

Micro- and Nano-Size Hydrogarnet Clusters in Calcium Silicate Garnet:
Part II. Mineralogical, Petrological and Geochemical Aspects

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Supplementary Table S1

sample	thick mm	area	area/cm linear	area/cm x 3	Factor * 0.14	H ₂ O ppm wt	H ₂ O wt %
Figure 3							
ZER1 12	0.155	130.6	8425.8	25277.4		3539	0.3539
HILDA 1	0.189	119.2	6306.9	18920.6		2649	0.2649
MUREIA (rim) 7	0.120	12.6	1050.0	3150.0		441	0.0441
NZALA 2	0.081	5.43	670.4	2011.1		282	0.0282
GRR 3554	0.486	19.2	395.1	1185.2		166	0.0166
KAIS 2	0.095	2.76	290.5	871.6		122	0.0122

*factor from Rossman (MSA Volume 62, p23) using Aines & Rossman data to establish the calibration

Figure 4							
GRR 946	0.278	84.9	3054.0	9161.9		1283	0.1283
GRR 1424	0.518	115.0	2220.1	6660.2		932	0.0932
GRR 1411	0.358	42.1	1176.0	3527.9		494	0.0494
GRR 1429	0.255	11.1	435.3	1305.9		183	0.0183
GRR 1422	0.509	11.2	220.0	660.1		92	0.0092

Figure 5							
GRR 1537	0.073	33.8	4628.8	13886.3		1944	0.1944
GRR 1285 NMR	0.030	8.27	2756.7	8270.0		1158	0.1158
GRR 1038 C	0.295	146.1	4952.5	14857.6		2080	0.2080
GRR 1538	0.173	94.5	5459.5	16378.6		2293	0.2293
GRR 53b	0.405	99.6	2459.8	7379.3		1033	0.1033
GRR 53 RT	0.139	38.1	2739.6	8218.7		1151	0.1151
GRR 1038 R	0.276	52.0	1885.5	5656.5		792	0.0792
	0.276	34.0	1230.8	3692.4		517	0.0517
							with lower cm bands
							without lower bands

Supplementary Table S2. Crystal-chemical formulae of garnets of Armbruster et al. (1998) & Fig. 3 (except KBB 166) calculated using the formulation of Locock (2008).

Analysis (wt. %)	ZER 1	Hilda 1	KAIS	MUREIA	NZALA 2	MUREIA
				7 rim		
SiO ₂	34.82	36.97	29.05	38.39	32.66	35.99
TiO ₂	5.39	1.64	12.44	0.07	6.89	3.01
Al ₂ O ₃	2.92	7.22	2.24	12.37	0.98	5.94
FeO / FeO _{tot}						
Fe ₂ O ₃ / calc	23.19	20.90	23.32	15.14	26.33	22.17
MnO	0.16	0.28	0.34	0.13	0.44	0.04
(Mn ₂ O ₃)						
MgO	0.39	0.03	0.82	0.27	0.59	0.52
CaO	33.64	33.93	31.90	35.09	32.51	34.19
Na ₂ O	0.02	0.00	0.11	-	0.16	0.04
H ₂ O+	0.35	0.27	0.01	0.04	0.03	0.04
O=F (calc)						
Total (calc)	100.88	101.24	100.23	101.50	100.59	101.94
Recalculated (wt%)						
final FeO	0.00	0.00	0.00	0.00	0.00	0.00
final Fe ₂ O ₃	23.19	20.90	23.32	15.14	26.33	22.17
final MnO	0.16	0.28	0.34	0.13	0.44	0.04
final Mn ₂ O ₃	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.88	101.24	100.23	101.50	100.59	101.94
End-members						
Katoite	1.60%	1.21%	-	0.17%	-	0.18%
Hydroandradite	-	-	0.05%	-	0.14%	-
Schorlomite	-	-	15.81%	-	7.80%	-
Hutcheonite	4.23%	-	11.18%	0.06%	4.85%	5.08%
Morimotoite	-	-	-	-	-	-
NaTi garnet	0.16%	0.03%	0.89%	-	1.30%	0.31%
Morimotoite-Mg	3.06%	-	3.89%	-	5.66%	1.59%
Spessartine	0.37%	0.64%	-	0.29%	-	0.09%
Pyrope	0.58%	0.12%	-	1.05%	-	1.55%
Almandine	-	-	-	-	-	-
Grossular	7.37%	32.24%	-	55.27%	-	21.24%
Andradite	71.86%	63.20%	58.41%	42.22%	75.26%	67.05%
Remainder	10.77%	2.56%	9.78%	0.94%	4.99%	2.91%
Total	100.00%	100.00%	100.01%	100.00%	100.00%	100.00%
Quality Index	Poor	Poor	Poor	Good	Fair	Fair