

APPENDIX 3

Representative microprobe analyses of detrital garnets, Cr-spinels and tourmalines from the deposits of the Malcov Formation

Mineral	Grt						Cr-Spl					
	BZK-322a (21)				MF-1 (14)		BZKo-765 (14)					
Point	1c	1r	2c	2r	1c	1r		1c	1r	2c	2r	
SiO ₂	35.83	36.65	36.75	37.18	36.90	37.47	SiO ₂	0.04	0.06	0.00	0.03	
TiO ₂	0.19	0.04	0.00	0.08	0.11	0.06	TiO ₂	0.74	0.71	0.48	0.48	
Al ₂ O ₃	20.31	20.84	20.33	21.27	20.61	21.21	Al ₂ O ₃	32.75	32.62	20.67	20.59	
Fe ₂ O ₃ *	3.31	2.10	1.66	1.12	0.00	0.00	Fe ₂ O ₃ *	6.59	6.72	8.83	8.46	
Cr ₂ O ₃	0.05	0.00	0.03	0.00	0.01	0.00	FeO	12.21	12.09	25.16	25.21	
MgO	0.16	0.75	2.30	1.40	0.16	0.82	MnO	0.32	0.27	0.38	0.40	
CaO	2.42	5.26	1.44	9.10	5.69	7.60	MgO	15.95	15.80	5.39	5.18	
MnO	36.33	15.21	4.99	2.61	23.54	5.14	CaO	0.00	0.00	0.01	0.00	
FeO	2.83	20.36	32.95	27.72	12.55	27.78	Cr ₂ O ₃	31.38	30.74	35.95	35.49	
Na ₂ O	0.00	0.01	0.00	0.01	0.01	0.02	NiO	0.03	0.09	0.08	0.03	
Σ	101.43	101.22	100.45	100.47	99.58	100.10	ZnO	0.07	0.09	0.27	0.26	
							V ₂ O ₅	0.19	0.20	0.35	0.24	
							Σ	100.28	99.40	97.56	96.37	
Si	2.913	2.947	2.978	2.963	3.010	3.012	Si	0.001	0.002	0.000	0.001	
Ti	0.012	0.002	0.000	0.005	0.007	0.004	Ti	0.016	0.016	0.012	0.012	
Al	1.946	1.975	1.941	1.998	1.982	2.009	Al	1.119	1.124	0.815	0.821	
Fe ³⁺	0.202	0.127	0.101	0.067	0.000	0.000	Fe ³⁺	0.144	0.148	0.222	0.216	
Cr	0.003	0.000	0.002	0.000	0.001	0.000	Fe ²⁺	0.296	0.296	0.704	0.714	
Mg	0.019	0.090	0.278	0.166	0.020	0.098	Mn	0.008	0.007	0.011	0.011	
Ca	0.211	0.453	0.125	0.777	0.497	0.655	Mg	0.689	0.689	0.269	0.262	
Mn	2.501	1.036	0.342	0.176	1.626	0.350	Ca	0.000	0.000	0.000	0.000	
Fe ²⁺	0.193	1.369	2.232	1.847	0.856	1.868	Cr	0.720	0.711	0.951	0.950	
Na	0.000	0.002	0.000	0.001	0.001	0.004	Ni	0.001	0.002	0.002	0.001	
Σ	8.000	8.000	8.000	8.000	8.000	8.000	Zn	0.002	0.002	0.007	0.006	
							V	0.004	0.004	0.008	0.005	
Prp	0.66	3.05	9.33	5.60	0.67	3.30	Σ	3.000	3.000	3.000	3.000	
Alm	6.59	46.44	74.97	62.28	28.54	62.87						
Uv	0.01	0.00	0.00	0.00	0.01	0.00	Mg#	0.70	0.70	0.28	0.27	
Grs	6.48	14.42	3.99	25.28	16.52	22.00	Cr#	0.39	0.39	0.54	0.54	
Sps	85.54	35.14	11.50	5.93	54.21	11.79						
Adr	0.67	0.93	0.21	0.85	0.00	0.00						
Ca-Ti Grt	0.04	0.02	0.00	0.06	0.06	0.04						
Mineral	Tur											
Sample	BZK-322a (21)											
Point	1c	1c'	1c-r	1r	2c	2r	3c	3r	3r'			
SiO ₂	36.24	37.63	36.70	36.88	36.87	36.76	36.75	37.07	36.59			
TiO ₂	1.08	0.63	2.44	1.54	0.90	0.90	1.06	0.77	0.04			
B ₂ O ₃ *	10.63	10.84	10.51	10.61	10.76	10.68	10.57	10.78	10.40			
Al ₂ O ₃	33.12	32.62	28.34	29.66	33.26	32.34	30.40	32.73	29.74			
Cr ₂ O ₃	0.07	0.06	0.00	0.07	0.04	0.04	0.05	0.05	0.00			
MgO	6.58	8.38	6.63	7.80	6.11	6.35	7.18	7.62	6.30			
CaO	0.86	0.42	0.20	0.63	0.50	0.62	0.30	0.57	0.04			
MnO	0.05	0.05	0.01	0.00	0.05	0.03	0.03	0.01	0.04			
FeO _{tot}	5.63	4.42	9.95	7.60	7.25	7.54	7.87	5.58	10.67			
Na ₂ O	1.72	2.19	2.64	2.35	2.00	2.06	2.60	2.18	2.53			
K ₂ O	0.03	0.03	0.02	0.03	0.03	0.02	0.02	0.02	0.01			
NiO	0.00	0.05	0.03	0.05	0.03	0.03	0.00	0.00	0.00			
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Cl	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02			
H ₂ O*	3.66	3.73	3.62	3.65	3.70	3.68	3.64	3.71	3.58			
O=F	0.00	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00			
total	99.66	101.03	101.10	100.88	101.49	101.04	100.48	101.09	99.95			
Si	5.923	6.033	6.067	6.040	5.955	5.981	6.040	5.975	6.112			
AlT	0.077	0.000	0.000	0.000	0.045	0.019	0.000	0.025	0.000			
T total	6.000	6.033	6.067	6.040	6.000	6.000	6.040	6.000	6.112			
B	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000			
Cr	0.010	0.007	0.001	0.009	0.006	0.006	0.007	0.006	0.000			
AlY+Z	6.303	6.165	5.522	5.725	6.288	6.183	5.889	6.194	5.855			
Ti	0.133	0.076	0.303	0.190	0.109	0.111	0.131	0.093	0.005			
Fe	0.770	0.593	1.376	1.042	0.980	1.025	1.082	0.752	1.491			
Mn	0.007	0.006	0.001	0.000	0.007	0.004	0.004	0.002	0.006			
Mg	1.602	2.003	1.633	1.905	1.470	1.539	1.760	1.830	1.569			
Ni	0.000	0.006	0.004	0.006	0.004	0.004	0.000	0.001	0.000			
Y+Z total	8.824	8.856	8.841	8.877	8.863	8.871	8.873	8.878	8.926			
Ca	0.151	0.072	0.036	0.110	0.087	0.108	0.054	0.099	0.008			
Na	0.544	0.680	0.848	0.745	0.625	0.650	0.829	0.680	0.820			
K	0.007	0.006	0.004	0.007	0.006	0.004	0.004	0.004	0.002			
X total	0.702	0.758	0.887	0.862	0.718	0.762	0.887	0.784	0.829			
X vac.	0.298	0.242	0.113	0.138	0.282	0.238	0.113	0.216	0.171			
F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
Cl	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.004			
Fe/(Fe+Mg)	0.33	0.23	0.46	0.35	0.40	0.40	0.38	0.29	0.49			

B₂O₃* , H₂O* – calculated; c' (r') – the 2nd point analysed within the same core (rim); oxides are in wt.%