APPENDIX 8

EMP compositions of example olivine and chromite pairs in the Pułtusk host rock and clasts and the calculated thermometric parameters yielding equilibration temperatures

olivine	H4/5 host rock				H5 and H6 clasts			
Al_2O_3	b.d.	b.d.	b.d.	b.d.	b.d.	b.d	b.d	b.d.
MgO	42.93	43.16	42.28	43.03	42.08	43.16	41.84	42.38
SiO_2	39.45	38.89	39.57	39.34	38.88	39.39	39.07	39.46
TiO_2	b.d.	b.d.	b.d.	b.d.	b.d.	b.d	b.d	0.10
CaO	0.06	0.01	0.02	0.05	b.d.	b.d	b.d	0.04
FeO	18.00	17.42	17.76	17.17	17.80	17.74	18.83	17.83
MnO	0.52	0.47	0.47	0.50	0.47	0.48	0.41	0.49
Cr_2O_3	b.d.	0.17	0.06	b.d.	0.10	0.08	0.05	0.05
NiO	b.d.	b.d.	b.d.	b.d.	b.d.	b.d	0.07	b.d.
Na_2O	b.d.	b.d.	b.d.	b.d.	b.d.	b.d	b.d	b.d.
K_2O	b.d.	b.d.	b.d.	b.d.	b.d.	b.d	b.d	b.d.
Total	100.97	100.11	100.15	100.09	99.33	99.13	100.27	100.34
mole Mg	1.0550	1.0697	1.0474	1.0668	1.0452	1.0618	1.0353	1.0478
mole Fe	0.2482	0.2421	0.2468	0.2387	0.2481	0.2448	0.2614	0.2474
Chromite grain size [m]	30	55	78	100	30	70	110	135
Al_2O_3	6.66	6.38	6.74	6.29	7.03	6.68	6.36	6.21
MgO	2.56	2.73	2.94	3.59	2.51	2.97	3.10	3.45
SiO_2	0.10	0.05	0.03	b.d.	0.04	b.d	b.d	b.d.
TiO_2	2.37	2.13	2.07	2.16	1.80	2.01	2.23	2.45
CaO	0.07	b.d.	b.d.	b.d.	b.d.	0.04	b.d	b.d.
FeO *	29.00	28.97	29.12	28.01	29.71	29.21	28.29	27.88
MnO	1.15	1.05	0.96	1.14	0.93	0.98	0.77	0.97
Cr_2O_3	57.80	56.36	56.84	57.13	55.88	57.49	59.07	57.06
ZnO	0.29	0.38	0.36	0.34	0.35	0.38	0.23	0.32
NiO	b.d.	b.d.	b.d.	b.d.	b.d.	0.10	b.d	b.d.
V_2O_3	0.68	0.69	0.66	0.86	0.74	0.68	0.84	0.66
Total	100.68	98.74	99.72	99.53	98.98	100.54	100.89	99.01
mole Fe	0.4010	0.4084	0.4064	0.3917	0.4177	0.4044	0.3903	0.3919
mole Mg	0.0632	0.0686	0.0731	0.0895	0.0630	0.0733	0.0762	0.0865
mole Cr	0.7554	0.7510	0.7500	0.7554	0.7429	0.7524	0.7704	0.7583
mole Al	0.1298	0.1268	0.1325	0.1240	0.1392	0.1303	0.1237	0.1231
Parameters of thermometric calculation and equilibration temperatures								
K_D	26.9805	26.3062	23.5901	19.5569	27.9523	23.9306	20.2759	19.2011
Y_{Cr}	0.8534	0.8556	0.8499	0.8590	0.8422	0.8524	0.8617	0.8603
T [°C]	663	669	684	723	652	683	718	727

* – total iron analysed as FeO, Fe^{3+} content calculated based on stoichiometry of chromite; b.d. – below detection limit