

Electron Microprobe Data

Ruff ID: **R060040** Mineral: **Hedenbergite**

Locality: Rio Marina, Elba, Italy

Weight Percents

Analysis	#63	#65	#66	#67	#70	#73	#74	#75	#76	#77	#78	#79	#80	Average	StDev
SiO ₂	48.30	48.52	48.45	48.91	48.70	48.63	48.65	48.58	48.41	48.38	48.65	48.25	48.39	48.52	0.18
Al ₂ O ₃	0.22	0.23	0.28	0.20	0.06	0.17	0.04	0.03	0.06	0.14	0.16	0.21	0.15	0.15	0.08
MgO	1.34	1.41	1.48	1.52	1.46	1.43	1.24	1.22	1.27	1.36	1.51	1.42	1.38	1.39	0.10
CaO	22.47	22.67	22.64	22.58	22.59	22.58	22.60	22.70	22.75	22.51	22.61	22.61	22.72	22.62	0.08
MnO	0.73	0.72	0.69	0.68	0.80	0.70	0.90	0.89	0.84	0.78	0.67	0.70	0.73	0.76	0.08
FeO	26.01	25.58	25.48	25.66	25.81	26.00	26.00	26.00	25.99	25.77	25.45	25.84	25.64	25.79	0.21
Na ₂ O	0.15	0.19	0.16	0.12	0.09	0.12	0.07	0.07	0.05	0.08	0.13	0.14	0.10	0.11	0.04
Totals	99.22	99.32	99.18	99.67	99.51	99.63	99.50	99.49	99.37	99.02	99.18	99.17	99.11	99.34	0.21

Cation numbers normalized to 6 Oxygens

														ACN	StDev	NCN	CNISF*
Si	1.99	1.99	1.99	2.00	2.00	1.99	2.00	2.00	1.99	1.99	2.00	1.99	1.99	1.99	0.00	2.00	1.00
Ca	0.99	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Mg	0.08	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.01	0.09	0.09
Mn	0.03	0.03	0.02	0.02	0.03	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.00	0.03	0.02
Fe	0.90	0.88	0.88	0.88	0.89	0.89	0.89	0.89	0.90	0.89	0.87	0.89	0.88	0.89	0.01	0.89	0.89
Totals	3.99	3.98	3.98	3.98	3.99	3.99	3.99	4.00	4.00	3.99	3.98	3.99	3.99	3.99	0.01	4.00	

Ideal Chemistry: CaFe²⁺Si₂O₆

Calculated Chemistry: Ca(Fe²⁺_{0.89}Mg_{0.09}Mn_{0.02})Si₂O₆

minor amounts of Na , Cr and Ti

Instrument: Cameca SX50

Sample Voltage: 15 kV

Acceleration Current: 20 nA

Beam Size: Spot

Date of Analysis: 10/06/06

ACN: Average Number of Cations

NCN: Normalized Cation Numbers =ACN*4/3.99

StDev: Standard Deviation

CNISF=Cation Numbers in structural formulae

*=cations normalized for each structural site

Microprobe Calibration Data

Xtal	El	Line	Pk(s)	Bkg(s)	Bkg(+)	Bkg(-)	Standards
TAP	Na	Ka	20	10	600	-600	Albite-Cr
TAP	Si	Ka	20	10	600	-600	Diopside
TAP	Mg	Ka	20	10	600	-600	Diopside
TAP	Al	Ka	20	10	600	-600	Anorthite-S
PET	Ca	Ka	20	10	600	-600	Diopside
PET	Mn	Ka	20	10	600	-600	Rhodonite-791
LIF	Fe	Ka	20	10	500	-500	Fayalite
LIF	Cr	Ka	20	10	500	-500	Chromite-S
LIF	Ti	Ka	20	10	500	-500	Rutile1