AM-92-510

Statistical analysis of Fe^{3+}, Ti, and OH in kaersutite from alkalic igneous rocks and mafic mantle xenoliths

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For deposit: Table 2, Appendix 1

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Table 1. Chemical Compositions and Ionic Contents of Kaersutitic Amphiboles

Sample Number*	1	2	3	4	5	6	7	8
Oxide Weight %								
SiO2	41.62	41.79	41.14	41.91	41.19	41.70	43.11	42.40
TiO2	0.90	0.77	2.50	2.78	2.44	2.80	0.78	2.59
Al2O3	16.01	15.80	15.93	13.77	14.39	13.97	12.94	12.78
Cr2O3	0.84	0.92	1.20	2.10	1.74	1.87	2.19	0.42
Fe2O3	1.38	1.52	1.69	1.53	2.29	2.21	1.76	3.41
FeO	2.64	2.64	2.64	2.67	3.51	3.11	2.48	5.42
MnO	0.01	0.05	0.06	0.06	0.07	0.07	0.04	0.14
ZnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.11	0.09	0.11	0.12	0.07	0.08	0.10	0.00
MgO	18.25	18.35	17.63	18.02	17.43	17.68	19.39	15.53
CaO	11.92	11.78	11.50	11.04	11.13	11.22	11.26	10.70
BaO	0.01	0.01	0.03	0.03	0.02	0.02	0.02	0.02
Na2O	2.73	2.67	3.01	2.76	2.62	2.66	3.06	2.53
K2O	0.39	0.03	0.79	1.50	1.73	1.77	1.37	1.58
H2O	1.50	1.60	1.11	1.12	1.20	1.10	1.50	2.29
F	0.02	0.01	0.08	0.12	0.16	0.13	0.19	0.00
Cl	0.01	0.01	0.00	0.01	0.07	0.01	0.03	0.00
Analysis Technique**	E-M-I	E-M-I	E-M-I	E-M-I	E-M-I	E-M-I	E-M-I	W
Normalized to 24 Anions								
Si	6.03	6.05	5.95	6.08	5.98	6.03	6.18	6.13
Al (4)	1.97	1.95	2.05	1.92	2.02	1.97	1.82	1.87
Al (6)	0.76	0.75	0.67	0.44	0.44	0.41	0.36	0.31
Ti	0.10	0.08	0.27	0.30	0.27	0.30	0.08	0.28
Cr	0.10	0.11	0.14	0.24	0.20	0.21	0.25	0.05
Fe3+	0.15	0.17	0.18	0.17	0.25	0.24	0.19	0.37
Fe2+	0.32	0.32	0.32	0.32	0.43	0.38	0.30	0.66
Mn	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.02
Ni	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Mg	3.94	3.96	3.80	3.90	3.77	3.81	4.14	3.35
Ca	1.85	1.83	1.78	1.72	1.73	1.74	1.73	1.66
Na	0.77	0.75	0.84	0.78	0.74	0.75	0.85	0.71
K	0.07	0.01	0.15	0.28	0.32	0.33	0.25	0.29
OH	1.45	1.55	1.07	1.08	1.16	1.06	1.43	2.21
F	0.01	0.00	0.04	0.06	0.07	0.06	0.09	0.00
Cl	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00
Tet Occ	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
M(1,2,3) Occ	5.06	5.08	5.08	5.07	5.00	5.00	5.04	5.00
M(4) Occ	2.17	2.15	2.10	2.04	2.10	2.12	2.03	2.00
Total A site	0.84	0.76	0.99	1.05	1.06	1.07	1.10	0.69

*Sample numbers refer to samples described in the Appendix

**The first symbol indicates the analytical technique: W= wet chemical, FW= combined X-ray fluoresence and wet chemical, E= electron microprobe. The second symbol indicates the analytical technique for measuring ferric-ferrous ratio, if different than wet chemical analysis: M= Mossbauer spectroscopy, ?= method not reported. Third symbol: I= water . analysis from ion microprobe

9	10	11	12	13	14	15	16	17	18
40.45	41.20	40.28	39.57	45.17	39.83	41.46	40.65	39.15	39.78
4.24	3.94	4.17	4.19	2.11	2.56	5.70	4.52	7.55	7.00
14.69	13.21	13.77	16.29	7.68	14.98	14.24	17.12	13.67	14.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.27	5.21	4.55	7.13	14.30	7.66	3.32	4.26	7.11	4.61
5.34	5.57	7.92	1.56	2.81	3.78	5.70	5.53	5.05	7.31
0.09	0.10	0.11	0.21	0.41	0.41	0.08	0.34	0.14	0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12.96	13.41	12.17	14.92	13.44	14.44	13.68	9.96	11.29	11.01
10.48	10.23	10.43	9.32	11.18	12.39	11.62	12.88	11.65	10.75
0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.17	2.26	2.26	3.48	1.35	2.27	2.29	1.74	3.41	2.57
2.24	2.13	2.12	1.95	1.09	1.25	1.72	2.80	0.59	1.58
1.85	2.27	1.76	0.84	0.19	0.58	0.12	0.36	0.45	0.37
0.00	0.00	0.00	0.00	0.35	0.00	0.42	0.42	0.31	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F-?	F-?	F-?	W	W	W	W	W	W	W
5.92	6.02	5.98	5.81	6.70	5.91	6.10	6.00	5.81	6.00
2.08	1.98	2.02	2.19	1.30	2.09	1.90	2.00	2.19	2.00
0.45	0.29	0.38	0.63	0.05	0.52	0.57	0.97	0.20	0.51
0.47	0.43	0.47	0.46	0.24	0.29	0.63	0.50	0.84	0.79
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.58	0.57	0.51	0.79	1.60	0.85	0.37	0.47	0.79	0.52
0.65	0.68	0.98	0.19	0.35	0.47	0.70	0.68	0.63	0.92
0.01	0.01	0.01	0.03	0.05	0.05	0.01	0.04	0.02	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.83	2.92	2.69	3.27	2.97	3.19	3.00	2.19	2.50	2.47
1.64	1.60	1.66	1.47	1.78	1.97	1.83	2.04	1.85	1.74
0.62	0.64	0.65	0.99	0.39	0.65	0.65	0.50	0.98	0.75
0.42	0.40	0.40	0.37	0.21	0.24	0.32	0.53	0.11	0.30
1.81	2.21	1.74	0.82	0.19	0.57	0.12	0.35	0.45	0.37
0.00	0.00	0.00	0.00	0.16	0.00	0.20	0.20	0.15	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
4.99	4.90	5.00	5.17	5.00	5.00	5.00	4.86	4.98	5.00
2.00	2.00	2.00	2.00	2.03	2.34	2.11	2.04	2.00	2.00
0.68	0.64	0.75	1.01	0.59	0.89	0.98	1.02	0.95	1.03

19	20	21	22	23	24	25	26	27	28
39.01	39.20	38.85	38.86	38.67	39.98	38.20	38.67	39.44	39.31
6.05	4.88	6.02	5.71	5.71	5.68	6.23	5.90	5.16	4.14
13.60	13.25	14.83	13.33	13.31	14.17	13.81	13.50	13.84	15.37
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.25	2.97	0.86	0.64	3.88	10.02	5.23	11.32	4.16	4.71
7.42	10.49	12.48	11.32	9.91	4.01	7.04	4.30	6.67	4.66
0.14	0.17	0.18	0.12	0.15	0.13	0.17	0.19	0.08	0.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11.73	11.57	10.72	11.14	10.15	10.45	11.29	9.55	12.99	13.89
12.05	12.59	10.29	11.86	11.56	9.62	12.13	11.88	11.57	12.54
0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.51	2.68	2.71	2.13	2.20	3.49	2.46	2.55	2.18	2.36
1.11	0.88	1.03	1.99	2.03	1.52	0.85	1.05	2.04	2.04
0.98	1.17	2.05	2.08	2.09	0.99	1.34	0.50	1.19	1.38
0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
W	W	FW	FW	FW	FW	FW	FW	FW	FW
5.84	5.91	5.77	5.84	5.79	5.91	5.75	5.86	5.89	5.76
2.16	2.09	2.23	2.16	2.21	2.09	2.25	2.14	2.11	2.24
0.24	0.26	0.36	0.20	0.14	0.38	0.21	0.27	0.33	0.42
0.68	0.55	0.67	0.65	0.64	0.63	0.71	0.67	0.58	0.46
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.59	0.34	0.10	0.07	0.44	1.11	0.59	1.29	0.47	0.52
0.93	1.32	1.55	1.42	1.24	0.50	0.89	0.54	0.83	0.57
0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.62	2.60	2.37	2.49	2.27	2.30	2.53	2.16	2.89	3.04
1.93	2.03	1.64	1.91	1.86	1.52	1.96	1.93	1.85	1.97
0.73	0.78	0.78	0.62	0.64	1.00	0.72	0.75	0.63	0.67
0.21	0.17	0.20	0.38	0.39	0.29	0.16	0.20	0.39	0.38
0.98	1.18	2.03	2.09	2.09	0.98	1.35	0.51	1.19	1.35
0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
5.00	5.00	5.00	4.85	4.75	4.94	4.95	4.96	5.00	5.00
2.02	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
0.94	0.95	0.69	0.91	0.88	0.81	0.84	0.88	0.99	1.04

29	30	31	32	33	34	35	36	37	38
37.40	39.51	39.32	40.34	40.14	39.68	38.90	39.68	39.20	39.26
6.00	5.64	6.14	4.36	6.05	7.12	5.71	5.91	6.53	7.34
15.70	14.26	14.51	13.81	14.50	12.81	16.02	14.82	13.87	13.42
0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
12.40	1.75	4.28	4.80	5.92	4.04	4.69	4.59	4.03	6.48
1.10	10.92	6.87	6.33	6.05	8.79	8.19	7.42	7.33	5.39
0.20	0.09	0.10	0.14	0.12	0.16	0.16	0.16	0.11	0.16
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11.40	11.36	12.04	13.59	12.03	11.22	10.68	12.28	11.96	12.18
11.90	10.12	10.87	11.13	10.14	11.06	10.63	10.54	12.37	10.87
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.30	2.80	2.63	2.74	3.00	3.37	2.52	2.52	1.99	2.39
1.50	1.59	1.92	1.39	1.71	1.04	1.21	1.13	1.45	1.04
0.10	1.68	1.19	1.00	0.46	0.78	1.00	0.94	0.87	1.19
0.40	0.00	0.00	0.14	0.14	0.33	0.00	0.00	0.00	0.00
0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FW	FW	FW	W	W	W	W	W	W	W
5.52	5.89	5.84	5.98	5.96	5.92	5.80	5.88	5.87	5.82
2.48	2.11	2.16	2.02	2.04	2.08	2.20	2.12	2.13	2.18
0.25	0.39	0.38	0.39	0.50	0.17	0.62	0.47	0.31	0.16
0.67	0.63	0.69	0.49	0.68	0.80	0.64	0.66	0.73	0.82
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.38	0.20	0.48	0.54	0.66	0.45	0.53	0.51	0.45	0.72
0.14	1.36	0.85	0.78	0.75	1.10	1.02	0.92	0.92	0.67
0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.51	2.52	2.67	3.00	2.66	2.49	2.38	2.71	2.67	2.69
1.88	1.62	1.73	1.77	1.61	1.77	1.70	1.67	1.98	1.73
0.66	0.81	0.76	0.79	0.86	0.97	0.73	0.72	0.58	0.69
0.28	0.30	0.36	0.26	0.32	0.20	0.23	0.21	0.28	0.20
0.10	1.67	1.18	0.99	0.46	0.78	1.00	0.93	0.87	1.18
0.19	0.00	0.00	0.07	0.07	0.16	0.00	0.00	0.00	0.00
0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
4.95	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.08	2.00
0.82	0.85	0.93	1.03	1.06	0.97	0.86	0.91	0.85	0.69

39	40	41	42	43	44	45	46	47	48
38.30	38.24	38.44	42.53	39.68	38.78	41.06	39.51	40.96	40.58
6.02	5.89	5.73	4.36	4.97	5.51	4.87	5.64	3.92	4.45
12.87	15.48	15.87	11.25	14.48	14.67	14.58	14.26	15.35	13.62
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.09
7.98	9.27	8.48	6.65	10.72	11.51	3.02	1.75	4.82	6.04
6.96	4.89	4.04	10.16	1.30	0.34	8.12	10.92	3.30	5.79
0.12	0.16	0.16	0.24	0.16	0.09	0.09	0.09	0.05	0.07
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11.79	10.73	11.48	8.71	12.95	13.01	13.16	11.36	15.24	13.82
10.47	10.69	11.58	10.75	11.92	11.85	9.95	10.12	10.42	10.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.11	2.50	2.15	2.41	2.11	2.29	2.86	2.80	2.56	2.66
1.30	1.33	1.21	1.11	1.29	1.42	1.55	1.59	1.74	1.60
1.10	0.49	0.79	1.55	0.33	0.30	1.13	1.68	1.00	0.70
0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W	W	W	W	W	W	FW	W	W	W

5.75	5.75	5.71	6.36	5.89	5.77	6.03	5.89	5.98	6.05
2.25	2.25	2.29	1.64	2.11	2.23	1.97	2.11	2.02	1.95
0.03	0.49	0.48	0.35	0.42	0.34	0.56	0.39	0.62	0.44
0.68	0.67	0.64	0.49	0.55	0.62	0.54	0.63	0.43	0.50
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01
0.90	1.05	0.95	0.75	1.20	1.29	0.33	0.20	0.53	0.68
0.87	0.61	0.50	1.27	0.16	0.04	1.00	1.36	0.40	0.72
0.02	0.02	0.02	0.03	0.02	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.64	2.40	2.54	1.94	2.86	2.88	2.88	2.52	3.32	3.07
1.68	1.72	1.84	1.72	1.89	1.89	1.57	1.62	1.63	1.61
0.91	0.73	0.62	0.70	0.61	0.66	0.81	0.81	0.72	0.77
0.25	0.25	0.23	0.21	0.24	0.27	0.29	0.30	0.32	0.30
1.10	0.49	0.78	1.55	0.33	0.30	1.11	1.67	0.98	0.70
0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
5.00	5.00	5.00	4.83	5.05	5.14	5.00	5.00	5.00	5.00
2.00	2.00	2.00	2.00	2.10	2.07	2.00	2.00	2.00	2.03
0.98	0.94	0.82	0.63	0.85	0.86	1.00	0.85	1.02	1.07

49	50	51	52	53	54	55	56	57	58
40.47	40.29	38.79	40.21	40.42	39.96	41.97	40.36	40.85	40.24
3.97	3.60	6.30	3.98	4.43	4.05	4.20	7.09	8.47	1.39
15.66	16.54	14.35	12.78	13.90	12.83	12.59	13.78	9.89	15.27
0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
8.56	6.59	6.35	6.28	4.84	7.40	4.69	3.39	8.85	6.44
0.59	1.21	6.95	9.71	6.85	6.37	5.80	7.91	3.96	6.54
0.07	0.11	0.12	0.13	0.10	0.00	0.00	0.14	0.12	0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
14.64	15.23	12.08	11.30	12.95	12.92	14.20	11.08	12.47	15.06
10.33	11.63	10.78	9.86	10.28	12.07	11.99	10.82	12.16	11.72
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2.92	2.66	2.32	2.79	3.04	2.28	3.17	2.78	2.01	2.06
1.60	1.48	1.70	1.79	2.05	1.48	1.63	1.34	0.63	0.23
0.25	0.66	0.50	1.50	0.96	0.72	0.26	0.79	0.19	1.32
0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.37	0.28	0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03

W	W	W	W	W	W	W	W	W	W
5.98	5.87	5.82	6.01	6.00	5.99	6.23	5.99	6.10	5.88
2.02	2.13	2.18	1.99	2.00	2.01	1.77	2.01	1.90	2.12
0.71	0.71	0.35	0.26	0.44	0.26	0.43	0.40	0.00	0.51
0.44	0.39	0.71	0.45	0.49	0.46	0.47	0.79	0.95	0.15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.95	0.72	0.72	0.71	0.54	0.83	0.52	0.38	0.99	0.71
0.07	0.15	0.87	1.21	0.85	0.80	0.72	0.98	0.49	0.80
0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.02	0.02	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
3.22	3.31	2.70	2.52	2.87	2.89	3.14	2.45	2.77	3.28
1.64	1.82	1.73	1.58	1.64	1.94	1.91	1.72	1.94	1.84
0.84	0.75	0.67	0.81	0.88	0.66	0.91	0.80	0.58	0.58
0.30	0.28	0.33	0.34	0.39	0.28	0.31	0.25	0.12	0.04
0.25	0.64	0.50	1.50	0.95	0.72	0.26	0.78	0.19	1.29
0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.17	0.13	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
5.34	5.15	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
2.00	2.00	2.10	2.00	2.00	2.17	2.20	2.00	2.17	2.31
0.84	0.99	1.00	0.89	1.10	0.95	1.22	0.79	0.70	0.63

69	70
39.40	39.90
5.10	5.80
14.60	13.20
0.10	0.00
10.84	3.69
3.08	9.64
0.10	0.20
0.00	0.00
0.00	0.00
11.10	11.30
10.80	10.20
0.00	0.00
2.70	2.30
1.70	1.60
0.31	0.70
0.05	0.20
0.04	0.03
E-W	E-W
5.90	6.05
2.10	1.95
0.47	0.41
0.57	0.66
0.01	0.00
1.22	0.42
0.39	1.22
0.01	0.03
0.00	0.00
2.48	2.55
1.73	1.66
0.78	0.68
0.32	0.31
0.31	0.71
0.02	0.10
0.01	0.01
8.00	8.00
5.00	5.00
2.00	2.00
0.99	0.93

APPENDIX

Sources of Amphibole Analyses

#	Sample Ident.	Location	Reference	Analysis Type*
1	I85-1	Amphibole from sp. peridotite xenolith, Ichinomegata, Japan	L.T. Bryndzia (unpub. data)	E-M-I
2	IM8705	Amphibole from sp. peridotite xenolith, Ichinomegata, Japan	L.T. Bryndzia (unpub. data)	E-M-I
3	AQ87-108	Amphibole from sp. peridotite xenolith, Aiken's Quarry, Cima Volcanic Field, CA	L.T. Bryndzia (unpub. data)	E-M-I
4	DW56-19 NMNH 114856-19	Amphibole from sp. peridotite xenolith, Dreiser Weiher, West Eifel, Germany	L.T. Bryndzia (unpub. data)	E-M-I

5	DW55-23 NMNH 114855-23	Dreiser Weiher, West Eifel, Germany	L.T. Bryndzia (unpub. data)	E-M-I
6	DW55-41 NMNH 114855-41	Dreiser Weiher, West Eifel, Germany	L.T. Bryndzia (unpub. data)	E-M-I
7	DW55-49 NMNH 114855-49	Dreiser Weiher, West Eifel, Germany	L.T. Bryndzia (unpub. data)	E-M-I
8	E8	Hornblende from Hbl clinopyroxenite Dreiser Weiher, West Eifel, Germany	Aoki and Kushiro (1968, Table 4) CMP 18, 326-337	W
9	3	Pargasite-Kaersutite in a basaltic diatreme (megacryst in tuff)	Vinx and Jung (1977, Table 2) CMP 65,135-142	F-?
10	8	Polycrystaline aggregates in tuff	Vinx and Jung (1977, Table 2) CMP 65,135-142	F-?

11	9	Coarsely vesicular megacryst in tuff	Vinx and Jung (1977, Table 2) CMP 65,135-142	F - ?
12	1	Basaltic hornblende, monchiquite, Hibina Kola	Deer, Howie, Zussman 1963 Chain Silicates, Table 48	W
13	2	Basaltic hornblende, quartz latite, San Juan, CO	Deer, Howie, Zussman 1963 Chain Silicates, Table 48	W
14	3	Basaltic hornblende, tephrite, Grosspriessen, Bohemia	Deer, Howie, Zussman 1963 Chain Silicates, Table 48	W
15	1	Kaersutite, camptonite, Boulder Dam, Arizona	Deer, Howie, Zussman 1963 Chain Silicates, Table 50	W
16	3	Kaersutite-hornblende, hornblende monchiquite, Wart Holm, Copinshay, Orkneys	Deer, Howie, Zussman 1963 Chain Silicates, Table 50	W

17	4	Kaersutite, phenocryst in scoria, Takenotsoji, Japan	Deer, Howie, Zussman 1963 Chain Silicates, Table 50	W
18	5	Kaersutite, Basaltic dyke, Tikaisi, Dogo, Oki Islands, Japan	Deer, Howie, Zussman 1963 Chain Silicates, Table 50	W
19	6	Kaersutite, trachybasalt, Dunedin, NZ	Deer, Howie, Zussman 1963 Chain Silicates, Table 50	W
20	8	Kaersutite, melanocratic camptonite, Skaergaard, East Greenland	Deer, Howie, Zussman 1963 Chain Silicates, Table 50	W
21	25139	Kaersutite xenocryst from alkaline dyke, Kelty's Point NSW, Australia (ANU #25139)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW
22	25140	Kaersutite from basic inclusion in basic alkaline dyke, Kiama NSW, Australia (ANU #25140)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW

23	25141	(ANU #25141)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW
24	25412	Kaersutite xenocryst from nephelinite breccia, Anakies, Victoria, Australia (ANU #25142)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW
25	15308	Kaersutite xenocryst from 'Kaiwekite', Purakanui, Dunedin, NZ (Univ. of Otago #15308)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW
26	15380	Kaersutite from amphibolite inclusion, 'Kaiwekite', Long Beach, Dunedin, NZ (Univ. of Otago #15380)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW
27	2341	Kaersutite xenocryst from Camptonite dyke, Mt. Cameron, N.W. Otago, NZ (Univ. of Otago #2341)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW

28	1001	Titaniferous pargasite megacryst from tephrite, Ethiopia (Brown and Carmichael 1969)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW
29	1002	Kaersutite from xenolith in tuff, Tristan da Cunha (Le Maitre, 1969)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW
30	1003	Kaersutite megacryst from alkali basalt, Spring Mtn., NSW, Australia (Wilkinson, 1962)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW
31	1004	Kaersutite megacryst from alkali basalt dyke near Yeoval, NSW, Australia (James, 1970)	Kesson and Price (1972, Table I) CMP 35, 119-124 (1972)	FW
32	Ba-1-72	Kaersutite, vein amphibole	H.G. Wilshire et al. (1971, Table 3, #5) EPSL 10, 281-284	W
33		Kaersutite megacryst in basanite lava	Binns (1969, Table 4) AJS, 267-A, 33-49	W

34	11	Kaersutite, cognate xenolith in trachyte	Deer, Howie, Zussman (1966, Table 15)	W
35	4	Kaersutite phenocryst in trachyandesite lava flow, Iki Island, Japan	Aoki (1963, Table 2) J. Petrol. 4,198-210	W
36	5	Kaersutite phenocryst in trachyandesite scoria flow, Iki Island, Japan	Aoki (1963, Table 2) J. Petrol. 4,198-210	W
37	6	Kaersutite in trachyandesite, ejected Utsuryo Island, Korea	Aoki (1963, Table 2) J. Petrol. 4,198-210	W
38	7	Kaersutite phenocryst in trachyandesite lava, Bettoho, Saisyu Island, Korea	Aoki (1963, Table 2) J. Petrol. 4,198-210	W
39	8	Kaersutite phenocryst in andesine basalt basalt lava, Yohodo, Korea	Aoki (1963, Table 2) J. Petrol. 4,198-210	W

40	9	Kaersutite phenocryst in trachyandesite scoria fall, Iki Island, Japan	Aoki (1963, Table 2) J. Petrol. 4,198-210	W
41	10	Kaersutite phenocryst in trachybasalt scoria fall, Takenostuji, Iki Island, Japan	Aoki (1963, Table 2) J. Petrol. 4,198-210	W
42	11	Kaersutite hornblende phenocryst in trachyte, Iki Island, Japan	Aoki (1963, Table 2) J. Petrol. 4,198-210	W
43	12	Oxykaersutite phenocryst in trachyandesite scoria fall, Iki Island, Japan	Aoki (1963, Table 2) J. Petrol. 4,198-210	W
44	13	Oxykaersutite phenocryst in trachyandesite scoria fall, Iki Island, Japan	Aoki (1963, Table 2) J. Petrol. 4,198-210	W
45		Amphibole in eclogite, Kakanui, N Z.	White et al. (1972) CMP 34, 185-191	FW

46		Kaersutite phenocryst in analcite-basalt	Wilkinson (1962) J. Petrol. 3, 192-214	W
47	1	Amphibole megacryst in basanitic lava Grand Canyon, Arizona	Best (1970), CMP 27, 25-44	W
48	2	Amphibole megacryst in basanitic lava	Best (1970), CMP 27, 25-44	W
49	3	Amphibole megacryst in basanitic lava	Best (1970), CMP 27, 25-44	W
50	5	Amphibole inclusion in basanitic lava	Best (1970), CMP 27, 25-44	W
51		Kaersutite xenocryst, Dish Hill	Wilshire and Trask (1971) Am. Min. 56, 240-255	W
52		Kaersutite hornblende (OU #20237), Kakanui, N.Z	Dickey (1968) Am. Min. 53,1304-1319	W

53		Hornblende	Mason (1966) N. Zeal. J. Geol. Geop., 9, 474-480.	W
54	4	Oxyhornblende from volcanic bomb, 'Isleta-Krater"	Wilkinson (1961; Table 2) Am. Min. 46, 340-354	W
55	7	Oxyhornblende from sodic lava, Kilimanjaro E. Africa	Wilkinson (1961; Table 2) Am. Min. 46, 340-354	W
56	6	Kaersutite from trachyandesite, Gonoura-machi Iki Island,	Wilkinson (1961; Table 3) Am. Min. 46, 340-354	W
57	12	Kaersutite from basic lava, Monte Rosso Linosa	Wilkinson (1961; Table 3) Am. Min. 46, 340-354	W
58	NMNH 111356	Kaersutite Xenocryst in host basalt Arenal volcano, Costa Rica	Jarosewich et al. (1980; Table I) Geostandards Newsletter,4, 257	W

59	2890(a) NMNH 121866	Kaersutite Xenocryst in alkali basalt San Carlos, Arizona	L.T. Bryndzia (unpub. data)	E-M-I
60	NMNH 121943	Kaersutite Xenocryst in alkali basalt, West Eifel	L.T. Bryndzia (unpub. data)	E-M-I
61	NMNH 106434	Kaersutite Xenocryst, Boulder Dam, Arizona	L.T. Bryndzia (unpub. data)	E-M-I
62		Hornblende Xenocryst, San Carlos, Arizona	Mason (1968) Min. Mag., 36, 997-1002	W
63	NMNH 143965	Hornblende, Kakanui, N.Z	Jarosewich et al. (1980; Table I) Geostandards Newsletter,4, 257	W
64	DH-1A	Kaersutite megacryst from basanite Dish Hilt, Arizona	Boettcher and O'Neil (1980) AJS 280-A, Part 2, 594-621	E-W

65	B-CH-5-A	Kaersutite megacryst, cone #32 hawaiite McBride Province, Queensland, Australia	Boettcher and O'Neil (1980)	E-W
66	32K1	Kaersutite megacryst, cone #32 olivine nephelinite McBride Province, Queensland, Australia	Boettcher and O'Neil (1980) AJS 280-A, Part 2, 594-621	E-W
67	28	Kaersutite megacryst, The Anakies (east cone) nepheline mugearite, Victoria, Australia	Boettcher and O'Neil (1980) AJS 280-A, Part 2, 594-621	E-W
68	9	Ferro kaersutite megacryst, The Anakies (east cone) nepheline mugearite, Victoria, Australia	Boettcher and O'Neil (1980) AJS 280-A, Part 2, 594-621	E-W
69	WP1	Oxykaersutite megacryst, Riley Maar basanite West Potritto Mtns., New Mexico	Boettcher and O'Neil (1980) AJS 280-A, Part 2, 594-621	E-W
70	188-5	Kaersutite megacryst, nepheline hawaiite dike West Texas	Boettcher and O'Neil (1980) AJS 280-A, Part 2, 594-621	E-W

* The first symbol indicates the analytical technique: W= wet chemical, FW= combined X-ray fluoresence and wet chemical, E= electron microprobe. The second symbol indicates the analytical technique for measuring ferric-ferrous ratio, if different than wet chemical analysis: M= Mossbauer spectroscopy, ?= method not reported. Third symbol: I= water analysis from ion microprobe.