

Supplementary Information 4

Table 1. Pressure and temperature calculations based on amphibole composition.

Reference	MJG-132	MJG-132	MJG-132	MJG-132	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134		
Sample	rim	rim	rim	rim?				rim	rim	rim	core	core	core	rim	core	core	core	core	core	core	core	core	rim	core	core	core	core	rim				
Label	41	45	49	51	44	48	52	79	97	110	122	124	125	128	8	9	10	11	12	13	14	16	18	24	25	29	30	42	75	79		
Spot	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH		
SiO ₂	44.212	44.080	42.131	43.517	41.602	43.220	43.186	43.281	43.061	42.293	42.357	42.906	42.412	42.838	42.586	42.740	42.939	42.826	42.827	42.816	42.773	42.940	42.686	42.813	42.948	42.812	42.996	43.445	43.799	43.698		
TiO ₂	1.901	1.687	1.674	1.625	1.532	1.498	1.519	1.592	1.942	1.646	1.959	1.764	1.774	1.745	2.188	2.169	2.167	2.184	2.083	2.169	2.218	2.127	2.200	2.203	2.219	2.173	2.237	1.411	1.876	1.839		
Al ₂ O ₃	11.245	11.744	11.640	11.320	12.639	12.031	12.189	11.247	12.352	13.051	12.877	12.417	12.775	12.542	13.240	13.026	12.809	12.964	13.120	13.125	13.131	13.058	13.090	13.089	13.069	12.973	13.068	12.220	12.295	12.475		
Cr ₂ O ₃	0.057	0.000	0.025	0.023	0.058	0.020	0.037	0.044	0.078	0.009	0.000	0.037	0.011	0.000	0.011	0.007	0.000	0.004	0.020	0.000	0.039	0.015	0.030	0.007	0.020	0.009	0.000	0.016	0.060	0.080		
FeO	13.202	12.790	18.136	18.478	19.011	18.050	17.529	18.104	14.068	16.325	15.935	15.773	15.976	16.299	13.201	13.655	13.313	13.675	13.748	13.316	13.149	13.144	13.310	13.304	13.390	13.001	13.076	18.544	12.520	14.340		
MnO	0.232	0.155	0.259	0.360	0.295	0.334	0.302	0.276	0.219	0.230	0.189	0.168	0.283	0.224	0.173	0.187	0.167	0.186	0.164	0.179	0.186	0.177	0.193	0.163	0.182	0.191	0.115	0.362	0.218	0.216		
MgO	12.758	13.184	9.509	10.106	9.571	10.021	10.141	10.869	11.836	10.579	10.806	11.234	10.894	10.789	12.325	12.426	12.571	12.262	12.218	12.394	12.356	12.466	12.232	12.435	12.417	12.502	12.434	9.678	13.082	12.108		
CaO	10.722	10.280	10.007	10.155	10.451	10.370	10.899	10.574	11.330	10.860	11.181	11.011	10.997	11.098	11.214	11.105	11.048	11.016	10.988	11.045	11.132	11.090	11.177	11.118	10.958	11.072	11.223	10.278	11.157	11.095		
Na ₂ O	1.848	2.238	2.571	2.310	1.991	1.752	1.717	2.330	1.851	1.953	2.231	1.849	2.325	1.795	2.027	2.012	2.024	1.983	2.040	1.928	2.015	1.971	1.955	2.062	2.000	1.976	1.998	1.872	1.979	1.804		
K ₂ O	0.688	0.607	0.478	0.508	0.673	0.558	0.643	0.509	0.634	0.624	0.623	0.587	0.620	0.634	0.809	0.791	0.744	0.753	0.773	0.760	0.767	0.751	0.778	0.770	0.767	0.764	0.767	0.565	0.670	0.720		
F																																
Cl																																
H ₂ Oamp	1.909	1.913	1.851	1.892	1.869	1.888	1.895	1.899	1.906	1.891	1.901	1.901	1.899	1.900	1.918	1.922	1.920	1.918	1.920	1.920	1.920	1.921	1.916	1.923	1.924	1.916	1.925	1.895	1.927	1.927		
Fe ³⁺ /Fe ²⁺ check																																
SiO ₂	44.212	44.080	42.131	43.517	41.602	43.220	43.186	43.281	43.061	42.293	42.357	42.906	42.412	42.838	42.586	42.740	42.939	42.826	42.827	42.816	42.773	42.940	42.686	42.813	42.948	42.812	42.996	43.445	43.799	43.698		
TiO ₂	1.901	1.687	1.674	1.625	1.532	1.498	1.519	1.592	1.942	1.646	1.959	1.764	1.774	1.745	2.188	2.169	2.167	2.184	2.083	2.169	2.218	2.127	2.200	2.203	2.219	2.173	2.237	1.411	1.876	1.839		
Al ₂ O ₃	11.245	11.744	11.640	11.320	12.639	12.031	12.189	11.247	12.352	13.051	12.877	12.417	12.775	12.542	13.240	13.026	12.809	12.964	13.120	13.125	13.131	13.058	13.090	13.089	13.069	12.973	13.068	12.220	12.295	12.475		
Cr ₂ O ₃	0.057	0.000	0.025	0.023	0.058	0.020	0.037	0.044	0.078	0.009	0.000	0.037	0.011	0.000	0.011	0.007	0.000	0.004	0.020	0.000	0.039	0.015	0.030	0.007	0.020	0.009	0.000	0.016	0.060	0.080		
Fe ₂ O ₃	6.920	8.340	7.726	9.407	10.624	9.950	7.963	9.811	5.553	7.850	5.840	7.747	6.600	7.334	5.950	7.170	6.895	6.981	7.020	6.952	6.110	6.545	6.049	6.418	7.064	6.433	5.663	9.798	6.324	7.248		
FeO	6.975	5.286	11.184	10.014	9.452	9.097	10.364	9.276	9.071	9.261	10.680	8.802	10.037	9.700	7.847	7.203	7.108	7.393	7.432	7.061	7.652	7.255	7.867	7.529	7.034	7.212	7.980	9.728	6.830	7.818		
MnO	0.232	0.155	0.259	0.360	0.295	0.334	0.302	0.276	0.219	0.230	0.189	0.168	0.283	0.224	0.173	0.187	0.167	0.186	0.164	0.179	0.186	0.177	0.193	0.163	0.182	0.191	0.115	0.362	0.218	0.216		
MgO	12.758	13.184	9.509	10.106	9.571	10.021	10.141	10.869	11.836	10.579	10.806	11.234	10.894	10.789	12.325	12.426	12.571	12.262	12.218	12.394	12.356	12.466	12.232	12.435	12.417	12.502	12.434	9.678	13.082	12.108		
CaO	10.722	10.280	10.007	10.155	10.451	10.370	10.899	10.574	11.330	10.860	11.181	11.011	10.997	11.098	11.214	11.105	11.048	11.016	10.988	11.045	11.132	11.090	11.177	11.118	10.958	11.072	11.223	10.278	11.157	11.095		
Na ₂ O	1.848	2.238	2.571	2.310	1.991	1.752	1.717	2.330	1.851	1.953	2.231	1.849	2.325	1.795	2.027	2.012	2.024	1.983	2.040	1.928	2.015	1.971	1.955	2.062	2.000	1.976	1.998	1.872	1.979	1.804		
K ₂ O	0.688	0.607	0.478	0.508	0.673	0.558	0.643	0.509	0.634	0.624	0.623	0.587	0.620	0.634	0.809	0.791	0.744	0.753	0.773	0.760	0.767	0.751	0.778	0.770	0.767	0.764	0.767	0.565	0.670	0.720		
F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
H ₂ Ocalc	1.909	1.913	1.851	1.892	1.869	1.888	1.895	1.899	1.906	1.891	1.901	1.901	1.899	1.900	1.918	1.922	1.920	1.918	1.920	1.920	1.920	1.921	1.916	1.923	1.924	1.916	1.925	1.895	1.927	1.927		
Sum	99.468	99.514	99.055	101.236	100.756	100.739	100.855	101.708	99.833	100.247	100.644	100.423	100.627	100.598	100.288	100.758	100.393	100.471	100.605	100.348	100.298	100.316	100.173	100.530	100.602	100.034	100.406	101.268	100.217	101.028		
O=F,Cl	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Total	99.468	99.514	99.055	101.236	100.756	100.739	100.855	101.708	99.833	100.247	100.644	100.423	100.627	100.598	100.288	100.758	100.393	100.471	100.605	100.348	100.298	100.316	100.173	100.530	100.602	100.034	100.406	101.268	100.217	101.028		
Sum	96.865	96.765	96.430	98.402	97.823	97.854	98.162	98.826	97.371	97.570	98.158	97.746	98.067	97.964	97.774	98.118	97.782	97.853	97.981	97.732	97.766	97.739	97.651	97.964	97.970	97.473	97.914	98.391	97.656	98.375		
O=F,Cl	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Total	96.865	96.765	96.430	98.402	97.823	97.854	98.162	98.826	97.371	97.570	98.158	97.746	98.067	97.964	97.774	98.118	97.782	97.853	97.981	97.732	97.766	97.739	97.651	97.964	97.970	97.473	97.914	98.391	97.656	98.375		

Table 1. Pressure and temperature calculations based on amphibole composition (*continued*).

Reference	MJG-132	MJG-132	MJG-132	MJG-132	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	
Sample	rim	rim	rim	rim?				rim	rim	rim	core	core	core	rim	core	core	core	core	core	core	core	core	core	core	core	rim	core	core	core	rim	
Label	41	45	49	51	44	48	52	79	97	110	122	124	125	128	8	9	10	11	12	13	14	16	18	24	25	29	30	42	75	79	
Spot	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	
Formulae based on Leake et al. (1997)																															
XO	8.904	8.886	9.184	8.986	9.098	9.005	8.972	8.951	8.921	8.992	8.941	8.944	8.953	8.950	8.862	8.845	8.855	8.862	8.853	8.856	8.854	8.848	8.873	8.842	8.836	8.871	8.831	8.970	8.820	8.823	
Si	6.552	6.519	6.440	6.508	6.299	6.477	6.448	6.448	6.394	6.329	6.303	6.387	6.319	6.381	6.281	6.292	6.328	6.317	6.310	6.311	6.303	6.324	6.303	6.300	6.316	6.321	6.320	6.486	6.429	6.417	
Ti	0.212	0.188	0.192	0.183	0.174	0.169	0.171	0.178	0.217	0.185	0.219	0.197	0.199	0.195	0.243	0.240	0.240	0.242	0.231	0.240	0.246	0.236	0.244	0.244	0.245	0.241	0.247	0.158	0.207	0.203	
Al	1.964	2.047	2.097	1.995	2.256	2.125	2.145	1.975	2.161	2.302	2.258	2.178	2.243	2.202	2.302	2.260	2.225	2.254	2.278	2.280	2.280	2.266	2.278	2.270	2.265	2.257	2.264	2.150	2.127	2.159	
Cr	0.007	0.000	0.003	0.003	0.007	0.002	0.004	0.005	0.009	0.001	0.000	0.004	0.001	0.000	0.001	0.001	0.000	0.000	0.002	0.000	0.005	0.002	0.004	0.001	0.002	0.001	0.000	0.002	0.007	0.009	
Fe	1.636	1.582	2.318	2.311	2.407	2.262	2.189	2.256	1.747	2.043	1.983	1.964	1.991	2.030	1.628	1.681	1.641	1.687	1.694	1.641	1.620	1.619	1.644	1.637	1.647	1.605	1.607	2.315	1.537	1.761	
Mn	0.029	0.019	0.034	0.046	0.038	0.042	0.038	0.035	0.028	0.029	0.024	0.021	0.036	0.028	0.022	0.023	0.021	0.023	0.020	0.022	0.023	0.022	0.024	0.020	0.023	0.024	0.014	0.046	0.027	0.027	
Mg	2.818	2.907	2.167	2.253	2.161	2.239	2.257	2.414	2.620	2.360	2.397	2.493	2.420	2.396	2.710	2.727	2.762	2.696	2.684	2.723	2.714	2.737	2.693	2.728	2.722	2.752	2.725	2.154	2.863	2.651	
Ca	1.702	1.629	1.639	1.627	1.696	1.665	1.744	1.688	1.802	1.741	1.783	1.756	1.756	1.771	1.772	1.752	1.744	1.741	1.735	1.744	1.758	1.750	1.768	1.753	1.727	1.752	1.767	1.644	1.755	1.746	
Na	0.531	0.642	0.762	0.670	0.585	0.509	0.497	0.673	0.533	0.567	0.644	0.534	0.672	0.518	0.580	0.574	0.578	0.567	0.583	0.551	0.576	0.563	0.560	0.588	0.570	0.566	0.569	0.542	0.563	0.514	
K	0.130	0.115	0.093	0.097	0.130	0.107	0.122	0.097	0.120	0.119	0.118	0.111	0.118	0.120	0.152	0.149	0.140	0.142	0.145	0.143	0.144	0.141	0.147	0.145	0.144	0.144	0.144	0.108	0.125	0.135	
Tot	15.582	15.648	15.745	15.693	15.752	15.598	15.616	15.768	15.631	15.677	15.729	15.647	15.754	15.642	15.691	15.699	15.679	15.669	15.683	15.656	15.669	15.659	15.665	15.687	15.662	15.663	15.658	15.604	15.641	15.620	
F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
OHcalc	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	
Sum	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	
13(Si+Al+Cr+Ti+Fe+Mg+Mn)	13.218	13.262	13.251	13.299	13.342	13.317	13.253	13.311	13.175	13.250	13.185	13.245	13.209	13.232	13.187	13.224	13.216	13.219	13.220	13.218	13.191	13.205	13.190	13.201	13.221	13.202	13.177	13.311	13.197	13.226	
Si	6.444	6.390	6.318	6.362	6.138	6.323	6.325	6.297	6.309	6.210	6.215	6.269	6.219	6.269	6.192	6.185	6.224	6.212	6.205	6.207	6.211	6.225	6.213	6.205	6.211	6.224	6.235	6.334	6.333	6.307	
Ti	0.208	0.184	0.189	0.179	0.170	0.165	0.167	0.174	0.214	0.182	0.216	0.194	0.196	0.192	0.239	0.236	0.236	0.238	0.227	0.236	0.242	0.232	0.241	0.240	0.241	0.238	0.244	0.155	0.204	0.200	
Al	1.932	2.007	2.057	1.950	2.198	2.074	2.104	1.929	2.133	2.258	2.227	2.138	2.208	2.163	2.269	2.222	2.188	2.216	2.240	2.242	2.247	2.231	2.245	2.236	2.227	2.223	2.233	2.100	2.095	2.122	
Cr	0.007	0.000	0.003	0.003	0.007	0.002	0.004	0.005	0.009	0.001	0.000	0.004	0.001	0.000	0.001	0.001	0.000	0.000	0.002	0.000	0.004	0.002	0.003	0.001	0.002	0.001	0.000	0.002	0.007	0.009	
Fe	1.609	1.551	2.274	2.259	2.346	2.208	2.147	2.203	1.724	2.005	1.955	1.927	1.959	1.995	1.605	1.653	1.614	1.659	1.666	1.614	1.597	1.594	1.620	1.612	1.619	1.581	1.586	2.261	1.514	1.731	
Mn	0.029	0.019	0.033	0.045	0.037	0.041	0.037	0.034	0.027	0.029	0.023	0.021	0.035	0.028	0.021	0.023	0.021	0.023	0.020	0.022	0.023	0.022	0.024	0.020	0.022	0.024	0.014	0.045	0.027	0.026	
Mg	2.772	2.849	2.126	2.203	2.105	2.186	2.214	2.358	2.585	2.316	2.364	2.447	2.382	2.354	2.672	2.681	2.717	2.651	2.639	2.678	2.675	2.694	2.654	2.687	2.677	2.710	2.688	2.104	2.820	2.605	
Ca	1.674	1.597	1.608	1.591	1.652	1.625	1.710	1.648	1.778	1.708	1.758	1.724	1.728	1.740	1.747	1.722	1.716	1.712	1.706	1.715	1.732	1.723	1.743	1.726	1.698	1.725	1.744	1.606	1.728	1.716	
Na	0.522	0.629	0.748	0.655	0.570	0.497	0.488	0.657	0.526	0.556	0.635	0.524	0.661	0.509	0.571	0.565	0.569	0.558	0.573	0.542	0.567	0.554	0.552	0.579	0.561	0.557	0.562	0.529	0.555	0.505	
K	0.128	0.112	0.091	0.095	0.127	0.104	0.120	0.094	0.118	0.117	0.117	0.109	0.116	0.118	0.150	0.146	0.138	0.139	0.143	0.141	0.142	0.139	0.144	0.142	0.141	0.142	0.142	0.105	0.124	0.133	
Tot	15.324	15.338	15.447	15.340	15.348	15.227	15.318	15.400	15.423	15.381	15.509	15.357	15.505	15.368	15.469	15.432	15.422	15.409	15.422	15.398	15.441	15.416	15.439	15.448	15.400	15.423	15.447	15.240	15.407	15.353	
F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
OHcalc	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	
15(Si+Al+Cr+Ti+Fe+Mg+Mn+Ca)	14.920	14.891	14.890	14.926	15.038	14.982	14.997	14.999	14.978	14.991	14.967	15.001	14.965	15.003	14.959	14.976	14.961	14.960	14.955	14.962	14.949	14.955	14.958	14.954	14.948	14.954	14.944				

Table 1. Pressure and temperature calculations based on amphibole composition (*continued*).

Reference	MJG-132	MJG-132	MJG-132	MJG-132	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	
Sample	rim	rim	rim	rim?				rim	rim	rim	core	core	core	rim	core	core	core	core	core	core	core	core	core	core	core	core	core	rim	core	core	core
Label	41	45	49	51	44	48	52	79	97	110	122	124	125	128	8	9	10	11	12	13	14	16	18	24	25	29	30	42	75	79	
Spot	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	
Ti	0.213	0.189	0.194	0.184	0.174	0.169	0.171	0.178	0.217	0.185	0.220	0.197	0.199	0.195	0.243	0.241	0.241	0.243	0.232	0.241	0.247	0.236	0.245	0.245	0.246	0.242	0.248	0.159	0.208	0.203	
Al	1.974	2.062	2.112	2.005	2.250	2.128	2.146	1.975	2.165	2.303	2.263	2.178	2.249	2.201	2.308	2.264	2.231	2.260	2.285	2.286	2.288	2.273	2.285	2.277	2.273	2.265	2.272	2.157	2.134	2.163	
Cr	0.007	0.000	0.003	0.003	0.007	0.002	0.004	0.005	0.009	0.001	0.000	0.004	0.001	0.000	0.001	0.001	0.000	0.000	0.002	0.000	0.005	0.002	0.004	0.001	0.002	0.001	0.000	0.002	0.007	0.009	
Fe	1.645	1.593	2.335	2.323	2.401	2.265	2.189	2.256	1.749	2.044	1.987	1.963	1.995	2.030	1.633	1.684	1.645	1.691	1.699	1.645	1.626	1.624	1.648	1.642	1.653	1.610	1.613	2.322	1.542	1.764	
Mn	0.029	0.020	0.034	0.046	0.038	0.042	0.038	0.035	0.028	0.029	0.024	0.021	0.036	0.028	0.022	0.023	0.021	0.023	0.021	0.022	0.023	0.022	0.024	0.020	0.023	0.024	0.014	0.046	0.027	0.027	
Mg	2.834	2.928	2.183	2.264	2.155	2.242	2.258	2.414	2.624	2.362	2.402	2.493	2.426	2.395	2.717	2.731	2.769	2.703	2.692	2.730	2.724	2.745	2.700	2.736	2.732	2.760	2.735	2.160	2.872	2.655	
Ca	1.711	1.641	1.651	1.635	1.691	1.667	1.744	1.688	1.805	1.742	1.787	1.756	1.760	1.771	1.777	1.754	1.749	1.746	1.740	1.749	1.764	1.755	1.773	1.758	1.733	1.757	1.774	1.649	1.760	1.749	
Na	0.534	0.646	0.768	0.673	0.583	0.510	0.497	0.673	0.534	0.567	0.645	0.534	0.673	0.518	0.581	0.575	0.580	0.569	0.585	0.552	0.578	0.564	0.561	0.590	0.572	0.567	0.572	0.543	0.565	0.515	
K	0.131	0.115	0.094	0.097	0.130	0.107	0.123	0.097	0.120	0.119	0.119	0.111	0.118	0.120	0.153	0.149	0.140	0.142	0.146	0.143	0.145	0.142	0.147	0.145	0.144	0.144	0.144	0.108	0.126	0.135	
Tot	15.665	15.762	15.861	15.771	15.713	15.616	15.620	15.770	15.654	15.686	15.764	15.645	15.791	15.639	15.734	15.724	15.720	15.711	15.730	15.696	15.722	15.706	15.708	15.735	15.717	15.712	15.716	15.651	15.691	15.650	
F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
OHcalc	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	
Charges+	45.241	45.090	45.128	44.965	44.821	44.905	45.122	44.926	45.388	45.133	45.355	45.148	45.272	45.192	45.349	45.219	45.248	45.238	45.235	45.242	45.332	45.286	45.338	45.300	45.231	45.296	45.382	44.925	45.312	45.213	
Si	6.444	6.390	6.318	6.362	6.138	6.323	6.325	6.297	6.309	6.210	6.215	6.269	6.219	6.269	6.192	6.185	6.224	6.212	6.205	6.207	6.211	6.225	6.213	6.205	6.211	6.224	6.235	6.334	6.333	6.307	
Ti	0.208	0.184	0.189	0.179	0.170	0.165	0.167	0.174	0.214	0.182	0.216	0.194	0.196	0.192	0.239	0.236	0.236	0.238	0.227	0.236	0.242	0.232	0.241	0.240	0.241	0.238	0.244	0.155	0.204	0.200	
Al	1.932	2.007	2.057	1.950	2.198	2.074	2.104	1.929	2.133	2.258	2.227	2.138	2.208	2.163	2.269	2.222	2.188	2.216	2.240	2.242	2.247	2.231	2.245	2.236	2.227	2.223	2.233	2.100	2.095	2.122	
Cr	0.007	0.000	0.003	0.003	0.007	0.002	0.004	0.005	0.009	0.001	0.000	0.004	0.001	0.000	0.001	0.001	0.000	0.000	0.002	0.000	0.004	0.002	0.003	0.001	0.002	0.001	0.000	0.002	0.007	0.009	
Fe3+	0.759	0.910	0.872	1.035	1.179	1.095	0.878	1.074	0.612	0.867	0.645	0.852	0.728	0.808	0.651	0.781	0.752	0.762	0.765	0.758	0.668	0.714	0.662	0.700	0.769	0.704	0.618	1.075	0.688	0.787	
Fe2+	0.850	0.641	1.403	1.224	1.166	1.113	1.269	1.129	1.111	1.137	1.310	1.075	1.231	1.187	0.954	0.872	0.862	0.897	0.901	0.856	0.929	0.880	0.958	0.912	0.851	0.877	0.968	1.186	0.826	0.944	
Mn	0.029	0.019	0.033	0.045	0.037	0.041	0.037	0.034	0.027	0.029	0.023	0.021	0.035	0.028	0.021	0.023	0.021	0.023	0.020	0.022	0.023	0.022	0.024	0.020	0.022	0.024	0.014	0.045	0.027	0.026	
Mg	2.772	2.849	2.126	2.203	2.105	2.186	2.214	2.358	2.585	2.316	2.364	2.447	2.382	2.354	2.672	2.681	2.717	2.651	2.639	2.678	2.675	2.694	2.654	2.687	2.677	2.710	2.688	2.104	2.820	2.605	
Ca	1.674	1.597	1.608	1.591	1.652	1.625	1.710	1.648	1.778	1.708	1.758	1.724	1.728	1.740	1.747	1.722	1.716	1.712	1.706	1.715	1.732	1.723	1.743	1.726	1.698	1.725	1.744	1.606	1.728	1.716	
Na	0.522	0.629	0.748	0.655	0.570	0.497	0.488	0.657	0.526	0.556	0.635	0.524	0.661	0.509	0.571	0.565	0.569	0.558	0.573	0.542	0.567	0.554	0.552	0.579	0.561	0.557	0.562	0.529	0.555	0.505	
K	0.128	0.112	0.091	0.095	0.127	0.104	0.120	0.094	0.118	0.117	0.117	0.109	0.116	0.118	0.150	0.146	0.138	0.139	0.143	0.141	0.142	0.139	0.144	0.142	0.141	0.142	0.142	0.105	0.124	0.133	
Tot	15.324	15.338	15.447	15.340	15.348	15.227	15.318	15.400	15.423	15.381	15.509	15.357	15.505	15.368	15.469	15.432	15.422	15.409	15.422	15.398	15.441	15.416	15.439	15.448	15.400	15.423	15.447	15.240	15.407	15.353	
Total check	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
Al#	0.194	0.198	0.182	0.160	0.153	0.192	0.204	0.117	0.207	0.207	0.198	0.190	0.193	0.200	0.203	0.183	0.189	0.193	0.199	0.200	0.204	0.205	0.204	0.197	0.197	0.201	0.210	0.207	0.205	0.202	
Species	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Mg-Hst	Tsch-Prg	Mg-Hst	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	Tsch-Prg	
Physical-chemical conditions																															
T (°C)	895.958	904.213	892.521	876.071	915.168	885.322	898.055	890.650	928.646	928.867	938.495	918.761	934.292	918.809	955.244	948.528	942.982	943.320	944.883	946.714	950.174	945.808	949.462	949.722	944.439	946.677	948.167	882.403	928.255	920.534	
uncertainty (oest)	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	

Table 1. Pressure and temperature calculations based on amphibole composition (*continued*).

Reference	MJG-132	MJG-132	MJG-132	MJG-132	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134
Sample	rim	rim	rim	rim?				rim	rim	rim	core	core	core	rim	core	core	core	core	core	core	core	core	core	core	core	core	rim	core	core	core	
Label	41	45	49	51	44	48	52	79	97	110	122	124	125	128	8	9	10	11	12	13	14	16	18	24	25	29	30	42	75	79	
Spot	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	
P (MPa)	308.890	344.076	370.059	317.388	452.915	379.335	395.870	307.610	412.504	494.260	472.209	415.735	459.567	430.913	501.771	468.797	446.850	465.121	481.599	482.926	486.411	475.262	485.018	478.276	472.632	469.645	476.746	393.440	390.879	406.192	
uncertainty (Max error)	77.223	86.019	92.515	79.347	113.229	94.834	98.967	76.903	103.126	123.565	118.052	103.934	114.892	107.728	125.443	117.199	111.712	116.280	120.400	120.732	121.603	118.815	121.255	119.569	118.158	117.411	119.186	98.360	97.720	101.548	
oceanic depth (km)	10.899	12.140	13.057	11.199	15.981	13.385	13.968	10.854	14.555	17.440	16.662	14.669	16.216	15.204	17.705	16.541	15.767	16.411	16.993	17.040	17.163	16.769	17.114	16.876	16.676	16.571	16.822	13.882	13.792	14.332	
continental depth (km)	11.666	12.995	13.976	11.987	17.105	14.326	14.951	11.618	15.579	18.667	17.834	15.701	17.357	16.274	18.951	17.705	16.876	17.566	18.189	18.239	18.370	17.949	18.318	18.063	17.850	17.737	18.005	14.859	14.762	15.341	
Δ NNO	0.729	0.890	-0.180452288668737	0.081	-0.0194393764766807	0.146	0.068	0.296	0.321	0.096	-0.038	0.286	0.055	0.144	0.356	0.446	0.492	0.404	0.400	0.443	0.372	0.451	0.350	0.404	0.435	0.456	0.374	0.033	0.694	0.478	
logfO2	-11.183	-10.863	-12.130	-12.187	-11.540	-11.928	-11.773	-11.712	-10.987	-11.176	-11.160	-11.187	-11.141	-11.323	-10.483	-10.513	-10.565	-10.640	-10.613	-10.540	-10.553	-10.550	-10.587	-10.532	-10.589	-10.533	-10.588	-12.089	-10.628	-10.969	
uncertainty (σ est)	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	
H2Omelt	6.892	6.910	7.815	7.552	8.218	8.585	8.528	6.984	7.952	8.670	8.114	8.178	7.965	8.386	7.604	7.377	7.363	7.586	7.633	7.722	7.661	7.689	7.706	7.505	7.570	7.563	7.644	8.778	7.352	7.760	
uncertainty*	1.034	1.037	1.172	1.133	1.233	1.288	1.279	1.048	1.193	1.301	1.217	1.227	1.195	1.258	1.141	1.106	1.104	1.138	1.145	1.158	1.149	1.153	1.156	1.126	1.135	1.134	1.147	1.317	1.103	1.164	
Formula on the basis of 13 cations (Leake et al., 1997)																															
Si	6.444	6.390	6.318	6.362	6.138	6.323	6.325	6.297	6.309	6.210	6.215	6.269	6.219	6.269	6.192	6.185	6.224	6.212	6.205	6.207	6.211	6.225	6.213	6.205	6.211	6.224	6.235	6.334	6.333	6.307	
AlIV	1.556	1.610	1.682	1.638	1.862	1.677	1.675	1.703	1.691	1.790	1.785	1.731	1.781	1.731	1.808	1.815	1.776	1.788	1.795	1.793	1.789	1.775	1.787	1.795	1.789	1.776	1.765	1.666	1.667	1.693	
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Tsite	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	
AlVI	0.375	0.397	0.375	0.312	0.336	0.398	0.430	0.226	0.441	0.468	0.441	0.407	0.427	0.432	0.461	0.407	0.413	0.428	0.446	0.449	0.459	0.457	0.458	0.440	0.438	0.447	0.468	0.434	0.428	0.429	
Ti	0.208	0.184	0.189	0.179	0.170	0.165	0.167	0.174	0.214	0.182	0.216	0.194	0.196	0.192	0.239	0.236	0.236	0.238	0.227	0.236	0.242	0.232	0.241	0.240	0.241	0.238	0.244	0.155	0.204	0.200	
Cr	0.007	0.000	0.003	0.003	0.007	0.002	0.004	0.005	0.009	0.001	0.000	0.004	0.001	0.000	0.001	0.001	0.000	0.000	0.002	0.000	0.004	0.002	0.003	0.001	0.002	0.001	0.000	0.002	0.007	0.009	
Fe3+	0.759	0.910	0.872	1.035	1.179	1.095	0.878	1.074	0.612	0.867	0.645	0.852	0.728	0.808	0.651	0.781	0.752	0.762	0.765	0.758	0.668	0.714	0.662	0.700	0.769	0.704	0.618	1.075	0.688	0.787	
Mg	2.772	2.849	2.126	2.203	2.105	2.186	2.214	2.358	2.585	2.316	2.364	2.447	2.382	2.354	2.672	2.681	2.717	2.651	2.639	2.678	2.675	2.694	2.654	2.687	2.677	2.710	2.688	2.104	2.820	2.605	
Fe2+	0.850	0.641	1.403	1.224	1.166	1.113	1.269	1.129	1.111	1.137	1.310	1.075	1.231	1.187	0.954	0.872	0.862	0.897	0.901	0.856	0.929	0.880	0.958	0.912	0.851	0.877	0.968	1.186	0.826	0.944	
Mn	0.029	0.019	0.033	0.045	0.037	0.041	0.037	0.034	0.027	0.029	0.023	0.021	0.035	0.028	0.021	0.023	0.021	0.023	0.020	0.022	0.023	0.022	0.024	0.020	0.022	0.024	0.014	0.045	0.027	0.026	
Csite	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	
Fe2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Ca	1.674	1.597	1.608	1.591	1.652	1.625	1.710	1.648	1.778	1.708	1.758	1.724	1.728	1.740	1.747	1.722	1.716	1.712	1.706	1.715	1.732	1.723	1.743	1.726	1.698	1.725	1.744	1.606	1.728	1.716	
Na	0.326	0.403	0.392	0.409	0.348	0.375	0.290	0.352	0.222	0.292	0.242	0.276	0.272	0.260	0.253	0.278	0.284	0.288	0.294	0.285	0.268	0.277	0.257	0.274	0.302	0.275	0.256	0.394	0.272	0.284	
Bsite	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	
Na	0.197	0.226	0.355	0.245	0.222	0.122	0.198	0.306	0.304	0.264	0.392	0.247	0.389	0.249	0.318	0.286	0.285	0.270	0.279	0.257	0.299	0.277	0.295	0.306	0.259	0.282	0.305	0.135	0.283	0.220	
K	0.128	0.112	0.091	0.095	0.127	0.104	0.120	0.094	0.118	0.117	0.117	0.109	0.116	0.118	0.150	0.146	0.138	0.139	0.143	0.141	0.142	0.139	0.144	0.142	0.141	0.142	0.142	0.105	0.124	0.133	
Asite	0.324	0.338	0.447	0.340	0.348	0.227	0.318	0.400	0.423	0.381	0.509	0.357	0.505	0.368	0.469	0.432	0.422	0.409	0.422	0.398	0.441	0.416	0.439	0.448	0.400	0.423	0.447	0.240	0.407	0.353	

Table 1. Pressure and temperature calculations based on amphibole composition (*continued*).

Reference	MJG-132	MJG-132	MJG-132	MJG-132	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134	MJG-134
Sample	rim	rim	rim	rim?				rim	rim	rim	core	core	core	rim	core	core	core	core	core	core	core	core	rim	core	core	core	core	rim		
Label	41	45	49	51	44	48	52	79	97	110	122	124	125	128	8	9	10	11	12	13	14	16	18	24	25	29	30	42	75	79
Spot	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH	AMPH
Si	6.444	6.390	6.318	6.362	6.138	6.323	6.325	6.297	6.309	6.210	6.215	6.269	6.219	6.269	6.192	6.185	6.224	6.212	6.205	6.207	6.211	6.225	6.213	6.205	6.211	6.224	6.235	6.334	6.333	6.307
Mg/Mg+Fe ²⁺	0.765	0.816	0.602	0.643	0.644	0.663	0.636	0.676	0.699	0.671	0.643	0.695	0.659	0.665	0.737	0.755	0.759	0.747	0.746	0.758	0.742	0.754	0.735	0.746	0.759	0.756	0.735	0.639	0.773	0.734
CaB	1.674	1.597	1.608	1.591	1.652	1.625	1.710	1.648	1.778	1.708	1.758	1.724	1.728	1.740	1.747	1.722	1.716	1.712	1.706	1.715	1.732	1.723	1.743	1.726	1.698	1.725	1.744	1.606	1.728	1.716
(Na+K)A	0.324	0.338	0.447	0.340	0.348	0.227	0.318	0.400	0.423	0.381	0.509	0.357	0.505	0.368	0.469	0.432	0.422	0.409	0.422	0.398	0.441	0.416	0.439	0.448	0.400	0.423	0.447	0.240	0.407	0.353
(Ca+Na)B	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
NaB	0.326	0.403	0.392	0.409	0.348	0.375	0.290	0.352	0.222	0.292	0.242	0.276	0.272	0.260	0.253	0.278	0.284	0.288	0.294	0.285	0.268	0.277	0.257	0.274	0.302	0.275	0.256	0.394	0.272	0.284
Ti	0.208	0.184	0.189	0.179	0.170	0.165	0.167	0.174	0.214	0.182	0.216	0.194	0.196	0.192	0.239	0.236	0.236	0.238	0.227	0.236	0.242	0.232	0.241	0.240	0.241	0.238	0.244	0.155	0.204	0.200
Si*	7.559	7.504	7.581	7.690	7.432	7.629	7.545	7.594	7.343	7.341	7.278	7.408	7.306	7.408	7.167	7.212	7.248	7.246	7.236	7.224	7.201	7.230	7.205	7.204	7.239	7.224	7.214	7.648	7.345	7.396
AlT	1.932	2.007	2.057	1.950	2.198	2.074	2.104	1.929	2.133	2.258	2.227	2.138	2.208	2.163	2.269	2.222	2.188	2.216	2.240	2.242	2.247	2.231	2.245	2.236	2.227	2.223	2.233	2.100	2.095	2.122
Mg*	2.882	2.980	2.329	2.488	2.427	2.528	2.481	2.619	2.634	2.498	2.416	2.613	2.472	2.526	2.655	2.710	2.738	2.685	2.683	2.708	2.666	2.713	2.652	2.685	2.704	2.716	2.666	2.459	2.862	2.730
[6]Al*	-1.033	-1.030	-0.856	-0.907	-0.779	-0.708	-0.720	-1.016	-0.830	-0.692	-0.799	-0.787	-0.827	-0.747	-0.897	-0.940	-0.943	-0.900	-0.891	-0.874	-0.886	-0.880	-0.877	-0.916	-0.903	-0.905	-0.889	-0.672	-0.945	-0.867
Mn*	0.064	-0.029	-0.143	-0.020	0.028	0.034	-0.006	-0.042	-0.071	-0.083	-0.145	-0.054	-0.140	-0.043	-0.017	0.023	0.004	0.014	-0.004	0.014	-0.014	-0.011	-0.005	-0.013	0.024	0.002	-0.030	0.007	-0.045	0.015