

APPENDIX

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Table 1A - Selected quenched samples synthesized by Franzolin et al. (2010), analyzed at ID09 beamline, ESRF (Grenoble, France). See Figure 1A, this Appendix, below.

Run	P (GPa)	T (K)	Run Products	Cc	Mgs	Sid	Fe/(Fe+Mg) (X _{Fe})	Ca/(Ca+Mg+Fe)
a	3.5	1173	Dol _{s.s.}	0.58	0.00	0.41	1.00	0.58
b	3.5	1173	Dol _{s.s.}	0.49	0.21	0.30	0.59	0.49
f	3.5	1173	(Fe,Mg)Cc	0.70	0.15	0.16	0.52	0.70
g	3.5	1173	Dol _{s.s.} + Mgs _{s.s.}	0.52	0.41	0.07	0.15	0.52
i	3.5	1173	Dol _{s.s.} + Mgs _{s.s.}	0.51	0.08	0.42	0.84	0.51
l	3.5	1173	(Fe,Mg)-Cc	0.84	0.09	0.08	0.47	0.84
m	3.5	1173	(Fe,Mg)-Cc	0.87	0.10	0.03	0.23	0.87
n	3.5	1173	(Fe,Mg)Cc + Dol _{s.s.}	0.73	0.24	0.03	0.11	0.73
o	3.5	1173	(Fe,Mg)Cc + Dol _{s.s.}	0.72	0.24	0.04	0.14	0.72
q	3.5	1173	Dol _{s.s.} + Mgs _{s.s.}	0.51	0.28	0.21	0.43	0.51
r	3.5	1173	Dol _{s.s.} + Mgs _{s.s.}	0.51	0.15	0.33	0.69	0.51
g	3.5	1273	Dol _{s.s.} + Mgs _{s.s.}	0.51	0.44	0.06	0.12	0.51
o	3.5	1273	Dol _{s.s.}	0.52	0.43	0.05	0.10	0.52
n	3.5	1373	(Fe,Mg)-Cc	0.68	0.29	0.03	0.09	0.68
t	3.5	1373	Fe-Cc	0.81	0.00	0.18	1.00	0.81

Table 2A - Normalized peak height ratio I_{101}/I_{110} isothermally collected at different time steps in the run *DolI* at 3.4 GPa. Fig.3 is based on these data.

I_{201}/I_{110}	t (min)	T (K)
0.89	2	858
0.65	10	858
0.58	30	858
0.57	34	858
0.55	38	858
0.55	42	858
0.54	45	858
0.23	0	999
0.22	3	999
0.22	5	999
0.22	8	999
0.22	10	999
0.22	13	999
0.22	15	999
0.22	18	999
0.21	20	999
0.21	23	999
0.21	25	999
0.21	28	999
0.21	30	999
0.21	33	999
0.21	35	999
0.21	38	999
0.21	40	999
0.21	43	999
0.21	45	999
0.21	48	999
0.21	50	999
0.21	53	999
0.21	55	999
0.20	58	999
0.21	60	999
0.20	90	999
0.19	95	999
0.20	98	999
0.10	15	1089
0.10	30	1089
0.11	60	1089
0.10	80	1089
0.10	100	1089
0.05	21	1187
0.05	80	1187

Figure 1A - X-Ray powder pattern of Fe-bearing dolomite (i.e. $\text{Ca}_{0.49}\text{Mg}_{0.21}\text{Fe}_{0.3}\text{CO}_3$) synthesized at 1173 K and 3.5 GPa in a piston cylinder apparatus and quenched afterwards. The calculated XRPD pattern has been simulated using a disordered ($R\bar{3}c$ “calcite-like” structure) model. The inset shows the low angle portion of the XRD pattern zoomed, evidencing that the superstructure peaks (003 and 101), characteristics of the ordered structure ($R\bar{3}$), are absent.

