	.	.	.	.	.	.	2.1	.
USZ 34-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
US DGFM-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USZ 35-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 17-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KZ 6585-93	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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)
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)
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)
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)
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 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

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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	
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 60 or 500g, Aqua Regia Borate Fusion, C/S combust	
OREAS 61e A	.	(113)	.	.	(2.21)	(<20)	(<10)	.	(<10)	(<10)	.	.	.		
OREAS 61e F	(<1)	(245)	(0.10)	(0.27)	.	(2.31)	(0.85)	(0.14)	(0.61)	(3)	(8.70)	(0.83)	(54)		
OREAS 17c	(1)	(333)	(0.85)	(0.76)	.	(3.5)	.	.	(1.05)	(3.8)	(20.5)	(1.8)	(123)	60 g	
OREAS 7Ca	.	.	.	.	.	(16)	.	.	.	(18)	.	(2.8)	.	chips	500g Br:(5ppm) H ₂ O:(3.44+)
UNS AuM	.	187.7	.	.	.	.	.	.	.	.	14.2	.	81	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 g	
CAN CH-4	.	(209)	.	.	.	.	.	.	.	.	.	.	.	200 g	
USZ 34-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	250 g	H ₂ O: 0.10-
US DGPM-1	.	.	.	.	.	.	.	.	.	(76)	.	.	.	200 g	last of stock
USZ 35-2002	.	.	.	.	.	.	.	.	.	.	.	.	.	250 g	
KZ 17-2004	.	.	.	.	.	.	.	.	.	.	.	.	.	100 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:(<10ppm)
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, <u>GRANODIORITE</u>	
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:(<10ppm)
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, <u>SOIL</u>	
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 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 ₂	Al ₂ O ₃	CO ₂	CaO	F	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	TiO ₂	LOI		
JG-2	76.83	12.47	.	0.70	(0.0272)	0.57	0.53	0.97	10.33	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 ₂ O%	Cu	Dy	
JG-2	(0.019)	6.60	(0.60)	(1.70)	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 ₂ O%	Lu	Mg%	Mn%	
JG-2	6.04	0.10	0.60	18.6	0.01	(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	.	.	.	.	.	.	.	.	.	.	.	(15)	.	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 ₂ 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	7.70	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	3.70	23.0	06.5	6.05	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 ₂	Al ₂ O ₃	Al	CO ₂	CaO	Fe	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	Si	TiO ₂
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)	(0.05)	.	(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 ₂ O ₃	C.Graph	T.C	CO ₂	CaO	Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	Ni	P ₂ O ₅	Rb	S	SiO ₂	TiO ₂	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	
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	.	.	.	.	last
GGC-13	.	7.99	8.02	.	.	.	.	.	.	.	.	.	.	.	2.73	.	.	.	.	last
GGC-11	.	4.98	5.06	.	.	.	.	.	.	.	.	.	.	.	3.73	.	.	.	.	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)	.	last	(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
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 ₂ O ₃	Ash	CaO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	SiO ₂	TiO ₂	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															50 g units		
	available as a set or individually					analysis listed in mg/kg												
Number	Al	As	Ca	Cl	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	NO ₃	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 ₄	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 ₂	Al ₂ O ₃	CaO	F	Fe ₂ O ₃	FeO	K ₂ O	MgO	MnO	Na ₂ O	Li	P ₂ O ₅	Rb	Sn	TiO ₂	Zn	Zr	LOI								
CGL 022	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												
CGL 022	63.6	(25.6)	(29.6)	271	(29.7)	563	(14.1)	26.1	.	28.4	16.6	(4.01)	32.9	(6.12)	also 19 more informational elements												
GUW GNA	7	51	220	.	45	.	3	.	100	.	.	29	.	22													

CRM		GYPSUM ROCK												
analysis listed in mass %													100 g units	
Number		SO ₃	CaO	Al ₂ O ₃	CO ₂	Fe ₂ O ₃ *	H ₂ O	K ₂ O	MgO	Na ₂ O	P ₂ O ₅	SiO ₂	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 Fe2O3								** 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 ₃	CaO	Al ₂ O ₃	CO ₂	Cl-	Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	Na ₂ O	SiO ₂	SrO	TiO ₂	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 ₃	CaO	Al ₂ O ₃	CO ₂	Cr ₂ O ₃	T.Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	Na ₂ O	P ₂ O ₅	SiO ₂	SrO	TiO ₂	V ₂ O ₅	%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

H₂O+ 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 ₂ O ₃	CO ₂	CaO	FeO	T.Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	Mn	MnO	Na ₂ O	P ₂ O ₅	S	SiO ₂	Ti	TiO ₂	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	.	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 ₂ O ₃	Ca	CaO	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	S	Si	SiO ₂	Ti	TiO ₂
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 ₂ O	Mo*	N*	Ni	Pb*	Sn	V	V ₂ O ₅	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 ₂	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 1 of 9

= class, where 1 = CRM and 2 = RM

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

#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	P ₂ O ₅	S	Si	SiO ₂	Ti	TiO ₂
1	VS R21/2	99.0	.	.	.	.	.	.	.	.	.	0.3	.	.	.	0.01	.	0.02	0.06	.	.	.
1	VS R16/3	98.2	.	.	.	.	.	.	.	.	.	0.380	.	.	.	0.0110	.	0.0198	0.073	.	.	.
1	FLX 2001	Fe2O3:96.47	.	.	1.40	.	0.026	.	.	.	.	Mn2O3:0.134	.	.	.	.	0.202	.	.	1.67	.	0.134
1	JK 55	92.47	.	.	(0.21)	.	(1.2)	.	(0.032)	.	(0.86)	.	.	.	.	(0.036)	.	.	.	(1.0)	.	(0.17)
1	ECRM 685-1	91.103	.	0.3197	.	0.1395	.	0.0418	.	0.2394	.	0.0415	.	0.0773	.	.	0.0170	.	0.0031	0.7950	.	0.2199
2	VS R40	90.95	.	.	0.82	0.90	.	.	0.05129	.	0.299	.	.	.	0.084	0.0094	.	0.0057	.	4.13	.	.
1	NCS DC28039	72.02	28.78	.	0.095	.	0.026	.	0.0064	.	0.043	0.043	.	.	0.0008	0.0016	.	0.0030	.	0.14	0.029	.
1	NCS DC28029	72.01	28.63	.	0.095	.	0.025	.	0.0068	.	0.042	0.043	.	.	0.0008	0.0013	.	0.0028	.	0.158	0.028	.
1	NCS DC16002	71.79	28.63	.	0.069	.	.	.	0.038	0.053	.	.	.	.	.	0.0022	.	0.0055	.	0.36	.	.
1	GIOP-118	71.51	34.86	.	(0.01)	.	0.0493	.	(0.01)	.	0.0576	0.0491	.	(0.019)	.	0.0058	.	0.0026	.	0.763	.	(0.01)
1	JK 29A	71.36	.	.	0.232	.	0.082	.	0.0087	.	0.223	.	0.0632	.	0.015	0.0059	.	0.0059	.	0.33	.	0.292
1	NCS DC11032	70.69	27.98	.	0.32	.	0.066	.	0.012	.	0.28	.	0.28	.	0.010	0.012	.	0.0032	.	0.293	.	0.535
1	JK 42A	70.66	.	.	0.278	.	0.199	.	0.0157	.	0.382	.	0.0506	.	0.043	0.0247	.	0.0082	.	0.800	.	0.385
1	IMZ 350	70.20	30.06	.	0.077	.	0.084	.	0.015	.	0.19	0.030	.	.	0.033	0.007	.	0.097	.	2.51	.	0.021
1	ECRM 687-1	69.66	.	0.0356	.	0.0113	.	0.0011	.	0.0018	.	0.1658	.	0.0030	.	0.0120	.	.	0.0157	.	0.0303	.
1	GIOP-117	69.631	.	.	0.06	.	(0.01)	.	(0.0026)	.	(0.013)	0.008	.	0.011	.	0.00325	.	0.0026	.	0.203	.	0.0902
1	NCS DC28220	69.05	23.8	.	0.50	.	0.20	.	0.17	.	0.079	.	.	.	0.010	0.011	.	0.011	.	2.45	.	0.313
1	NCS DC13019c	68.96	28.98	.	0.174	.	0.196	.	0.0068	.	0.268	.	0.049	.	0.0060	0.010	.	0.0277	.	3.98	.	0.0174
1	IMZ 324	68.93	28.27	.	0.11	.	0.107	.	0.026	.	0.24	0.026	.	.	(0.04)	0.014	.	0.044	.	3.96	.	0.028
1	NCS DC28219	68.55	23.0	.	0.54	.	0.21	.	.	.	0.20	.	0.052	.	.	0.0054	.	0.027	.	3.21	.	0.116
1	VS R38	68.55	.	.	0.212	.	0.118	.	0.087	.	0.131	.	0.035	.	0.036	0.0122	.	0.0334	.	4.56	.	0.022
1	NCS DC28005c	68.38	28.80	.	0.58	.	0.78	.	0.050	.	1.15	.	0.086	.	0.026	0.0035	.	0.034	.	2.25	.	0.057
1	IMZ 323	68.35	27.65	.	0.23	.	0.109	.	0.027	.	0.28	0.043	.	.	0.035	0.018	.	0.052	.	4.31	.	0.017
1	NCS DC28115	68.29	28.25	.	0.43	.	0.70	.	0.060	.	1.25	0.061	.	.	0.021	0.0047	.	0.041	.	2.08	0.034	0.057
1	NCS DC28032	68.29	0.24	.	0.74	.	0.074	.	0.0063	.	0.025	0.096	.	.	0.015	0.028	.	0.0028	.	0.85	.	0.050
1	NCS DC93024	68.02	30.50	.	0.34	.	0.35	.	0.018	.	0.19	0.017	.	.	0.012	0.017	.	0.301	.	4.58	.	0.056
1	IMZ 352	67.84	29.09	.	0.206	.	0.295	.	0.020	.	0.55	0.032	.	.	0.030	0.018	.	0.061	.	4.56	.	0.015
1	NCS DC28005b	67.84	29.72	.	0.45	.	0.155	.	0.055	.	0.202	.	0.030	.	0.018	0.0025	.	0.106	.	5.32	.	0.097
1	NCS DC28221	67.84	28.8	.	0.60	.	0.63	.	.	.	1.40	.	0.070	.	.	0.0046	.	0.041	.	2.34	.	0.061
1	IMZ 320	67.76	27.37	.	0.12	.	0.13	.	0.049	.	0.30	0.029	.	.	0.037	0.022	.	0.012	.	5.30	.	0.016
1	IMZ 325	67.73	28.03	.	0.20	.	0.17	.	0.027	.	0.27	0.031	.	.	(0.03)	0.016	.	0.077	.	5.01	.	0.018
1	IMZ 351	67.55	28.52	.	0.132	.	0.095	.	0.019	.	0.25	0.0121	.	.	0.037	0.008	.	0.023	.	5.71	.	0.010
1	IMZ 261/1	67.54	.	.	0.59	.	0.30	.	.	.	1.37	.	0.16	.	.	(0.019)	.	0.080	.	3.16	.	.
1	VS R25/1	67.3	.	.	.	.	0.14	.	.	.	0.25	.	.	.	.	.	.	.	.	3.37	.	.
1	VS R22/2	67.0	.	.	0.3	.	0.1	.	.	.	0.2	.	.	.	.	0.008	.	.	.	3.3	.	.
1	NCS DC73009	66.87	23.14	.	0.99	.	0.14	.	0.030	.	0.22	0.071	.	.	0.012	(0.011)	.	0.0055	.	5.05	0.059	.
1	SRM 690	66.8	.	.	0.17	.	0.20	.	0.0030	.	0.177	.	0.230	.	0.0027	0.009	.	(0.004)	.	3.70	.	0.021
1	OREAS 40	66.72	1.76	.	0.130	.	0.015	.	0.018	.	0.017	.	0.020	.	.	0.004	.	0.008	.	4.64	.	0.050
1	ECRM 690-1	66.70	.	.	.	.	.	.	.	0.815	.	0.0337	.	0.0312	.	0.0085	.	.	0.881	.	0.229	.
1	NCS DC28222	66.64	27.9	.	0.76	.	0.86	.	.	.	1.62	.	0.091	.	.	0.0051	.	0.096	.	2.96	.	0.070
1	NCS DC14028c	66.56	26.01	.	0.28	.	0.11	.	0.009	.	0.11	0.135	.	.	(0.006)	0.015	.	0.0045	.	6.09	0.283	.
1	NCS DC14208	66.56	26.01	.	0.28	.	0.11	.	0.009	.	0.11	0.135	.	.	(0.006)	0.015	.	0.0045	.	6.09	0.283	.
1	NCS DC28037	66.54	0.21	.	1.43	.	0.031	.	0.012	.	0.054	0.482	.	.	0.015	0.034	.	0.0071	.	0.962	0.051	.
1	NCS DC28109	66.52	27.91	.	0.62	.	1.10	.	0.091	.	1.96	0.070	.	.	0.032	0.0062	.	0.064	.	3.26	0.037	0.061

#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	P ₂ O ₅	S	Si	SiO ₂	Ti	TiO ₂
	Number	As	Ba	C	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	Pb	V	V ₂ O ₅	Zn	LOI	Units	Other					
	VS R21/2	.	.	0.02	.	.	.	.	.	.	.	.	.	.	.	100 g	O: 0.3					
	VS R16/3	.	.	0.108	.	Insoluble Residue: 0.155	.	.	.	.	.	.	.	.	.	100 g	O: 1.15					
	FLX 2001	.	.	.	.	.	.	.	.	.	.	.	.	.	.	35 g						
	JK 55	.	.	.	.	Metallic Iron: 84.15%	.	.	.	.	.	.	(0.27)	.	.	100 g						
	ECRM 685-1	.	.	1.487	.	0.0133	.	.	.	0.0175	.	0.1436	.	.	.	100 g						
	VS R40	.	.	1.393	.	Metallic Iron: 85.7%	.	.	.	.	.	.	.	.	.	100 g						
	NCS DC28039	.	.	.	.	.	.	.	.	.	.	.	.	.	.	70 g						
	NCS DC28029	0.00012	.	.	.	0.0008	0.0062	.	0.0007	0.0022	0.0002	.	.	0.0026	.	50 g						
	NCS DC16002	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g						
	GIOP-118	(0.011)	(0.0055)	.	(0.0071)	(0.0026)	0.2601	.	0.0071	0.1539	(0.0078)	(0.0021)	.	(0.0034)	-3.857	10 g						
	JK 29A	.	.	.	.	0.0106	0.0057	.	0.0007	0.0167	.	.	0.266	0.0016	.	100 g						
	NCS DC11032	.	.	.	.	.	.	.	.	.	.	.	0.258	0.030	.	70 g						
	JK 42A	.	.	.	.	0.0105	0.0010	.	0.0007	0.0129	.	.	0.251	0.0015	.	100 g						
	IMZ 350	.	(0.0019)	0.024	.	(0.0024)	0.0031	.	(0.0006)	.	.	0.0020	.	(0.0017)	.	100 g						
	ECRM 687-1	.	Mo: 0.0020	0.0173	.	0.0227	.	.	0.0030	0.0122	.	.	Sn: 0.0006	0.0051	.	100 g						
	GIOP-117	(0.0038)	(0.0038)	.	0.012	(0.001)	(0.0031)	.	(0.0037)	(0.0026)	(0.0048)	(0.0013)	.	(0.0014)	0.085	10 g						
	NCS DC28220	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g						
	NCS DC13019c	.	.	.	.	.	.	.	.	.	0.0052	.	.	0.0030	.	50 g						
	IMZ 324	.	0.0024	0.052	.	0.003	0.0025	.	0.0014	0.0013	0.0002	.	.	(0.003)	2.91	100 g						
	NCS DC28219	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g						
	VS R38	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g						
	NCS DC28005c	.	.	.	.	.	.	.	0.0037	.	.	.	.	0.0055	.	50 g						
	IMZ 323	.	0.0020	0.027	.	0.0026	0.0020	.	0.0007	0.0002	0.0015	(0.002)	.	0.0021	2.49	100 g						
	NCS DC28115	.	.	.	.	.	.	.	0.0065	.	.	.	.	0.0037	.	70 g						
	NCS DC28032	.	.	.	.	.	.	.	.	.	.	.	.	.	.	70 g						
	NCS DC93024	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g						
	IMZ 352	.	(0.0019)	0.124	0.013	.	0.0011	.	(0.0005)	.	(0.0012)	0.0009	.	(0.0013)	.	100 g						
	NCS DC28005b	.	.	.	.	.	0.0075	.	.	.	.	.	.	0.0020	.	50 g						
	NCS DC28221	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g						
	IMZ 320	0.0015	0.0019	0.033	.	(0.003)	0.003	.	0.0015	0.0013	0.0015	0.0015	.	0.002	2.87	100 g						
	IMZ 325	.	0.0021	0.094	.	0.002	0.0023	.	0.0010	.	0.0017	0.0018	.	(0.003)	2.53	100 g						
	IMZ 351	(0.0009)	(0.0019)	0.103	0.043	(0.0027)	0.0014	.	0.0012	.	(0.0009)	0.0009	.	(0.0016)	.	100 g						
	IMZ 261/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g						
	VS R25/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	150 g						
	VS R22/2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	150 g						
	NCS DC73009	.	.	.	.	.	.	(0.0015)	.	.	.	.	.	.	.	50 g						
	SRM 690	.	.	.	.	.	(0.003)	.	.	.	.	(0.0045)	.	.	.	100 g						
	OREAS 40	.	.	.	.	.	.	.	.	.	.	0.0013	.	.	-0.248	10 g						
	ECRM 690-1	.	.	.	.	0.0089	0.0113	.	0.0006	0.0200	.	0.1417	.	.	.	100 g						
	NCS DC28222	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g						
	NCS DC14028c	.	.	.	.	.	.	.	0.0010	.	.	.	.	.	.	50 g						
	NCS DC14208	.	.	.	.	.	.	.	0.0010	.	.	.	.	.	.	50 g						
	NCS DC28037	.	.	.	.	.	.	.	.	.	.	.	.	.	.	70 g						
	NCS DC28109	.	.	.	.	.	.	.	0.010	.	.	.	.	0.0052	.	70 g						
	Number	As	Ba	C	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	Pb	V	V ₂ O ₅	Zn	LOI	Units	Other					

CRM		IRON ORE, chart 2 of 9										# = class, where 1 = CRM and 2 = RM										analysis listed in mass % except * which is mg/kg									
#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	P ₂ O ₅	S	Si	SiO ₂	Ti	TiO ₂									
1	NCS DC28028	66.47	0.58	.	1.36	.	0.028	.	0.014	.	0.091	0.137	.	.	0.005	0.055	.	0.0066	.	1.79	0.046	.									
1	IMZ 353	66.42	1.41	.	0.40	.	0.098	.	0.011	.	0.054	0.051	.	.	0.012	0.018	.	0.0049	.	4.07	.	0.28									
1	SARM 145	66.42	.	.	0.58	.	0.15	.	0.09	.	0.02	.	0.02	.	0.02	.	0.12	(0.014)	.	3.56	.	0.03									
1	NCS DC28027	66.34	0.07	.	1.42	.	0.02	.	0.013	.	0.063	0.48	.	.	0.0055	0.034	.	0.0071	.	1.02	0.057	.									
1	NCS DC28223	66.31	24.4	.	1.04	.	0.64	.	.	.	0.26	.	0.085	.	.	0.039	.	0.011	.	4.17	.	0.709									
1	BCS 517	66.30	.	0.508	.	0.033	.	0.0105	.	0.0311	.	0.679	.	0.0097	.	0.0408	.	0.0090	0.519	.	0.0332	.									
1	JSS 805-2	66.22	.	0.565	.	0.0071	.	0.012	.	0.0221	.	0.596	.	0.0026	.	0.047	.	0.0077	0.552	.	0.0409	.									
1	GIOP-116	66.214	.	.	0.909	.	0.0898	.	0.0088	.	0.0559	0.04	.	0.035	.	0.01331	.	0.00428	.	3.577	.	0.1249									
1	NCS DC28005a	66.18	27.01	.	0.54	.	0.74	.	0.054	.	2.64	.	0.103	.	0.031	0.0067	.	0.059	.	2.90	.	0.077									
1	NCS DC28033	66.17	26.04	.	0.260	.	0.21	.	0.014	.	0.18	0.043	.	.	0.0015	0.012	.	0.044	.	7.21	0.024	.									
2	DH 1137	66.15	0.32	.	0.442	.	1.930	.	0.011	.	0.164	0.038	.	.	0.020	.	0.113	0.003	.	2.365	.	0.032									
1	ECRM 682-2	66.12	.	0.325	.	.	.	.	.	0.0133	.	0.0311	.	.	.	0.0529	.	0.0140	0.833	.	0.0441	.									
1	IMZ 358	66.08	0.84	.	0.214	.	2.61	.	0.029	.	0.23	0.027	.	.	0.032	0.0066	.	0.0103	.	2.60	.	0.022									
1	VS R1/4	66.0	26.1	.	0.28	.	0.17	.	.	.	0.38	.	.	.	.	0.0157	.	0.029	.	7.38	.	.									
1	NCS DC28214	65.97	27.0	.	0.70	.	0.43	.	.	.	0.45	.	0.094	.	.	0.013	.	0.291	.	5.02	.	0.541									
2	BS 105	65.9	.	0.098	.	0.50	.	0.013	.	0.188	.	0.087	.	0.016	.	0.0077	.	(0.002)	2.17	.	0.0074	.									
1	JK 28	65.86	2.4	0.35	.	0.21	.	0.99	.	0.18	.	0.045	.	0.078	.	0.045	.	0.004	1.96	.	0.11	.									
1	IMZ 362	65.81	0.4	.	0.123	.	1.69	.	0.118	.	0.18	0.0087	.	.	0.058	0.0091	.	0.0021	.	3.79	.	0.008									
1	VS R37	65.81	.	.	0.264	.	0.050	.	.	.	0.029	.	0.015	.	.	0.0110	.	1.29	.	3.06	.	0.013									
1	IMS PBS-204	65.75	.	.	0.98	.	(0.010)	.	0.003	.	0.040	0.019	.	.	0.010	0.124	.	0.014	.	1.14	.	0.060									
2	DH 1136	65.74	.	.	0.345	.	0.370	.	0.033	.	0.083	1.21	.	.	0.025	.	0.017	0.002	.	3.35	.	0.023									
1	NCS DC28114	65.71	27.14	.	0.83	.	0.72	.	0.048	.	3.33	0.127	.	.	0.015	0.013	.	0.158	.	2.07	0.418	0.697									
1	ECRM 604-1	65.69	.	0.93	.	0.107	.	.	.	0.049	.	0.092	.	.	.	0.053	.	0.015	1.27	.	0.060	.									
1	JSS 850-4	65.67	(0.30)	.	0.40	.	0.41	.	0.075	.	0.79	0.019	.	.	0.129	0.013	.	0.006	.	4.12	.	0.056									
1	NCS DC28035	65.66	0.54	.	1.64	.	0.056	.	0.018	.	0.102	0.135	.	.	0.007	0.060	.	0.022	.	1.92	0.048	.									
1	BAM 630-1	65.63	.	.	0.88	.	0.10	.	.	.	0.47	0.060	.	.	.	0.043	.	0.032	.	5.88	.	0.066									
1	CAN IOC-1	65.62	20.76	.	(0.184)	.	0.975	.	(0.004)	.	1.043	.	0.472	.	.	0.0120	.	(0.00657)	.	2.633	.	0.0429									
2	DH 1114	65.55	27.20	.	0.271	.	0.421	.	0.061	.	0.565	0.029	.	.	0.078	.	0.028	0.019	.	7.47	.	0.060									
1	IMZ 322	65.50	26.82	.	0.095	.	0.26	.	0.058	.	0.46	0.026	.	.	0.069	0.015	.	0.047	.	7.56	.	0.012									
1	JSS 805-3	65.43	.	0.595	.	0.0087	.	0.0141	.	0.0222	0.194	.	.	0.00431	.	0.057	.	0.0089	0.866	.	0.052	.									
1	IMZ 310	65.25	1.61	.	1.02	.	0.30	.	0.022	.	0.25	0.058	.	.	0.054	0.034	.	0.011	.	6.58	.	0.035									
1	SRM 693	65.08	.	.	1.043	.	0.0158	.	0.00283	.	0.0143	.	0.0900	.	0.0023	0.0563	.	(0.005)	.	3.860	.	0.0345									
1	JSS 804-3	64.91	.	0.473	.	0.109	.	.	.	0.0119	.	0.0199	.	.	.	0.056	.	0.0073	2.47	.	0.026	.									
1	IMZ 363	64.90	0.57	.	0.30	.	0.372	.	0.040	.	0.375	0.0301	.	.	0.112	0.0086	.	0.004	.	6.08	.	0.032									
1	NCS DC28217	64.82	24.5	.	1.30	.	0.85	.	.	.	0.31	.	0.088	.	.	0.053	.	0.011	.	4.91	.	0.949									
1	NCS DC28218	64.81	25.4	.	0.80	.	0.65	.	.	.	1.78	.	0.084	.	.	0.026	.	0.035	.	5.04	.	0.477									
2	DH 1123	64.80	0.133	.	1.619	.	0.034	.	0.008	.	0.037	0.049	.	.	0.006	.	0.123	0.011	.	2.67	.	0.047									
2	DH 1118	64.72	.	.	1.785	.	0.052	.	0.020	.	0.057	0.713	.	.	0.014	.	0.141	0.009	.	1.56	.	0.075									
2	DH 1135	64.69	0.06	.	1.49	.	0.011	.	0.016	.	0.033	1.520	.	.	.	0.140	0.006	.	0.696	.	0.052										
2	DH 1116	64.69	.	.	0.722	.	1.149	.	0.023	.	0.400	0.198	.	.	0.016	.	0.058	.	.	4.67	.	0.078									
1	NCS DC28052	64.53	0.28	.	0.77	.	0.30	.	0.038	.	0.32	0.075	.	.	0.054	0.025	.	0.0053	.	5.65	0.122	.									
#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	P ₂ O ₅	S	Si	SiO ₂	Ti	TiO ₂									
Number		As	Ba	C	CO ₂	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	NiO	Pb	V	V ₂ O ₅	Zn	ZnO	LOI	Units	Other											
NCS DC28028		0.0012	.	.	.	.	0.0008	0.003	.	0.0014	0.0019	.	0.0013	.	.	0.0044	.	.	.	50 g											
IMZ 353		(0.0007)	.	.	.	.	(0.0039)	(0.0018)	0.0045	.	0.0008	(0.0017)	.	(0.0011)	.	0.005	.	(0.0010)	.	(0.086)	100 g										
SARM 145		BaO: (0.046)				.	.	.	.	.	.	.	.	.	.	.	.	.	.	0.36	100 g										
NCS DC28027		0.0004	.	.	.	.	0.0009	0.0015	.	0.0085	0.0008	.	0.0013	.	.	.	0.0032	.	.	.	50 g										
NCS DC28223		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g										
BCS 517		.	.	0.061	.	0.00075	.	.	.	0.0088	.	.	0.0028	0.0040	.	0.0047	.	1.898	100 g												
JSS 805-2		.	.	.	.	.	.	.	.	0.0094	.	.	.	0.0039	.	0.0047	.	1.72	100 g	last											
GIOP-116		.	.	.	.	0.0346	.	.	.	.	.	.	.	.	.	.	.	0.404	10 g	Zr: 0.0104											
NCS DC28005a		.	.	.	.	.	.	.	.	0.0050	.	.	.	.	.	0.0070	.	.	50 g												
NCS DC28033		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	70 g	last											
DH 1137		.	.	0.101	.	.	.	.	0.017	.	.	.	.	.	.	.	.	0.080	100 g	CO ₂ : 0.089											
ECRM 682-2		.	.	.	.	.	.	.	.	0.0005	.	.	0.0004	0.0015	.	.	.	.	100 g												
IMZ 358		(0.0008)	.	0.030	.	(0.0016)	0.0034	.	0.0008	(0.0016)	.	.	(0.0011)	0.0015	.	(0.0013)	.	0.051	100 g												
VS R1/4		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g												
NCS DC28214		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g												
BS 105		(0.001)	.	.	.	.	(0.0005)	0.012	.	(0.001)	0.0036	.	(0.002)	0.0024	.	(0.001)	.	.	100 g	Sn: (0.002)											
JK 28		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	150 g	Fe ₂ O ₃ : 91.5											
IMZ 362		.	(0.003)	(0.016)	.	.	(0.0005)	0.0020	.	0.0011	0.0010	.	0.0017	.	.	0.0010	.	0.13	100 g												
VS R37		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g												
IMS PBS-204		0.001	(0.004)	.	.	(0.002)	(0.002)	(0.002)	.	(0.003)	(0.002)	.	(0.004)	(0.003)	(0.002)	0.002	.	3.46	250 g	17034											
DH 1136		.	.	0.016	0.030	.	.	.	0.025	.	.	.	.	.	0.006	.	0.003	0.057	100 g												
NCS DC28114		.	.	.	.	.	.	.	.	0.016	.	.	.	.	.	0.0080	.	.	70 g												
ECRM 604-1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g												
JSS 850-4		.	.	.	.	.	.	(0.003)	.	0.008	(0.006)	.	.	0.025	.	(0.007)	.	.	100 g												
NCS DC28035		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	70 g												
BAM 630-1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g												
CAN IOC-1		.	(0.0030)	(0.9)	(3)	(0.003)	(0.001999)	.	0.0224	(0.0008)	.	.	(0.0002)	(0.00408)	.	(0.0011)	.	0.863	200 g												
DH 1114		.	.	0.125	.	.	.	.	0.006	.	.	.	.	.	0.002	.	.	.	100 g												
IMZ 322		.	0.0013	0.047	.	.	0.0008	0.0019	.	.	0.0014	.	0.0011	0.0002	.	0.0029	.	2.25	100 g												
JSS 805-3		.	.	.	.	.	.	.	.	0.0066	.	.	.	0.0031	.	0.0049	.	2.69	100 g												
IMZ 310		0.005	0.003	0.158	.	0.07	0.003	0.005	.	0.0011	0.002	.	0.0013	0.0015	.	0.0019	.	-1.20	100 g												
SRM 693		(0.0012)	.	.	.	.	.	(0.0048)	.	.	(0.0009)	.	.	(0.0043)	.	.	.	.	100 g												
JSS 804-3		0.0030	FeII:0.22%	.	Combined Waters:0.39%	.	0.0024	0.0032	.	0.0024	0.0028	.	.	0.0025	.	.	.	.	100 g												
IMZ 363		.	(0.0011)	(0.013)	.	.	(0.0007)	0.0032	.	(0.0011)	0.0012	.	(0.0016)	.	.	0.0011	.	(0.073)	100 g												
NCS DC28217		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g												
NCS DC28218		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.															

IRON ORE, chart 3 of 9

= class, where 1 = CRM and 2 = RM

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

#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	P ₂ O ₅	S	Si	SiO ₂	Ti	TiO ₂
1	GIOP-127	64.499	.	.	2.815	.	0.1522	.	0.0195	.	0.0644	0.0633	.	0.0184	.	0.0457	.	0.0133	.	2.578	.	0.0581
1	NCS DC14001b	64.48	0.34	.	1.26	.	0.15	.	0.096	.	0.041	0.087	.	.	0.013	0.049	.	0.018	.	3.40	.	0.057
1	NCS DC28113	64.42	27.00	.	0.90	.	1.06	.	0.099	.	3.28	0.109	.	.	0.034	0.011	.	0.381	.	3.56	0.315	0.522
1	IMZ 356	64.41	(0.47)	.	1.63	.	0.035	.	0.021	.	0.057	0.765	.	.	0.011	0.040	.	0.0084	.	2.85	.	0.101
1	ECRM 691-1	64.39	.	0.475	.	0.999	.	0.0504	.	2.022	.	0.1734	.	0.0164	.	0.0877	.	0.0632	0.556	.	0.966	.
1	NCS DC14028d	64.37	20.96	.	1.10	.	1.17	.	0.036	.	1.30	0.147	.	.	0.017	0.013	.	0.371	.	2.95	0.294	.
1	NCS DC93025	64.17	31.34	.	0.29	.	0.56	.	0.012	.	0.49	0.032	.	.	0.011	0.033	.	0.624	.	9.43	.	0.049
1	NM 613C	64.03	.	.	3.11	.	0.24	.	.	.	0.35	0.025	.	.	.	0.023	.	0.013	3.63	.	.	.
1	VS R15/2	64.0	28.0	.	.	.	0.9	.	.	.	.	.	.	.	.	.	.	.	.	2.3	.	.
1	NCS DC28215	63.93	26.9	.	1.09	.	2.06	.	.	.	0.79	.	0.136	.	.	0.017	.	0.282	.	5.90	0.444	.
1	NCS DC14049	63.86	0.25	.	2.04	.	0.084	.	0.33	.	0.056	0.170	.	.	0.027	0.037	.	0.020	.	4.62	.	0.12
1	NCS DC28051	63.56	0.35	.	0.926	.	1.12	.	0.13	.	1.48	0.134	.	.	0.070	0.018	.	0.015	.	4.57	0.071	.
1	ASCRM 032	63.53	.	0.97	.	0.040	.	0.006	.	0.039	.	0.071	.	0.0085	.	0.074	.	0.011	1.81	.	0.043	.
1	NCS DC11005a	63.34	(0.07)	.	0.52	.	0.12	.	0.070	.	0.146	.	0.84	.	0.020	0.016	.	0.107	.	3.36	.	0.034
1	IMZ 360	63.36	25.3	.	0.356	.	2.77	.	0.039	.	0.63	0.098	.	.	0.027	0.019	.	0.074	.	5.4	.	0.023
1	NCS DC11017	63.33	1.76	.	1.13	.	1.05	.	0.115	.	1.30	.	0.086	.	0.070	0.011	.	0.0030	.	5.56	.	0.151
1	GIOP-141	63.226	.	.	1.8	.	0.036	.	0.0189	.	0.1003	0.0691	.	0.024	.	0.0665	.	0.0281	.	3.548	.	0.0574
1	NCS DC28224	63.20	1.4	.	1.02	.	0.86	.	.	.	0.50	.	0.083	.	.	0.020	.	0.015	.	6.55	0.319	.
1	NM 161.6	63.18	.	.	2.85	.	.	.	.	.	.	.	.	.	.	0.067	.	0.009	.	2.37	.	0.10
2	DH 1115	63.17	.	.	2.68	.	0.494	.	0.008	.	0.244	0.074	.	.	0.020	.	0.101	.	.	5.79	.	0.128
1	IMZ 330	63.09	1.19	.	0.13	.	1.04	.	0.18	.	0.23	0.012	.	.	0.073	0.013	.	0.003	.	8.26	.	0.01
1	NCS DC28003b	63.07	23.93	.	0.64	.	0.71	.	0.025	.	4.82	.	1.08	.	0.016	0.016	.	0.024	.	3.38	.	0.224
1	IMZ 331	63.05	1.55	.	0.24	.	3.78	.	0.092	.	0.21	0.028	.	.	0.037	0.015	.	0.107	.	5.11	.	0.017
1	GIOP-143	62.97	.	.	1.49	.	0.0348	.	0.00942	.	0.0475	0.1353	.	0.0121	.	0.064	.	0.01731	.	3.086	.	0.0531
1	IMZ 357	62.79	0.95	.	1.07	.	0.060	.	0.012	.	0.047	0.173	.	.	0.0098	0.058	.	0.0064	.	7.08	.	0.081
1	JSS 806-1	62.77	.	0.96	.	0.0197	.	0.0091	.	0.034	.	0.125	.	0.0115	.	0.083	.	0.019	1.55	.	0.044	.
1	IMZ 354	62.76	1.41	.	1.48	.	1.31	.	0.15	.	0.49	0.390	.	.	0.096	0.028	.	0.0149	.	4.78	.	0.68
1	GIOP-44	62.75	.	.	2.216	.	0.0255	.	0.0127	.	0.0571	0.0709	.	(0.02)	.	0.06267	.	0.0199	.	4.55	.	0.1064
1	VS 5403-90	62.74	25.74	.	0.73	.	0.89	.	.	.	0.65	0.162	.	.	.	.	.	3.89	.	7.14	.	0.055
1	NCS DC28003a	62.65	24.53	.	0.39	.	0.71	.	0.040	.	4.73	.	0.113	.	0.013	0.011	.	0.114	.	4.20	.	0.117
1	NCS DC28110	62.63	23.21	.	1.19	.	1.09	.	0.068	.	5.21	0.170	.	.	0.028	0.017	.	0.255	.	3.15	0.096	0.160
1	ASCRM 031	62.53	.	0.80	.	0.011	.	0.005	.	0.035	.	0.110	.	0.0010	.	0.062	.	0.025	1.29	.	0.032	.
1	GIOP-37	62.53	.	.	2.037	.	0.0341	.	0.0146	.	0.0446	0.0959	.	0.015	.	0.1097	.	0.0159	.	3.877	.	0.0615
1	NCS DC73007	62.51	21.54	.	1.02	.	0.18	.	0.037	.	0.28	0.061	.	.	0.016	0.11	.	0.0058	.	10.93	0.059	.

Number	As	Ba	C	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	Pb	V	V ₂ O ₅	Zn	Zr	LOI	Units	Other
GIOP-127	0.0066	0.0072	.	.	0.0066 (0.0034)	0.007	.	0.0024	0.0042	0.0065	0.01274	.	0.0023	(0.0028)	1.834	10 g	Sr: 0.0036
NCS DC14001b	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	
NCS DC28113	0.013	.	.	.	.	.	.	0.047	.	.	.	.	0.0096	.	.	70 g	
IMZ 356	.	0.028	0.043	(0.0087)	(0.0023)	0.0028	.	0.0109	.	0.0015	0.0052	.	0.0066	.	2.37	100 g	
ECRM 691-1	Fe II: 20.71	0.307	.	.	.	0.0095	.	0.0768	0.0299	0.0008	0.0603	.	0.0195	.	.	100 g	
NCS DC14028d	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	
NCS DC93025	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	
NM 613C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	
VS R15/2	.	.	.	.	.	.	.	.	.	.	0.6	.	.	.	.	100 g	
NCS DC28215	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	
NCS DC14049	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	65 g	
NCS DC28051	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	70 g	
ASCRM 032	0.0018	0.0037	.	0.0080	0.0008	0.0022	.	0.0009	0.0011	0.0008	0.0022	.	0.0022	0.0019	2.90	10x10 g	Sn: 0.0013 Sr: 0.0008
NCS DC11005a	0.0044	(0.62 BaO)	0.119	.	0.0031	.	.	0.034	.	0.035	.	.	0.026	.	.	50 g	
IMZ 360	.	0.0033	0.69	.	(0.0011)	0.0077	.	0.007	0.0041	0.011	(0.0013)	.	0.28	.	(-0.30)	100 g	
NCS DC11017	(0.0006)	.	.	.	.	.	.	0.0045	.	(0.0006)	.	.	0.0058	.	.	70 g	
GIOP-141	0.00195	(0.004)	.	0.0103	0.00159	0.0154	.	0.0043	0.0055	(0.0034)	0.0022	.	0.00282	0.0027	3.687	10 g	Sr: 0.0027
NCS DC28224	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	
NM 161.6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	
DH 1115	.	.	.	.	.	.	0.005	.	.	.	.	0.010	.	.	.	100 g	
IMZ 330	.	(0.003)	0.016	.	.	0.003	.	0.0017	(0.002)	0.0016	.	.	0.002	.	-0.04	100 g	
NCS DC28003b	.	.	.	.	.	.	.	.	.	.	.	.	0.055	.	.	50 g	
IMZ 331	(0.0004)	0.0025	.	.	0.001	0.0051	.	0.0016	0.002	0.002	0.003	.	0.003	.	0.22	100 g	Sn: 11*
GIOP-143	(0.0016)	(0.0059)	.	0.009	0.00187	(0.0016)	.	(0.0021)	(0.0028)	(0.004)	0.0016	.	0.00168	(0.0018)	4.898	10 g	Sr: 0.0029
IMZ 357	(0.0006)	(0.0064)	0.054	.	.	0.0039	.	0.0014	(0.0019)	(0.0014)	0.0047	.	0.0019	.	2.14	100 g	
JSS 806-1	.	.	.	.	.	0.0033	.	0.0012	0.0013	.	0.0018	.	0.0020	.	4.4	150 g	FeII: 0.15
IMZ 354	.	(0.0042)	0.251	(0.0046)	(0.0023)	0.0064	.	0.0016	(0.0017)	(0.0009)	0.013	.	0.0017	.	0.97	100 g	
GIOP-44	.	.	.	0.0082	.	0.0033	.	0.0026	.	.	.	.	.	.	2.929	10 g	
VS 5403-90	.	.	.	.	.	.	.	0.32	.	.	.	.	0.029	.	.	50 g	Ag: 5.9* CO ₂ : 0.39
NCS DC28003a	.	.	.	.	.	.	.	0.0071	.	.	.	.	0.0085	.	.	50 g	
NCS DC28110	.	.	.	.	.	.	.	0.018	.	.	.	.	0.010	.	.	70 g	
ASCRM 031	0.0011	0.0029	.	0.0106	0.0012	0.0026	.	0.0011	0.0013	0.0006	0.0013	.	0.0018	0.0014	5.80	10x10 g	Sn: 0.0013 Sr: 0.0001
GIOP-37	.	.	.	0.0109	.	.	.	.	.	.	.	.	.	.	4.021	10 g	
NCS DC73007	.	.	.	.	.	.	.	(0.0015)	.	.	.	.	.	.	.	50 g	
Number	As	Ba	C	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	Pb	V	V ₂ O ₅	Zn	Zr	LOI	Units	Other

CRM		IRON ORE, chart 4 of 9										# = class, where 1 = CRM and 2 = RM										analysis listed in mass % except * which is mg/kg									
#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	P ₂ O ₅	S	Si	SiO ₂	Ti	TiO ₂									
1	GIOP-56	62.41	.	.	1.969	.	0.0369	.	0.0184	.	0.0513	0.2196	.	0.0174	.	0.0902	.	0.0164	.	3.594	.	0.06									
1	GIOP-43	62.39	.	.	2.368	.	0.028	.	0.0134	.	0.0623	0.0821	.	(0.012)	.	0.0587	.	0.024	.	4.707	.	0.1213									
1	IMS PBS-72	62.38	.	.	2.14	.	0.053	.	0.041	.	(0.081)	0.404	.	.	(0.023)	0.064	.	(0.020)	.	3.65	.	0.105									
1	NCS DC15005	62.36	0.48	.	2.56	.	0.050	.	0.015	.	0.062	0.112	.	.	0.015	0.073	.	0.022	.	4.69	.	0.113									
1	ASCRM 035	62.35	.	0.72	.	0.117	.	0.022	.	0.150	.	0.152	.	0.0565	.	0.078	.	0.057	1.99	.	0.046	.									
1	NCS DC28026	62.27	0.59	.	2.39	.	0.144	.	0.023	.	0.156	0.17	.	.	0.024	0.078	.	0.02	.	4.2	0.055	.									
1	IRSID 611-1	62.22	.	0.69	.	2.85	.	.	.	0.32	.	1.97	.	.	.	0.030	.	(0.008)	2.07	.	0.033	.									
1	USZ 27-99	62.2	21.06	.	1.37	.	0.56	.	0.07	.	2.78	.	.	.	(0.04)	.	(0.016)	.	.	3.37	.	0.101									
1	SARM 132	62.2	.	.	1.84	.	(0.086)	.	0.219	.	.	(0.0200)	.	.	(0.031)	0.054	.	.	.	7.82	.	(0.094)									
1	GIOP-38	62.15	.	.	2.008	.	0.0407	.	0.023	.	0.07	0.5627	.	0.0195	.	0.0515	.	0.0256	.	3.101	.	0.0687									
1	NCS DC28025	62.11	0.58	.	2.06	.	0.021	.	0.023	.	0.101	0.65	.	.	0.013	0.067	.	0.013	.	2.92	0.051	.									
1	IMZ 332	62.10	1.61	.	0.32	.	0.39	.	0.117	.	0.71	0.026	.	.	0.050	0.010	.	0.003	.	9.63	.	0.027									
1	NCS DC28216	62.01	26.9	.	1.46	.	3.65	.	.	.	1.10	.	0.176	.	.	0.020	.	0.258	.	6.74	0.388	.									
1	DSZU RG36	62.01	0.67	.	0.84	.	0.051	.	0.017	.	0.48	.	0.026	.	0.079	0.015	.	0.0068	.	9.43	.	0.037									
1	NCS DC11009a	61.96	15.13	.	0.914	.	0.375	.	0.093	.	0.364	.	0.947	.	0.024	0.027	.	0.212	.	4.92	.	0.447									
1	GIOP-47	61.9	.	.	1.88	.	0.0151	.	0.0064	.	0.041	0.0782	.	(0.015)	.	0.0688	.	0.0199	.	2.809	.	0.0614									
1	IMZ 333	61.87	1.65	.	0.33	.	0.34	.	0.11	.	0.73	0.034	.	.	0.057	0.008	.	0.001	.	10.07	.	0.026									
1	GIOP-41	61.85	.	.	1.978	.	0.0368	.	0.0113	.	0.053	0.1078	.	0.018	.	0.1109	.	0.0335	.	3.043	.	0.0762									
1	NCS DC28031	61.82	0.55	.	2.26	.	0.024	.	0.024	.	0.085	0.61	.	.	0.012	0.073	.	0.012	.	2.94	0.054	.									
1	NCS DC18011	61.80	0.30	.	3.05	.	0.051	.	.	.	0.102	.	0.170	.	.	0.076	.	0.022	.	4.52	.	0.134									
1	IMZ 359	61.74	3.17	.	0.25	.	2.93	.	0.061	.	0.86	0.028	.	.	0.079	0.0078	.	0.017	.	7.75	.	0.021									
1	NCS DC14033	61.73	1.51	.	0.48	.	0.11	.	0.056	.	0.055	0.027	.	.	0.0056	0.024	.	0.036	.	9.82	0.041	.									
1	GIOP-42	61.7	.	.	1.896	.	0.0172	.	(0.0049)	.	0.045	0.0541	.	0.018	.	0.0618	.	0.0137	.	2.743	.	0.0674									
1	GIOP-46	61.699	.	.	1.854	.	0.0159	.	(0.0056)	.	0.045	0.0685	.	(0.012)	.	0.0684	.	0.0152	.	3.064	.	0.0656									
1	NCS DC28053	61.68	0.24	.	0.84	.	0.33	.	0.071	.	0.38	0.042	.	.	0.046	0.017	.	0.020	.	10.32	0.063	.									
1	GIOP-121	61.609	.	.	2.174	.	0.0207	.	0.0093	.	0.049	0.1915	.	0.011	.	0.0629	.	0.0168	.	2.986	.	0.0588									
1	ASCRM 034	61.59	.	1.19	.	0.029	.	0.012	.	0.040	.	0.141	.	0.0117	.	0.082	.	0.024	2.00	.	0.054	.									
1	GIOP-82	61.58	.	.	1.255	.	0.02	.	0.0097	.	0.04	0.2102	.	0.0172	.	0.0524	.	0.0155	.	3.079	.	0.697									
1	NCS DC28024	61.53	0.24	.	2.12	.	0.118	.	0.026	.	0.109	0.276	.	.	0.034	0.068	.	0.038	.	3.43	0.052	.									
1	GIOP-25	61.5	.	.	3.58	.	(<0.05)	.	0.028	.	0.055	0.023	.	.	.	0.023	.	0.017	.	5.28	.	0.135									
1	NCS DC73006	61.46	(0.35)	.	1.68	.	0.52	.	0.098	.	0.77	0.072	.	.	0.080	0.019	.	(0.0067)	.	6.65	1.12	.									
1	IMZ 340	61.45	3.40	.	2.37	.	1.22	.	(0.020)	.	2.40	0.15	.	.	0.066	(0.002)	.	.	.	4.20	.	2.45									
1	OREAS 406	61.44	.	.	1.14	.	0.157	.	0.019	.	(0.037)	.	0.039	.	(0.017)	0.085	.	(0.006)	.	7.96	.	0.047									
1	ECRM 688-1	61.38	.	0.679	.	1.449	.	0.180	.	1.061	.	0.0457	.	0.333	.	0.337	.	(0.0468)	3.383	.	0.408	.									
1	NCS DC93023	61.34	29.68	.	0.45	.	0.64	.	0.018	.	(0.60)	0.056	.	.	0.012	0.036	.	0.494	.	12.36	.	0.064									
1	GIOP-62	61.3	.	.	2.254	.	0.0628	.	0.0476	.	0.085	0.308	.	0.0209	.	0.0537	.	0.0348	.	4.282	.	0.1592									
1	GIOP-115	61.28	.	.	1.748	.	0.2298	.	0.0205	.	0.1622	0.0166	.	0.0595	.	0.00882	.	0.0073	.	9.046	.	0.199									
1	IMZ 361	61.16	3.4	.	2.60	.	0.074	.	0.0059	.	0.027	0.054	.	.	0.005	0.082	.	0.015	.	5.6	.	0.072									
1	GIOP-51	61.126	.	.	2.096	.	0.0287	.	0.0114	.	0.049	0.274	.	0.0134	.	0.0665	.	0.0196	.	3.133	.	0.063									
1	BAM 631-1	61.09	.	.	1.06	.	0.75	.	(0.04)	.	0.54	0.044	.	.	(0.04)	0.114	.	0.033	.	3.20	.	0.109									
1	GIOP-124	61.051	.	.	2.529	.	0.0148	.	0.012	.	0.0679	0.0769	.	0.0193	.	0.0667	.	0.0178	.	3.535	.	0.0735									
1	NCS DC28030	60.82	0.21	.	2.27	.	0.035	.	0.022	.	0.112	0.298	.	.	0.026	0.073	.	0.041	.	3.45	0.056	.									
1	IMS PBS-203	60.67	.	.	1.62	.	0.067	.	0.215	.	0.096	4.29	.	.	0.056	0.041	.	0.017	.	2.20	.	0.101									
1	GIOP-18	60.64	.	.	2.4	.	.	.	.	.	.	.	.	.	.	0.056	.	.	.	4.74	.	0.04									
#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	P ₂ O ₅	S	Si	SiO ₂	Ti	TiO ₂									
Number	As	Ba	C	CO ₂	Cl	Co	Cr	Cr ₂ O ₂	Cu	Ni	Pb	V	V ₂ O ₅	Zn	Zr	LOI	Units	Other													
GIOP-56	.	.	.	.	0.014	0.007	0.0038	.	.	.	.	.	.	0.00237	.	4.076	10 g														
GIOP-43	.	.	.	.	0.0088	.	0.0038	.	0.0027	.	.	.	.	.	.	3.167	10 g														
IMS PBS-72	(0.002)	(0.011)	.	.	(0.013)	(0.001)	(0.005)	.	(0.002)	(0.003)	(0.002)	0.020	.	(0.005)	(0.003)	3.89	250 g	Sr: 0.059													
NCS DC15005	.	.	.	.	.	.	.	.	0.0019	.	.	.	.	.	.	.	100 g														
ASCRM 035	0.0079	0.0017	.	.	0.0398	0.0018	0.0048	.	0.0087	0.0033	0.0005	0.0024	.	.	0.0029	0.0023	4.02	10x10 g	Sn: 0.0011	Sr: 0.0009											
NCS DC28026	0.0013	.	.	.	.	0.001	0.0027	.	0.0015	0.0024	0.0004	.	.	.	0.0026	.	.	50 g													
IRSID 611-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g													
USZ 27-99	.	.	.	.	.	0.013	.	.	0.030	0.008	.	.	.	.	(0.013)	.	(1.46)	100 g													
SARM 132	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g													
GIOP-38	.	.	.	0.0124	.	.	0.0078	.	.	.	.	.	.	.	.	.	4.87	10 g													
NCS DC28025	0.0011	.	.	.	.	0.0015	0.0038	.	0.0018	0.0033	0.0008	(0.001)	.	0.0026	.	.	50 g														
IMZ 332	.	0.0036	0.012	.	.	.	0.005	.	0.0021	0.002	0.0016	(0.001)	.	0.0023	.	0.11	100 g														
NCS DC28216	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g													
DSZU RG36	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(1.1)	150 g	Insoluble Residue: 10.0%													
NCS DC11009a	0.011	.	0.128	.	.	0.0061	.	.	0.063	.	0.042	.	.	0.054																	

CRM IRON ORE, chart 5 of 9

= class, where 1 = CRM and 2 = RM

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

#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	S	Si	SiO ₂	Ti	TiO ₂
1	GIOP-161	60.48	.	.	2.116	.	0.0234	.	0.00935	.	0.174	0.2674	.	(0.01)	.	0.0622	0.0189	.	2.911	.	1.63
1	GIOP-89	60.42	.	.	1.702	.	0.0606	.	0.0106	.	0.086	0.1927	.	0.0178	.	0.048	0.0155	.	3.922	.	0.344
1	NCS DC28002a	60.37	21.03	.	3.54	.	1.49	.	0.090	.	1.23	.	0.236	.	0.102	0.043	0.016	.	7.40	.	0.751
1	IMZ 342	60.32	20.1	.	0.48	.	4.51	.	0.058	.	0.86	0.080	.	.	0.042	0.017	0.15	.	5.93	.	0.045
1	GIOP-122	60.31	.	.	2.498	.	0.0337	.	0.0298	.	0.067	0.2252	.	0.0254	.	0.0637	0.0814	.	3.937	.	0.0848
1	GIOP-145	60.21	.	.	2.017	.	0.0291	.	0.00923	.	0.0654	0.2292	.	0.0131	.	0.05915	0.01967	.	3.571	.	0.0787
1	GIOP-87	60.16	.	.	2.247	.	0.0298	.	(0.0094)	.	0.0482	0.0344	.	(0.014)	.	0.0976	0.0114	.	3.147	.	0.096
1	ECRM 680-1	59.98	.	0.66	.	0.45	.	0.078	.	0.14	.	0.025	.	0.128	.	0.018	0.544	4.20	.	0.045	.
1	GIOP-45	59.93	.	.	2.024	.	0.0486	.	0.0123	.	0.0789	0.1189	.	0.0185	.	0.0505	0.0248	.	4.991	.	0.1078
1	GIOP-67	59.91	.	.	2.107	.	0.0528	.	(0.009)	.	0.112	0.1811	.	0.0165	.	0.0346	0.0198	.	4.849	.	0.0914
1	IMZ 262/1	59.73	.	.	0.71	.	0.42	.	.	.	0.83	(0.04)	0.044	.	.	(0.016)	(0.005)	.	12.28	.	.
1	NCS DC28036	59.71	0.62	.	2.76	.	0.317	.	0.042	.	0.233	0.192	.	.	0.086	0.078	0.090	.	5.18	0.066	.
1	GIOP-85	59.66	.	.	1.581	.	0.0496	.	0.00962	.	0.1054	0.2429	.	0.0168	.	0.044	0.0131	.	3.614	.	0.054
1	IRSID 606-1	59.66	.	0.34	.	1.04	.	.	.	0.32	2.59	.	.	.	.	0.026	0.033	1.04	.	0.019	.
1	GIOP-70	59.62	.	.	1.741	.	0.0834	.	0.0104	.	0.071	0.1706	.	0.0139	.	0.0413	0.0225	.	4.311	.	0.0588
1	SRM 692	59.6	.	.	1.42	.	0.022	.	0.039	.	0.036	.	0.458	.	0.007	0.038	(0.005)	.	10.17	.	0.044
1	NCS DC19003b	59.51	26.53	.	3.36	.	0.055	.	.	.	1.34	.	0.43	.	.	0.0049	0.013	.	1.40	.	10.21
1	GIOP-69	59.49	.	.	1.574	.	0.337	.	0.0162	.	0.089	0.2574	.	0.0301	.	0.0407	0.0598	.	3.346	.	0.0484
1	GIOP-66	59.49	.	.	1.553	.	0.0926	.	0.0107	.	0.052	0.1609	.	(0.013)	.	0.0439	0.0232	.	4.099	.	0.0454
1	GIOP-71	59.48	.	.	1.591	.	0.2672	.	0.0151	.	0.075	0.234	.	0.0223	.	0.0415	0.0474	.	3.571	.	0.0486
1	KZ 184-89	59.44	20.34	.	1.01	.	1.35	.	0.16	.	0.22	0.36	.	.	.	0.031	1.08	.	7.99	.	0.052
1	GIOP-144	59.43	.	.	1.81	.	0.0917	.	0.0109	.	0.0598	0.1963	.	0.0123	.	0.0475	0.0274	.	4.247	.	0.0627
1	GIOP-147	59.17	.	.	2.108	.	0.0295	.	0.0119	.	0.0659	0.1211	.	(0.0092)	.	0.0816	0.0217	.	4.449	.	0.2036
1	GIOP-76	59.2	.	.	2.435	.	0.0324	.	(0.0092)	.	0.051	0.0577	.	(0.013)	.	0.1237	0.0092	.	4.02	.	0.1096
1	GIOP-74	59.19	.	.	2.331	.	0.429	.	0.0184	.	0.108	0.0809	.	0.0227	.	0.0503	0.0371	.	4.565	.	0.113
1	GIOP-84	59.13	.	.	2.435	.	0.0504	.	0.0195	.	0.0602	0.354	.	0.0164	.	0.04696	0.0274	.	5.428	.	0.2216
1	IMZ 355	59.11	3.86	.	1.92	.	0.071	.	0.007	(0.030)	0.083	.	.	.	0.011	0.090	0.013	.	10.06	.	0.057
1	GIOP-88	59.11	.	.	2.081	.	0.097	.	0.010	.	0.1264	0.125	.	0.0185	.	0.04453	0.0146	.	4.593	.	0.399
1	GIOP-148	58.9	.	.	2.324	.	0.1025	.	0.0117	.	0.0594	0.1869	.	0.0131	.	0.0807	0.0302	.	4.452	.	0.1091
1	GIOP-138	58.89	.	.	3.261	.	0.0311	.	0.0123	.	0.0606	0.1264	.	0.0128	.	0.0535	0.0287	.	4.487	.	0.1628
1	NCS DC14010b	58.84	18.69	.	2.30	.	1.82	.	0.214	.	1.18	0.60	.	.	0.057	0.022	0.088	.	7.73	.	0.460
1	NCS DC13034	58.79	26.09	.	0.54	.	1.77	.	.	.	0.30	.	0.061	.	.	0.584	0.047	.	14.47	.	0.014
1	IMZ 311	58.65	0.78	.	1.03	.	0.048	.	0.065	.	0.06	0.018	.	.	0.23	0.048	0.015	.	13.58	.	0.039
1	GIOP-17	58.48	.	.	3.3	.	.	.	.	.	.	.	.	.	.	0.060	.	.	6.13	.	0.06
1	ASCRM 033	58.45	.	0.80	.	0.047	.	0.002	.	0.058	.	0.029	.	0.0068	.	0.052	0.007	2.28	.	0.041	.
1	NCS DC28040	58.40	3.11	.	2.04	.	4.41	.	0.048	.	1.17	0.269	.	.	0.039	0.063	0.038	.	5.06	0.084	.
1	GIOP-125	58.292	.	.	3.116	.	0.0115	.	0.0304	.	0.0996	0.1876	.	0.0125	.	0.068	0.009	.	4.37	.	0.146
1	GIOP-81	58.21	.	.	2.559	.	0.095	.	0.01014	.	0.1224	0.0728	.	0.0166	.	0.0784	0.012	.	4.947	.	0.1288
1	GIOP-79	58.06	.	.	2.231	.	0.035	.	0.01039	.	0.067	0.0731	.	(0.019)	.	0.1131	0.0088	.	5.592	.	0.0927
1	OREAS 405	58.02	.	.	2.26	.	0.196	.	0.020	.	(0.062)	.	0.030	.	(0.014)	0.111	0.018	.	8.37	.	0.214
1	IMS PBS-263	57.92	.	.	2.40	.	0.038	.	0.040	.	0.147	0.510	.	.	0.066	0.256	0.016	.	3.68	.	0.057
1	IMS PBS-196	60.00	.	.	2.32	.	0.042	.	(0.022)	.	(0.056)	0.332	.	.	(0.045)	0.067	0.033	.	4.18	.	0.173
1	GIOP-78	57.83	.	.	2.484	.	0.2818	.	(0.0083)	.	0.165	0.0792	.	0.0167	.	0.0401	0.0146	.	5.017	.	0.1272
1	NCS DC14043	57.78	1.48	.	1.52	.	0.56	.	0.22	.	0.54	0.104	.	0.023	.	0.046	0.187	.	11.18	0.070	.
1	GIOP-73	57.77	.	.	3.548	.	0.1806	.	0.018	.	0.078	0.0967	.	0.0183	.	0.0538	0.0326	.	5.251	.	0.1846
1	IMZ 312	57.69	(0.72)	.	1.00	.	0.057	.	0.032	.	0.21	0.025	.	.	0.27	0.027	0.011	.	14.67	.	0.039
1	GIOP-146	57.65	.	.	3.716	.	0.0486	.	0.0179	.	0.102	0.1401	.	0.015	.	0.0457	0.02603	.	5.777	.	0.2016

#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	S	Si	SiO ₂	Ti	TiO ₂
	Number	As	Ba	C	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	Pb	V	V ₂ O ₅	Zn	Zr	LOI	Units	Other			
	GIOP-161	(0.0016)	0.0086	.	.	0.0092	0.00259	0.0319	.	(0.0024)	0.0037	(0.0049)	0.0382	.	0.00369	0.00283	6.017	10 g	Sr: 0.0108		
	GIOP-89	0.0012	.	.	.	0.0093	.	.	.	.	.	.	.	.	0.0045	.	7.118	10 g			
	NCS DC28002a	0.0012	.	.	.	.	0.068	.	0.0080	.	.	.	.	.	0.016	.	.	50 g			
	IMZ 342	.	.	.	.	.	(0.008)	.	.	.	.	.	.	.	0.89	.	(0.46)	100 g			
	GIOP-122	0.00497	(0.0071)	.	.	0.0078	(0.0018)	(0.0025)	.	0.0335	(0.0028)	(0.002)	(0.0012)	.	0.0034	(0.0027)	6.543	10 g	Sr: 0.0105		
	GIOP-145	(0.0016)	0.006	.	.	0.0083	0.00183	(0.0013)	.	(0.0018)	(0.0051)	0.00203	.	0.00384	(0.0026)	7.658	10 g	Sr: 0.0204			
	GIOP-87	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8.034	10 g			
	ECRM 680-1	0.057	.	.	.	0.013	0.005	.	0.063	0.007	0.317	.	.	.	0.165	.	.	100 g			
	GIOP-45	.	.	.	.	0.0149	0.0023	.	0.0025	.	.	.	.	.	.	.	6.615	10 g			
	GIOP-67	.	.	.	.	0.0087	0.0037	.	.	.	.	.	.	.	0.0052	.	6.774	10 g			
	IMZ 262/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g			
	NCS DC28036	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	70 g			
	GIOP-85	.	.	.	.	0.0059	0.0053	.	.	.	.	0.00604	.	.	.	.	8.808	10 g			
	IRSID 606-1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g			
	GIOP-70	.	.	.	.	0.0081	.	.	.	.	.	.	.	.	.	.	8.069	10 g			
	SRM 692	(0.0045)	.	.	.	(0.0010)	(0.0019)	.	(0.0045)	(0.0007)	.	(0.0049)	.	.	.	.	.	100 g			
	NCS DC19003b	.	.	.	.	0.015	.	0.042	.	0.014	.	.	.	0.78	0.028	.	.	70 g			
	GIOP-69	.	.	.	.	0.0251	.	.	.	.	.	.	.	.	.	.	8.933	10 g			
	GIOP-66	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8.691	10 g			
	GIOP-71	.	.	.	.	0.0187	.	.	.	.	.	.	.	.	.	.	8.855	10 g			
	KZ 184-89	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	CO2: 4.14		
	GIOP-144	(0.0015)	(0.0048)	.	.	0.0072	(0.0019)	(0.0012)	.	0.0025	(0.0021)	(0.0044)	(0.0013)	.	0.00346	0.0017	8.272	10 g	Sr: 0.0043		
	GIOP-76	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8.236	10 g			
	GIOP-147	(0.0022)	(0.0049)	.	.	0.0056	0.00179	(0.0018)	.	(0.0021)	(0.0019)	(0.0048)	0.00277	.	0.00419	0.004	8.078	10 g	Sr: (0.0028)		
	GIOP-74	.	.	.	.	0.0093	.	0.0042	.	.	.	.	.	.	.	.	7.434	10 g			
	GIOP-84	.	0.0111	.	.	0.008	.	.	.	(0.0012)	.	0.0013	0.0013	.	.	.	6.597	10 g			
	IMZ 355	.	.	0.079	.	(0.0043)	.	0.0062	.	(0.0012)	.	.	.	.	0.0020	.	3.20	100 g			
	GIOP-88	.	.	.	.	0.0082	.	.	.	.	.	.	.	.	0.0063	0.005	7.877	10 g			
	GIOP-148	(0.0016)	(0.0041)	.	.	0.0073	(0.001)	0.00185	.	(0.0021)	(0.0021)	(0.0042)	0.00193	.	0.0027	0.0031	8.2	10 g	Sr: 0.0051		
	GIOP-138	0.0019	(0.0032)	.	.	0.0098	(0.0017)	0.0029	.	(0.0023)	0.00174	(0.0031)	0.00304	.	(0.002)	0.0035	7.363	10 g	Sr: 0.00226		
	NCS DC14010b	.	.	.	.	.	.	.	0.048	.	.	.	.	.	0.149	.	.	50 g			
	NCS DC13034	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g			
	IMZ 311	0.0006	0.004	0.015	0.25	(0.0006)	0.004	.	0.0012	0.003	0.0014	0.0014	.	.	0.0017	.	-0.98	100 g			
	GIOP-17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6.2	10 g	last		
	ASCRM 033	0.0019	0.0011	.	.	0.0045	0.0005	0.0012	.	0.0008	0.0011	0.0001	0.0031	.	0.0008	0.0022	9.52	10x10	Sr: 0.0004		
	NCS DC28040	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	70 g			
	GIOP-125	(0.0027)	(0.0036)	.	.	(0.0021)	(0.0031)	0.0061	.	(0.0028)	0.0032	(0.002)	0.00212	.	0.0039	(0.0042)	7.644	10 g	Sr: 0.0105		
	GIOP-81	.	.	.	.	.	.	.	.	.	.	.	0.00316	.	0.0065	.	8.618	10 g			
	GIOP-79	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8.35	10 g			
	OREAS 405	(0.001)	(0.003)	.	.	(0.005)	(0.000750)	.	102*	(0.002)	(0.004)	(0.0015)	(0.00289)	.	(0.0017)	(0.007)	5.61	10 g	Sr: (21.5*)		
	IMS PBS-263	0.029	(0.005)	.	.	0.057	0.006	0.010	.	0.018	0.017	(0.002)	0.002	17034	0.007	(0.008)	9.15	250 g	Sr: 0.007		
	IMS PBS-196	(0.003)	(0.004)	.	.	(0.036)	(0.002)	(0.002)	.	(0.003)	(0.003)	(0.002)	(0.003)	.	(0.015)	(0.004)	6.34	2 kg	COARSE MATERIAL		
	GIOP-78	.	.	.	.	0.0073	.	.	.	.	.	.	0.00281	.	0.0076	.	8.967	10 g			
	NCS DC14043	.	.	.	.	.	.	.	0.066	.	.	.	.	.	.	.	.	50 g			
	GIOP-73	.	.	.	.	0.0105	.	0.0049	.	.	.	.	.	.	.	.	7.766	10 g			
	IMZ 312	(0.0007)	0.0022	0.024	0.31	0.0003	0.006	.	0.0014	0.0022	0.0011	0.0019	.	0.0022	.	-1.20	100 g				
	GIOP-146	(0.0016)	(0.0036)	.	0.0105	0.0017	0.00388	.	(0.0023)	(0.0013)	(0.0044)	0.0039	.	0.00308	0.00397	7.347	10 g	Sr: 0.0034			
	Number	As	Ba	C	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	Pb	V	V ₂ O ₅	Zn	Zr	LOI	Units	Other			

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 ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	S	Si	SiO ₂	Ti	TiO ₂										
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	IMS PBS-73	56.06	.	.	3.19	.	0.129	.	0.027	.	(0.090)	0.138	.	.	0.096	0.076	0.038	.	6.77	.	0.111										
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	IMS PBS-202	55.48	.	.	2.60	.	1.43	.	0.191	.	1.05	0.576	.	.	0.034	0.202	0.095	.	4.29	.	0.192										
1	IMS PBS-31	55.24	.	.	6.03	.	0.062	.	0.020	.	(0.096)	0.231	.	.	(0.072)	0.038	0.066	.	4.26	.	0.185										
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	IMS PBS-28	53.74	.	.	4.34	.	0.058	.	0.073	.	(0.094)	0.851	.	.	(0.098)	0.074	0.029	.	7.12	.	0.190										
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	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	S	Si	SiO ₂	Ti	TiO ₂										
Number		As	Ba	C	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	Pb	V	V ₂ O ₅	Zn	Zr	LOI	Units	Other													
VS R36		.	.	.	.	.	.	.	.	.	.	.	.	Insoluble Residue: 16.5				100 g													
NCS DC28081		0.0014	.	.	.	.	0.032	.	0.0038	.	.	.	.	0.0027	.	0.0027	.	50 g													
GIOP-86		.	.	.	.	.	.	.	.	.	.	.	0.00336	.	0.0094	.	8.94	10 g													
GIOP-75		.	.	.	.	.	.	.	.	.	.	.	0.00312	.	0.0092	.	8.954	10 g													
GIOP-68		.	.	.	0.011	.	0.0051	.	.	.	.	.	0.00353	.	.	.	7.876	10 g													
GIOP-61		.	.	.	0.0094	.	.	.	.	.	.	.	.	0.0042	.	8.961	10 g														
JSS 821-1		.	.	.	.	.	0.0027	.	0.0007	0.0035	0.0006	0.0040	.	0.0074	.	9.16	70 g														
ECRM 689-1		.	.	.	.	0.0103	.	0.0068	0.0195	.	0.1020	.	0.0042	.	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	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		(0.0015)	(0.0052)	.	(0.0035)	0.00182	0.00206	.	0.068	(0.0019)	0.002	(0.0038)	0.00499	.	0.00871	0.0054	8.368	50 g	Sr:0.004												
GIOP-142		.	.	.	.	.	.	.	(0.0019)	.	.	.	.	.	0.00871	.	.	10 g													
NCS DC28212		(0.001)	0.0053	.	(0.0032)	(0.0017)	0.0051	.	(0.0019)	0.00175	(0.0026)	0.00726	.	0.00233	0.0079	3.111	50 g	Sr: 0.0056													
GIOP-137		.	.	.	.	.	.	.	0.527	.	.	.	.	0.037	.	.	70 g														
NCS DC28112		0.167	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10 g													
JSS 820-5		.	.	.	.	.	0.0032	.	0.00068	0.0023	0.00065	0.0042	.	0.0032	.	8.78	70 g														
IMS PBS-73		(0.022)	0.039	.	(0.082)	0.042	0.043	.	0.049	0.046	0.056	0.034	Sr:0.070	0.057	(0.045)	8.36	250 g	Sn: 0.045													
NCS DC11018		0.0014	.	.	.	.	.	.	0.0044	.	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													
IMS PBS-202		0.013	(0.006)	.	(0.018)	(0.004)	0.007	.	0.002	0.010	0.004	0.007	.	0.014	(0.005)	9.46	250 g	17034													
IMS PBS-31		0.081	(0.002)	.	(0.055)	(0.003)	.	0.009	(0.002)	(0.005)	(0.003)	(0.006)	.	0.019	(0.007)	9.56	250 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)	.	.	0.0124	(0.0018)	(0.0031)	(0.0006)	(0.00422)	.	(0.0018)	(0.0107)	9.40	10 g	Sr: (23.6*)													
IMZ 343		.	.	.	.	.	0.004	.	.	.	.	.	.	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		.	.	.	.	.	.	.	.	0.102	0.182	.	.	0.089	.	.	50 g	Ge: 5.1*													
NCS DC11006a		0.215	(BaO:1.08)	0.227	.	0.0086	.	.	.	.	.	.	.	0.30	.	.	50 g														
NCS DC18019		0.021	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g														
NM 161.5		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g														
IMS PBS-28		(0.003)	(0.010)	.	0.080	(0.002)	.	(0.007)	(0.002)	(0.005)	(0.003)	(0.003)	.	(0.008)	(0.003)	9.75	250 g														
IRSID 603-1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g													
NCS DC28034		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	70 g	B ₂ O ₃ : 3.62												

CRM

IRON ORE, chart 7 of 9

= class, where 1 = CRM and 2 = RM

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

#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	S	Si	SiO ₂	Ti	TiO ₂
1	SARM 147	52.67	.	.	0.96	.	7.05	.	(0.21)	.	5.28	.	0.23	.	.	.	0.13	.	3.35	.	1.72
1	OREAS 403	52.31	.	.	2.63	.	0.106	.	0.011	.	0.077	.	(0.007)	.	(0.015)	0.123	0.026	.	13.67	.	0.289
1	NCS DC11007a	52.24	4.21	.	6.84	.	0.561	.	0.61	.	0.606	.	0.194	.	0.093	0.346	0.094	.	10.20	.	0.237
1	IMZ 263/1	52.10	.	.	1.14	.	0.17	.	.	.	0.17	(0.04)	0.045	.	.	(0.026)	0.036	.	22.78	.	.
1	IMS PBS-222	52.08	.	.	9.60	.	0.073	.	0.024	.	0.080	0.126	.	.	0.027	0.039	0.034	.	9.33	.	0.760
1	NCS DC11029	51.67	27.30	.	4.97	.	0.52	.	0.0081	.	2.02	.	0.238	.	0.023	0.046	0.259	.	4.06	.	13.54
1	ECRM 677-1	51.54	.	0.32	.	0.038	.	0.008	.	0.012	.	0.016	.	0.007	.	0.0170	(0.005)	11.78	.	0.013	.
1	NCS DC28064	51.48	0.25	.	5.65	.	0.014	.	.	.	0.70	0.70	.	.	.	0.0045	0.17	.	2.30	.	0.15
1	NCS DC28067	51.36	0.26	.	4.16	.	0.022	.	.	.	1.05	0.80	.	.	.	0.0055	0.095	.	3.11	.	0.091
1	IMS PBS-29	51.21	.	.	3.69	.	0.085	.	0.090	.	(0.093)	1.284	.	.	(0.052)	0.054	0.030	.	12.56	.	0.245
1	NCS DC28083	50.98	8.92	.	5.03	.	3.44	.	.	.	1.05	.	0.306	.	.	0.963	0.112	.	9.40	.	0.125
1	NCS DC28111	50.94	20.67	.	1.42	.	4.85	.	0.204	.	3.95	0.098	.	.	0.14	0.033	0.430	.	13.83	0.065	0.108
1	NCS DC28213	50.92	19.9	.	3.28	.	6.90	.	.	.	3.40	.	0.943	.	.	0.050	0.130	.	13.68	.	0.241
1	CGL 206	50.87	Sr:0.002238	.	1.25	.	5.97	.	0.24	.	4.93	.	0.11	.	(0.10)	.	(2.60)	.	5.86	.	0.08
1	GIOP-15	50.68	.	.	4.1	.	.	.	.	.	.	.	.	.	.	0.032	.	.	20.10	.	0.04
1	VS R33	50.42	.	.	.	.	8.35	.	.	.	1.33	.	.	.	.	0.039	3.10	.	10.62	.	.
1	NCS DC28082	49.53	0.05	.	7.45	.	0.032	.	.	.	0.107	.	3.39	.	.	0.083	0.029	.	7.44	.	0.370
1	NCS DC73004	49.50	7.66	.	2.58	.	0.91	.	0.91	.	0.98	0.198	.	.	0.035	0.138	0.065	.	16.30	0.083	.
1	GIOP-36	49.5	.	.	5.51	.	0.011	.	.	.	2.657	0.200	.	.	.	0.008	0.014	.	0.85	.	20.10
1	GIOP-35	49.4	.	.	5.53	.	.	.	.	.	2.569	0.200	.	.	.	0.008	0.014	.	0.85	.	20.20
1	NCS DC11030	49.12	26.44	.	5.09	.	1.16	.	0.023	.	2.30	.	0.240	.	0.073	0.179	0.382	.	5.52	.	12.80
1	NCS DC18017	48.44	11.17	.	2.98	.	15.52	.	.	.	2.32	.	0.81	.	.	0.065	0.155	.	8.40	.	0.23
1	OREAS 402	48.41	.	.	2.49	.	0.090	.	0.010	.	0.072	.	(0.007)	.	(0.016)	0.119	0.024	.	19.77	.	0.288
1	NCS DC28082a	48.00	0.05	.	3.44	.	0.15	.	.	.	0.268	.	3.40	.	.	0.076	0.111	.	12.74	.	0.146
1	NCS DC15004	47.86	21.99	.	1.12	.	1.72	.	0.062	.	0.96	.	0.002	.	0.043	0.032	0.235	.	28.01	.	0.070
1	NCS DC26706	47.72	.	.	4.65	.	0.13	.	.	.	2.34	0.89	.	.	.	0.0027	0.12	.	5.16	.	.
1	GIOP-134	47.52	.	.	9.953	.	1.688	.	0.1171	.	0.934	0.05982	.	0.3921	.	0.0577	0.0258	.	13.474	.	0.6576
1	IMZ 341	47.52	.	.	1.22	.	0.52	.	0.11	.	0.35	0.021	.	.	(0.09)	0.164	0.006	.	28.49	.	0.041
1	NCS DC28108	46.93	19.95	.	2.05	.	7.12	.	0.33	.	5.54	0.058	.	.	0.220	0.039	0.637	.	14.75	0.067	0.112
1	NCS DC11031	46.74	24.39	.	5.49	.	1.18	.	0.021	.	2.60	.	0.226	.	0.057	0.101	0.21	.	8.19	.	12.24
1	OREAS 401	45.63	.	.	2.36	.	0.094	.	0.010	.	0.061	.	(0.007)	.	(0.016)	0.105	0.022	.	24.88	.	0.247
1	GIOP-133	45.481	.	.	10.86	.	1.863	.	0.1277	.	1.029	0.06048	.	0.4342	.	0.0573	0.0277	.	14.796	.	0.7211
1	NCS DC62001d	44.99=Fe ₂ O ₃	.	.	4.37	.	9.92	.	0.89	.	1.55	.	.	.	0.37	.	3.15	.	26.64	.	0.27
1	NCS DC11001	44.73	12.91	.	0.75	.	7.14	.	.	.	4.18	.	0.20	.	.	0.013	1.50	.	18.22	.	.
1	NM 161.4	44.58	.	.	12.40	.	0.41	.	.	.	0.24	.	.	.	.	0.092	0.008	.	12.23	.	0.50
1	IMS PBS-11	44.56	.	.	6.12	.	0.146	.	0.122	.	(0.118)	0.814	.	.	(0.028)	0.047	0.033	.	21.51	.	0.528
1	AMIS 0346	44.34	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	15.02	.	.
1	IMZ 264/1	44.25	.	.	1.14	.	0.23	.	.	.	0.22	(0.04)	0.043	.	.	0.025	0.055	.	33.56	.	.
1	GIOP-132	43.12	.	.	11.89	.	2.062	.	0.1405	.	1.141	0.0608	.	0.4797	.	0.0567	0.0302	.	16.33	.	0.7943
1	NCS DC19013	42.89	.	.	4.10	.	0.124	.	.	.	0.517	.	1.67	.	.	0.099	.	.	22.06	.	0.26

#	Number	Fe	FeO	Al	Al ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	S	Si	SiO ₂	Ti	TiO ₂
	Number	As	Ba	CO ₂	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	NiO	Pb	V	V ₂ O ₅	Zn	ZnO	Zr	LOI	Units	Other	
	SARM 147	.	.	C:1.36	.	.	.	CuO: (0.13)	.	(0.04)	.	.	.	0.104	.	.	.	3.37	100 g	P ₂ O ₅ : 1.17	
	OREAS 403	(0.00137)	.	.	(0.00366)	.	.	0.0109 (0.0016)	(0.0020)	.	(0.0018)	.	0.00345	.	(0.0020)	.	(0.0085)	8.00	10 g	.	
	NCS DC11007a	0.051	.	C:0.549	.	0.0043	.	0.015	.	.	0.034	.	.	.	0.066	.	.	.	50 g	BaO: (0.028)	
	IMZ 263/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
	IMS PBS-222	0.005	(0.002)	.	(0.007)	(0.001)	.	(0.007)	0.002	(0.002)	.	(0.003)	0.007	0.002	.	17034	(0.018)	5.22	250 g	Sr: 0.008	
	NCS DC11029	.	.	.	.	.	.	.	.	.	.	.	.	0.590	0.045	.	.	.	70 g	.	
	ECRM 677-1	.	.	.	.	.	.	.	(0.0015)	.	.	.	.	.	.	.	.	.	100 g	.	
	NCS DC28064	.	.	.	.	0.10	1.80	.	0.72	.	.	.	.	.	.	.	.	.	50 g	.	
	NCS DC28067	.	.	.	.	0.098	2.00	.	0.94	.	.	.	.	.	.	.	.	.	50 g	.	
	IMS PBS-29	(0.004)	(0.012)	.	(0.027)	(0.002)	.	(0.009)	(0.002)	(0.005)	.	(0.003)	(0.006)	(0.008)	.	.	(0.007)	7.86	250 g	.	
	NCS DC28083	.	.	C:0.89	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	.	
	NCS DC28111	0.083	.	.	.	.	.	.	0.305	.	.	.	.	.	0.017	.	.	.	70 g	.	
	NCS DC28213	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	.	
	CGL 206	(0.00270)	(0.00251)	.	.	0.00905	(0.00202)	.	0.04181	0.01143	.	0.004446	0.02655	.	0.07032	.	.	(4.59)	100 g	P ₂ O ₅ : 0.048	
	GIOP-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.3	10 g	.	
	VS R33	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
	NCS DC28082	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	C: 0.071	
	NCS DC73004	.	.	.	.	.	.	.	0.0014	.	.	.	.	.	.	.	.	.	50 g	.	
	GIOP-36	.	.	.	0.008	0.022	0.067	.	.	0.038	.	.	0.313	.	0.063	.	.	-0.64	10 g	.	
	GIOP-35	.	.	.	0.008	0.022	0.068	.	.	0.038	.	.	0.313	.	0.062	.	.	-0.51	10 g	Sn: 0.003	
	NCS DC11030	.	.	.	.	.	.	.	.	.	.	.	.	0.553	0.043	.	.	.	70 g	.	
	NCS DC18017	0.030	.	.	.	.	.	.	.	.	.	0.061	.	.	0.13	.	.	.	100 g	.	
	OREAS 402	(0.00114)	.	.	(0.00343)	.	.	0.0109 (0.0018)	(0.00148)	.	(0.00090)	(0.00351)	.	.	(0.00193)	.	(0.0083)	7.64	10 g	.	
	NCS DC28082a	.	.	.	.	.	.	.	.	.	.	0.283	.	.	0.49	.	.	.	50 g	C: 0.072	
	NCS DC15004	.	.	.	.	.	.	0.0023	.	.	.	.	.	.	.	.	.	.	100 g	.	
	NCS DC26706	.	.	.	.	0.14	2.34	.	.	1.05	.	.	.	.	.	.	.	.	25 g	C: 0.25	
	GIOP-134	(0.001)	0.008	.	0.0036	(0.0015)	0.0077	.	(0.002)	0.00227	.	(0.0027)	0.0122	.	0.00251	.	0.0125	4.452	10 g	Sr: 0.007	
	IMZ 341	.	.	C: (0.037)	.	.	.	.	.	.	.	.	.	.	.	.	.	(1.1)	100 g	.	
	NCS DC28108	.	.	.	.	.	.	.	0.119	.	.	.	.	.	0.0038	.	.	.	70 g	.	
	NCS DC11031	.	.	.	.	.	.	.	.	.	.	.	.	0.539	0.041	.	.	.	70 g	.	
	OREAS 401	(0.00109)	.	.	(0.00328)	.	.	0.0107 (0.0018)	(0.00289)	.	(0.00112)	(0.00322)	.	.	(0.00211)	.	(0.0074)	6.71	10 g	.	
	GIOP-133	(0.001)	0.0081	.	0.00357 (0.0014)	0.00784	.	(0.0013)	0.00233	.	(0.0021)	0.129	.	.	0.00297	.	0.136	4.762	10 g	Sr: 0.0075	
	NCS DC62001d	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	7.51	20 g	.	
	NCS DC11001	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	60 g	.	
	NM 161.4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
	IMS PBS-11	(0.003)	(0.013)	.	(0.009)	(0.001)	.	(0.021)	(0.003)	(0.004)	.	(0.004)	0.011	(0.006)	.	.	(0.014)	6.28	250 g	.	
	AMIS 0346	.	.	.	.	.	.	.	.	.	.	.	0.27	.	.	.	Density: 4.39	.	100 g	or 1kg	
	IMZ 264/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	.	
	GIOP-132	(0.001)	0.0083	.	0.00413 (0.0016)	0.0089	.	0.0021	0.00263	.	(0.003)	0.0155	.	0.00319	.	0.0156	5.101	10 g	Sr: 0.0086		
	NCS DC19013	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 g	.	
	Number	As	Ba	CO ₂	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	NiO	Pb	V	V ₂ O ₅	Zn	ZnO	Zr	LOI	Units	Other	

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

Number	As	Ba	CO ₂	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	NiO	Pb	V	V ₂ O ₅	Zn	ZnO	Zr	LOI	Units	Other
IRSID 612-1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	
NCS DC18020	0.051	.	.	.	.	.	.	.	.	.	0.208	.	.	0.223	.	.	.	100 g	
IMS PBS-30	(0.002)	0.088	.	(0.008)	(0.015)	.	(0.007)	(0.002)	(0.007)	.	(0.004)	(0.004)	.	(0.005)	.	(0.007)	10.80	250 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	
CGL 133	(0.0036)	(0.0042)	.	.	0.0072	0.0027	.	0.0397	0.0081	.	(0.0021)	0.0054	.	0.0234	.	.	(10.22)	100 g	P ₂ O ₅ :0.063
KZ 182-89	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	
VS R8/2	.	.	.	.	(0.06)	.	2.53	.	.	0.67	.	.	.	.	.	.	10.4	75 g	
IMZ 265/1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 g	
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	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100 or 125 g	
VS R9/1	.	.	CO3: (11.0)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	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)	(0.0041)	.	(0.0047)	(0.004)	.	(0.0062)	(0.001)	.	(0.0041)	.	(0.002)	-1.217	10 g	
NCS HC19820	.	.	.	.	.	.	2.00	.	.	.	.	.	1.78	.	.	.	.	100 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)	.	0.017	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	
NCS HC19819	.	.	.	.	.	.	2.60	.	.	.	.	.	2.20	.	.	.	.	100 g	
Number	As	Ba	CO ₂	Cl	Co	Cr	Cr ₂ O ₃	Cu	Ni	NiO	Pb	V	V ₂ O ₅	Zn	ZnO	Zr	LOI	Units	Other

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 ₂ O ₃	Ca	CaO	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P	S	Si	SiO ₂	Ti	TiO ₂										
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	As	Ba	Cl	Co	Cr	Cu	Ni	Pb	V	V ₂ O ₅	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 ₂ O ₃ : 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: 0.0104
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 ₂ O ₃	CaO	K ₂ O	MgO	Mn	Na	P	S	SiO ₂	Sr	TiO ₂	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)	(0.003)	(0.002)	0.004	(0.003)	(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)	(0.001)	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 ₂ O ₃	C	CO ₂	Ca	CaO	Cr ₂ O ₃	Cu	CuO	F	K	K ₂ 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 DC28231	56.53	22.9	.	1.90	.	.	.	11.46	.	.	.	.	.	.	.	1.75	.
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	JSS 851-6	54.16	FeII: 7.55%	1.06	.	.	.	9.30	.	Cr:0.0239	0.0039	.	.	.	.	0.644	.	(0.147)
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 ₂ O	Ni*	NiO	P	P ₂ O ₅	PbO	S	Si	SiO ₂	SrO	Ti	TiO ₂	V	V ₂ O ₅	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 DC28231	.	0.202	.	.	.	.	0.027	.	.	0.063	.	5.57	.	.	0.103	.	.	.	50 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
JSS 851-6	0.345	.	.	.	30.3	.	0.076	.	.	0.0298	2.76	.	.	0.111	.	0.0164	.	Zn:0.0134	100 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 ₂	Al ₂ O ₃	CaO	Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SO ₃	TiO ₂	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 ₂ O ₃	CO ₂	CaO	FeO	Fe ₂ O ₃ T	H ₂ O+	K ₂ O	MgO	Na ₂ O	P ₂ O ₅	SO ₃	SiO ₂	TiO ₂	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: <0.01% from IR combustion furnace, all others fusion XRF including Cl: <50 ppm 10g or 1kg

Number	Ni	Co	Al ₂ O ₃	C	CaO	Cr ₂ O ₃	Cu	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SO ₃	SiO ₂	TiO ₂	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 ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	PbO	SiO ₂	TiO ₂	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 ₂ O ₃	CaO	Cu	F	Fe ₂ O ₃	K ₂ O	MgO	MnO	Mn ₃ O ₄	Na ₂ O	Pb	PbO	S	SiO ₂	SrO	TiO ₂	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	As	Ba	Co	Cu	Fe	Ni	S	Zn	Zr	Units
KZ 6586-93	3.5	0.0019	.	0.38	.	0.013	2.03	.	0.55	0.045	0.019	100 g
GBM920-11	3.1189	0.01561	.	.	.	0.3436	.	0.0011	15.98	0.3602	.	10 or 250 g
GBM920-1	3.1136	0.01575	0.0491	.	0.0327	0.3431	.	0.0010	.	0.3642	.	10 or 250 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	Pb	Ag	Al ₂ O ₃	As	Bi	CaO	Cd	Cu	Fe	MgO	Mn	S	Sb	SiO ₂	Zn
NCS DC28180	73.42	0.0250	0.54	0.0013	0.0051	0.30	0.022	0.058	1.70	0.042	0.570	14.22	0.0050	1.81	.
NCS DC28179	57.44	0.0240	1.13	0.019	0.026	4.86	0.019	0.290	3.08	0.374	0.427	15.71	0.0061	3.52	.
NCS DC28178	42.84	0.0933	2.01	0.816	0.0046	1.73	0.005	0.350	15.38	0.412	0.345	3.94	0.159	6.55	.
NCS DC28116	15.09	0.022	2.56	0.068	0.085	17.16	0.0097	0.85	6.78	1.28	0.029	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 ₂	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 ₂	Al ₂ O ₃	BaO	Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	MnO ₂	Na ₂ O	SiO ₂	SO ₃	SrO	TiO ₂	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 ₂	SiO ₂	LOI	Al ₂ O ₃	Org.C	FeO	T.Fe ₂ O ₃	H ₂ O-	H ₂ O+	K ₂ O	MnO	Na ₂ O	P ₂ O ₅	SO ₃	Ti%	TiO ₂
JLs-1	55.09	0.606	43.58	0.120	.	0.0207	Fe ₂ O ₃ :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 ₂ 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	.	0.395	.	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 ₂	Al ₂ O ₃	Fe ₂ O ₃	K ₂ O	Mn ₂ O ₃	MnO	Na ₂ O	P	S	SO ₃	SrO	TiO ₂	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	0.0081	.	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 DC28171b	49.64	4.13	2.23	0.462	0.187	0.272	.	0.0039	0.012	0.0032	0.035	.	0.019	0.022	43.18
NCS DC28170b	49.25	5.31	0.82	0.17	0.194	0.030	.	0.0069	0.007	0.0015	0.007	.	0.016	0.0080	43.96
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 DC28175b	41.91	11.15	0.76	0.272	0.316	0.041	.	0.013	0.003	0.0023	0.002	.	0.0066	0.011	44.86
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 ₂	Al ₂ O ₃	Fe ₂ O ₃	K ₂ O	Mn ₂ O ₃	MnO	Na ₂ O	P	S	SO ₃	SrO	TiO ₂	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 ₂ O ₃	CO ₂	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	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		
JBo 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	(<u><1</u>)	(1.3)	.	(10)	26	(<u><4</u>)	(<u><5</u>)	.	.	.	3.7	(370)	0.23	(5.4)	(0.13)	(<u><10</u>)	
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	
JBo 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 ₂ O	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)	(<u><4</u>)	(0.38)	(<u><10</u>)	0.11	.	(0.4)	.	(<u><5</u>)	5.0	0.03	.	.	(<u><5</u>)
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
JBo 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 ₃ %	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	(<u><5</u>)
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)
JBo 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
JBo 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.SiO₂ = free SiO₂

#	Number	CaO	Al ₂ O ₃	Fe	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P	P ₂ O ₅	S	SO ₃	SiO ₂	f.SiO ₂	TiO ₂	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	.
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	CGL 028	53.73	(0.12)	.	(0.049)	(0.048)	1.39	(0.021)	(0.15)	.	(0.036)	.	.	1.52	.	.	(42.51)
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	0.0076	.	.	0.016	.	0.83	.	0.060	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	40.91	0.707	.	1.293	0.187	0.379	0.028	0.032	.	0.036	.	0.055	8.75	.	0.048	.
1	NCS DC62002d	48.16	1.67	.	1.17	0.61	0.93	.	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	.	.	.
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 ₂	Cl ⁻	Cr	Cr ₂ O ₃	Cu	Pb	SrO	Zn	Ins.Res	Units
NCS DC16006	.	.	.	.	.	.	.	.	.	15 g
VS W1073	.	.	.	.	.	.	.	.	.	75 g
ECRM 752-1	.	.	.	.	.	.	0.019	.	.	100 g
BCS 513	.	.	.	0.0012	.	0.0009	0.0176	0.0014	.	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
CGL 028	.	.	.	.	.	.	Sr:(0.1057)	.	.	100 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

-H₂O @ 900°C: 0.099* SRM 88b lists Mn as MnO
** DK 2a lists Mn₃O₄ as MnO

CRM SYNTHETIC LIMESTONE WITH TRACE ELEMENTS

Material base: CaCO₃ 85%, MgCO₃ 8%, SiO₂ 5.2%, Al₂O₃ 1.1%, Fe₂O₃ 0.3%, Na₂SO₄ 0.2%, K₂SO₄ 0.2% analysis listed in mg/kg

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	5000
GBW 07720	10	.	.	.	100	100	10	.	.	.	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 ₂ O ₃	CaO	Fe ₂ O ₃ T	K ₂ O	Li ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	SiO ₂	TiO ₂	Zn	LOI	Units		
CGL 128	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			
CGL 128	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	In	La	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc			
CGL 128	(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	Sn	Sr	Ta	Tb	Te	Th	Tl	Tm	U	W	Y	Yb	Zr			
CGL 128	(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 ₂	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 ₂ O	Al ₂ O ₃	CaO	Cs ₂ O	F-	FeO	T.Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	Rb ₂ O	SiO ₂	TiO ₂	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 ₂	Dy ₂ O ₃	Er ₂ O ₃	Eu ₂ O ₃	Gd ₂ O ₃	Ho ₂ O ₃	La ₂ O ₃	Lu ₂ O ₃	Nb ₂ O ₅	Nd ₂ O ₃	Pr ₆ O ₁₁					
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	RExOy*	Sc ₂ O ₃	Sm ₂ O ₃	Sn	Ta ₂ O ₅ %	Tb ₄ O ₇	Tm ₂ O ₃	W	Y ₂ O ₃	Yb ₂ O ₃	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	50 g						
NCS DC86303	47.0	0.98	1.6	(36)	0.00494	0.43	0.18	8.9	16.9	1.3	50 or 70 g						

* RE_xO_y: Rare Earth Oxide

CRM LITHIUM ORE

45 g units	
Number	Li ₂ O%
SRM 182	4.34
SRM 183	4.12

CRM LUJAVRITE

analysis listed in mass %																	
Number	SiO ₂	Al ₂ O ₃	CaO	FeO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	TiO ₂	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 ₂ O ₃	CaO	Fe ₂ O ₃	FeO	K ₂ O	MnO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	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 ₂ O ₃	B ₂ O ₃	CaO	Cr ₂ O ₃	Fe ₂ O ₃	K ₂ O	MnO	Mn ₂ O ₃	Na ₂ O	P ₂ O ₅	S	SiO ₂	SrO	TiO ₂	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 ₂ : 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 ₂ O ₃	C tot.	CO ₂	CaO	Cr ₂ O ₃	Fe ₂ O ₃	K ₂ O	Mn ₃ O ₄	P ₂ O ₅	S	SiO ₂	TiO ₂	V ₂ O ₅	ZnO	ZrO ₂	-H ₂ 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	0.001	0.006	0.091	0.894

CRM MAGNETITE ORE

analysis listed in mass %												250 g units		
Number	Fe	Al ₂ O ₃	CaO	K ₂ O	MgO	Mn	Na ₂ O	P	S	SiO ₂	TiO ₂	LOI		
IMS PBS-59	32.82	0.56	1.23	0.429	2.16	0.064	0.644	0.069	(0.006)	46.45	(0.028)	1.34		
IMS PBS-71	30.70	1.46	0.496	0.660	2.23	0.118	0.153	0.103	0.131	47.22	0.073	3.26		
IMS PBS-70	30.46	1.49	0.492	0.675	2.26	0.117	0.149	0.102	0.133	47.54	0.073	3.28		

Number	As	Ba	Cl	Co	Cr	Cu	Ni	Pb	Sn	Sr	V	Zn	Zr
IMS PBS-59	.	(0.005)	(0.015)	(0.001)	(0.011)	(0.002)	(0.002)	(0.001)	(0.002)	(0.003)	.	(0.002)	(0.003)
IMS PBS-71	(0.002)	(0.006)	(0.043)	(0.002)	(0.008)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.004)
IMS PBS-70	(0.001)	(0.006)	(0.043)	(0.001)	(0.007)	(0.002)	(0.002)	(0.003)	(0.001)	(0.003)	(0.002)	(0.002)	(0.004)

CRM		MANGANESE ORE						# = class, where 1 = CRM and 2 = RM				analysis in mass %					T = Total			
#	Number	Mn	MnO ₂	Mn (CO ₃)	Al ₂ O ₃	As	As ₂ O ₃	Ba	BaO	CO ₂	CaO	Fe	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	SiO ₂	TiO ₂		
1	IGS 29	MnO:	93.38	.	.	.	.	0.59	.	.	.	.	.	.	.	.	.	.		
1	VS R13/3	58.88	90.4	.	.	.	.	.	.	.	.	.	.	.	.	.	2.01	.		
1	NCS DC26703	58.80	(62.07)	.	0.74	.	.	.	.	C:0.034	0.37	1.45	.	.	0.17	.	5.63	Ti:0.025		
1	VS P13/1	58.8	.	.	.	.	.	.	.	.	.	.	(3.91)	(0.928)	.	.	2.00	.		
1	SRM 25d	51.78	.	.	(5.33)	.	.	.	(0.21)	.	(0.052)	.	.	.	.	.	2.54	(0.136)		
1	SARM 16	49.17	.	.	(0.3)	.	.	.	0.60	.	4.70	11.48	.	0.02	0.76	(0.03)	5.04	.		
1	NCS DC35015	48.7	68.28	.	.	0.015	.	.	.	.	.	3.97	.	.	.	.	.	.		
1	JSS 861-2	48.7	.	Al:	1.57	.	.	.	.	.	Ca:	0.063	(5.7)	.	.	.	Si:	2.62		
1	NCS DC26702	48.53	(72.64)	.	3.28	.	.	.	.	C:0.085	0.37	4.93	.	.	0.25	.	5.56	Ti:0.102		
1	BAM 633-1	47.85	.	.	1.64	.	(0.004)	.	1.13	.	2.02	1.64	.	.	0.58	.	10.39	0.079		
1	AMIS 0403	46.82	MnO:	60.42	0.37	.	.	.	Ca:	3.56	5.12	12.43	18.25	(0.023)	0.66	(0.18)	5.25	(0.02)		
2	RH01	46.8	51.3	.	1.50	.	.	.	(0.3)	.	1.77	1.63	.	1.33	1.10	0.41	11.4	.		
1	JSS 861-3	46.60	.	Al:	0.161	.	.	.	.	.	Ca:	4.82	(10.79)	.	.	.	Si:	2.01		
1	AMIS 0404	45.93	MnO:	59.45	(0.40)	.	.	.	Ca:	3.07	4.43	13.63	19.54	(0.06)	0.51	0.79	3.56	(0.02)		
1	NCS DC25008	45.47	.	.	6.81	.	.	.	.	.	0.071	3.21	.	.	0.077	.	9.51	0.087		
1	NCS DC26704	45.20	(67.71)	.	6.88	.	.	.	C:0.090	0.103	6.03	.	.	.	0.097	.	5.55	Ti:0.092		
1	NCS DC28045	44.97T	67.67	.	2.35	0.042	.	.	0.058	0.195	2.75T	.	1.48	.	0.182	0.034	16.00	0.105		
1	NCS DC26701	44.95	(32.31)	.	0.37	.	.	.	C:1.22	7.53	10.50	.	.	.	1.05	.	5.41	Ti:0.010		
1	NCS DC28210	44.76	66.46	.	7.28	.	.	.	.	0.24	5.72	.	.	.	0.257	.	4.62	0.34		
1	VS R12/2	43.24	52.4	.	1.87	.	.	.	0.53	.	2.02	1.56	.	.	1.16	.	15.00	.		
1	AMIS 0402	43.01	MnO:	56.77	0.38	.	.	.	Ca:	3.88	5.70	15.38	22.12	(0.02)	0.54	(0.11)	4.31	(0.024)		
1	SARM 17	38.81	.	.	0.24	.	.	.	(0.08)	.	(14.4)	4.27	.	0.09	3.03	0.09	4.69	.		
1	SARM 149	38.0	.	.	0.221	.	.	.	0.050	.	14.2	5.39	.	0.132	2.08	0.147	5.89	.		
1	OREAS 170b	MnO:	59.46	.	3.90	.	.	.	.	.	0.270	.	7.04	1.80	0.329	0.318	9.49	0.189		
1	OREAS 170a	MnO:	58.17	.	4.44	.	.	.	.	.	0.090	.	6.49	1.70	0.222	0.276	11.34	0.179		
1	NCS DC28044	36.31T	45.02	.	2.08	0.039	.	.	0.410	.	3.30	6.90T	.	0.49	1.29	0.076	17.70	0.085		
1	AMIS 0407	35.72	MnO:	46.81	0.29	.	.	.	Ca:	11.04	15.81	4.10	6.03	0.04	3.17	(0.039)	5.51	(0.02)		
1	NCS DC11023	35.54T	52.73	.	3.80	0.112	.	.	1.62	.	2.34	10.25T	.	0.396	0.78	0.053	13.03	0.143		
1	CGL 127	MnO:	45.9	.	9.27	(0.0131)	.	(0.9384)	.	.	(1.63)	.	19.51T	(0.017)	0.79	(0.086)	10.84	0.53		
1	NCS DC28062	34.67	51.64	.	9.97	.	.	.	.	.	0.48	8.05	.	1.14	0.87	0.063	10.70	.		
1	VS 5404-90	34.12	48.66	.	5.28	.	.	.	.	.	4.68	6.68	.	0.83	0.45	0.38	15.69	0.27		
1	NCS DC28211	32.70	32.32	.	3.30	.	.	.	.	.	4.21	10.47	.	.	3.04	.	14.40	0.16		
1	AMIS 0406	32.27	MnO:	41.81	0.24	.	.	.	Ca:	12.62	18.13	4.62	6.77	(0.11)	3.51	(0.14)	4.36	(0.02)		
1	NCS DC28043	30.99T	45.61	.	6.40	0.089	.	.	1.11	.	1.15	10.68T	.	0.65	0.70	0.058	17.30	0.215		
1	NCS DC11022	29.48T	41.76	.	6.49	0.062	.	.	1.04	.	1.82	10.22T	.	0.89	0.65	0.062	19.84	0.224		
1	NCS DC28209	27.76	21.00	.	1.77	.	.	.	.	.	5.44	12.00	.	.	4.08	.	17.54	0.085		
1	NCS DC28063	27.45	39.38	.	10.05	.	.	.	.	.	0.99	8.10	.	1.57	1.16	0.064	20.96	.		
1	NCS DC11021	26.53T	36.60	.	6.99	0.052	.	.	0.80	.	2.31	11.01T	.	1.01	0.774	0.064	22.10	0.247		
1	NCS DC28061	22.93	33.45	.	9.88	.	.	.	.	.	1.11	6.71	.	1.95	0.94	0.053	31.42	.		
1	NCS DC28042	22.18T	18.35	.	2.80	0.032	.	.	0.164	.	6.20	10.62T	.	0.83	3.14	0.049	24.73	0.123		
1	NCS DC11020	22.31T	30.34	.	7.69	0.034	.	.	0.54	.	2.36	9.66T	.	1.11	1.72	0.056	28.11	0.270		
1	KZ 185-89	21.61T	.	.	1.42	.	.	.	.	.	25.72	1.11T	.	0.11	0.95	.	16.07	0.066		
1	NCS DC11019	18.36T	25.59	.	5.66	0.031	.	.	0.43	.	12.83	8.89T	.	1.04	0.611	0.045	21.94	0.206		
1	NCS DC28060	18.22	27.06	.	10.39	.	.	.	.	.	1.22	5.86	.	2.34	0.84	0.054	38.94	.		
1	VS 5406-90	15.98	14.40	.	9.78	.	.	2.65	.	1.29	1.96	2.43	.	4.99	0.74	0.70	47.66	0.31		
1	NCS DC28041	14.45T	20.66	.	8.25	0.013	.	.	0.064	.	2.07	0.85T	.	3.74	0.60	0.48	56.03	0.177		
#	Number	Mn	MnO ₂	Mn (CO ₃)	Al ₂ O ₃	As	As ₂ O ₃	Ba	BaO	CO ₂	CaO	Fe	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	SiO ₂	TiO ₂		
Number	Cr	Cu	Ge	Ni	P	P ₂ O ₅	Pb	S	V	Zn	LOI	Units	Other							
IGS 29	.	.	.	.	.	.	.	.	.	.	.	40 g								
VS R13/3	.	0.0219	.	0.101	0.196	.	0.0013	0.07	.	.	.	100 g								
NCS DC26701	.	0.024	.	(0.002)	0.033	.	0.013	0.18	.	0.013	.	50 g	Co: 0.008							
VS P13/1	.	.	.	.	0.197	.	0.0014	0.070	.	.	.	100 g	MnO: 90.4, last of stock							
SRM 25d	.	.	.	.	.	0.251	.	.	.	.	.	60 g	available Oxygen: 14.28, H ₂ O: (0.96)							
SARM 16	.	.	.	.	0.033	.	.	0.17	.	0.0364	.	100 g								
NCS DC35015	.	0.006	.	0.014	.	.	0.015	.	.	0.036	.	80 g	Co: 0.025							
JSS 861-2	.	0.0064	.	.	0.086	.	.	0.0084	.	.	(3.3)	100 g	Activated O: 13.55							
NCS DC26702	.	0.005	.	0.012	0.080	.	0.012	0.017	.	0.016	.	50 g	Co: 0.014							
BAM 633-1	.	.	.	.	0.170	.	.	0.227	.	.	.	100 g								
AMIS 0403	Cr2O3:	(0.03)	.	.	.	0.08	.	specific gravity:	4.63	4.27	100 g	multiple Mn								
RH01	.	.	.	.	0.28	.	.	(0.025)	.	12.8	100 g									
JSS 861-3	Cr2O3:	0.0169	.	.	0.036	.	.	0.307	.	0.66	100 g	Active O:6.24								
AMIS 0404	Cr2O3:	(0.024)	.	.	.	(0.08)	.	specific gravity:	4.65	4.88	100 g	multiple Fe, Mn								
NCS DC25008	.	.	.	.	0.094	.	.	.	.	.	50 g	B: 0.0018								
NCS DC26703	.	0.033	.	0.0024	0.009	.	0.018	0.003	.	0.219	.	50 g	Co: 0.0014							
NCS DC28045	0.038	0.022	.	0.079	0.230	.	0.011	0.0086	0.018	0.070	.	50 g								
NCS DC26704	.	0.009	.	0.039	0.127	.	(0.007)	0.028	.	0.052	.	50 g	Co: 0.096							
NCS DC28210	.	0.062	.	0.057	0.099	.	0.014	.	.	0.088	.	50 g								
VS R12/2	.	.	.	.	0.209	.	.	0.029	.	.	.	100 g								
AMIS 0402	Cr2O3:	(0.05)	.	.	.	0.10	.	specific gravity:	4.62	4.97	100 g	multiple Ca, Fe, Mn								
SARM 17	.	.	.	.	0.018	.	.	(0.01)	.	0.0043	.	100 g	last of stock							
SARM 149	.	.	.	.	0.021	.	.	.	.	.	100 g									
OREAS 170b	.	.	.	.	.	0.195	.	.	.	.	11.95	10 g								
OREAS 170a	.	.	.	.	.	0.152	.	.	.	.	12.14	10 g								
NCS DC28044	0.0018	0.0086	.	0.010	0.105	.	0.0083	0.021	0.0075	0.027	.	50 g								
AMIS 0407	Cr2O3:	0.22	.	0.023	.	(0.04)	0.058	specific gravity:	3.74	17.83	100 g	multiple Mn								
NCS DC11023	0.0053	0.011	.	0.023	0.105	.	0.058	0.052	0.016	0.066	.	60 g								
CGL 127	(0.0086)	(0.0127)	17025	0.0377	.	0.76	(0.0038)	.	(0.0241)	0.0182	(6.41)	100 g	mg/kg: Co:316 Y:104 Sr:1354 Zr:208							
NCS DC28062	.	.	.	.	0.050	.	0.011	.	.	.	.	50 g								
VS 5404-90	.	.	0.00034	0.013	0.027	.	0.15	0.023	.	0.16	.	50 g	Co: 0.0086							
NCS DC28211	.	0.020	.	0.016	0.087	.	0.0090	.	.	0.027	.	50 g								
AMIS 0406	Cr2O3:	0.08	.	.	.	(0.04)	.	specific gravity:	3.63	20.67	100 g	multiple Mn								
NCS DC28043	0.013	0.015	.	0.083	0.171	.	0.110	0.100	0.019	0.235	.	50 g								
NCS DC11022	0.018	0.018	.	0.072	0.150	.	0.107	0.082	0.020	0.143	.	60 g								
NCS DC28209	.	0.0066	.	0.0025	0.069	.	0.0067	.	.	0.0071	.	100 g								
NCS DC28063	.	.	.	.	0.059	.	0.60	.	.	.	.	50 g								
NCS DC11021	0.019	0.021	.	0.073	0.163	.	0.124	0.084	0.020	0.164	.	60 g								
NCS DC28061	.	.	.	.	0.073	.	0.23	.	.	.	.	50 g								
NCS DC28042	0.0023	0.0071	.	0.0044	0.074	.	0.0066	0.044	0.0044	0.012	.	50 g								
NCS DC11020	0.026	0.021	.	0.089	0.171	.	0.120	0.109	0.020	0.170	.	60 g								
KZ 185-89	.	.	.	.	0.014	.	0.122	0.087T	.	0.047	.	100 g								
NCS DC11019	0.012	0.014	.	0.049	0.202	.	0.080	0.114	0.014	0.118	.	60 g								
NCS DC28060	.	.	.	.	0.082	.	0.025	.	.	.	.	50 g								
VS 5406-90	.	.	0.00049	.	0.043	.	0.23	0.22	.	0.018	.	50 g								
NCS DC28041	.	.	.	.	0.011	.	0.0025	0.012	.	0.015	.	50 g								
Number	Cr	Cu	Ge	Ni	P	P ₂ O ₅	Pb	S	V	Zn	LOI	Units	Other							

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 ₂	Al ₂ O ₃	COrg	CO ₂	CaO	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	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 ₂ O ₃	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	0.220	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 ₂ 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 ₂	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 ₂ O ₃	CO ₂	CaO	FeO	Fe ₂ O ₃	K ₂ O	MnO	Na ₂ O	Nb	Rb	SiO ₂	TiO ₂
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 ₂ O ₃	CaO	FeO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	SiO ₂	TiO ₂	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

RM MOLOCHITE

analysis listed in mass %

25 g unit, last

Number	Al ₂ O ₃	BaO	CaO	Fe ₂ O ₃	K ₂ O	MgO	Mn ₃ O ₄	Na ₂ O	P ₂ O ₅	SiO ₂	SrO	TiO ₂	ZrO ₂
GERAM 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 ₂ O ₃	Ba	CaO	F	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	S	SiO ₂	TiO ₂	W	WO ₂	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	.	.	.	.	.	.	.	*	also contains Total Oil and Water: (0.34%)	.	.	.
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	.	*	also contains Total Oil and Water: 0.85%	.	.	.

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 ₂ %	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 ₂ O ₃	Tot.C	CaO	Cr ₂ O ₃	CuO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	S	SiO ₂	SrO	TiO ₂	V ₂ O ₅	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	Fe	Cu	Pb	S	Zn	Al ₂ O ₃	As	C	CaO	K ₂ O	MgO	Mn	Na ₂ O	SiO ₂	W	
NCS DC73511a	28.14	21.67	0.64	30.7	1.35	0.52	0.0253	(0.3)	2.03	0.10	0.74	0.019	(0.06)	3.91	0.00052	
NCS DC73507a	27.85	0.72	0.72	7.07	0.94	3.38	0.0243	1.54	13.37	0.34	4.70	0.12	0.80	23.79	0.00050	
NCS DC73510a	20.71	0.081	4.85	30.8	13.73	2.09	0.1244	1.90	7.91	0.64	0.71	0.056	0.033	9.61	0.00381	
NCS DC73513a	7.33	1.79	0.80	31.6	50.59	0.45	0.0363	0.33	0.89	0.13	0.15	0.022	(0.02)	2.80	0.00068	
NCS DC73508a	6.18	1.94	5.97	5.67	3.30	7.03	0.228	(0.1)	1.27	2.83	0.23	0.42	0.63	57.8	0.398	
NCS DC73509a	5.75	2.81	0.34	3.32	0.36	8.10	0.0136	(0.06)	0.77	3.32	0.09	0.46	0.73	68.4	0.1288	

analysis listed in mg/kg																
Number	Ag	Bi	Cd	Ce	Ga	Ge	Hg	In	Mo	Re	Sb	Se	Sn	Te	Tl	
NCS DC73511a	45.5	8.0	39.4	19.5	8.8	2.8	11.1	5.8	18.3	(0.004)	32.8	(15.5)	2.8	(2)	0.32	
NCS DC73507a	14.7	0.89	24.6	112	24.7	4.3	9.6	0.47	2.1	(0.0016)	18.4	(1.8)	2.0	(0.2)	0.11	
NCS DC73510a	104	9.4	357	12.7	69.2	31.5	120	0.80	3.3	(0.007)	111	(0.7)	(10)	(0.2)	0.34	
NCS DC73513a	126	1.1	1207	5.0	103	65.5	472	1.5	2.7	(0.007)	93.5	(1.4)	(4)	(0.3)	(0.2)	
NCS DC73508a	392	1640	317	25.2	11.9	2.8	1.3	13.1	189	(0.015)	787	(17)	944	(5)	6.5	
NCS DC73509a	150	570	59.1	24.4	13.6	3.3	0.95	14.3	138	(0.068)	63.3	(7)	991	(0.5)	4.4	

CRM MULTI-METAL ORE

analysis in mass % except g/T for grams per ton and * for mg/kg																
Number	Ag	Al ₂ O ₃	As	Bi	Cd	Cu	Fe	Hg*	Pb	S	Sb	SiO ₂	Sn	Zn	LOI	Units
NCS DC29114	0.03679	(1.42)	0.138	.	0.066	0.071	(11.48T)	(270)	22.96	(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)	2.93	(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)	2.19	(6.02)	0.00383	(31.99)	.	1.54	(13.40)	50 g
NCS DC35008	19.8 g/T	.	0.084	.	.	0.037	22.62	.	2.07	.	0.013	.	0.125	0.51	.	60 g
NCS DC29115	0.000530	(3.25)	0.0095	.	0.119	0.021	(3.93T)	(84.8)	1.25	(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)	0.48	(3.13)	0.00090	(69.88)	.	4.94	(3.70)	50 g
NCS DC35009	.	6.70	2.17	0.120	.	1.09	.	.	0.095	.	.	4.99	0.930	1.49	.	60 g

T = Total Fe as Fe₂O₃

CRM MULTI-METAL ORE WITH EXTENSIVE ANALYSIS

analysis listed in mass %															CAN PTC-1b shows classical and instrumental values for Cu and Ni #			SiO ₂ *	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 ₂ 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)	.	SO4: (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	11.6	4.82	(5.75)	61.3	268	(3.16)	4.10	37	.	(229)	28.8	134
CAN SU-1b	(13)	.	(0.2)	(9)	(20.7)	(3)	(280)	.	.	.	.	(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*
OREAS 317	12.13	.	.	.	17.45	232	.	.
GBM921-13	3.0868	2.9914	0.0079	6.87	4.0586	133.3	.	.
GBM920-7	3.0808	2.9848	0.0079	.	4.1046	133.9	586	89
GBM995-8	2.5919	0.0264	0.0060	.	12.4308	52.0	53	.
GBM309-3	2.1335	0.0331	0.0058	.	10.8553	30.7	68	67
GBM323-5	1.0556	1.4364	0.0075	.	3.0969	19	1257	68
GBM922-15	0.4723	3.4460	0.0066	4.91	1.5326	51.2	.	.
GBM914-10	0.4671	0.1864	0.0011	.	0.9697	9.4	11	20
GBM315-9	0.4600	3.4274	0.0071	.	1.5131	50.2	278	135
GBM323-13	0.4036	0.4607	0.0047	0.64	0.3852	7.3	375	271
GBM319-5	0.4022	0.4574	0.0043	.	0.3853	7.4	805	539
GBM311-12	0.3600	1.0188	0.0068	4.4	1.4425	20.6	.	.
GBM311-3	0.3522	1.0089	0.0042	.	1.4291	20.4	359	122
GBM322-14	0.3117	0.5782	0.0038	1.19	0.9864	19.3	.	.
GBM921-7	0.3048	0.5834	0.0042	.	0.9688	19.2	346	42
GBM321-10	0.2592	0.3329	0.0121	.	0.3417	6.7	111	33
GBM915-7	0.2487	0.5934	0.0073	.	0.5037	12.8	329	47
GBM321-8	0.2039	0.3605	0.2236	.	0.1053	3	57	27
GBM322-8	0.1970	0.2951	0.2136	.	0.7016	8.4	735	165
GBM396-1	0.1916	0.2873	0.2140	.	0.6990	8.1	743	.
GBM921-10	0.1902	0.2292	0.0397	.	0.1959	10.2	745	59
GBM319-6	0.1897	0.2186	0.0225	.	0.1842	3.5	375	271
GBM319-6	0.1897	0.2186	0.0225	.	0.1842	3.5	375	271
GBM399-6	0.1446	2.1373	0.0020	.	0.2488	15.5	175	4
GBM322-15	0.1343	0.1698	0.0223	2.21	0.8817	29	.	.
GBM916-2	0.1335	0.1675	0.0223	.	0.8792	29.0	72	10
GBM316-1	0.1248	0.2966	0.0052	.	0.2572	6.3	163	40
GBM319-3	0.1116	0.4055	0.0025	.	0.4067	7.4	887	211
GBM999-8	0.1061	0.1852	0.3014	.	0.0537	1.8	185	25
GBM913-8	0.0923	0.4379	0.0006	.	0.0127	6.7	1409	12
GBM322-10	0.0904	0.0707	0.0261	.	0.0809	3	759	53
GBM396-6	0.0774	1.3903	0.0083	.	0.0260	5.4	541	.
GBM301-4	0.0762	0.1656	0.1430	.	0.0448	1.9	26	123
GBM313-1	0.0738	0.3179	0.0019	.	0.1170	4.9	2052	10
GBM913-7	0.0633	0.7990	0.0010	.	0.0431	7.0	82	35
GBM316-2	0.0626	0.1523	0.0041	.	0.1331	3.2	82	35
GBM910-7	0.0592	0.5335	0.0117	.	0.1249	7.1	80	86
GBM323-12	0.0580	0.7868	0.0010	6.44	0.0421	6.9	.	.
GBM314-2	0.0532	0.0419	0.0029	.	0.0975	3.3	4912	7
GBM320-14	0.0529	17.2671	0.0486	29.11	0.2911	10.6	.	.
GBM320-1	0.0527	0.0872	0.0023	.	0.0486	1.9	657	7
GBM919-9	0.0520	0.1526	0.0069	.	0.5198	6.0	98	44
GBM319-4	0.0505	0.1756	0.0017	.	0.1791	3.3	390	95
GBM904-3	0.0489	0.0515	0.0323	.	0.0464	1.8	270	82
GBM913-1	0.0477	0.3964	0.0005	.	0.0787	10.0	705	9
GBM320-10	0.0476	0.1531	0.0563	.	0.1139	6.2	142	45
GBM900-2	0.0464	0.0859	0.0886	.	0.0324	1.3	786	61
GBM908-6	0.0461	0.0441	0.4736	.	0.1354	1.2	14	832
GBM918-4	0.0439	0.3948	0.0128	.	0.0387	1.1	204	19
GBM922-9	0.0436	0.7535	0.0027	.	0.0037	4.9	257	49
GBM305-4	0.0416	0.1138	0.0475	.	0.1199	2.6	263	70
GBM913-9	0.0404	0.4542	0.0006	.	0.0158	3.8	611	13
GBM301-9	0.0389	0.2881	0.0102	.	0.7208	11.2	317	48
GBM907-8	0.0388	0.0339	0.4295	.	0.1234	1.0	11	219
GBM318-2	0.0373	0.2149	0.0026	.	0.2103	3.5	573	535
GBM317-2	0.0338	0.7414	0.0011	.	0.2356	7.4	166	388
GBM996-4	0.0336	0.0492	0.0036	.	0.0968	3.6	442	.
GBM300-5	0.0322	1.0779	0.0076	.	0.0035	3.6	571	332
GBM323-14	0.0317	6.1400	4.7118	7.33	0.0098	66.6	.	.
GBM917-4	0.0305	6.1310	4.7052	.	0.0090	65.7	2.04%	1.16%
GBM311-6	0.0302	0.1037	0.0336	.	0.0571	4.2	1540	40
GBM913-10	0.0300	0.3019	0.0007	.	0.0380	3.0	823	10
GBM913-4	0.0291	0.1556	0.0104	.	0.0282	2.0	255	193
GBM906-6	0.0288	0.0711	0.0013	.	0.0210	392.8	10	8
GBM916-10	0.0282	0.2393	0.0011	.	0.1235	4.5	135	319
GBM323-10	0.0272	0.1360	0.2587	.	0.0317	1.1	57	158
GBM312-6	0.0270	0.3705	0.0229	.	0.0795	7.4	32	34
GBM915-10	0.0261	0.0907	0.0317	.	0.0938	14.4	497	149
GBM322-9	0.0258	0.1457	0.1765	.	0.0696	3.2	936	50
GBM919-7	0.0246	0.1250	0.1954	.	0.0226	3.6	288	85
GBM322-7	0.0245	0.0089	0.0060	.	0.0924	1.6	176	24
GBM913-5	0.0243	0.2880	0.0024	.	0.3722	0.3	2492	55
GBM302-5	0.0239	0.1059	0.0498	.	0.0359	1.8	1873	50
GBM313-3	0.0239	0.0875	0.0256	.	0.1012	4.0	1039	37
GBM316-10	0.0223	0.4554	0.0006	.	0.0178	1.3	179	8
GBM318-1	0.0215	0.1187	0.0031	.	0.1061	3.2	329	243
GBM917-1	0.0209	0.0079	0.0017	.	0.1646	1.0	384	15
GBM913-6	0.0207	0.3321	0.0004	.	0.0029	0.5	1104	6
GBM907-11	0.0191	0.3873	4.5163	7.56	0.1033	4.7	.	.
GBM397-8	0.0189	0.1419	0.1320	.	0.0363	1.5	553	.
GBM322-12	0.0184	1.3975	2.0429	6.90	0.3402	4.4	.	.
GBM914-2	0.0175	0.1824	0.0099	.	0.0626	5.9	9	26
GBM917-15	0.0169	2.5774	2.1808	3.19	0.0165	29.3	.	.
GBM910-5	0.0161	0.7952	0.0036	.	0.0491	2.7	52	90
GBM321-6	0.0157	0.0051	0.0052	.	0.2169	2.9	340	20
GBM916-5	0.0149	0.7006	0.0005	.	0.0268	2.3	22	10
GBM921-9	0.0149	0.1248	0.0214	.	0.0632	5.9	394	36
GBM917-5	0.0148	2.5667	2.1664	.	0.0042	29.3	9335	0.51%
GBM310-5	0.0140	0.0335	0.3691	.	0.0483	0.5	12	247
GBM312-7	0.0137	0.6182	0.0346	.	0.1157	6.8	14	34
GBM323-3	0.0137	0.0055	0.0060	.	0.0570	3.5	113	31
GBM915-1	0.0135	0.0485	0.0176	.	0.0513	7.2	246	89
GBM305-3	0.0135	0.0451	0.0272	.	0.0372	1.7	656	46
GBM311-7	0.0134	0.0947	0.0126	.	0.0452	2.0	830	28
GBM321-3	0.0132	0.0050	0.0044	.	0.0775	5.9	635	19
GBM914-1	0.0118	0.1152	0.0069	.	0.0427	4.8	6	24
GBM922-5	0.0118	0.0580	0.2552	.	0.0110	0.6	228	49
GBM305-9	0.0114	0.0565	0.2551	.	0.0104	0.8	219	47
GBM323-6	0.0112	0.5353	0.0036	.	0.0388	1.8	39	72
GBM313-4	0.0110	0.0342	0.0250	.	0.0337	2.7	385	33
GBM908-1	0.0110	0.0074	0.0053	.	0.0102	1.7	10	34
GBM323-8	0.0107	0.1491	0.0063	.	0.0696	0.9	6	26
GBM323-7	0.0104	0.2993	0.0299	.	0.0371	2.4	1137	36
GBM319-2	0.0101	0.0155	0.0109	.	0.0101	0.3	65	88
GBM919-5	0.0100	0.1670	0.2419	.	0.0172	0.6	10	83
GBM914-5	0.0094	1.2970	0.0210	.	0.0592	4.1	43	40
GBM305-2	0.0091	0.0054	0.0045	.	0.0080	1.2	2	27
GBM323-4	0.0089	0.1540	0.0027	.	0.5232	6	94	27
GBM915-5	0.0087	0.0307	0.0106	.	0.0333	3.9	128	61
GBM314-12	0.0077	2.9880	0.0127	7.79	0.5516	3.1	.	.
GBM903-10	0.0074	0.0198	0.0559	.	0.0140	1.2	2779	57
GBM919-10	0.0075	0.0122	0.0006	.	0.0831	1.1	2196	3
GBM918-1	0.0075	0.0094	0.0066	.	0.0166	0.3	18	54

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

CRM MULTI-METAL ORE

10 or 250 g units

Number	Pb%	Cu%	Ni%	S%	Zn%	Ag*	As*	Co*
GBM305-6	0.0069	0.0242	0.0062	.	0.0120	1.5	315	31
GBM315-5	0.0067	0.0045	0.0005	.	0.0154	14.8	72	9
GBM918-2	0.0065	0.0081	0.0072	.	0.0101	0.2	22	29
GBM921-3	0.0063	0.0038	0.0045	.	0.0476	1.6	100	19
GBM321-5	0.0059	0.0157	0.0027	.	0.1495	1	89	18
GBM321-15	0.0058	1.5473	2.3789	24.07	0.0105	3.5	.	.
GBM320-2	0.0056	0.0117	0.0005	.	0.0012	27.1	42	4
GBM919-6	0.0055	0.2756	0.5208	.	0.0218	1.9	591	358
GBM921-6	0.0054	0.0131	0.0025	.	0.0648	1.3	95	17
GBM321-14	0.0053	0.2756	0.5120	1.78	0.0206	1.8	.	.
GBM922-6	0.0052	0.0308	0.0024	.	0.0679	2.9	33	13
GBM320-12	0.0050	2.5716	0.0137	9.29	0.0131	8.3	.	.
GBM915-6	0.0050	0.0186	0.0068	.	0.0225	2.1	63	47
GBM914-7	0.0050	0.0034	0.0005	.	0.0084	8.8	49	9
GBM903-7	0.0049	0.0313	0.0021	.	0.0669	3.0	33	12
GBM321-13	0.0047	0.5959	0.4318	0.74	0.0032	6.4	.	.
GBM997-9	0.0047	0.0485	0.0016	.	0.0016	0.9	5	.
GBM914-3	0.0046	0.1441	0.0010	.	0.0193	1.2	34	34
GBM320-11	0.0045	1.6875	0.0253	20.4	0.0113	5.9	.	.
GBM914-15	0.0044	0.0060	0.0006	0.06	0.0354	0.6	.	.
GBM316-3	0.0043	0.0019	0.0011	.	0.0048	0.2	5	8
GBM915-8	0.0042	0.5897	0.4259	.	0.0025	6.6	1873	1083
GBM914-4	0.0042	0.0864	0.0006	.	0.0202	0.8	13	15
GBM998-10	0.0041	1.5414	2.3610	.	0.0090	3.5	25	1202
GBM399-7	0.0040	0.0041	0.0033	.	0.0051	0.6	14	24
GBM922-7	0.0039	0.0123	0.1199	.	0.0271	0.3	755	163
GBM919-10	0.0039	0.0014	0.0009	.	0.0609	6.6	583	23
GBM321-7	0.0037	0.1518	0.0012	.	0.0300	2.7	101	21
GBM910-10	0.0037	0.0033	0.0013	.	0.0051	0.5	2	9
GBM904-10	0.0035	0.0162	0.2709	.	0.0039	0.5	35	59
GBM906-9	0.0035	0.0094	0.0071	.	0.0079	4.0	50	20
GBM922-8	0.0035	0.0040	0.0033	.	0.0058	0.3	14	27
GBM917-2	0.0035	0.0031	0.0009	.	0.0121	10.3	57	5
GBM903-3	0.0034	0.0167	0.2758	.	0.0042	0.7	33	60
GBM307-5	0.0034	0.0031	0.0029	.	0.0018	1.0	23	4
GBM308-3	0.0033	0.0928	0.0036	.	0.0109	14.5	41	63
GBM323-9	0.0032	0.0490	0.0023	.	0.0102	4.2	4	22
GBM912-16	0.0031	0.3442	3.7560	11.51	0.0107	1.9	.	.
GBM904-5	0.0031	0.1111	0.0018	.	0.0026	0.8	103	155
GBM915-9	0.0031	0.0132	0.0051	.	0.0171	1.1	6	9
GBM914-1	0.0031	0.0017	0.0012	.	0.0045	0.4	3	0
GBM310-8	0.0029	0.0396	0.0028	.	0.0027	0.5	85	50
GBM313-10	0.0029	0.0268	0.0025	.	0.0086	3.2	3	22
GBM321-4	0.0029	0.0254	0.0039	.	0.0753	1.4	100	21
GBM322-3	0.0029	0.0214	0.0177	.	0.0142	1.5	139	49
GBM911-5	0.0029	0.0042	0.0020	.	0.0060	0.8	6	15
GBM314-7	0.0029	0.0026	0.0014	.	0.0047	0.4	4	9
GBM399-2	0.0028	0.0205	0.0014	.	0.0309	0.7	4	3
GBM311-9	0.0028	0.0124	0.0306	.	0.0072	0.7	3	34
GBM917-3	0.0028	0.0054	0.0005	.	0.0175	4.8	42	18
GBM912-3	0.0028	0.0026	0.0013	.	0.0041	0.4	2	19
GBM315-3	0.0027	0.1205	0.0017	.	0.0072	0.2	4	3
GBM912-6	0.0027	0.0273	0.0021	.	0.0076	3.2	3	18
GBM914-11	0.0027	0.0093	0.7245	0.07	0.0135	0.6	.	.
GBM315-2	0.0026	0.0055	1.6741	.	0.0232	0.3	4	2221
GBM314-5	0.0024	0.0039	0.0024	.	0.0078	3.1	5	22
GBM322-5	0.0022	0.0152	0.0019	.	0.0096	1.6	3456	15
GBM320-16	0.0022	0.0049	3.8993	0.05	0.0076	4.6	.	.
GBM919-4	0.0022	0.0039	0.0025	.	0.0076	12.4	2	22
GBM918-7	0.0022	0.0018	0.0030	.	0.0019	0.4	4	2
GBM319-9	0.0021	0.0109	0.0045	.	0.0714	0.7	273	18
GBM906-4	0.0021	0.0372	0.0089	.	0.0145	0.8	62	29
GBM314-3	0.0021	0.0287	0.0008	.	0.0249	6.9	400	25
GBM914-6	0.0020	0.4200	0.0008	.	0.0055	0.5	1	25
GBM321-1	0.0020	0.1034	0.0044	.	0.0085	0.8	27	15
GBM922-10	0.0020	0.0065	0.6883	.	0.0031	0.3	477	59
GBM320-15	0.0020	0.0051	0.9839	0.08	0.0329	0.9	.	.
GBM913-3	0.0020	0.0034	0.0013	.	0.0051	0.6	5	12
GBM910-1	0.0020	0.0032	0.0016	.	0.0061	7.9	5	15
GBM321-2	0.0019	0.1176	0.0050	.	0.0217	2.1	70	34
GBM312-10	0.0019	0.0040	0.0022	.	0.0067	10.1	2	19
GBM313-5	0.0019	0.0036	0.0022	.	0.0067	1.6	5	19
GBM918-5	0.0018	0.1523	0.4960	.	0.1021	6.9	36	282
GBM908-2	0.0018	0.0056	0.0026	.	0.0070	7.2	3	21
GBM315-6	0.0018	0.0045	0.0027	.	0.0091	1.3	2	25
GBM313-6	0.0018	0.0037	0.0022	.	0.0066	0.6	19	6
GBM312-1	0.0017	0.0011	0.0008	.	0.0008	0.8	1	2
GBM907-5	0.0017	0.0078	0.0026	.	0.0092	12.8	5	23
GBM913-2	0.0017	0.0011	0.0004	.	0.0009	0.9	22	2
GBM316-4	0.0017	0.0010	0.0008	.	0.0007	0.5	23	2
GBM322-4	0.0016	0.1025	0.0032	.	0.0107	2.3	171	26
GBM922-3	0.0016	0.0602	0.0032	.	0.0122	1.5	89	23
GBM918-9	0.0016	0.0021	0.0922	.	0.0040	0.5	20	100
GBM322-11	0.0015	1.4752	0.0029	0.70	1.3941	1	.	.
GBM315-4	0.0015	0.1179	0.0068	.	0.0089	0.8	10	17
GBM316-8	0.0015	0.3175	0.0832	.	0.0330	18.7	426	57
GBM997-5	0.0015	0.0328	0.6258	.	0.0085	1.3	125	.
GBM921-4	0.0015	0.0030	0.0021	.	0.0018	0.4	34	11
GBM314-3	0.0014	0.3596	0.1005	0.65	0.0093	9.573	35	46
GBM916-6	0.0014	0.3599	0.1005	.	0.0330	21.1	497	62
GBM318-9	0.0014	0.1076	0.0069	.	0.0087	0.9	22	15
GBM323-2	0.0014	0.0473	0.0027	.	0.0126	1	58	23
GBM320-3	0.0013	0.2718	0.0829	.	0.0254	11.5	309	55
GBM916-4	0.0013	0.1842	0.0913	.	0.0248	10.9	287	53
GBM918-8	0.0013	0.1662	0.0853	.	0.0241	9.2	277	55
GBM921-2	0.0013	0.0888	0.0055	.	0.0074	0.7	24	16
GBM318-10	0.0013	0.0872	0.0058	.	0.0077	0.7	33	15
GBM999-6	0.0013	0.0639	0.0219	.	0.0087	0.9	13	23
GBM302-4	0.0013	0.0160	0.0118	.	0.0085	0.8	738	21
GBM314-8	0.0013	0.0065	0.0033	.	0.0106	3.1	4	32
GBM310-9	0.0013	0.0033	0.0008	.	0.0013	0.4	3	32
GBM315-8	0.0013	0.0062	0.0034	.	0.0106	4.8	3	32
GBM320-8	0.0012	0.6686	0.0020	.	0.0121	2.7	3	31
GBM919-1	0.0012	0.3723	0.0019	.	0.0132	2.3	2	29
GBM313-11	0.0012	0.1168	0.0054	0.23	0.0075	1.7	.	.
GBM921-1	0.0012	0.0913	0.0055	.	0.0083	0.8	17	16
GBM317-1	0.0012	0.0626	0.0062	.	0.0077	0.6	100	21
GBM922-4	0.0012	0.0067	0.0018	.	0.0052	0.5	738	7
GBM908-3	0.0012	0.0054	0.0025	.	0.0098	4.8	6	26
GBM322-2	0.0011	1.4869	0.0028	.	1.3776	0.5	45	2061

CRM		MULTI-METAL ORE							10 or 250 g units			
Number	Pb%	Cu%	Ni%	S%	Zn%	Ag*	As*	Co*				
GBM316-6	0.0011	0.701	0.0003	.	0.0045	0.5	3	8				
GBM916-3	0.0011	0.6054	0.0019	.	0.0117	3.6	2	31				
GBM916-8	0.0011	0.2692	0.0772	.	0.0095	0.4	30	52				
GBM318-6	0.0011	0.2446	0.0819	.	0.0204	6.9	200	53				
GBM301-3	0.0011	0.0776	0.7910	.	0.0094	0.9	304	187				
GBM920-5	0.0011	0.0773	0.0047	.	0.0065	0.5	22	14				
GBM922-1	0.0011	0.0184	0.0059	.	0.0207	0.8	76	26				
GBM320-7	0.0010	0.4445	0.0021	.	0.0097	2.7	3	73				
GBM318-5	0.0010	0.2993	0.0827	.	0.0127	4.7	179	56				
GBM320-6	0.0010	0.2702	0.0021	.	0.0043	1.4	3	37				
GBM919-2	0.0010	0.1592	0.0015	.	0.0039	0.8	3	41				
GBM916-3	0.0010	0.1293	0.0048	.	0.0079	1.0	12	14				
GBM918-10	0.0010	0.0992	0.0038	.	0.0077	0.8	14	13				
GBM914-9	0.0010	0.0952	0.0058	.	0.0070	0.8	10	15				
GBM920-6	0.0010	0.0760	0.0056	.	0.0075	0.7	30	16				
GBM317-3	0.0010	0.0736	0.0066	.	0.0071	0.7	17	17				
GBM316-9	0.0010	0.0710	0.0003	.	0.0040	0.5	3	7				
GBM300-9	0.0010	0.0317	0.3765	.	0.0084	0.8	11	182				
GBM300-4	0.0010	0.0266	0.8118	.	0.0098	0.7	18	258				
GBM921-5	0.0010	0.0558	0.0032	.	0.0098	2.6	156	24				
GBM920-4	0.0009	0.2746	0.0719	.	0.0085	0.4	35	47				
GBM320-5	0.0009	0.1259	0.0021	.	0.0037	0.6	2	57				
GBM921-16	0.0009	0.0756	0.7465	2.20	0.0100	0.6	.	.				
GBM323-1	0.0009	0.0702	0.0033	.	0.0099	1.2	178	22				
GBM322-1	0.0008	0.0868	0.0048	.	0.0066	0.6	4	14				
GBM922-2	0.0008	0.0256	0.0034	.	0.0091	0.8	67	24				
GBM322-6	0.0007	0.0794	0.0030	.	0.0075	1.3	241	26				
GBM920-9	0.0006	0.0020	0.0014	.	0.0039	50.9	2	10				
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				
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*				

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 ₂ O ₃	CaO	MgO	P	SiO ₂	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	.
GBM915-12	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	.	.	.	.	.	.	.	.	.	.	.
GBM322-16	1.9123	.	.	.	0.4657	.	.	0.0053	6.87	0.1268	52.9	.	.	.	.	.	.
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
GBM921-15	1.6906	.	.	.	0.0057	.	.	0.0033	0.45	0.0249	0.6	.	.	.	.	.	.
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	.	.	.	.
GBM323-15	1.2702	.	.	.	0.0055	.	.	0.0012	0.10	0.0237	1.1	.	.	.	.	.	.
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
GBM922-11	1.1664	.	.	.	0.0016	.	.	0.0014	0.03	0.0145	0.6	.	.	.	.	.	.
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	.	.	.	.	.	.	.
Number	Ni	Cd	Co	Cr	Cu	Fe	Mn	Pb	S	Zn	Ag*	Al ₂ O ₃	CaO	MgO	P	SiO ₂	Ti

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 SULHPIDE 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 ₂ O ₃	As	Ca	Cr	Cu	K	MgO	Mn	Na	P	SiO ₂	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 14b	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 ₂ O ₅	Al ₂ O ₃	BaO	CO ₂	CaO	CeO ₂	F	Fe	K ₂ O	La ₂ O ₃	MgO	MnO	Na ₂ O	Nd ₂ O ₃	P ₂ O ₅				
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 ₂	SrO	Ta ₂ O ₅	ThO ₂	TiO ₂	U ₃ O ₈	V ₂ O ₅	Y ₂ O ₃	ZnO	ZrO ₂	-H ₂ 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 ₂ O ₃	CaO	Co	Cr ₂ O ₃	MgO	SiO ₂	Units				
CAN PTM-1a (135)	.	3.30	.	.	(0.35)	.	10.01	7.31	(0.92)	(0.7)	.	.	.	.	.	.	.	400 g				
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/kgNi = Nickel Sulfide, Pb = Lead Extraction

analysis listed in mass %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 0443	.	0.97	.	0.78	(0.07)	.	.	(0.14)	.	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 XRFSP.G = Specific Gravity4E = sum Pd + Pt + Rh + Au100 g units

Number	Al ₂ O ₃	CaO	Co	Cr	Cr ₂ O ₃	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	S	SiO ₂	TiO ₂	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 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 ₂ O ₃	As*	Cr*	Cu	Fe ₂ O ₃	K ₂ 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 ₂ O ₃	As*	Cr*	Cu	Fe ₂ O ₃	K ₂ O	MnO	Ni	S

CRM OBSIDIAN

analysis listed in mass %											35 g units	analysis listed in mg/kg							
Number	Al ₂ O ₃	CaO	FeO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	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 ₂ O ₃	CaO	Co	Cr	TFe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	Ni	P ₂ O ₂	SiO ₂	TiO ₂	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 ₂	Fe	Al ₂ O ₃	C tot	CO ₂	CaO	Co ₃ O ₄	Cr ₂ O ₃	K ₂ O	Mn ₃ O ₄	NiO	P ₂ O ₅	TiO ₂	-H ₂ 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 ₂	Al ₂ O ₃	Ba	CO ₂	CaO	Ce	Cr	FeO	T.Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	TiO ₂	LOI	
VS 5370-90	Calcerous Siliceous	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		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

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 ₂ O ₅	CaO	Al ₂ O ₃	CO ₂	F	Fe ₂ O ₃	TFe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	S	SO ₃	SiO ₂	SrO	TiO ₂	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 ₃ O ₈	V ₂ O ₃	V ₂ O ₅	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	.	.	.	.	.		
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 ₂ O ₃	Ba	CO ₂	CaO	Cr	F	FeO	T.Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	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					
analsis 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 ₂ O ₃	CaO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SO ₃	SiO ₂	TiO ₂	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		US: 25 g	
Number	SiO ₂	Al ₂ O ₃	CaO	FeO	Fe ₂ O ₃	Fe ₂ O ₃ T	K ₂ O	MgO	Mn	Na ₂ O	P ₂ O ₅	TiO ₂			
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			

CRM		QUARTZITE																		
		analysis listed in mass %										analysis listed in mg/kg								
Number		SiO ₂	Al ₂ O ₃	CaO	Cr ₂ O ₃	T.Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	TiO ₂	LOI	As	Ba	Be	Bi	Cd		
NCS	DC71325	99.18	0.29	0.036	0.0053	0.16	0.050	0.022	0.0049	0.010	0.0036	0.014	0.14	0.48	17.4	0.09	0.034	0.015		
NCS	DC71324	95.97	1.33	0.59	0.0083	0.61	0.28	0.15	0.0080	0.13	0.018	0.059	0.69	1.3	56.8	0.21	0.050	0.025		
NCS	DC71323	92.93	2.43	1.20	0.0077	0.62	0.60	0.29	0.015	0.28	0.025	0.10	1.35	0.89	84.2	0.41	0.036	0.037		
analysis listed in mg/kg										80 g units										
Number		Ce	Cl	Co	Cu	Hg	La	Li	Mo	Ni	Pb	Rb	Sb	Sr	Th	U	V	W	Zn	Zr
NCS	DC71325	1.1	(15)	1.6	8.9	(0.002)	0.54	2.5	3.8	15.8	31.7	3.0	0.20	3.0	0.14	0.10	1.8	0.19	3.7	(1.7)
NCS	DC71324	19.3	(38)	1.4	13.4	(0.002)	9.3	2.7	2.1	23.9	69.4	10.3	0.22	20.0	1.8	0.48	7.4	0.27	7.8	53
NCS	DC71323	16.7	(34)	1.8	14.6	(0.003)	8.8	3.4	1.6	21.5	39.7	16.7	0.20	33.9	2.9	0.58	11.9	0.47	11.2	93

CRM	RARE EARTH ORE WITH EXTENSIVE ANALYSIS																	
analysis listed in mass & except * which is mg/kg (ppm)										powder 10 g units								
Number	Ag*	Al	Al ₂ O ₃	As*	B	Ba	BaO	Be*	Bi*	Ca	CaO	Cd*	Ce	CeO ₂	Co*	Cr	Cr ₂ O ₃	
OREAS 460	<1	6.74	12.73	53	(0.0122)	0.0808	0.0902	2.48	1.48	0.697	0.975	<1	0.1798	0.2209	9.44	0.0393	0.0575	
OREAS 461	<2	5.99	11.31	33.6	(0.0151)	0.0929	0.1037	2.3	2.49	1.26	1.76	<1	0.3510	0.4311	11.5	0.0599	0.0875	
OREAS 462	<2	5.79	10.95	30.8	(0.0150)	0.1025	0.1144	3.76	2.58	1.28	1.79	<2	0.4951	0.6082	12.5	0.0609	0.0890	
OREAS 463	<3	5.63	10.64	31.3	(0.0147)	0.1106	0.1235	5.62	2.75	1.22	1.71	<1	0.659	0.810	15.2	0.0574	0.0838	
OREAS 464	4.4	4.63	8.75	32.9	(0.0108)	0.1657	0.1850	15.6	3.8	0.896	1.25	0.52	1.53	1.88	18	0.0395	0.0577	
OREAS 465	5.5	6.60	12.47	.	.	0.4397	0.4909	13.2	16.9	0.900	1.26	1.2	3.95	4.86	18.7	0.0544	0.0795	
Number	Cs*	Cu*	Dy	Dy ₂ O ₃	Er	Er ₂ O ₃	Eu	Eu ₂ O ₃	Fe	Fe ₂ O ₃	Ga	Gd	Gd ₂ O ₃	Ge*	H ₂ O-	Hf		
OREAS 460	3.68	41.7	0.00198	0.00228	0.000601	0.000688	0.00227	0.00263	18.90	26.81	0.00338	0.0050	0.0058	(1.63)	0.752	0.00118		
OREAS 461	0.79	60	0.00348	0.00400	0.000880	0.00101	0.00467	0.0054	31.77	46.09	0.0050	0.0100	0.0116	(3.60)	0.697	0.00141		
OREAS 462	0.44	61	0.0051	0.0059	0.00122	0.00140	0.0079	0.0091	33.84	48.69	0.0052	0.0165	0.0190	(6.00)	0.667	0.00140		
OREAS 463	0.42	74	0.0070	0.0081	0.00160	0.00183	0.0115	0.0133	34.47	49.29	0.0063	0.0241	0.0278	(9.08)	0.64	0.00138		
OREAS 464	0.27	92	0.0178	0.0204	0.00382	0.00436	0.0324	0.0375	37.24	53.24	0.0106	0.0676	0.0779	(43.3)	0.503	0.00125		
OREAS 465	<0.1	128	0.0217	0.0249	0.0050	0.0058	0.0286	0.0331	34.71	49.96	0.0214	0.0584	0.0674	(6.0)	0.312	0.00414		
Number	HfO ₂	Ho*	Ho ₂ O ₃ *	In*	K	K ₂ O	La	La ₂ O ₃	Li*	Lu*	Lu ₂ O ₃ *	Mg	MgO	Mn	MnO	Mo*	Na	
OREAS 460	0.00139	2.77	3.18	0.31	1.23	1.48	0.1369	0.1606	19.6	0.52	0.59	0.751	1.25	0.0361	0.0466	25.2	0.133	
OREAS 461	0.00166	4.56	5.22	0.6	0.237	0.285	0.2690	0.3115	12	0.52	0.59	1.05	1.74	0.0653	0.0843	45.7	0.178	
OREAS 462	0.00165	6.50	7.44	0.75	0.120	0.145	0.3794	0.4517	11.3	0.63	0.72	1.08	1.80	0.0933	0.1204	51	0.178	
OREAS 463	0.00163	8.71	9.98	1.01	0.119	0.143	0.4773	0.5824	10.5	0.79	0.9	1.02	1.70	0.121	0.156	56	0.173	
OREAS 464	0.00148	21.3	24.4	2.14	0.086	0.104	1.17	1.37	8.26	1.57	1.92	0.825	1.40	0.270	0.365	77	0.149	
OREAS 465	0.00488	27.7	31.7	3.47	.	.	2.41	2.84	3.04	2.1	2.39	0.392	0.650	0.263	0.339	114	<0.2	
Number	Nb	Nb ₂ O ₅	Nd	Nd ₂ O ₃	Ni	NiO	P	P ₂ O ₃	Pb	PbO	Pr	Pr ₆ O ₁₁	Rb*	Re*	S	Sb*	Sc*	
OREAS 460	0.0998	0.0998	0.0781	0.0911	0.0053	0.0068	0.198	0.455	0.0067	0.0072	0.0244	0.0294	75	<0.004	0.0291	3.71	27.9	
OREAS 461	0.1296	0.1854	0.1629	0.1900	0.0064	0.0081	0.359	0.822	0.0106	0.0114	0.0489	0.0590	13.5	<0.01	0.0518	2.76	38.8	
OREAS 462	0.1447	0.2070	0.2560	0.2985	0.0066	0.0085	0.492	1.13	0.0114	0.0123	0.0735	0.0888	6.58	<0.01	0.0587	2.57	51	
OREAS 463	0.1495	0.2139	0.3682	0.4295	0.0071	0.0090	0.629	1.44	0.0122	0.0132	0.1004	0.1201	6.08	<0.02	0.0671	2.31	66	
OREAS 464	0.1903	0.2723	0.994	1.16	0.0082	0.0104	1.41	3.23	0.0174	0.0187	0.2597	0.3138	4.39	<0.03	0.1028	1.8	141	
OREAS 465	0.4680	0.6695	1.18	1.37	0.0106	.	3.81	8.74	0.0506	0.0545	0.3772	0.4557	0.43	<0.05	0.1941	(0.98)	149	
Number	Se*	Si	SiO ₂	Sm	Sm ₂ O ₃	Sn	SnO ₂	Sr	SrO	Ta*	Ta ₂ O ₅ *	Tb*	Tb ₄ O ₇ *	Te*	Th	ThO ₂	Ti	TiO ₂
OREAS 460	<5	23.28	49.80	0.0107	0.0125	0.00160	0.00204	0.0305	0.0360	13.7	16.8	4.84	5.70	0.21	0.0116	0.0132	1.20	2.00
OREAS 461	.	14.71	31.46	0.0220	0.0255	0.00256	0.00325	0.0579	0.0685	25.1	30.7	9.08	10.7	0.34	0.0210	0.0239	1.84	3.07
OREAS 462	.	13.18	28.19	0.0369	0.0428	0.00292	0.00371	0.0765	0.0904	25.7	31.3	14.4	16.9	0.33	0.0249	0.0283	1.91	3.18
OREAS 463	<20	12.85	27.50	0.0538	0.0597	0.00314	0.00399	0.0961	0.1136	25.2	30.8	20.3	23.9	0.35	0.0292	0.0332	1.92	3.19
OREAS 464	<50	9.52	20.36	0.1498	0.1738	0.00459	0.0058	0.2060	0.2437	24.3	29.7	54	63	0.36	0.0527	0.0600	1.95	3.26
OREAS 465	(33.6)	1.53	3.28	0.1361	0.1578	0.0136	0.0172	0.5204	0.6154	79	96	57	67	<1	0.0866	0.0985	6.30	10.51
Number	Tl*	Tm*	Tm ₂ O ₃ *	U*	U ₃ O ₈ *	V	V ₂ O ₅	W*	WO ₃ *	Y	Y ₂ O ₃	Yb*	Yb ₂ O ₃ *	Zn	ZnO	Zr	ZrO ₂	LOI
OREAS 460	0.38	0.7	0.8	4.21	4.97	0.0255	0.0456	3.14	<8	0.0060	0.0076	3.91	4.45	0.0121	0.0150	0.0472	0.0638	2.54
OREAS 461	0.1	0.89	1.02	4.79	5.65	0.0385	0.0687	3.88	4.89	0.0091	0.0116	4.39	5.00	0.0162	0.0201	0.0603	0.0815	0.996
OREAS 462	0.083	1.2	1.37	6.15	7.25	0.0380	0.0679	3.60	4.53	0.0133	0.0168	5.51	6.28	0.0269	0.0335	0.0593	0.0801	0.771
OREAS 463	0.094	1.33	1.8	7.55	9.26	0.0327	0.0683	2.45	4.71	0.0176	0.0229	5.86	8.00	0.0391	0.0526	0.0256	0.0778	0.781
OREAS 464	0.15	3.56	4.06	17.6	20.7	0.0231	0.0412	<6	<7	0.0449	0.0570	15.7	17.9	0.1232	0.1533	0.462	0.0624	0.697
OREAS 465	0.087	4.52	5.16	13.6	16	0.0534	0.0953	7.52	9.48	0.0524	0.0665	19	21.6	0.0921	(0.1500)	0.1880	0.2539	0.824

CRM RARE EARTH ORE WITH EXTENSIVE ANALYSIS

% = mass percent, * = mg/kg

GRE: 10 g AMIS, 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	.
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
AMIS 0356	.	.	.	1.116	Cr2O3: (0.02%)	.	.	13	(2.9)	29	.	(72.5)	.	(1.7)	.
AMIS 0304	.	.	.	0.8090	Cr2O3: (0.01%)	.	.	.	.	.	.	.	.	.	.
GRE-08	.	4047	.	0.5099	.	.	.	143	33.8	108.8	.	283	.	19.1	.
GRE-10	.	8943	.	0.4064	.	.	.	58	9.4	57.7	.	150	.	6.2	.
GRE-12	.	726	.	0.3216	.	.	.	16	2.5	32.8	.	71	.	1.7	.
GRE-13	.	272	.	0.2938	.	.	.	175	95.2	6.4	.	193	.	33.5	.
GRE-09	.	4509	.	0.2577	.	.	.	51	9.7	49.4	.	130	.	5.7	.
GRE-11	.	2088	.	0.2331	.	.	.	67	17.1	82.7	.	183	.	8.5	.
USZ 44-2007	43.7	95	.	0.10	(13.31)	200	1.05	13	165	(112)	8.3	64	117	400	37
GRE-07	.	2868	.	0.0806	.	.	.	10	2.1	12.7	.	30	.	1.1	.
AMIS 0275	.	.	.	0.0381	Cr2O3: (0.09%)	.	.	22.0	12.4	3.4	.	25.2	.	4.4	.
AMIS 0276	.	.	.	0.0215	Cr2O3: (0.03%)	.	.	8.4	5.4	(1.37)	.	8.4	.	1.8	.

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)	.	.
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
AMIS 0356	0.8533	.	(0.24)	.	(214)	0.2482	.	.	.	0.0942	.	(28)	0.0159	.	1.848
AMIS 0304	0.3610	.	.	.	.	0.3875	.	.	.	0.1007	.	.	(0.0575)	.	.
GRE-08	0.1467	.	1.8	.	1040	0.4433	.	0.8979	.	0.0953	.	91	0.0515	.	0.0206
GRE-10	0.0834	.	0.4	.	93	0.2914	.	0.8703	.	0.0721	.	33	0.0283	.	0.0723
GRE-12	0.0928	.	0.2	.	290	0.2030	.	0.2052	.	0.0507	.	39	0.0180	.	0.0452
GRE-13	0.1850	.	11.1	.	3061	0.1144	.	0.0344	.	0.0334	.	(11)	0.0209	.	0.0054
GRE-09	0.0620	.	0.6	.	674	0.2065	.	0.6450	.	0.0461	.	59	0.0234	.	0.0540
GRE-11	0.0523	.	1.2	.	6121	0.3574	.	0.5086	.	0.0601	.	72	0.0452	.	0.0440
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-07	0.0239	.	0.2	.	415	0.0571	.	0.1700	.	0.0137	.	55	0.0062	.	0.0142
AMIS 0275	0.0294	.	1.7	.	239	0.0188	.	.	.	0.00561	.	(7.8)	0.00317	.	0.00201
AMIS 0276	0.00754	.	(8.3)	.	107	0.00538	.	.	.	0.00153	.	(13.1)	0.00097	.	0.00166

Number	Ta*	Tb*	Th*	Ti%	Tm*	U*	V*	W*	Y*	Yb*	Zn%	Zr%
GRE-06	.	229	1540	Tl*: (0.53)	10.27	30.22	.	.	1424	46.32	0.1450	(0.0168)
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)
AMIS 0356	.	(5)	84	.	0.31	4.3	.	.	35	(1.9)	.	.
AMIS 0304	.	.	(437)	.	.	24	.	.	410	.	.	.
GRE-08	12	33.4	731	.	3.0	41.1	.	.	448	14.6	.	0.0111
GRE-10	(1)	16.0	340	.	0.8	24.9	.	.	137	3.8	.	0.0082
GRE-12	5	5.5	235	.	0.2	11.8	.	.	36	1.3	.	0.0117
GRE-13	192	30.4	351	.	13.4	96.5	.	.	975	82.4	.	1.4326
GRE-09	11	14.0	386	.	1.0	26.5	.	.	126	5.1	.	0.0135
GRE-11	20	17.5	828	.	1.9	16.5	.	.	179	9.9	.	0.0573
USZ 44-2007	123	25	202	.	.	57	88	1102	123	.	0.0534	1.58
GRE-07	14	2.9	81	.	0.2	11.8	.	.	27	1.3	.	0.0061
AMIS 0275	.	4.0	(56.9)	.	1.8	11.5	.	(115)	11.2	.	.	.
AMIS 0276	.	(1.4)	(34.7)	.	(0.81)	6.9	.	(46.6)	5.4	.	.	.

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

Number	RE _x O _y	Al ₂ O ₃	CO ₂	CaF ₂	CaO	F%	FeO	Fe ₂ O ₃	H ₂ O-	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SO ₃	SiO ₂	TiO ₂	LOI	Density
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	.
AMIS 0356	.	(5.84)	.	.	(15.69)	.	.	(8.02)	.	.	(0.51)	(6.00)	(0.92)	(2.75)	(2.58)	.	(28.86)	(0.33)	(20.22)	2.99
AMIS 0304	.	(1.52)	.	.	(28.50)	.	.	(20.93)	.	.	(0.28)	(2.87)	(0.46)	(0.09)	(18.35)	.	(12.31)	(1.80)	(7.45)	3.37
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)	.
AMIS 0275	.	(26.2)	.	.	(0.4)	.	.	(9.7)	.	.	(1.9)	(0.86)	(0.15)	(0.52)	(0.08)	.	(47.6)	(0.7)	(11.0)	2.6
AMIS 0276	.	(23.9)	.	.	(0.3)	.	.	(9.7)	.	.	(1.7)	(0.6)	(0.1)	(0.3)	(0.090)	.	(51.4)	(1.0)	(10.2)	2.58
Number	Al	Ca	Fe	K	Mg	Mn	P	S	Si	TiO ₂										
GRE-06	1.22	.	1.88	.	.	14.42	.	(0.08)	0.34	0.7396	.	.	0.35	0.8388	0.59	.	.	.	.	.
AMIS 0304	0.8070	.	20.11	.	.	14.73	.	.	1.67	.	.	7.88	.	5.81	.	.	.	.	.	.
GRE-08	3.23	.	0.6	.	.	33.37	.	.	0.50	0.1329	.	.	0.07	14.1	.	.	.	.	.	.
GRE-10	7.52	.	1.5	.	.	17.25	.	.	0.51	0.4951	.	.	(0.04)	20.3	.	.	.	.	.	.
GRE-12	1.72	.	6.2	.	.	23.86	.	.	2.36	2.0561	.	.	(0.03)	12.4	.	.	.	.	.	.
GRE-13	6.72	.	0.3	.	.	5.17	.	.	0.17	0.3638	.	.	(0.02)	30.1	.	.	.	.	.	.
GRE-09	5.67	.	1.2	.	.	30.88	.	.	0.57	0.6617	.	.	(0.03)	12.0	.	.	.	.	.	.
GRE-11	5.24	.	0.3	.	.	16.71	.	.	1.02	0.0870	.	.	(0.03)	25.1	.	.	.	.	.	.
GRE-07	4.73	.	0.3	.	.	19.85	.	.	1.11	0.5917	.	.	(0.03)	22.9	.	.	.	.	.	.

CRM RARE EARTH ORE

analysis listed in mass %

Number	RE _x O _y	Al ₂ O ₃	CaO	F-	FeO	Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	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 ₂	Cs ₂ O	Dy ₂ O ₃	Er ₂ O ₃	Eu ₂ O ₃	Gd ₂ O ₃	Ho ₂ O ₃	La ₂ O ₃	Li ₂ O	Lu ₂ O ₃
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	(0.0016)	0.00081	0.00317	0.00057	0.031	0.00403	0.00020

Number	Nd ₂ O ₃	Pr ₆ O ₁₁	Rb ₂ O	Sc ₂ O ₃	Sm ₂ O ₃	Tb ₄ O ₇	Th	Tm ₂ O ₃	Y ₂ O ₃	Yb ₂ O ₃	Units
NCS DC86318	0.40	0.089	0.0404	0.00072	0.20	0.055	0.00670	0.031	2.16	0.21	50 or 70 g
NCS DC86317	0.24	0.066	0.12	0.00101	0.066	0.019	0.00210	0.00029	0.80	0.051	50 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	50 g
NCS DC86310	0.00276	0.00063	0.069	0.00095	0.00157	0.00082	0.00405	0.00057	0.057	0.00366	50 g
NCS DC86309	0.017	0.00492	0.012	0.00113	0.00338	0.00054	0.00245	0.00024	(0.018)	0.00141	50 g

CRM RARE EARTH ORE analysis listed in mass % and mg/kg * RExOy = total rare earth oxides

Number	RE _x O _y %	CeO ₂ %	Dy*	Er*	Eu ₂ O ₃ %	Gd ₂ O ₃ %	Ho*	La ₂ O ₃ %	Lu*	Nd ₂ O ₃ %	Pr ₂ O ₃ %	Sc*	Sm ₂ O ₃ %	Tb*	ThO ₂ %	Tm*	Y ₂ O ₃ %	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 ₂ O ₃	BaO	CO ₂	CaO	F	FeO	T.Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	T.S	SO ₃	SiO ₂	SrO	TiO ₂	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 analysis listed in mass % 100 g units

Number	Al	Ba	C	Ca	Fe	H ₂ 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 last

SANDSTONE WITH EXTENSIVE ANALYSIS

analysis listed in mass %

Number	SiO ₂	Al ₂ O ₃	C(org)	C(tot)	CO ₂	CaO	F	FeO	T.Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	TiO ₂	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 ₂	Al ₂ O ₃	BaO	CO ₂	CaO	FeO	Fe ₂ O ₃	Fe ₂ O ₃ T	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SrO	TiO ₂	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 SBO1	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 SBO1	.	(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	.	150	230		
UNS MI	(0.010)	.	.	.	.	.	.	.	.	(0.003)	.	0.0372	0.0945	.	0.0539	3300	.		
UL SBO1	(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 SBO1	.	17	7.8	.	150	1.4	1	15.2	.	(0.43)	3.1	153	.	32	3.2	82	183		

CRM ESTUARY AND MARINE SEDIMENT

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

Number	Hg	CH ₃ 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 ₂ O ₃	C(org)	T.C	CO ₃ ²⁻	CaO	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	SiO ₂	TiO ₂	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 <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
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 last 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 ₂	Al ₂ O ₃	Org.C	CO ₂	CaO	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O+	H ₂ O-	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	TiO ₂	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)	.

STREAM SEDIMENT

DC730xx: 70 g units

Number	SiO ₂	Al ₂ O ₃	C	C.Org	CO ₂	CaO	FeO	Fe ₂ O ₃ T	H ₂ O+	K ₂ O	MgO	Mn	N	Na ₂ 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	16.6

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	16.4

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

STREAM SEDIMENT

T = total Fe reported

Number	Al ₂ O ₃	Ba	CaO	Cr ₂ O ₃	Cu	FeO	T.Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	Pb	S	SiO ₂	TiO ₂	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

CRM SEDIMENT

analysis listed in mass %										348x series: 100 g units				536x series: 50 g units					
Number	SiO ₂	Al ₂ O ₃	CO ₂	CaO	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	TiO ₂	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

CRM	SEDIMENT																analysis listed in mass %				M2: 85 g		others: 80 g units				
Number	Al ₂ O ₃	Ba	Tot.C	CaO	T.Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	Pb	S	SiO ₂	TiO ₂	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	1.82	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 ₂	Al ₂ O ₃	Ba	CaO	F	Fe ₂ O ₃ T	K ₂ O	MgO	Mn	MnO	Na ₂ O	P	P ₂ O ₅	Sr	Ti	TiO ₂			
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					GUW: 50 g units					all others: 100 g units								
Number	Al ₂ O ₃	CO ₂	CaO	Cr ₂ O ₃	FeO	Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	Ni	P ₂ O ₅	SiO ₂	TiO ₂	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)	.							
GUW 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 ₂ O	Nd	Pb	Rb	S	Sc	Sn	Sr	U	V	W	Y	Zn
NCS DC21001	.	.	.	(20)	79	.	.	(5)	.	(5)	.	.	(60)	.	0.066%	.	.	(3)	.	(16)	.	(5)	45
SARM 47	.	.	(75)	.	79	.	.	(5)	.	(5)	.	.	(60)	.	.	.	.	(3)	.	(16)	.	(5)	45
GUW SW	(5)	37	19	.	102	0.24	(5)	7	66	(4)	(3)	(4)	(6)	(5)	(3)	(5)	(5)	.	(5)	20	(5)	.	58
USZ 24-99	.	.	.	.	106	0.2780	.	.	.	.	.	.	.	(5)	.	.	.	7.3	0.80	33.4	.	.	39

CRM		SHALE WITH EXTENSIVE ANALYSIS										analysis listed in mass %										* Provisional Analysis				
Number		SiO ₂	Al ₂ O ₃	CO ₂	CaO	FeO	Fe ₂ O ₃	Fe ₂ O ₃ T	H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SO ₃	TiO ₂	ZrO ₂ +HfO ₂	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 SGO-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 ShBOO-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 SGO-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	N = inorganic C								
US ShBOO-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		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.									
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 SGO-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 ShBOO-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 SGO-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 ShBOO-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		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	last								
NCS DC60106a		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.									
GUV TS		(4.1)	88	(0.97)	(2.4)	.	(9.1)	.	.	(22)	960	.	150	(15)	63	290	.									
US SGO-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 ShBOO-1 *		(3.8)	1078	.	0.29	.	2.74	.	(2.7)	0.15	(9)	419	.	9.6	0.98	97.8	52.6									
JCRM R651		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.									

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

SILLIMANITE

= class, where 1 = CRM and 2 = RM

#	Number	Al ₂ O ₃	SiO ₂	CaO	Fe ₂ O ₃	K ₂ O	Li ₂ O	MgO	MnO	Na ₂ O	TiO ₂	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 % 100 g units

Number	Al ₂ O ₃	CaO	Fe ₂ O ₃	FeO	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂
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 SILICA ROCK

analysis listed in mass % 50 g

Number	SiO ₂	Al ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	TiO ₂
NCS DC28016	99.42	0.250	0.045	0.050	0.077	0.0083	0.00074	0.055	0.0015	0.0073
NCS DC28019	94.92	2.42	0.043	0.37	1.41	0.042	0.0050	0.32	0.0045	0.0083

CRM SILICEOUS MINERAL SETS

available in SETS/3, as grouped 50 g units

Number	Material	SiO ₂	Al ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	TiO ₂	LOI
JCRM R702	Albite	67.69	19.64	0.546	0.058	0.137	0.103	0.004	11.31	0.139	.	0.030	0.23
JCRM R703	Potassium Feldspar	66.99	17.93	0.095	0.082	11.02	0.040	0.003	3.32	0.008	.	0.005	0.36
JCRM R803	Prophyllite	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	Gairome Clay	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	Kaolin	49.77	35.64	0.004	0.283	(0.008)	0.004	.	0.032	0.105	(0.023)	0.068	13.90
JCRM R751	Pottery Stone	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 ₂	Al ₂ O ₃	Co ₂	CaO	FeO	T.Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	TiO ₂	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													USZ: 250g		KZ: 100g		SRM: 200g	
Number	Ag*	Ba	Cu	Fe	Fe ₂ O ₃	Pb	S	SO3	Zn	Al ₂ O ₃	As	Bi	CO ₂	CaO	Cd	Co*	F	Ge*
USZ 9-92	740	.	2.25	.	.	0.041	.	.	0.20	.	.	.	.	.	.	.	.	.
USZ 17-94	347.92	.	0.44	.	7.425	10.00	.	21.25	8.72	5.82	.	.	.	3.87	.	.	.	.
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	.	.	.
KZ 3031-84	37.4	.	3.37	15.17T	.	.	2.78	.	.	4.93	.	.	2.87	28.05	.	.	0.056	.
KZ 6586-93	19	0.38	0.013	2.03	.	3.5	0.55	.	0.045	.	.	.	.	.	.	.	.	.
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	.
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 ₂ O	MgO	MnO	Mo	Na ₂ O	Ni	P ₂ O ₅	Re*	Sb	Se*	SiO ₂	Sr	Te*	TiO ₂	Zr
USZ 9-92	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USZ 17-94	1.56	0.45	(2.39)	.	(0.13)	.	0.12	.	.	.	42.08	.	.	0.30	.
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	.	.	.
KZ 3031-84	0.26	1.33	0.33	0.18	0.18	.	.	0.40	.	13.1	33.56	.	9.1	0.19	.
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	.
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 ₂	Al ₂ O ₃	CO ₂	CaO	FeO	Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	TiO ₂	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	JS1-1	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	JS1-2	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
JS1-1	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
JS1-2	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	.	.
JS1-1	9.53	28.8	37.6	17.4	6.07	117	.	16.7	6.02	.	193	0.842	0.717	9.97	.	.
JS1-2	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	B: 0.0090%	W: 0.00022%
GUW TB	.	107	39	3.3	94	180	50 g		
JS1-1	2.63	131	30.0	2.81	108	174	100 g		
JS1-2	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		

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 ₂ O ₃	C	CaO	Fe ₂ O ₃ T	K ₂ O	MgO	MnO	N	Na ₂ O	S	SiO ₂	TiO ₂	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 AGRICULTRURAL SOIL

analysis listed in mass % except * which is mg/kg 50 g units

Number	C	C.Org	Al ₂ O ₃	T.Fe ₂ O ₃	Ti	K ₂ O	MgO	CaO	N	Na ₂ O	P	S	SiO ₂	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 ₂ O ₃	CaO	T.Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	SiO ₂	TiO ₂	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 ₂	Al ₂ O ₃	CaO	Fe	Fe ₂ O ₃	K ₂ O	MgO	Mn	MnO	Na ₂ O	P	P ₂ O ₅	S	Ti	TiO ₂	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	last								
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 ₂	Al ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	TiO ₂	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		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 ₂ O ₃	C(tot)	CaO	CO ₂	C.Org	T.Fe ₂ O ₃	FeO	H ₂ O+	K ₂ O	MgO	Mn	N	Na ₂ O	P	S	SiO ₂	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				

analysis listed in mass %		T = Total													100 g units	
Number	Type	SiO ₂	Al ₂ O ₃	CO ₂	CaO	Cr ₂ O ₃	FeO	T.Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	TiO ₂	LOI
NCS DC85112	Agricultural	83.34	8.89	.	(0.16)	.	.	1.34	0.65	(0.20)	0.015	(0.038)	0.124	(0.014)	0.22	4.86
VS 5360-90	Sod-Pozolic	78.3	9.58	.	0.82	.	0.5	3.00	2.48	0.77	0.070	1.15	0.075	0.03	0.84	2.6
SARM 42	Sedimentary	74.09	10.03	.	0.89	0.63	(4.0)	4.68	0.45	1.92	0.10	(0.15)	(0.03)	(0.02)	0.36	.
NCS DC85111	Agricultural	69.68	14.58	.	(0.22)	.	.	5.21	1.08	0.54	0.029	(0.090)	0.122	(0.014)	0.96	7.52
VS 5358-90	Light Chestnut	65.5	12.45	1.2	2.83	.	.	4.90	2.58	1.95	0.090	1.16	0.22	0.03	0.74	6.7
NCS DC85107	Agricultural	65.37	15.06	.	1.68	.	.	4.98	2.72	1.62	0.094	2.48	0.120	(0.013)	0.74	4.83
NCS DC85108	Agricultural	63.06	12.76	.	4.57	.	.	4.49	2.43	2.01	0.077	1.69	0.162	(0.017)	0.68	7.71
NCS DC85110	Agricultural	61.03	16.21	.	0.84	.	.	6.20	2.45	1.90	0.050	0.99	0.098	(0.033)	0.92	9.01
NCS DC85109	Agricultural	53.72	14.74	.	7.93	.	.	5.72	2.72	2.09	0.106	0.99	0.197	(0.019)	0.65	11.1

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

Number	Ag	B%	Ba%	Be	C%	Ce%	Co	Cr%	Cs	Cu	F%	Ga	Ge	La	Li
NCS DC85112	.	(0.0020)	.	.	.	.	.	.	.	2.8	.	.	.	.	.
VS 5360-90	0.08	0.004	0.051	1.5	0.55	0.005	10	0.008	0.21	18	0.021	9	.	35	16
SARM 42	.	.	(0.0250)	.	.	(0.0030)	35	.	.	17	.	(12)	.	.	.
NCS DC85111	.	0.0071	.	.	.	.	.	.	.	32	.	.	.	.	.
VS 5358-90	0.12	0.007	0.046	2.1	1.7	0.006	14	0.014	4	30	0.034	13	1.6	38	28
NCS DC85107	.	0.0034	.	.	.	.	.	.	.	24	.	.	.	.	.
NCS DC85108	.	0.0054	.	.	.	.	.	.	.	25	.	.	.	.	.
NCS DC85110	.	0.0065	.	.	.	.	.	.	.	42	.	.	.	.	.
NCS DC85109	.	0.0075	.	.	.	.	.	.	.	29	.	.	.	.	.

[illegible]

CRM SOIL WITH EXTENSIVE ANALYSIS

analysis listed in mass %				Org = Organic				Sol = Soluble			T = Total				50 g units			
Number		Al ₂ O ₃	C	Org.C	CaO	F	T.Fe ₂ O ₃	K ₂ O	MgO	Mn	N	Na ₂ O	P	S	SiO ₂	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
CGL 306	12.0	0.8	100 g	

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 ₂	Al ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	TiO ₂	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 Low%	Limits High%	Standard Deviation of Between	Laboratories (%) Within	Number of Sets	Results	Units
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 ₄	Al	CO ₂	Ca	Cu	Fe	H ₂ 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 ₂ O ₃	BaO	CaO	Cu	T.Fe	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	SiO ₂	TiO ₂	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	.
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
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	.
GS921-7	4.08	0.09
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
GS915-7	1.07	0.16
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	.
GS322-6	0.61	0.03
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
GS322-5	0.52	0.05
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

SYENITE WITH EXTENSIVE ANALYSIS

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

Number	SiO ₂	Al ₂ O ₃	CO ₂	CaO	Cl	F	FeO	Fe ₂ O ₃	T.Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	TiO ₂	LOI
SARM 2	63.63	17.34	0.27	0.68	.	CO ₂ 0.09	0.30	1.11	1.40	+0.22	15.35	0.46	BaO0.27	0.43	0.27	.	(0.04)	.
US SPM 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	.
CGI 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	1.64	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	.	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	(1.30)	.	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)	.	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 ₂	Al ₂ O ₃	Ba	CO ₂	CaO	FeO	Fe ₂ O ₃	H ₂ O	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	Sr	TiO ₂	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
1	BGS 201a	57.3	23.54	.	.	1.57	0.42	0.90	.	8.90	0.025	0.025	7.53	0.025	.	.	0.05	0.76
1	USZ 45-2007	51.88	22.98	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 %

[illegible]

TITANIUM ORE

analysis listed in mass %

#	Number	Ilmenite	TiO ₂	Al ₂ O ₃	C	CaO	Co	Cr	Cr ₂ O ₃	Fe	FeO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O
2	OSO Ki-370-99	95.41	.	.	.	.	.	.	.	.	.	0.006	.	.	.	.
1	NCS HC26619	.	98.21	0.65	0.011	.	.	.	.	.	.	.	.	.	.	.
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 ₂ O ₅	S	SiO ₂	Sr	V	V ₂ O ₅	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)	. ZrO ₂ : (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 ₂	Al ₂ O ₃	C	CaO	Co ₃ O ₄	Cr ₂ O ₃	CuO	Fe	K ₂ O	MgO	Mn	NiO	P ₂ O ₃	S	SiO ₂	SrO	V ₂ O ₅	ZnO	ZrO ₂
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

analysis listed in mass %

50 g units

Number	Al ₂ O ₃	CaO	FeO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	S	SiO ₂	TiO ₂	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

analysis listed in mass % T = Total

Number	Al ₂ O ₃	Ba	CaO	Fe ₂ O ₃	H ₂ O-	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	Rb	SiO ₂	Sr	TiO ₂	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
CGL 017	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)
CGL 017	(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)
CGL 017	(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
CGL 017	(3.1)	(11.1)	.	20.36	(1.8)	25.37
NH Zeolite 1	.	12.6	.	21.8	.	38.2

CRM ZINC ORE

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

Number	Zn	S	Al ₂ O ₃	Ca	CaO	Cd	Cu	Fe	Hg*	Mg	MgO	Ni	Pb	Sb	SiO ₂
IMN TC/P10	60.6	3.07	0.14	.	2.54	.	.	6.7	.	.	1.38	.	2.31	.	0.56
CAN C2N-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
NCS DC28169	43.46	26.70	.	.	2.05	0.309	0.265	6.79	.	.	0.158	.	2.66	.	5.95
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)
GBM921-14	2.9758	4.13	.	.	.	.	0.5305	.	.	.	.	0.0025	0.2821	.	.
GBM916-9	2.9716	.	.	.	.	.	0.5257	.	.	.	.	0.0026	0.2710	.	.
GBM321-11	2.0664	2.17	.	.	.	.	0.6834	.	.	.	.	0.0031	0.6596	.	.
GBM921-8	2.0559	.	.	.	.	.	0.6823	.	.	.	.	0.0034	0.6515	.	.
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
CAN C2N-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
NCS DC28169	48	0.0014	.	.	.	.	.	.	.	.	.	.	.	.	25 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
GBM921-14	41.3	.	.	.	.	.	.	.	.	.	.	.	.	.	10 or 250 g
GBM916-9	40.6	0.0233	.	.	.	.	0.0044	.	.	.	.	.	.	.	.
GBM321-11	45.2	.	.	.	.	.	.	.	.	.	.	.	.	.	10 or 250 g
GBM921-8	45.3	0.0077	.	.	.	.	0.0044	.	.	.	.	.	.	.	10 or 250 g
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 ₂ O ₃	CaO	T.C	Cu	F	Fe ₂ O ₃	H ₂ O-	H ₂ O+	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	Pb	S	SiO ₂	TiO ₂	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 ANALYSIS ON CERTIFICATE

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 ₂	Al ₂ O ₃	CaO	F	FeO	Fe ₂ O ₃ (T)	H ₂ O+	HfO ₂	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	RE _x O _y *	SiO ₂	TiO ₂	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

* RE_xO_y: Rare Earth Oxide

continued analysis listed in mg/kg

Number	CeO ₂	Dy ₂ O ₃	Er ₂ O ₃	Eu ₂ O ₃	Gd ₂ O ₃	Ho ₂ O ₃	La ₂ O ₃	Lu ₂ O ₃	Nd ₂ O ₃	Pr ₆ O ₁₁	Sc ₂ O ₃	Sm ₂ O ₃	Tb ₄ O ₇	Th	Tm ₂ O ₃	W	Y ₂ O ₃	Yb ₂ O ₃	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	50 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	50 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	50 g

ZIRCONIUM MATERIALS

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

Number	ZrO ₂	HfO ₂	ZrO ₂ + HfO ₂	Al ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	P ₂ O ₅	SiO ₂	TiO ₂	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
BCS 388	(64.9)	1.28	66.2	0.291	.	0.049	.	.	.	0.122	32.7	0.232	.	ThO ₂ :0.019 U ₃ O ₈ :0.034 Y ₂ O ₃ : 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) U: (0.0328)
IGS 35	Zr:48.96	Hf:1.20	.	.	.	.	.	.	.	.	.	Ti:0.16	.	
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 ₂ 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 ₂ : 1.69

CRM		ISO 17025 / 17034 ACCREDITED GEOLOGICAL SAMPLES										analysis in mass %									
Number	Type	Al	Al ₂ O ₃	Ca	CaO	Fe	T.Fe ₂ O ₃	K	K ₂ O	Mg	MgO	Mn	MnO	Na	Na ₂ O	P ₂ O ₅	Si	SiO ₂			
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 %				remainder analysis in mg/gkg except as noted														
Number	Ti	TiO ₂	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	.

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

CRM		ISO 17025 / 17034 ACCREDITED RARE EARTH ORE										analysis in mass %									
# = class where 1 = CRM and 2 = RM		analysis listed in mass %																			

2	Number	Al	Al ₂ O ₃	Ba	BaO	C	CO ₃	Ca	CaO	Ce	CeO ₂	Dy	Eu	Fe	Fe ₂ O ₃	Ho
2	MBH REE-HI-22-P	0.18	0.33	8.9	9.9	.	.	23.7	33.1	1.9	2.30	0.0025	0.0050	0.93	1.3	0.00033
2	MBH REE-LO-22-P	0.16	0.31	0.67	0.75	.	.	35.94	50.3	0.14	0.18	0.00026	0.00042	0.20	0.29	0.000038
2	MBH REE-MID-22-P	0.15	0.29	1.7	1.9	.	.	34.4	48.1	0.37	0.45	0.00056	0.0010	0.030	0.42	0.000076
1	MBH REE-ORE1-22-P	0.21	0.39	17.8	19.9	4.8	24	10.2	14.3	3.7	4.5	0.0049	0.0100	1.73	2.47T	0.00056

Number	K	K ₂ O	La	La ₂ O ₃	Lu	Mg	MgO	Mn	MnO	Nb	Nd	Nd ₂ O ₃	P	P ₂ O ₅	Pb
MBH REE-HI-22-P	0.093	0.110	1.3	1.5	0.000060	1.8	3.0	0.18	0.23	0.0023	0.45	0.52	0.13	0.30	0.1990
MBH REE-LO-22-P	0.029	0.035	0.10	0.12	0.000007	1.7	2.8	0.028	0.037	0.00025	0.034	0.040	0.041	0.095	0.0149
MBH REE-MID-22-P	0.038	0.045	0.26	0.30	0.000015	1.7	2.9	0.047	0.061	0.00053	0.089	0.10	0.053	0.12	0.0383
MBH REE-ORE1-22-P	0.154	0.186	2.64	3.1	0.000104	1.93	3.2	0.333	0.43	0.0043	0.91	1.06	0.223	0.51	(0.4100)

Number	Pr	Pr ₆ O ₁₁	Rb	RE _x O _y	S	Sc	Si	SiO ₂	Sm	SO ₃	SO ₄	Sm ₂ O ₃
MBH REE-HI-22-P	0.16	0.2	0.00038	4.50	2.7	0.00057	3.3	7.2	0.0303	6.6	.	.
MBH REE-LO-22-P	0.013	0.015	0.00015	0.35	0.20	0.0085	0.88	1.9	0.0024	0.49	.	.
MBH REE-MID-22-P	0.031	0.038	0.00017	0.89	0.51	0.00015	1.2	2.6	0.0061	1.3	.	.
MBH REE-ORE1-22-P	0.34	0.41	0.0006	.	5.2	0.0010	6.1	13.1	0.064	.	15.6	0.074

Number	Sr	SrO	Th	Ti	TiO ₂	U	Y	Yb	LOI
MBH REE-HI-22-P	1.6	1.90	0.0127	0.012	0.021	0.0017	0.0089	0.00041	30.4
MBH REE-LO-22-P	0.19	0.22	0.00098	0.012	0.019	0.00018	0.0010	0.000050	42.1
MBH REE-MID-22-P	0.38	0.44	0.0025	0.012	0.019	0.00039	0.0021	0.000098	40.4
MBH REE-ORE1-22-P	3.1	3.7	0.0246	0.015	0.025	0.0034	0.0165	0.00072	17.5