Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_12	P_12A	P_12A	P_12A	P_12A	P_12A	P_12A	P_12A	P_12A	P_12A	P_12A	P_12A	P_12A	P_12A	P_12A	P_12A
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite
Analysis	5	2	4	5	6	7	9	11	12	13	14	15	16	17	18	19
wt.%																
TiO2	0.3	0.42	0.59	0.35	0.12	0.15	0.51	0.34	0.25	0.21	0.35	0.47	0.2	0.16	0.39	0.38
SiO2	35.39	35.93	36.04	35.53	36.33	35.58	35.95	35.73	35.42	35.99	35.85	35.62	36.01	36.31	35.5	35.09
Fe2O3	0	0	0	0	0.2232	0	0	0	0	0	0.0881	0	0	0	0	0
Cr2O3	0	0	0	0.01	0	0	0.01	0	0	0	0	0.01	0	0	0.01	0
V2O3	0	0	0.02	0.04	0	0	0	0	0.02	0	0	0	0	0	0	0
Al2O3	33.86	34.11	33.97	33.64	34.71	33.26	33.75	33.86	34.13	33.67	33.53	33.28	34.6	34.56	33.56	34.37
B2O3	10.4339	10.5198	10.5187	10.4034	10.5327	10.3212	10.4794	10.4443	10.4333	10.4891	10.4104	10.4357	10.5138	10.5421	10.4329	10.4429
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	13.38	14.03	13.55	14.14	13.1392	13.67	13.85	13.91	14.21	15.01	13.6507	14.69	13.49	13.44	14.5	14.45
MnO	0.12	0.06	0.05	0.05	0.06	0.08	0.06	0.03	0.06	0.02	0.04	0.07	0.05	0.05	0.06	0.04
CaO	0.09	0.09	0.04	0.01	0	0.05	0.07	0.06	0.03	0.05	0.01	0.05	0.05	0.02	0.07	0.04
MgO	1.49	0.75	0.88	0.68	0.52	0.8	0.8	0.71	0.75	0.74	0.75	1.01	0.68	0.87	1.04	0.81
K2O	0.06	0.01	0.03	0.05	0.04	0	0.07	0.03	0.01	0.02	0.04	0.05	0.03	0.03	0.02	0.02
Na2O	1.93	1.88	1.83	2	1.44	1.89	1.8	1.93	1.92	1.87	1.85	1.99	1.65	1.47	1.95	1.96
Li2O	0.2332	0.3317	0.3504	0.3318	0.3877	0.3612	0.3401	0.3587	0.268	0.2406	0.3708	0.2215	0.3506	0.2984	0.2136	0.2041
F	0.6	0.14	0.03	0.2	0	0.25	0.08	0.21	0.11	0.22	0.04	0.04	0.03	0	0.15	0.14
H2O	3.3154	3.5632	3.6149	3.4945	3.634	3.4425	3.5777	3.5039	3.5475	3.5146	3.5728	3.5816	3.6132	3.6372	3.5284	3.5366
Total#	101.2026	101.8346	101.514	100.9298	101.1368	99.855	101.3472	101.1169	101.1588	102.0444	100.5528	101.5189	101.2677	101.3877	101.4249	101.4837
O=F	-0.2526	-0.059	-0.0126	-0.0842	0	-0.1053	-0.0337	-0.0884	-0.0463	-0.0926	-0.0168	-0.0168	-0.0126	0	-0.0632	-0.059
Total	100.95	101.7757	101.5013	100.8455	101.1368	99.7497	101.3135	101.0285	101.1125	101.9517	100.536	101.502	101.255	101.3877	101.3618	101.4248
apfu																
Group T																
Si4+	5.8952	5.9363	5.9551	5.9359	5.995	5.9916	5.9625	5.9459	5.9006	5.9636	5.9853	5.9325	5.9529	5.9864	5.9141	5.8402
Al3+	0.1048	0.0637	0.0449	0.0641	0.005	0.0084	0.0375	0.0541	0.0994	0.0364	0.0147	0.0675	0.0471	0.0136	0.0859	0.1598
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0	0	0	0.0013	0	0	0.0013	0	0	0	0	0.0013	0	0	0.0013	0
V3+	0	0	0.0026	0.0054	0	0	0	0	0.0027	0	0	0	0	0	0	0
Al3+	6	6	5.9974	5.9933	6	6	5.9987	6	5.9973	6	6	5.9987	6	6	5.9987	6
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0376	0.0522	0.0733	0.044	0.0149	0.019	0.0636	0.0426	0.0313	0.0262	0.044	0.0589	0.0249	0.0198	0.0489	0.0476
Fe3+	0	0	0	0	0.0277	0	0	0	0	0	0.0111	0	0	0	0	0
Al3+	0.5427	0.5783	0.5732	0.5663	0.7455	0.5926	0.561	0.5869	0.6042	0.5391	0.583	0.4663	0.6941	0.7017	0.5047	0.582
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.864	1.9386	1.8725	1.9756	1.8133	1.9252	1.9211	1.9359	1.9797	2.0801	1.906	2.0461	1.865	1.8531	2.0202	2.0113
Mn2+	0.0169	0.0084	0.007	0.0071	0.0084	0.0114	0.0084	0.0042	0.0085	0.0028	0.0057	0.0099	0.007	0.007	0.0085	0.0056
Mg2+	0.37	0.1847	0.2168	0.1694	0.1279	0.2008	0.1978	0.1761	0.1863	0.1828	0.1867	0.2508	0.1676	0.2138	0.2583	0.201
Li+	0.1562	0.2204	0.2328	0.2229	0.2573	0.2446	0.2268	0.2401	0.1795	0.1604	0.249	0.1484	0.2331	0.1979	0.1431	0.1366
Total	2.9875	2.9826	2.9756	2.9853	2.995	2.9937	2.9788	2.9858	2.9896	2.9913	2.9853	2.9804	2.9917	2.9934	2.9837	2.9841
Group A																
Ca2+	0.0161	0.0159	0.0071	0.0018	0	0.009	0.0124	0.0107	0.0054	0.0089	0.0018	0.0089	0.0089	0.0035	0.0125	0.0071
K+	0.0128	0.0021	0.0063	0.0107	0.0084	0	0.0148	0.0064	0.0021	0.0042	0.0085	0.0106	0.0063	0.0063	0.0043	0.0042
Na+	0.6233	0.6022	0.5863	0.6478	0.4607	0.6171	0.5788	0.6227	0.6201	0.6008	0.5989	0.6426	0.5289	0.4699	0.6299	0.6325
Total	0.6521	0.6203	0.5997	0.6603	0.4691	0.6261	0.6061	0.6398	0.6276	0.6139	0.6092	0.6621	0.544	0.4797	0.6466	0.6439
Group Z																
OH-	3.6839	3.9268	3.9843	3.8943	4	3.8669	3.958	3.8895	3.942	3.8847	3.9789	3.9789	3.9843	4	3.921	3.9263
F-	0.3161	0.0732	0.0157	0.1057	0	0.1331	0.042	0.1105	0.058	0.1153	0.0211	0.0211	0.0157	0	0.079	0.0737
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_12A	P_12a	P_12a	P_12a	P_12a	P_12a	P_12a	P_12a	P_12a	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite
Analysis	20	1	2	4	5	6	7	8	10	1	2	3	4	6	8	9
wt.%																
TiO2	0.41	0.17	0.15	0.25	0.62	0.34	0.13	0.46	0.24	0.03	0.29	0.29	0.29	0.29	0.5	0.4
SiO2	36.15	35.72	36.2	35.8	35.87	35.6	35.87	35.21	36.19	36.47	35.74	35.92	35.67	35.54	35.39	35.75
Fe2O3	3.052	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr2O3	0	0.02	0	0.01	0	0	0	0.01	0	0.01	0	0	0	0	0	0.02
V2O3	0	0.02	0.01	0.04	0	0.02	0.01	0	0.03	0	0	0	0	0.01	0	0.01
Al2O3	32.42	33.91	34.24	33.97	33.25	33.81	33.86	33.62	33.99	35.07	33.77	34.07	33.44	33.71	33.96	33.24
B2O3	10.5016	10.5006	10.5524	10.5095	10.4571	10.4784	10.4744	10.4043	10.5107	10.5914	10.461	10.503	10.3917	10.3932	10.452	10.4183
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	11.4238	13.76	13.11	13.72	14.31	13.54	12.69	14.41	12.58	13.53	14.45	14.07	14.39	13.99	14.24	13.85
MnO	0.06	0.1	0.08	0.06	0.05	0.11	0.08	0.08	0.08	0.09	0.11	0.11	0.08	0.13	0.09	0.13
CaO	0.06	0.08	0.05	0.06	0.05	0.12	0.07	0.04	0.06	0	0.05	0.05	0.06	0.02	0.05	0.07
MgO	1.04	1.44	1.44	1.46	0.95	1.54	1.72	0.96	1.44	0.63	0.88	0.73	0.64	0.75	0.87	1.02
K2O	0.02	0.01	0.02	0.06	0	0.03	0.02	0.05	0.03	0.01	0.04	0.04	0	0.06	0.1	0.04
Na2O	1.98	2.06	1.8	1.87	1.96	1.94	1.95	2.07	1.8	1.39	1.85	1.91	1.9	1.85	1.92	2.03
Li2O	0.5992	0.2478	0.2932	0.2167	0.2841	0.2274	0.3078	0.2335	0.3633	0.3073	0.2388	0.3309	0.3121	0.2983	0.25	0.3353
F	0.27	0.06	0	0	0.17	0.12	0.06	0.19	0	0	0.13	0.19	0.18	0.05	0.17	0.28
H2O	3.4953	3.5945	3.6408	3.626	3.5273	3.5584	3.5854	3.4996	3.6264	3.6543	3.5476	3.5337	3.5	3.5622	3.5255	3.4618
Total#	101.4819	101.6929	101.5865	101.6521	101.4985	101.4342	100.8277	101.2374	100.9404	101.783	101.5573	101.7475	100.8539	100.6536	101.5175	101.0553
O=F	-0.1137	-0.0253	0	0	-0.0716	-0.0505	-0.0253	-0.08	0	0	-0.0547	-0.08	-0.0758	-0.0211	-0.0716	-0.1179
Total	101.3682	101.6676	101.5865	101.6521	101.427	101.3837	100.8024	101.1574	100.9404	101.783	101.5026	101.6675	100.7781	100.6326	101.4459	100.9374
apfu																
Group T																
Si4+	5.983	5.9124	5.9624	5.9206	5.9619	5.905	5.9521	5.8819	5.9844	5.9848	5.9381	5.9441	5.966	5.9434	5.885	5.9641
Al3+	0.017	0.0876	0.0376	0.0794	0.0381	0.095	0.0479	0.1181	0.0156	0.0152	0.0619	0.0559	0.034	0.0566	0.115	0.0359
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0	0.0026	0	0.0013	0	0	0	0.0013	0	0.0013	0	0	0	0	0	0.0026
V3+	0	0.0027	0.0013	0.0053	0	0.0027	0.0013	0	0.004	0	0	0	0	0.0013	0	0.0013
Al3+	6	5.9947	5.9987	5.9934	6	5.9973	5.9987	5.9987	5.996	5.9987	6	6	6	5.9987	6	5.996
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.051	0.0212	0.0186	0.0311	0.0775	0.0424	0.0162	0.0578	0.0299	0.0037	0.0362	0.0361	0.0365	0.0365	0.0626	0.0502
Fe3+	0.3801	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Al3+	0.3068	0.5327	0.6104	0.5485	0.4752	0.5172	0.5752	0.5025	0.6127	0.7688	0.5509	0.5889	0.5577	0.5888	0.5407	0.5037
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.5812	1.9048	1.8059	1.8976	1.9891	1.8783	1.761	2.0132	1.7397	1.8569	2.0078	1.9472	2.0128	1.9566	1.9804	1.9324
Mn2+	0.0084	0.014	0.0112	0.0084	0.007	0.0155	0.0112	0.0113	0.0112	0.0125	0.0155	0.0154	0.0113	0.0184	0.0127	0.0184
Mg2+	0.2566	0.3553	0.3536	0.36	0.2354	0.3808	0.4255	0.2391	0.355	0.1541	0.218	0.1801	0.1596	0.187	0.2157	0.2537
Li+	0.3988	0.1649	0.1942	0.1441	0.1899	0.1517	0.2054	0.1569	0.2416	0.2028	0.1595	0.2202	0.2099	0.2006	0.1672	0.2249
Total	2.983	2.9929	2.9938	2.9896	2.9742	2.9859	2.9946	2.9807	2.99	2.9988	2.9879	2.988	2.9878	2.9878	2.9791	2.9833
Group A																
Ca2+	0.0106	0.0142	0.0088	0.0106	0.0089	0.0213	0.0124	0.0072	0.0106	0	0.0089	0.0089	0.0108	0.0036	0.0089	0.0125
K+	0.0042	0.0021	0.0042	0.0127	0	0.0063	0.0042	0.0107	0.0063	0.0021	0.0085	0.0084	0	0.0128	0.0212	0.0085
Na+	0.6354	0.6611	0.5748	0.5996	0.6316	0.6239	0.6274	0.6705	0.5771	0.4423	0.596	0.6128	0.6161	0.5998	0.619	0.6566
Total	0.6502	0.6774	0.5878	0.6229	0.6405	0.6516	0.644	0.6883	0.5941	0.4443	0.6133	0.6301	0.6269	0.6162	0.6492	0.6776
Group Z																
OH-	3.8587	3.9686	4	4	3.9106	3.9371	3.9685	3.8996	4	4	3.9317	3.9006	3.9048	3.9736	3.9106	3.8523
F-	0.1413	0.0314	0	0	0.0894	0.0629	0.0315	0.1004	0	0	0.0683	0.0994	0.0952	0.0264	0.0894	0.1477
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite
Analysis	10	11	12	13	14	15	16	17	19	20	21	22	23	24	25	26
wt.%																
TiO2	0.39	0.54	0.14	0.4	0.24	0.19	0.37	0.44	0.11	0.43	0.04	0.39	0.34	0.37	0.31	0.21
SiO2	35.78	35.51	36.57	35.71	35.74	36.17	35.64	35.57	36.21	35.72	36.39	35.56	35.39	35.09	35.89	35.94
Fe2O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5364	0.4703
Cr2O3	0.01	0	0.01	0	0.01	0	0.01	0	0	0	0	0.01	0	0.01	0.04	0.04
V2O3	0.03	0	0.04	0	0	0	0	0	0	0.02	0	0	0.01	0	0	0
Al2O3	34.07	33.33	35.42	34.13	33.88	35	33.74	34.04	35.66	33.63	34.91	33.51	33.75	34.28	32.82	33.06
B2O3	10.4771	10.4038	10.6363	10.4795	10.4613	10.5831	10.4282	10.4575	10.5904	10.446	10.5711	10.4104	10.4322	10.4491	10.419	10.4263
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	13.75	14.4	12.88	13.79	14.44	13.68	14.18	14.03	12.98	14.17	13.49	14.07	14.92	14.67	12.5376	13.8868
MnO	0.1	0.12	0.09	0.12	0.11	0.11	0.12	0.1	0.08	0.09	0.09	0.1	0.12	0.08	0.12	0.13
CaO	0.03	0.06	0	0.05	0.04	0.01	0.02	0.03	0.05	0.03	0.01	0.04	0	0.04	0.06	0.04
MgO	0.76	0.8	0.69	0.77	0.77	0.66	0.7	0.8	0.47	0.82	0.64	0.83	0.79	0.79	0.88	0.82
K2O	0.04	0.03	0.01	0.05	0.03	0.01	0.06	0.03	0.04	0.02	0.04	0.01	0.03	0.06	0.03	0.04
Na2O	1.87	1.98	1.35	1.89	1.87	1.59	1.89	1.87	1.28	1.95	1.48	2.06	1.99	2.01	1.92	2.03
Li2O	0.3347	0.2779	0.3537	0.3289	0.2607	0.3	0.3009	0.2761	0.3547	0.2985	0.3346	0.3239	0.1891	0.1974	0.4852	0.3819
F	0.17	0.15	0	0.08	0.17	0	0.19	0.18	0	0.11	0	0.29	0.16	0.14	0.23	0.22
H2O	3.5342	3.5184	3.6697	3.5777	3.5288	3.6514	3.5078	3.5227	3.6539	3.5519	3.6472	3.4543	3.5235	3.5388	3.4857	3.493
Total#	101.3459	101.1201	101.8598	101.3761	101.5507	101.9545	101.1569	101.3462	101.4791	101.2865	101.643	101.0585	101.6448	101.7252	100.7638	101.1882
O=F	-0.0716	-0.0632	0	-0.0337	-0.0716	0	-0.08	-0.0758	0	-0.0463	0	-0.1221	-0.0674	-0.059	-0.0968	-0.0926
Total	101.2744	101.057	101.8598	101.3424	101.4792	101.9545	101.0769	101.2704	101.4791	101.2401	101.643	100.9364	101.5774	101.6663	100.667	101.0956
apfu																
Group T																
Si4+	5.9356	5.9323	5.9758	5.9227	5.9379	5.9402	5.9401	5.9118	5.9427	5.9433	5.9831	5.9369	5.8962	5.8368	5.987	5.9912
Al3+	0.0644	0.0677	0.0242	0.0773	0.0621	0.0598	0.0599	0.0882	0.0573	0.0567	0.0169	0.0631	0.1038	0.1632	0.013	0.0088
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0013	0	0.0013	0	0.0013	0	0.0013	0	0	0	0	0.0013	0	0.0013	0.0053	0.0053
V3+	0.004	0	0.0052	0	0	0	0	0	0	0.0027	0	0	0.0013	0	0	0
Al3+	5.9947	6	5.9935	6	5.9987	6	5.9987	6	6	5.9973	6	5.9987	5.9987	5.9987	5.9947	5.9947
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0487	0.0679	0.0172	0.0499	0.03	0.0235	0.0464	0.055	0.0136	0.0538	0.0049	0.049	0.0426	0.0463	0.0389	0.0263
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1929	0.059
Al3+	0.6022	0.4947	0.8039	0.5941	0.5733	0.7147	0.5691	0.5797	0.8401	0.5407	0.7478	0.532	0.5245	0.5583	0.4449	0.4917
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.9076	2.0119	1.7602	1.9128	2.0064	1.8789	1.9765	1.9501	1.7815	1.9718	1.8549	1.9645	2.0789	2.0407	1.7491	1.936
Mn2+	0.0141	0.017	0.0125	0.0169	0.0155	0.0153	0.0169	0.0141	0.0111	0.0127	0.0125	0.0141	0.0169	0.0113	0.017	0.0184
Mg2+	0.188	0.1992	0.1681	0.1904	0.1907	0.1616	0.1739	0.1982	0.115	0.2034	0.1569	0.2066	0.1962	0.1959	0.2188	0.2038
Li+	0.2233	0.1867	0.2325	0.2194	0.1742	0.1982	0.2017	0.1845	0.2341	0.1997	0.2212	0.2175	0.1267	0.132	0.3255	0.256
Total	2.9838	2.9774	2.9943	2.9834	2.99	2.9922	2.9845	2.9817	2.9955	2.9821	2.9984	2.9837	2.9858	2.9846	2.987	2.9912
Group A																
Ca2+	0.0053	0.0107	0	0.0089	0.0071	0.0018	0.0036	0.0053	0.0088	0.0053	0.0018	0.0072	0	0.0071	0.0107	0.0071
K+	0.0085	0.0064	0.0021	0.0106	0.0064	0.0021	0.0128	0.0064	0.0084	0.0042	0.0084	0.0021	0.0064	0.0127	0.0064	0.0085
Na+	0.6015	0.6413	0.4277	0.6078	0.6024	0.5063	0.6108	0.6026	0.4073	0.6291	0.4718	0.6668	0.6428	0.6482	0.621	0.6561
Total	0.6153	0.6585	0.4298	0.6272	0.6159	0.5101	0.6271	0.6143	0.4245	0.6387	0.4819	0.6761	0.6492	0.6681	0.6381	0.6718
Group Z																
OH-	3.9108	3.9207	4	3.958	3.9107	4	3.8998	3.9054	4	3.9421	4	3.8469	3.9157	3.9264	3.8787	3.884
F-	0.0892	0.0793	0	0.042	0.0893	0	0.1002	0.0946	0	0.0579	0	0.1531	0.0843	0.0736	0.1213	0.116
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite
Analysis	27	28	30	31	33	34	36	38	39	40	41	42	43	44	46	48
wt.%																
TiO2	0.23	0.23	0.49	0.27	0.52	0.32	0.55	0.07	0.44	0.07	0.36	0.12	0.23	0.36	0.36	0.37
SiO2	35.58	35.84	36.05	35.4	35.72	35.55	35.44	36.35	35.59	36.56	35	36.53	35.63	34.53	35.4	35.7
Fe2O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr2O3	0	0.03	0.01	0.03	0.02	0.01	0	0	0	0	0	0	0	0.01	0	0
V2O3	0.04	0	0.01	0	0.01	0.03	0	0.04	0	0.04	0	0.01	0	0	0	0
Al2O3	33.09	33.29	33.96	33.7	33.33	33.82	33.29	35.05	33.47	35.23	33.32	35.13	33.54	34	34.12	34.55
B2O3	10.3369	10.4071	10.5234	10.3796	10.4248	10.4049	10.4014	10.5793	10.3849	10.6127	10.3416	10.6059	10.3995	10.2823	10.4749	10.5255
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	13.92	14.25	13.86	14.19	14.36	13.84	14.51	13.62	13.67	12.9	14.91	13.32	14.26	13.76	14.67	13.7
MnO	0.09	0.11	0.08	0.1	0.12	0.13	0.1	0.09	0.12	0.1	0.15	0.11	0.15	0.11	0.18	0.15
CaO	0.08	0.01	0.08	0.09	0.07	0.02	0.04	0.01	0.03	0.03	0.05	0.06	0.08	0.07	0.05	0
MgO	0.87	0.78	0.75	0.67	0.76	0.69	0.79	0.51	0.83	0.72	0.81	0.53	0.71	0.7	0.78	0.91
K2O	0.03	0.01	0.01	0.04	0.06	0.02	0.05	0	0.02	0.01	0.06	0.04	0.03	0	0.07	0.04
Na2O	1.92	2	1.9	1.87	1.88	1.9	2.08	1.46	1.93	1.37	2.09	1.35	1.91	2	1.95	1.87
Li2O	0.3367	0.3267	0.3633	0.3023	0.2929	0.3286	0.2844	0.3267	0.342	0.3634	0.2029	0.36	0.3106	0.2797	0.2097	0.275
F	0.17	0.18	0.15	0.25	0.16	0.11	0.19	0	0.17	0	0.16	0	0.19	0.16	0.64	0.74
H2O	3.4858	3.5053	3.5597	3.4626	3.5209	3.5377	3.4986	3.6501	3.5024	3.6616	3.4922	3.6593	3.4979	3.4718	3.3106	3.2806
Total#	100.1794	100.9691	101.7964	100.7545	101.2486	100.7112	101.2244	101.756	100.4993	101.6677	100.9466	101.8252	100.938	99.7338	102.2151	102.1112
O=F	-0.0716	-0.0758	-0.0632	-0.1053	-0.0674	-0.0463	-0.08	0	-0.0716	0	-0.0674	0	-0.08	-0.0674	-0.2695	-0.3116
Total	100.1079	100.8933	101.7332	100.6492	101.1812	100.6649	101.1444	101.756	100.4277	101.6677	100.8793	101.8252	100.858	99.6664	101.9456	101.7996
apfu																
Group T																
Si4+	5.9825	5.9856	5.9541	5.9277	5.9554	5.9384	5.922	5.9719	5.9565	5.9875	5.8823	5.9864	5.9548	5.8367	5.8738	5.8951
Al3+	0.0175	0.0144	0.0459	0.0723	0.0446	0.0616	0.078	0.0281	0.0435	0.0125	0.1177	0.0136	0.0452	0.1633	0.1262	0.1049
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0	0.004	0.0013	0.004	0.0026	0.0013	0	0	0	0	0	0	0	0.0013	0	0
V3+	0.0054	0	0.0013	0	0.0013	0.004	0	0.0053	0	0.0053	0	0.0013	0	0	0	0
Al3+	5.9946	5.996	5.9974	5.996	5.996	5.9947	6	5.9947	6	5.9947	6	5.9987	6	5.9987	6	6
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0291	0.0289	0.0609	0.034	0.0652	0.0402	0.0691	0.0087	0.0554	0.0086	0.0455	0.0148	0.0289	0.0458	0.0449	0.046
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Al3+	0.5452	0.542	0.5672	0.5825	0.5086	0.602	0.4781	0.7638	0.5585	0.7927	0.4822	0.7727	0.5614	0.6115	0.5462	0.6191
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.9574	1.9903	1.9144	1.9872	2.0023	1.9335	2.0277	1.8714	1.9134	1.7668	2.0957	1.8255	1.9932	1.9452	2.0357	1.892
Mn2+	0.0128	0.0156	0.0112	0.0142	0.0169	0.0184	0.0142	0.0125	0.017	0.0139	0.0214	0.0153	0.0212	0.0157	0.0253	0.021
Mg2+	0.2181	0.1942	0.1847	0.1673	0.1889	0.1718	0.1968	0.1249	0.2071	0.1758	0.2029	0.1295	0.1769	0.1764	0.1929	0.224
Li+	0.2277	0.2194	0.2413	0.2035	0.1964	0.2208	0.1911	0.2159	0.2302	0.2393	0.1371	0.2373	0.2088	0.1901	0.1399	0.1826
Total	2.9903	2.9904	2.9797	2.9887	2.9783	2.9866	2.977	2.9971	2.9815	2.9971	2.9848	2.9951	2.9904	2.9847	2.985	2.9847
Group A																
Ca2+	0.0144	0.0018	0.0142	0.0161	0.0125	0.0036	0.0072	0.0018	0.0054	0.0053	0.009	0.0105	0.0143	0.0127	0.0089	0
K+	0.0064	0.0021	0.0021	0.0085	0.0128	0.0043	0.0107	0	0.0043	0.0021	0.0129	0.0084	0.0064	0	0.0148	0.0084
Na+	0.6259	0.6476	0.6084	0.6071	0.6077	0.6154	0.6739	0.4651	0.6263	0.435	0.681	0.4289	0.6189	0.6555	0.6273	0.5987
Total	0.6468	0.6515	0.6247	0.6318	0.633	0.6232	0.6917	0.4668	0.6359	0.4424	0.7029	0.4478	0.6396	0.6681	0.651	0.6071
Group Z																
OH-	3.9096	3.9049	3.9216	3.8676	3.9156	3.9419	3.8996	4	3.91	4	3.915	4	3.8996	3.9145	3.6642	3.6135
F-	0.0904	0.0951	0.0784	0.1324	0.0844	0.0581	0.1004	0	0.09	0	0.085	0	0.1004	0.0855	0.3358	0.3865
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_22B	P_27	P_27
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite
Analysis	49	51	1	4	5	8	9	11	13	16	19	20	22	23	1	2
wt.%																
TiO2	0.34	0.38	0.31	0.02	0.45	0.22	0.1	0.33	0.09	0.45	0.27	0.29	0.35	0.48	0.56	0.39
SiO2	35.65	35.07	35.19	36.22	35.12	35.69	35.92	35.47	36.57	35.7	35.97	35.4	35.44	35.03	35.33	35.72
Fe2O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr2O3	0.03	0.01	0.02	0.01	0.01	0	0	0.02	0.05	0.02	0.04	0	0	0	0	0.04
V2O3	0.03	0.01	0.03	0	0.02	0	0	0	0	0	0	0	0	0	0	0
Al2O3	34.41	34.79	34.56	35.25	34.39	34.1	35.55	34.21	35.34	33.94	33.81	34.2	33.48	34.22	33.1	34.77
B2O3	10.5163	10.4976	10.4771	10.5678	10.4343	10.4669	10.5658	10.4884	10.6291	10.4928	10.5125	10.4361	10.4081	10.4541	10.4232	10.5955
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	14.13	14.27	14.52	13.29	14.34	14.5	13.54	14.22	12.75	14.49	14.05	14.21	14.51	14.83	11.46	10.11
MnO	0.11	0.12	0.09	0.1	0.09	0.16	0.14	0.07	0.08	0.11	0.1	0.12	0.1	0.1	0.07	0
CaO	0.01	0.07	0.07	0.01	0.01	0.03	0.02	0.01	0	0.03	0.06	0.04	0.11	0.09	0.14	0.13
MgO	0.85	0.89	0.76	0.65	0.68	0.59	0.56	0.98	0.73	0.78	1.07	0.65	0.88	0.97	3.29	3.15
K2O	0.03	0.04	0.04	0.03	0.01	0.04	0.01	0.08	0.02	0.05	0.06	0.07	0.06	0.06	0.03	0.06
Na2O	1.88	1.95	1.89	1.39	1.87	1.86	1.34	2.01	1.45	1.92	1.96	1.87	1.97	1.85	2	1.96
Li2O	0.2456	0.1902	0.1978	0.309	0.2093	0.2712	0.2462	0.2412	0.3886	0.2522	0.2924	0.277	0.2595	0.1111	0.1256	0.2909
F	0.74	0.61	0.62	0.44	0.66	0.67	0.31	0.6	0.24	0.6	0.6	0.65	0.66	0.67	0.56	0.34
H2O	3.2775	3.3327	3.3208	3.4375	3.2871	3.2936	3.4984	3.3342	3.5535	3.3358	3.3425	3.2925	3.2781	3.2892	3.3307	3.4945
Total#	102.2493	102.2305	102.0957	101.7244	101.5807	101.8917	101.8004	102.0639	101.8912	102.1708	102.1374	101.5056	101.5056	102.1545	100.4195	101.0509
O=F	-0.3116	-0.2569	-0.2611	-0.1853	-0.2779	-0.2821	-0.1305	-0.2526	-0.1011	-0.2526	-0.2526	-0.2737	-0.2779	-0.2821	-0.2358	-0.1432
Total	101.9377	101.9736	101.8347	101.5391	101.3028	101.6096	101.6699	101.8112	101.7902	101.9181	101.8848	101.232	101.2277	101.8724	100.1837	100.9077
apfu																
Group T																
Si4+	5.892	5.8065	5.8377	5.957	5.85	5.9265	5.9088	5.8778	5.9799	5.9135	5.947	5.8956	5.9182	5.8239	5.8913	5.8594
Al3+	0.108	0.1935	0.1623	0.043	0.15	0.0735	0.0912	0.1222	0.0201	0.0865	0.053	0.1044	0.0818	0.1761	0.1087	0.1406
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0039	0.0013	0.0026	0.0013	0.0013	0	0	0.0026	0.0065	0.0026	0.0052	0	0	0	0	0.0052
V3+	0.004	0.0013	0.004	0	0.0027	0	0	0	0	0	0	0	0	0	0	0
Al3+	5.9921	5.9974	5.9934	5.9987	5.996	6	6	5.9974	5.9935	5.9974	5.9948	6	6	6	6	5.9948
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0423	0.0473	0.0387	0.0025	0.0564	0.0275	0.0124	0.0411	0.0111	0.0561	0.0336	0.0363	0.044	0.06	0.0703	0.0481
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Al3+	0.6025	0.5978	0.6014	0.791	0.6054	0.6	0.801	0.5618	0.797	0.5419	0.5404	0.6085	0.5075	0.5292	0.3963	0.5867
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.9531	1.9759	2.0145	1.828	1.9977	2.0137	1.8627	1.9707	1.7436	2.0073	1.9427	1.9792	2.0264	2.062	1.5981	1.387
Mn2+	0.0154	0.0168	0.0126	0.0139	0.0127	0.0225	0.0195	0.0098	0.0111	0.0154	0.014	0.0169	0.0141	0.0141	0.0099	0
Mg2+	0.2094	0.2197	0.188	0.1594	0.1689	0.1461	0.1373	0.2421	0.178	0.1926	0.2637	0.1614	0.2191	0.2404	0.8178	0.7703
Li+	0.1632	0.1267	0.132	0.2044	0.1402	0.1811	0.1629	0.1607	0.2556	0.168	0.1944	0.1855	0.1743	0.0743	0.0842	0.1919
Total	2.9859	2.9842	2.9871	2.9992	2.9812	2.9908	2.9959	2.9863	2.9963	2.9813	2.9888	2.9879	2.9853	2.98	2.9766	2.984
Group A																
Ca2+	0.0018	0.0124	0.0124	0.0018	0.0018	0.0053	0.0035	0.0018	0	0.0053	0.0106	0.0071	0.0197	0.016	0.025	0.0228
K+	0.0063	0.0084	0.0085	0.0063	0.0021	0.0085	0.0021	0.0169	0.0042	0.0106	0.0127	0.0149	0.0128	0.0127	0.0064	0.0126
Na+	0.6024	0.626	0.6079	0.4432	0.6039	0.5988	0.4274	0.6458	0.4597	0.6166	0.6283	0.6038	0.6378	0.5963	0.6466	0.6234
Total	0.6105	0.6468	0.6288	0.4513	0.6078	0.6126	0.433	0.6645	0.4639	0.6325	0.6516	0.6258	0.6703	0.6251	0.678	0.6588
Group Z																
OH-	3.6132	3.6806	3.6747	3.7711	3.6523	3.6481	3.8387	3.6856	3.8759	3.6857	3.6863	3.6576	3.6514	3.6477	3.7047	3.8236
F-	0.3868	0.3194	0.3253	0.2289	0.3477	0.3519	0.1613	0.3144	0.1241	0.3143	0.3137	0.3424	0.3486	0.3523	0.2953	0.1764
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_27	P_27	P_27	P_27	P_27	P_27	P_27	P_30	P_30	P_30	P_30	P_30	P_30	P_30	P_30	P_32
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite
Analysis	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	1
wt.%																
TiO2	0.35	0.42	0.68	0.91	0.18	0.58	0.67	0.78	0.52	0.74	0.55	0.43	0.01	0.18	0.08	0.46
SiO2	35.96	35.37	34.85	34.62	35.96	35.05	35.32	35.89	36.23	35.8	35.39	35.3	35.37	35.28	34.93	35.61
Fe2O3	0	0	0	0	0	0	0	0	0	0	0	0	0.2484	0	0	0
Cr2O3	0.01	0	0.05	0	0	0.04	0	0	0	0	0	0	0.01	0	0.05	0
V2O3	0	0.01	0.01	0.04	0.01	0	0	0.02	0.03	0	0	0.01	0	0	0	0.03
Al2O3	35.09	35.01	34.9	34.45	35.83	34.31	34.43	35.02	34.82	33.92	34.05	33.17	31.67	31.15	31.25	33.61
B2O3	10.657	10.529	10.4853	10.3676	10.5597	10.4508	10.4988	10.6246	10.6407	10.579	10.4583	10.4131	10.2466	10.24	10.1799	10.4621
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	10.72	11.91	12.86	11.83	10.58	11.05	11.33	12.02	10.97	11.78	10.78	11.53	13.9764	13.06	13.19	11.57
MnO	0.06	0.03	0.05	0.06	0.09	0.05	0.04	0.06	0.09	0.06	0.04	0.02	0.07	0.01	0.08	0
CaO	0.1	0.18	0.05	0.09	0.02	0.15	0.1	0.07	0.09	0.04	0.06	0.08	0.03	0.01	0.02	0.09
MgO	2.85	1.88	1.74	1.54	1.48	2.66	2.51	1.66	2.33	2.98	2.91	3.29	2.01	3.28	3.07	2.53
K2O	0.03	0.02	0.02	0.04	0.02	0.04	0.03	0	0.05	0.01	0.02	0.05	0.05	0.03	0.06	0
Na2O	1.88	1.69	1.71	1.74	1.37	1.84	1.76	1.7	1.71	1.89	1.81	2.03	2.27	2.48	2.4	2.06
Li2O	0.257	0.2534	0.0965	0.2657	0.4043	0.21	0.1954	0.2868	0.3219	0.1083	0.1986	0.1171	0.1956	0.0946	0.0745	0.2824
F	0.42	0.32	0.32	0.18	0.02	0.29	0.24	0.15	0.37	0.52	0.43	0.6	0.92	0.78	0.91	0.51
H2O	3.4778	3.481	3.4659	3.4917	3.6338	3.4683	3.5085	3.5946	3.4958	3.4034	3.4044	3.3082	3.0991	3.1632	3.0808	3.3678
Total#	101.8617	101.1034	101.2877	99.625	100.1578	100.1891	100.6327	101.8759	101.6685	101.8308	100.1013	100.3484	100.1762	99.7578	99.3752	100.5823
O=F	-0.1769	-0.1347	-0.1347	-0.0758	-0.0084	-0.1221	-0.1011	-0.0632	-0.1558	-0.219	-0.1811	-0.2526	-0.3874	-0.3284	-0.3832	-0.2147
Total	101.6849	100.9686	101.1529	99.5492	100.1494	100.067	100.5316	101.8128	101.5127	101.6118	99.9202	100.0958	99.7888	99.4294	98.992	100.3676
apfu																
Group T																
Si4+	5.8648	5.8387	5.7768	5.8038	5.9188	5.8291	5.8472	5.8712	5.9179	5.8817	5.8815	5.892	5.9996	5.9882	5.9638	5.9159
Al3+	0.1352	0.1613	0.2232	0.1962	0.0812	0.1709	0.1528	0.1288	0.0821	0.1183	0.1185	0.108	0.0004	0.0118	0.0362	0.0841
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0013	0	0.0066	0	0	0.0053	0	0	0	0	0	0	0.0013	0	0.0067	0
V3+	0	0.0013	0.0013	0.0054	0.0013	0	0	0.0026	0.0039	0	0	0.0013	0	0	0	0.004
Al3+	5.9987	5.9987	5.9921	5.9946	5.9987	5.9947	6	5.9974	5.9961	6	6	5.9987	5.9987	6	5.9933	5.996
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0429	0.0522	0.0848	0.1148	0.0223	0.0726	0.0834	0.096	0.0639	0.0915	0.0688	0.054	0.0013	0.023	0.0103	0.0575
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0.0317	0	0	0
Al3+	0.6109	0.6512	0.6029	0.6158	0.8706	0.5594	0.5649	0.6257	0.625	0.4497	0.5507	0.4184	0.3322	0.2195	0.2588	0.5006
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.4622	1.6442	1.7828	1.6586	1.4564	1.5369	1.5686	1.6445	1.4985	1.6186	1.4983	1.6095	1.9827	1.8539	1.8834	1.6075
Mn2+	0.0083	0.0042	0.007	0.0085	0.0125	0.007	0.0056	0.0083	0.0125	0.0083	0.0056	0.0028	0.0101	0.0014	0.0116	0
Mg2+	0.6929	0.4626	0.43	0.3849	0.3631	0.6595	0.6195	0.4048	0.5674	0.7299	0.721	0.8186	0.5083	0.8299	0.7814	0.6266
Li+	0.1685	0.1682	0.0643	0.1791	0.2676	0.1405	0.1301	0.1887	0.2115	0.0716	0.1327	0.0786	0.1334	0.0646	0.0512	0.1887
Total	2.9857	2.9826	2.9717	2.9617	2.9926	2.9758	2.9722	2.968	2.9787	2.9695	2.9771	2.982	2.9996	2.9923	2.9966	2.9808
Group A																
Ca2+	0.0175	0.0318	0.0089	0.0162	0.0035	0.0267	0.0177	0.0123	0.0158	0.007	0.0107	0.0143	0.0055	0.0018	0.0037	0.016
K+	0.0062	0.0042	0.0042	0.0086	0.0042	0.0085	0.0063	0	0.0104	0.0021	0.0042	0.0106	0.0108	0.0065	0.0131	0
Na+	0.5945	0.5409	0.5496	0.5656	0.4372	0.5933	0.5649	0.5392	0.5415	0.602	0.5832	0.6569	0.7465	0.8161	0.7945	0.6635
Total	0.6182	0.5769	0.5627	0.5903	0.4449	0.6285	0.589	0.5515	0.5677	0.6112	0.5981	0.6819	0.7628	0.8245	0.8112	0.6796
Group Z																
OH-	3.7834	3.8329	3.8322	3.9046	3.9896	3.8475	3.8743	3.9224	3.8089	3.7298	3.774	3.6833	3.5065	3.5813	3.5086	3.732
F-	0.2166	0.1671	0.1678	0.0954	0.0104	0.1525	0.1257	0.0776	0.1911	0.2702	0.226	0.3167	0.4935	0.4187	0.4914	0.268
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_32	P_32	P_32	P_32	P_32	P_35a	P_35a	P_35a	P_35a	P_35a	P_35b	P_35b	P_35b	P_35b	P_35b	P_39
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite
Analysis	2	3	4	6	7	3	4	5	11	12	1	2	3	4	5	1
wt.%																
TiO2	0.5	0.34	0.76	0.27	0.5	0.54	0.61	0.48	0.47	0.54	0.64	0.61	0.18	0.54	0.56	0.56
SiO2	36.45	35.29	35.9	35.27	35.63	36.33	36.16	36.1	36.17	36.86	35.52	35.63	36.27	35.42	35.88	36.23
Fe2O3	0.0054	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr2O3	0.04	0.02	0	0	0	0.02	0.01	0	0	0	0.05	0.01	0	0.01	0	0
V2O3	0	0	0.01	0.01	0.03	0	0.04	0.02	0.02	0	0.05	0.04	0.03	0.04	0	0
Al2O3	33.32	34.05	33.79	34.66	34.26	34.31	33.48	33.56	34.7	33.8	34.27	34.46	35.47	34.39	34.69	34.37
B2O3	10.5951	10.463	10.5788	10.5127	10.5651	10.706	10.6208	10.5854	10.6746	10.721	10.6112	10.5564	10.6257	10.5326	10.6537	10.7066
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	11.4452	11.55	11.67	11.04	11.47	9.67	10.29	9.7	9.01	9.42	9.15	8.79	8.65	8.72	9.38	9.36
MnO	0.05	0.04	0.02	0.06	0.06	0.04	0	0.03	0.03	0.06	0.07	0.04	0.06	0	0.06	0
CaO	0.08	0.1	0.13	0.08	0.13	0.2	0.17	0.16	0.13	0.13	0.23	0.16	0.02	0.15	0.18	0.19
MgO	3.03	2.78	2.83	2.86	2.86	4.12	4.17	4.2	4.07	4.29	4.36	3.81	3.17	4.14	3.93	4.31
K2O	0.03	0	0.03	0.05	0.07	0.03	0.03	0.01	0.05	0.02	0.03	0.04	0.04	0.05	0.04	0.03
Na2O	2.04	1.95	1.93	1.96	1.91	1.92	1.98	2.02	1.84	1.94	2.09	1.87	1.51	1.91	1.9	2.02
Li2O	0.2611	0.1701	0.2011	0.1945	0.1839	0.2011	0.1413	0.2004	0.2344	0.2397	0.1829	0.2847	0.3515	0.2243	0.2148	0.2112
F	0.6	0.55	0.51	0.39	0.53	0.36	0.37	0.51	0.36	0.46	0.4	0.33	0	0.37	0.29	0.45
H2O	3.371	3.3492	3.4081	3.4422	3.3939	3.5231	3.489	3.4104	3.5123	3.4809	3.4714	3.4857	3.6661	3.4585	3.5382	3.4807
Total#	101.8178	100.6522	101.768	100.7993	101.593	101.9702	101.5611	100.9862	101.2712	101.9616	101.1256	100.1169	100.0432	99.9554	101.3168	101.9185
O=F	-0.2526	-0.2316	-0.2147	-0.1642	-0.2232	-0.1516	-0.1558	-0.2147	-0.1516	-0.1937	-0.1684	-0.139	0	-0.1558	-0.1221	-0.1895
Total	101.5651	100.4206	101.5532	100.6351	101.3698	101.8186	101.4053	100.7714	101.1196	101.7679	100.9572	99.9779	100.0432	99.7996	101.1947	101.729
apfu																
Group T																
Si4+	5.9794	5.8622	5.8982	5.8312	5.8615	5.898	5.9175	5.9274	5.8893	5.9756	5.818	5.8663	5.9328	5.8449	5.8535	5.8814
Al3+	0.0206	0.1378	0.1018	0.1688	0.1385	0.102	0.0825	0.0726	0.1107	0.0244	0.182	0.1337	0.0672	0.1551	0.1465	0.1186
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0052	0.0026	0	0	0	0.0026	0.0013	0	0	0	0.0065	0.0013	0	0.0013	0	0
V3+	0	0	0.0013	0.0013	0.004	0	0.0052	0.0026	0.0026	0	0.0066	0.0053	0.0039	0.0053	0	0
Al3+	5.9948	5.9974	5.9987	5.9987	5.996	5.9974	5.9935	5.9974	5.9974	6	5.987	5.9934	5.9961	5.9934	6	6
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0617	0.0425	0.0939	0.0336	0.0619	0.066	0.0751	0.0593	0.0576	0.0659	0.0789	0.0756	0.0222	0.067	0.0687	0.0684
Fe3+	0.0007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Al3+	0.4267	0.5311	0.4425	0.5862	0.508	0.4652	0.3813	0.4244	0.5508	0.4337	0.4466	0.5597	0.7747	0.5399	0.5235	0.4572
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.5702	1.6046	1.6035	1.5265	1.5781	1.3129	1.4083	1.332	1.2269	1.2772	1.2534	1.2103	1.1833	1.2034	1.2798	1.2707
Mn2+	0.0069	0.0056	0.0028	0.0084	0.0084	0.0055	0	0.0042	0.0041	0.0082	0.0097	0.0056	0.0083	0	0.0083	0
Mg2+	0.741	0.6884	0.6931	0.7049	0.7014	0.9971	1.0173	1.0281	0.9879	1.0368	1.0646	0.9351	0.773	1.0185	0.9558	1.043
Li+	0.1723	0.1136	0.1328	0.1293	0.1217	0.1313	0.093	0.1323	0.1535	0.1563	0.1205	0.1885	0.2312	0.1489	0.1409	0.1379
Total	2.9794	2.9858	2.9687	2.9888	2.9794	2.978	2.975	2.9802	2.9808	2.978	2.9737	2.9748	2.9926	2.9777	2.9771	2.9772
Group A																
Ca2+	0.0141	0.0178	0.0229	0.0142	0.0229	0.0348	0.0298	0.0281	0.0227	0.0226	0.0404	0.0282	0.0035	0.0265	0.0315	0.033
K+	0.0063	0	0.0063	0.0105	0.0147	0.0062	0.0063	0.0021	0.0104	0.0041	0.0063	0.0084	0.0083	0.0105	0.0083	0.0062
Na+	0.6488	0.628	0.6148	0.6283	0.6092	0.6043	0.6282	0.6431	0.5809	0.6098	0.6637	0.5969	0.4789	0.6111	0.601	0.6358
Total	0.6692	0.6458	0.644	0.653	0.6468	0.6453	0.6643	0.6733	0.6139	0.6365	0.7104	0.6336	0.4907	0.6481	0.6408	0.675
Group Z																
OH-	3.6887	3.7111	3.735	3.7961	3.7243	3.8152	3.8085	3.7352	3.8146	3.7642	3.7928	3.8282	4	3.8069	3.8504	3.769
F-	0.3113	0.2889	0.265	0.2039	0.2757	0.1848	0.1915	0.2648	0.1854	0.2358	0.2072	0.1718	0	0.1931	0.1496	0.231
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_39	P_39	P_39	P_39	P_39	P_39	P_39	P_39	P_39	P_39	P_39	P_39	P_8	P_8	P_8	P_8
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite	2 mica granite
Analysis	2	3	4	5	6	7	8	9	10	11	12	13	2	3	4	5
wt.%																
TiO2	0.52	0.11	0.48	0.42	0.46	0.35	1.2	0.35	0.59	0.52	0.55	0.11	0.57	0.61	0.59	0.66
SiO2	35.6	36.54	36.34	36.28	36.22	36.53	35.95	35.55	35.55	35.06	36	35.66	36.51	36.18	36.2	36.35
Fe2O3	0	0	0	0	0	0	0	0	0	0	0	0	0.0131	0	0.2945	0.0652
Cr2O3	0	0	0.03	0	0	0.05	0.04	0.01	0.02	0	0.04	0	0	0	0	0
V2O3	0.01	0	0.03	0.02	0	0.03	0.07	0.03	0	0.02	0	0	0	0.05	0	0.02
Al2O3	33.12	33.46	35.22	34.68	34.5	34.56	33.25	34.01	33.73	33.63	34.45	35.68	33.64	33.87	33.05	33.34
B2O3	10.496	10.6583	10.6737	10.6969	10.6977	10.7315	10.6516	10.523	10.4973	10.4196	10.6264	10.5608	10.6175	10.6054	10.5292	10.5777
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	9.74	9.05	10.2	9.44	9.66	9.48	9.97	9.27	8.8	9.33	8.94	8.93	11.6482	11.58	11.225	11.3414
MnO	0	0.03	0	0.08	0.01	0.03	0.01	0.04	0.02	0.04	0.01	0.03	0.11	0.1	0.09	0.05
CaO	0.14	0.18	0.1	0.15	0.14	0.11	0.17	0.15	0.16	0.14	0.13	0.03	0.11	0.12	0.14	0.09
MgO	4.64	5.06	2.46	3.83	4.04	4.05	4.39	4.12	4.18	4.17	3.95	3.26	2.56	2.65	2.9	2.77
K2O	0	0.03	0.01	0.06	0.03	0	0.03	0.02	0.04	0.01	0.04	0.03	0.02	0.05	0.04	0.05
Na2O	2.08	2.18	1.69	1.92	2.02	1.97	2.2	2.06	2.05	2.03	1.96	1.46	1.96	1.93	1.91	2.02
Li2O	0.0888	0.1895	0.3831	0.2624	0.217	0.2358	0.1509	0.2169	0.2676	0.1586	0.286	0.2406	0.309	0.2631	0.2779	0.3137
F	0.51	0.44	0.1	0.34	0.38	0.43	0.5	0.29	0.34	0.36	0.28	0	0	0	0.04	0.14
H2O	3.3795	3.4687	3.6352	3.5294	3.5108	3.4987	3.438	3.4932	3.4606	3.4243	3.5336	3.6437	3.6633	3.6591	3.6138	3.5831
Total#	100.3244	101.3966	101.352	101.7088	101.8854	102.0559	102.0204	100.1331	99.7054	99.3125	100.796	99.6351	101.7311	101.6675	100.9004	101.371
O=F	-0.2147	-0.1853	-0.0421	-0.1432	-0.16	-0.1811	-0.2105	-0.1221	-0.1432	-0.1516	-0.1179	0	0	0	-0.0168	-0.059
Total	100.1096	101.2113	101.3099	101.5656	101.7254	101.8749	101.8099	100.011	99.5623	99.1609	100.6781	99.6351	101.7311	101.6675	100.8836	101.3121
apfu																
Group T																
Si4+	5.8951	5.9586	5.9175	5.8949	5.8847	5.9164	5.8661	5.8717	5.8861	5.8483	5.8882	5.8688	5.9766	5.9293	5.9756	5.9728
Al3+	0.1049	0.0414	0.0825	0.1051	0.1153	0.0836	0.1339	0.1283	0.1139	0.1517	0.1118	0.1312	0.0234	0.0707	0.0244	0.0272
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0	0	0.0039	0	0	0.0064	0.0052	0.0013	0.0026	0	0.0052	0	0	0	0	0
V3+	0.0013	0	0.0039	0.0026	0	0.0039	0.0092	0.004	0	0.0027	0	0	0	0.0066	0	0.0026
Al3+	5.9987	6	5.9922	5.9974	6	5.9897	5.9857	5.9947	5.9974	5.9973	5.9948	6	6	5.9934	6	5.9974
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0648	0.0135	0.0588	0.0513	0.0562	0.0426	0.1473	0.0435	0.0735	0.0653	0.0677	0.0136	0.0702	0.0752	0.0733	0.0816
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0.0016	0	0.0366	0.0081
Al3+	0.3602	0.3893	0.6845	0.5386	0.4908	0.5235	0.2748	0.4974	0.4708	0.4624	0.5342	0.7895	0.4667	0.4779	0.4054	0.4319
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.3489	1.2342	1.3891	1.2828	1.3126	1.2841	1.3605	1.2805	1.2185	1.3016	1.2229	1.2291	1.5947	1.5871	1.5496	1.5585
Mn2+	0	0.0041	0	0.011	0.0014	0.0041	0.0014	0.0056	0.0028	0.0057	0.0014	0.0042	0.0153	0.0139	0.0126	0.007
Mg2+	1.1454	1.2301	0.5972	0.9277	0.9785	0.9778	1.0679	1.0144	1.0317	1.037	0.9631	0.7998	0.6247	0.6474	0.7136	0.6785
Li+	0.0591	0.1243	0.2509	0.1715	0.1418	0.1536	0.099	0.1441	0.1782	0.1064	0.1881	0.1592	0.2034	0.1734	0.1845	0.2073
Total	2.9784	2.9955	2.9804	2.9829	2.9813	2.9858	2.9509	2.9855	2.9755	2.9782	2.9774	2.9955	2.9766	2.9749	2.9756	2.9728
Group A																
Ca2+	0.0248	0.0315	0.0174	0.0261	0.0244	0.0191	0.0297	0.0265	0.0284	0.025	0.0228	0.0053	0.0193	0.0211	0.0248	0.0158
K+	0	0.0062	0.0021	0.0124	0.0062	0	0.0062	0.0042	0.0084	0.0021	0.0083	0.0063	0.0042	0.0105	0.0084	0.0105
Na+	0.6678	0.6893	0.5336	0.6049	0.6363	0.6186	0.696	0.6597	0.6581	0.6565	0.6216	0.4659	0.6221	0.6133	0.6113	0.6435
Total	0.6926	0.7269	0.5531	0.6434	0.6669	0.6377	0.732	0.6904	0.6949	0.6837	0.6527	0.4775	0.6455	0.6448	0.6445	0.6699
Group Z																
OH-	3.7329	3.7731	3.9485	3.8253	3.8047	3.7797	3.742	3.8485	3.822	3.8101	3.8552	4	4	4	3.9791	3.9272
F-	0.2671	0.2269	0.0515	0.1747	0.1953	0.2203	0.258	0.1515	0.178	0.1899	0.1448	0	0	0	0.0209	0.0728
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_9b	P_9b	P_9b	P_9b	P_13B	P_13B	P_13B	P_19	P_19	P_19	P_19	P_19	P_21	P_22	P_23	P_24
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Metasediments	Metasediments	Metasediments	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact
Rock Type	Granite	Granite	Granite	Granite	Metasediments	Metasediments	Metasediments	Hornfels	Hornfels	Hornfels	Hornfels	Hornfels	Hornfels	Hornfels	Hornfels	Hornfels
Comment	2 mica granite	2 mica granite	2 mica granite	2 mica granite	Relics	Relics	Relics	Relics	Relics	Relics	Relics	Relics	Relics	Relics	Relics	Relics
Analysis	1	2	3	4	2	4	6	1	2	3	4	5	2	4	5	6
wt.%																
TiO2	0.57	0.57	0.45	0.63	0.76	0.67	0.34	0.33	0.82	0.57	0.74	0.3	0.73	1.03	0.88	0.27
SiO2	36.36	36.53	36.42	36.43	36.93	36.8	36.87	37.21	36.85	35.87	36.64	35.86	37.59	36.82	36.7	37.21
Fe2O3	0	0	0.5296	0	4.8822	3.3785	1.6229	3.9494	4.8742	0	1.4216	0	0	0	0	3.1509
Cr2O3	0	0	0	0.03	0	0.04	0.07	0	0.02	0.02	0.03	0.06	0.02	0.08	0.2	0.07
V2O3	0.02	0.05	0	0	0.02	0.04	0.04	0.01	0.05	0.03	0.01	0.05	0.03	0.17	0.06	0.04
Al2O3	34.33	33.82	33.26	34.13	30.47	31.07	31.82	30.67	29.62	33.75	32.47	34.62	34.79	34.08	33.79	32.24
B2O3	10.6267	10.6459	10.5827	10.6278	10.753	10.7088	10.7051	10.8029	10.7342	10.6178	10.6675	10.5993	10.9668	10.8219	10.7797	10.7985
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	10.48	11.69	10.6834	10.71	3.967	5.41	7.9497	4.0363	4.3342	9.46	6.7908	10.32	3.62	7.23	7.46	5.7548
MnO	0.04	0.04	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.07	0	0.03	0	0
CaO	0.09	0.09	0.1	0.09	0.82	0.63	0.43	0.09	0.3	0.39	0.1	0.48	0.61	0.21	0.2	0.01
MgO	2.78	2.92	3.17	2.77	6.34	6.14	5.83	8	7.66	4.43	5.85	3.13	7.32	5.49	5.51	5.79
K2O	0	0.01	0.03	0.02	0.08	0.01	0.05	0.05	0	0.05	0.05	0.01	0	0.07	0.04	0.03
Na2O	1.84	1.73	1.92	1.82	2.16	2.18	2.14	2.68	2.48	2	1.98	1.54	1.53	1.88	2.07	2.4
Li2O	0.3383	0.1773	0.2927	0.3251	0.6769	0.5024	0.249	0.3076	0.3143	0.2077	0.2225	0.2658	0.3338	0.2291	0.2402	0.4509
F	0	0	0	0	0	0	0	0.09	0.34	0.08	0.1	0.17	0	0	0.02	0
H2O	3.6664	3.6731	3.6513	3.6668	3.71	3.6947	3.6935	3.6845	3.5423	3.6254	3.6331	3.5764	3.7838	3.7338	3.7097	3.7257
Total#	101.1414	101.9462	101.1197	101.2697	101.589	101.3045	101.8402	101.9407	101.9692	101.1309	100.7255	101.0515	101.3244	101.8747	101.6595	101.9408
O=F	0	0	0	0	0	0	0	-0.0379	-0.1432	-0.0337	-0.0421	-0.0716	0	0	-0.0084	0
Total	101.1414	101.9462	101.1197	101.2697	101.589	101.3045	101.8402	101.9028	101.826	101.0972	100.6834	100.9799	101.3244	101.8747	101.6511	101.9408
apfu																
Group T																
Si4+	5.9469	5.9639	5.9815	5.9577	5.9692	5.9727	5.9862	5.9867	5.9667	5.8717	5.9698	5.8803	5.9574	5.9135	5.9173	5.9891
Al3+	0.0531	0.0361	0.0185	0.0423	0.0308	0.0273	0.0138	0.0133	0.0333	0.1283	0.0302	0.1197	0.0426	0.0865	0.0827	0.0109
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0.2237	0.0737	0	0.1964	0.3718	0	0	0	0	0	0	0
Cr3+	0	0	0	0.0039	0	0.0051	0.009	0	0.0026	0.0026	0.0039	0.0078	0.0025	0.0102	0.0255	0.0089
V3+	0.0026	0.0065	0	0	0.0026	0.0052	0.0052	0.0013	0.0065	0.0039	0.0013	0.0066	0.0038	0.0219	0.0078	0.0052
Al3+	5.9974	5.9935	6	5.9961	5.7737	5.916	5.9858	5.8023	5.6192	5.9935	5.9948	5.9856	5.9937	5.968	5.9667	5.9859
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0701	0.07	0.0556	0.0775	0.0924	0.0818	0.0415	0.0399	0.0999	0.0702	0.0907	0.037	0.087	0.1245	0.1067	0.0327
Fe3+	0	0	0.0655	0	0.3701	0.3389	0.1983	0.2818	0.2221	0	0.1743	0	0	0	0	0.3816
Al3+	0.5671	0.4779	0.4194	0.5399	0	0	0.0891	0	0	0.3894	0.21	0.5853	0.462	0.3965	0.3716	0.119
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.4335	1.5961	1.4674	1.4648	0.5362	0.7343	1.0794	0.5431	0.5869	1.2951	0.9253	1.4153	0.4798	0.9711	1.0059	0.7746
Mn2+	0.0055	0.0055	0.0042	0.0028	0.0027	0.0041	0.0041	0.0041	0.0041	0.0042	0.0028	0.0097	0	0.0041	0	0
Mg2+	0.6778	0.7107	0.7761	0.6753	1.5277	1.4856	1.4111	1.9188	1.849	1.081	1.4209	0.7651	1.7294	1.3144	1.3244	1.3893
Li+	0.2225	0.1164	0.1933	0.2138	0.44	0.3279	0.1626	0.199	0.2047	0.1367	0.1458	0.1753	0.2127	0.148	0.1557	0.2919
Total	2.9766	2.9767	2.9815	2.9742	2.9692	2.9727	2.9862	2.9867	2.9667	2.9766	2.9698	2.9877	2.971	2.9585	2.9644	2.9891
Group A																
Ca2+	0.0158	0.0157	0.0176	0.0158	0.142	0.1096	0.0748	0.0155	0.052	0.0684	0.0175	0.0843	0.1036	0.0361	0.0346	0.0017
K+	0	0.0021	0.0063	0.0042	0.0165	0.0021	0.0104	0.0103	0	0.0104	0.0104	0.0021	0	0.0143	0.0082	0.0062
Na+	0.5835	0.5476	0.6114	0.5771	0.6769	0.686	0.6737	0.836	0.7786	0.6348	0.6255	0.4896	0.4701	0.5854	0.6471	0.749
Total	0.5993	0.5654	0.6353	0.597	0.8354	0.7976	0.7588	0.8618	0.8306	0.7136	0.6533	0.576	0.5737	0.6359	0.6899	0.7568
Group Z																
OH-	4	4	4	4	4	4	4	3.9542	3.8259	3.9586	3.9485	3.9118	4	4	3.9898	4
F-	0	0	0	0	0	0	0	0.0458	0.1741	0.0414	0.0515	0.0882	0	0	0.0102	0
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_25	P_33A	P_33A	P_33A	P_35A	P_37B	P_37B	M-1	M-1	M-1	M-1	M-1	M-1	M-1	M-1	M-1
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Contact	Contact	Contact	Contact	Contact	Metasedimets	Metasedimets	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto
Rock Type	Hornfels	Hornfels	Hornfels	Hornfels	Hornfels	Spotted Schist	Spotted Schist	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite
Comment	Relics	Relics	Relics	Relics	Relics											
Analysis	8	1	2	3	2	1	2	1	2	3	4	5	6	7	8	9
wt.%																
TiO2	0.8	0.33	1.02	1.43	0.66	0.8	0.82	0	0	0.02	0.01	0	0	0	0	0
SiO2	36.14	36.37	35.88	35.56	36.04	37	36.86	36.37	36.12	35.99	35.96	36.54	35.89	36.11	35.85	36.18
Fe2O3	0	4.3646	0	4.5262	3.6278	0.307	0	2.0013	0.369	0	0	1.773	0	1.9527	0	0
Cr2O3	0	0	0	0	0.03	0	0	0.05	0.03	0.06	0.05	0.03	0.08	0.08	0.07	0.05
V2O3	0.07	0	0	0	0.04	0	0	0	0.05	0	0.09	0.01	0.02	0.07	0.01	0.03
Al2O3	34.64	29.41	32.35	28.42	28.91	34.31	34.07	32.69	33.03	32.32	33.25	33.26	33	31.26	32.81	33.39
B2O3	10.7658	10.5595	10.4741	10.4048	10.4879	10.7762	10.7882	10.5356	10.4631	10.4293	10.4767	10.5848	10.4526	10.4602	10.4369	10.4831
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	7.17	4.0627	7.54	5.1973	5.6257	6.9437	7.71	8.6892	10.918	11.08	10.85	8.9247	10.59	9.403	10.89	10.35
MnO	0.01	0	0.03	0.11	0	0	0.09	0.06	0.18	0.18	0.11	0.18	0.19	0.18	0.2	0.11
CaO	0.3	1.63	0.65	1.76	0.32	0.11	0.21	0.03	0.02	0.03	0.04	0.02	0.04	0.03	0.04	0.03
MgO	5.72	6.81	5.4	6.2	7.66	4.93	5.16	3.67	3.17	3.67	3.31	3.31	3.51	4.35	3.35	3.37
K2O	0.04	0	0	0	0.12	0	0	0.01	0.02	0.02	0.01	0.01	0.02	0.03	0.02	0
Na2O	1.85	1.99	1.64	1.41	2.6	1.79	1.98	2.05	1.91	2.45	2.19	1.91	2.32	2.49	2.44	1.99
Li2O	0.1383	0.7298	0.2445	0.5517	0.2062	0.3418	0.2616	0.421	0.2241	0.241	0.2601	0.4213	0.2727	0.3066	0.3135	0.2747
F	0	0.69	0.17	0.23	0	0	0.13	0	0	0	0	0	0	0	0	0
H2O	3.7144	3.3161	3.5332	3.4808	3.6185	3.718	3.6605	3.635	3.61	3.5983	3.6147	3.652	3.6064	3.609	3.601	3.6169
Total#	101.3585	100.2627	98.9317	99.2808	99.9462	101.0267	101.7403	100.2121	100.1142	100.0886	100.2214	100.6257	99.9917	100.3315	100.0314	99.8747
O=F	0	-0.2905	-0.0716	-0.0968	0	0	-0.0547	0	0	0	0	0	0	0	0	0
Total	101.3585	99.9722	98.8601	99.1839	99.9462	101.0267	101.6856	100.2121	100.1142	100.0886	100.2214	100.6257	99.9917	100.3315	100.0314	99.8747
apfu																
Group T																
Si4+	5.8345	5.9864	5.9539	5.9401	5.9726	5.9676	5.9384	6	6	5.9978	5.9657	6	5.9678	6	5.9701	5.9985
Al3+	0.1655	0.0136	0.0461	0.0599	0.0274	0.0324	0.0616	0	0	0.0022	0.0343	0	0.0322	0	0.0299	0.0015
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0.3084	0	0.4648	0.3717	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0.0039	0	0	0.0065	0.0039	0.0079	0.0066	0.0039	0.0105	0.0105	0.0092	0.0066
V3+	0.0091	0	0	0	0.0053	0	0	0	0.0067	0	0.012	0.0013	0.0027	0.0093	0.0013	0.004
Al3+	5.9909	5.6916	6	5.5352	5.6191	6	6	5.9935	5.9894	5.9921	5.9815	5.9948	5.9868	5.9802	5.9894	5.9895
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0972	0.0409	0.1273	0.1797	0.0823	0.0971	0.0994	0	0	0.0025	0.0012	0	0	0	0	0
Fe3+	0	0.2322	0	0.1042	0.0807	0.0373	0	0.2485	0.0461	0	0	0.2191	0	0.2442	0	0
Al3+	0.4346	0	0.2807	0	0	0.4896	0.4076	0.3624	0.4771	0.3537	0.4854	0.4419	0.4481	0.1415	0.4202	0.5336
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	0.9681	0.5592	1.0464	0.7261	0.7797	0.9366	1.0388	1.1988	1.5168	1.5443	1.5054	1.2256	1.4727	1.3066	1.5167	1.4351
Mn2+	0.0014	0	0.0042	0.0156	0	0	0.0123	0.0084	0.0253	0.0254	0.0155	0.025	0.0268	0.0253	0.0282	0.0154
Mg2+	1.3766	1.671	1.3358	1.5439	1.8924	1.1854	1.2393	0.9026	0.785	0.9118	0.8186	0.8103	0.8701	1.0775	0.8317	0.8329
Li+	0.0898	0.4831	0.1631	0.3706	0.1374	0.2217	0.1695	0.2793	0.1497	0.1615	0.1735	0.2782	0.1824	0.2049	0.2099	0.1832
Total	2.9676	2.9864	2.9576	2.9401	2.9726	2.9676	2.9669	3	3	2.9992	2.9996	3	3	3	3.0066	3.0003
Group A																
Ca2+	0.0519	0.2875	0.1156	0.315	0.0568	0.019	0.0363	0.0053	0.0036	0.0054	0.0071	0.0035	0.0071	0.0053	0.0071	0.0053
K+	0.0082	0	0	0	0.0254	0	0	0.0021	0.0042	0.0043	0.0021	0.0021	0.0042	0.0064	0.0042	0
Na+	0.5791	0.6351	0.5276	0.4567	0.8354	0.5598	0.6185	0.6557	0.6152	0.7916	0.7044	0.6081	0.748	0.8022	0.7878	0.6397
Total	0.6392	0.9225	0.6432	0.7717	0.9176	0.5788	0.6547	0.6631	0.623	0.8012	0.7136	0.6137	0.7593	0.8139	0.7992	0.645
Group Z																
OH-	4	3.6408	3.9108	3.8785	4	4	3.9338	4	4	4	4	4	4	4	4	4
F-	0	0.3592	0.0892	0.1215	0	0	0.0662	0	0	0	0	0	0	0	0	0
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	M-1	M-1	M-1	M-1	M-1	M-1	M-1	M-1	M-1	M-1	M-1	M-1	M-1	M-2	M-2	M-2
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto	Monsanto
Rock Type	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite
Comment																
Analysis	10	11	13	15	16	17	18	19	20	22	23	24	25	1	4	5
wt.%																
TiO2	0	0.01	0	0	0.03	0	0.03	0	0	0.7	0.41	0.07	0.04	0.01	0	0
SiO2	36.82	36.45	36.39	36.36	36.44	35.67	36.55	35.9	35.79	35.3	36.04	36.82	36.39	36.49	36.1	36.5
Fe2O3	0	0	1.5279	0	0.9442	0	2.5815	0	0	0	0	0.0073	0	0	0.3769	3.502
Cr2O3	0	0.04	0.04	0	0.03	0	0	0.02	0.02	0.02	0.02	0	0	0	0	0
V2O3	0.01	0	0	0	0	0	0	0.01	0.01	0.04	0.02	0.01	0	0	0	0
Al2O3	34.06	33.45	32.73	33.04	32.74	33.68	32.41	33.3	33.52	34.04	35.02	34.24	33.21	33.14	32.65	33.18
B2O3	10.6674	10.5755	10.5414	10.5513	10.558	10.4198	10.5899	10.4241	10.4132	10.4475	10.6538	10.671	10.5596	10.591	10.4573	10.5732
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	10.48	11.36	10.7251	11.8	10.1304	10.85	9.0671	11.32	10.27	9.28	8.97	10.2535	10.72	9.99	10.5509	7.6189
MnO	0.08	0.1	0.04	0.11	0.1	0.13	0.12	0.14	0.14	0.1	0.07	0.25	0.1	0.13	0.13	0.15
CaO	0.06	0	0.05	0.01	0.06	0.02	0.02	0.01	0	0.12	0.1	0.02	0.07	0	0.03	0.03
MgO	3.15	3.41	3.08	3.36	3.81	3.08	3.55	2.98	3.04	3.33	3.59	3.12	3.62	4.38	3.79	3.03
K2O	0.04	0.01	0.02	0.04	0	0.03	0	0	0.02	0.02	0.02	0.01	0	0.02	0.03	0
Na2O	2.17	2.02	1.96	2.27	2.14	1.81	2.14	1.87	2.05	1.88	1.91	2.02	2.29	2.35	2.09	1.43
Li2O	0.389	0.1706	0.3068	0.1965	0.2714	0.212	0.4219	0.1901	0.3345	0.2951	0.3172	0.3476	0.2774	0.2117	0.1995	0.4958
F	0.68	0.77	0.53	0.84	0.84	0.34	0.73	0.52	0.52	0.34	0.35	0.66	0.61	0.51	0.35	0.29
H2O	3.3581	3.2837	3.3857	3.2421	3.2445	3.4338	3.3076	3.35	3.3462	3.4434	3.5098	3.3688	3.3541	3.4123	3.4421	3.5105
Total#	101.9644	101.6497	101.327	101.8199	101.3385	99.6755	101.5181	100.0341	99.474	99.3561	101.0008	101.8681	101.2411	101.2351	100.1966	100.3104
O=F	-0.2863	-0.3242	-0.2232	-0.3537	-0.3537	-0.1432	-0.3074	-0.219	-0.219	-0.1432	-0.1474	-0.2779	-0.2569	-0.2147	-0.1474	-0.1221
Total	101.6781	101.3255	101.1038	101.4662	100.9848	99.5324	101.2107	99.8152	99.2551	99.2129	100.8535	101.5902	100.9843	101.0204	100.0492	100.1882
apfu																
Group T																
Si4+	5.9992	5.9905	6	5.9894	5.9988	5.9499	5.9988	5.9858	5.9737	5.8725	5.8796	5.9971	5.9896	5.9883	6	6
Al3+	0.0008	0.0095	0	0.0106	0.0012	0.0501	0.0012	0.0142	0.0263	0.1275	0.1204	0.0029	0.0104	0.0117	0	0
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0	0.0052	0.0052	0	0.0039	0	0	0.0026	0.0026	0.0026	0.0026	0	0	0	0	0
V3+	0.0013	0	0	0	0	0	0	0.0013	0.0013	0.0053	0.0026	0.0013	0	0	0	0
Al3+	5.9987	5.9948	5.9948	6	5.9961	6	6	5.996	5.996	5.992	5.9948	5.9987	6	6	6	6
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0	0.0012	0	0	0.0037	0	0.0037	0	0	0.0876	0.0503	0.0086	0.005	0.0012	0	0
Fe3+	0	0	0.1896	0	0.117	0	0.3188	0	0	0	0	0.0009	0	0	0.0471	0.4332
Al3+	0.5409	0.4748	0.3654	0.4038	0.3548	0.5711	0.2679	0.5336	0.5715	0.5547	0.6182	0.5712	0.4319	0.3979	0.3956	0.4282
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.428	1.5614	1.4789	1.6256	1.3947	1.5136	1.2446	1.5785	1.4336	1.2911	1.2238	1.3967	1.4756	1.3711	1.4666	1.0474
Mn2+	0.011	0.0139	0.0056	0.0153	0.0139	0.0184	0.0167	0.0198	0.0198	0.0141	0.0097	0.0345	0.0139	0.0181	0.0183	0.0209
Mg2+	0.7651	0.8355	0.7571	0.8251	0.935	0.7659	0.8686	0.7407	0.7564	0.8259	0.8731	0.7576	0.8882	1.0715	0.9391	0.7425
Li+	0.2549	0.1127	0.2034	0.1301	0.1797	0.1422	0.2785	0.1275	0.2246	0.1974	0.2081	0.2277	0.1836	0.1397	0.1333	0.3278
Total	3	2.9996	3	3	2.9988	3.0111	2.9988	3	3.0059	2.9708	2.9832	2.9971	2.9983	2.9996	3	3
Group A																
Ca2+	0.0105	0	0.0088	0.0018	0.0106	0.0036	0.0035	0.0018	0	0.0214	0.0175	0.0035	0.0123	0	0.0053	0.0053
K+	0.0083	0.0021	0.0042	0.0084	0	0.0064	0	0	0.0043	0.0042	0.0042	0.0021	0	0.0042	0.0064	0
Na+	0.6855	0.6437	0.6266	0.725	0.683	0.5854	0.681	0.6045	0.6634	0.6064	0.6041	0.6379	0.7308	0.7477	0.6735	0.4558
Total	0.7043	0.6458	0.6396	0.7352	0.6936	0.5953	0.6845	0.6063	0.6677	0.632	0.6258	0.6435	0.7431	0.7519	0.6852	0.461
Group Z																
OH-	3.6496	3.5998	3.7236	3.5624	3.5627	3.8206	3.6211	3.7258	3.7255	3.8211	3.8194	3.66	3.6825	3.7353	3.816	3.8492
F-	0.3504	0.4002	0.2764	0.4376	0.4373	0.1794	0.3789	0.2742	0.2745	0.1789	0.1806	0.34	0.3175	0.2647	0.184	0.1508
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	M-2	M-2	P_13B	P_13B	P_13B	P_17A	P_17A	P_17A	P_17A	P_17A	P_17A	P_26	P_26	P_40	P_40	P_40
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Monsanto	Monsanto	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite
Comment																
Analysis	6	7	1	2	6	1	2	4	5	6	7	2	4	1	2	3
wt.%																
TiO2	0	0.05	0.14	0.24	1.02	0.4	0.62	0.51	0.44	0.48	0.35	0.68	0.83	0.57	0.8	0.83
SiO2	36.08	36.6	37.44	35.51	36.68	36.8	36.93	37.41	36.75	36.43	37.2	36.8	36.75	36.14	35.94	35.9
Fe2O3	1.3891	0	6.8888	0	1.4247	0	0.6942	5.9747	0	0	2.3666	1.3713	0.8963	3.8817	2.1306	1.7277
Cr2O3	0.05	0	0.05	0.06	0	0.03	0.05	0.01	0.07	0	0.01	0.07	0.13	0.11	0.1	0.16
V2O3	0.05	0	0	0.06	0.02	0.04	0.04	0.04	0.07	0.06	0.02	0.09	0.03	0.03	0.04	0.04
Al2O3	32.09	34.83	30.99	31.49	31.14	34.16	33.85	33.46	34.59	33.83	34.11	32.38	31.99	31.11	31.68	31.68
B2O3	10.4516	10.6756	10.8557	10.4141	10.6995	10.7025	10.7428	10.8739	10.7704	10.6924	10.8014	10.7095	10.7059	10.5103	10.4691	10.4597
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	9.39	10.88	1.1614	7.76	7.538	8.16	6.8053	3.1239	7.95	9.64	6.3005	8.4861	8.2435	3.8272	4.5828	4.8654
MnO	0.16	0.1	0.01	0.06	0.05	0.02	0.01	0	0.03	0.03	0.01	0	0.06	0.03	0	0.01
CaO	0	0.08	0.44	0.89	0.73	0.21	0.26	0.06	0.32	0.16	0.13	0.03	0	0.13	0.28	0.31
MgO	3.95	3.18	6.26	6.33	6.5	4.57	4.89	3.89	4.68	4.37	4.1	4.9	5.69	5.91	5.94	5.91
K2O	0.05	0.02	0.02	0.02	0.08	0.04	0.02	0.01	0.01	0.03	0.03	0.07	0.03	0.02	0.02	0.01
Na2O	2.26	1.4	2.57	2.26	2.03	1.74	1.84	1.53	1.78	2.11	1.69	2.34	2.6	2.22	2.04	2.11
Li2O	0.3227	0.1266	1.0066	0.2338	0.2017	0.2971	0.4186	0.8804	0.3061	0.2104	0.5651	0.3036	0.2192	0.5624	0.4649	0.461
F	0.81	0.05	0	0	0.2	0	0	0	0	0.01	0	0.45	0.68	0	0	0
H2O	3.222	3.6596	3.7454	3.5931	3.5967	3.6926	3.7065	3.7517	3.716	3.6844	3.7267	3.4816	3.3714	3.6263	3.6121	3.6088
Total#	100.2754	101.6517	101.5779	98.9209	101.9106	100.8622	100.8775	101.5246	101.4824	101.7372	101.4103	102.1621	102.2263	98.6779	98.0995	98.0827
O=F	-0.3411	-0.0211	0	0	-0.0842	0	0	0	0	-0.0042	0	-0.1895	-0.2863	0	0	0
Total	99.9343	101.6307	101.5779	98.9209	101.8263	100.8622	100.8775	101.5246	101.4824	101.733	101.4103	101.9727	101.94	98.6779	98.0995	98.0827
apfu																
Group T																
Si4+	6	5.9588	5.9944	5.9264	5.9584	5.9762	5.9748	5.9796	5.9305	5.9217	5.9859	5.9723	5.9662	5.9764	5.9667	5.9654
Al3+	0	0.0412	0.0056	0.0736	0.0416	0.0238	0.0252	0.0204	0.0695	0.0783	0.0141	0.0277	0.0338	0.0236	0.0333	0.0346
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0.1516	0	0.0771	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0066	0	0.0063	0.0079	0	0.0039	0.0064	0.0013	0.0089	0	0.0013	0.009	0.0167	0.0144	0.0131	0.021
V3+	0.0067	0	0	0.008	0.0026	0.0052	0.0052	0.0051	0.0091	0.0078	0.0026	0.0117	0.0039	0.004	0.0053	0.0053
Al3+	5.9868	6	5.8421	5.9841	5.9203	5.9909	5.9884	5.9936	5.982	5.9922	5.9961	5.9793	5.9794	5.9816	5.9815	5.9737
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0	0.0061	0.0169	0.0301	0.1247	0.0489	0.0755	0.0613	0.0534	0.0587	0.0424	0.083	0.1014	0.0709	0.0999	0.1038
Fe3+	0.1738	0	0.6784	0	0.097	0	0.0845	0.7186	0	0	0.2866	0.1675	0.1095	0.483	0.2662	0.216
Al3+	0.3027	0.642	0	0.1364	0	0.5234	0.4409	0.2892	0.5272	0.4106	0.4585	0.1864	0.1076	0.058	0.1838	0.196
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.3059	1.4814	0.1555	1.0831	1.0241	1.1082	0.9208	0.4176	1.0729	1.3105	0.8479	1.1518	1.1192	0.5293	0.6363	0.6761
Mn2+	0.0225	0.0138	0.0014	0.0085	0.0069	0.0028	0.0014	0	0.0041	0.0041	0.0014	0	0.0083	0.0042	0	0.0014
Mg2+	0.9792	0.7718	1.4941	1.5749	1.5741	1.1064	1.1794	0.9269	1.1259	1.059	0.9835	1.1855	1.3771	1.457	1.4701	1.464
Li+	0.2158	0.0829	0.6481	0.1569	0.1317	0.194	0.2724	0.5659	0.1986	0.1375	0.3657	0.1981	0.1431	0.374	0.3104	0.3081
Total	3	2.998	2.9944	2.99	2.9584	2.9837	2.9748	2.9796	2.9822	2.9804	2.9859	2.9723	2.9662	2.9764	2.9667	2.9654
Group A																
Ca2+	0	0.014	0.0755	0.1592	0.1271	0.0365	0.0451	0.0103	0.0553	0.0279	0.0224	0.0052	0	0.023	0.0498	0.0552
K+	0.0106	0.0042	0.0041	0.0043	0.0166	0.0083	0.0041	0.002	0.0021	0.0062	0.0062	0.0145	0.0062	0.0042	0.0042	0.0021
Na+	0.7287	0.4419	0.7978	0.7313	0.6394	0.5479	0.5772	0.4742	0.5569	0.665	0.5273	0.7363	0.8184	0.7118	0.6566	0.6798
Total	0.7393	0.46	0.8774	0.8947	0.783	0.5927	0.6264	0.4865	0.6143	0.6991	0.5558	0.756	0.8246	0.739	0.7107	0.7371
Group Z																
OH-	3.574	3.9743	4	4	3.8973	4	4	4	4	3.9949	4	3.769	3.6509	4	4	4
F-	0.426	0.0257	0	0	0.1027	0	0	0	0	0.0051	0	0.231	0.3491	0	0	0
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_40	P_40	P_40	P_40	P_40	P_40	P_40	P_40	P_40	P_43	P_43	P_43	P_43	P_43	P_43	P_43
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite
Comment																
Analysis	7	8	9	10	11	12	13	14	15	2	3	6	7	8	9	10
wt.%																
TiO2	1.02	0.54	0.65	0.46	0.82	0.78	0.57	0.61	0.28	0	0	0.01	0.02	0.04	0	0.01
SiO2	36.3	36.1	35.78	37.22	36.09	36.39	35.82	36.21	36.95	36.95	35.89	36.86	35.41	35.2	36.63	36.2
Fe2O3	0	0	0.0224	0	0	0	0	0	0	0.1329	0.5258	1.366	0	0	1.4596	1.349
Cr2O3	0.15	0.03	0	0.05	0	0.02	0.07	0.02	0.01	0.03	0	0.05	0	0	0.01	0
V2O3	0.05	0.03	0.13	0.03	0.01	0.06	0.02	0.03	0.07	0.05	0	0	0	0.02	0	0
Al2O3	34.29	32.54	31.9	34.95	32.75	33.32	34.31	33.39	35.11	34.01	32.54	33.34	31.96	31.78	33.46	31.89
B2O3	10.7598	10.5196	10.4119	10.8271	10.5819	10.6554	10.5515	10.6203	10.7672	10.7036	10.3965	10.6782	10.2761	10.2195	10.6109	10.487
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	7.13	8.98	10.2298	7.65	8.98	9.57	7.13	9.27	9.53	10.1704	10.8469	9.4109	11.01	11.91	8.3466	11.3061
MnO	0	0.03	0.07	0	0.03	0	0.01	0.05	0.04	0.3	0.24	0.24	0.29	0.29	0.29	0.14
CaO	0.26	0.1	0.17	0.06	0.07	0.11	0.11	0.09	0.03	0.01	0.04	0.04	0	0.01	0.08	0.04
MgO	5.48	5.07	4.15	4.71	5.2	4.44	5.06	4.63	3.46	3.54	3.13	3.67	3.81	3.38	3.54	3.52
K2O	0	0.04	0.07	0.03	0.09	0.04	0.01	0	0	0.02	0.03	0.06	0.06	0.01	0.02	0
Na2O	1.91	2.19	2.24	1.61	2.23	2.13	1.56	2.18	1.6	2.04	2.14	1.99	2.17	2.07	2.01	2.28
Li2O	0.2071	0.1626	0.2255	0.27	0.129	0.2066	0.161	0.1853	0.2704	0.2837	0.2854	0.3432	0.1133	0.0601	0.4726	0.2176
F	0.01	0.59	0.7	0.15	0.69	0.65	0	0.6	0.1	0.55	0.4	0.47	0.84	1	0.34	0.49
H2O	3.7076	3.3498	3.2604	3.6645	3.3238	3.3682	3.6405	3.3798	3.6675	3.4322	3.3974	3.4614	3.1472	3.0518	3.4998	3.3859
Total#	101.2744	100.272	100.01	101.6815	100.9948	101.7402	99.023	101.2654	101.885	102.2228	99.862	101.9897	99.1066	99.0415	100.7694	101.3157
O=F	-0.0042	-0.2484	-0.2948	-0.0632	-0.2905	-0.2737	0	-0.2526	-0.0421	-0.2316	-0.1684	-0.1979	-0.3537	-0.4211	-0.1432	-0.2063
Total	101.2702	100.0236	99.7152	101.6184	100.7042	101.4665	99.023	101.0128	101.8429	101.9912	99.6935	101.7918	98.7529	98.6204	100.6263	101.1093
apfu																
Group T																
Si4+	5.8637	5.9645	5.9728	5.9749	5.9277	5.9358	5.9004	5.9259	5.9646	6	6	5.9996	5.9891	5.9865	6	5.9996
Al3+	0.1363	0.0355	0.0272	0.0251	0.0723	0.0642	0.0996	0.0741	0.0354	0	0	0.0004	0.0109	0.0135	0	0.0004
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0192	0.0039	0	0.0063	0	0.0026	0.0091	0.0026	0.0013	0.0039	0	0.0064	0	0	0.0013	0
V3+	0.0065	0.004	0.0174	0.0039	0.0013	0.0078	0.0026	0.0039	0.0091	0.0065	0	0	0	0.0027	0	0
Al3+	5.9744	5.9921	5.9826	5.9898	5.9987	5.9896	5.9882	5.9935	5.9897	5.9896	6	5.9936	6	5.9973	5.9987	6
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.124	0.0671	0.0816	0.0556	0.1013	0.0957	0.0706	0.0751	0.034	0	0	0.0012	0.0025	0.0051	0	0.0012
Fe3+	0	0	0.0028	0	0	0	0	0	0	0.0162	0.0661	0.1673	0	0	0.1799	0.1682
Al3+	0.4174	0.3087	0.2662	0.5975	0.2687	0.3517	0.573	0.3726	0.6545	0.5191	0.4114	0.4017	0.36	0.3593	0.4608	0.2287
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	0.9632	1.2408	1.4281	1.027	1.2335	1.3055	0.9822	1.2687	1.2865	1.3812	1.5165	1.281	1.5574	1.694	1.1434	1.5671
Mn2+	0	0.0042	0.0099	0	0.0042	0	0.0014	0.0069	0.0055	0.0413	0.034	0.0331	0.0415	0.0418	0.0402	0.0197
Mg2+	1.3196	1.2488	1.0327	1.1272	1.2732	1.0797	1.2425	1.1296	0.8326	0.8569	0.7801	0.8905	0.9607	0.857	0.8644	0.8697
Li+	0.1345	0.108	0.1514	0.1743	0.0852	0.1355	0.1067	0.122	0.1755	0.1853	0.1919	0.2247	0.077	0.0411	0.3113	0.145
Total	2.9587	2.9776	2.9728	2.9815	2.9662	2.9681	2.9765	2.975	2.9887	3	3	2.9996	2.9992	2.9983	3	2.9996
Group A																
Ca2+	0.045	0.0177	0.0304	0.0103	0.0123	0.0192	0.0194	0.0158	0.0052	0.0017	0.0072	0.007	0	0.0018	0.014	0.0071
K+	0	0.0084	0.0149	0.0061	0.0189	0.0083	0.0021	0	0	0.0041	0.0064	0.0125	0.0129	0.0022	0.0042	0
Na+	0.5982	0.7015	0.725	0.5011	0.7102	0.6736	0.4982	0.6917	0.5008	0.6423	0.6936	0.628	0.7116	0.6826	0.6383	0.7326
Total	0.6432	0.7277	0.7703	0.5176	0.7413	0.7012	0.5197	0.7075	0.5059	0.6481	0.7072	0.6474	0.7246	0.6866	0.6566	0.7397
Group Z																
OH-	3.9949	3.6917	3.6304	3.9238	3.6416	3.6647	4	3.6895	3.9489	3.7175	3.7885	3.7581	3.5507	3.4621	3.8239	3.7432
F-	0.0051	0.3083	0.3696	0.0762	0.3584	0.3353	0	0.3105	0.0511	0.2825	0.2115	0.2419	0.4493	0.5379	0.1761	0.2568
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014
Sample	P_43	P_7	P_7	P_7	P_7	P_7	P_7	P_7	P_7	P_7	P_7	P_7	P_7	P_7	P_7	P_7
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Rock Type	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite	Tourmalinite
Comment																
Analysis	11	2	3	4	9	11	14	17	18	19	20	21	22	23	24	25
wt.%																
TiO2	0.05	0.2	0.21	0.38	0.54	1.2	0.71	0.39	0.86	0.48	0.73	0.76	0.86	0.54	1.05	0.54
SiO2	36.84	37.16	36.96	37.46	37.16	37.32	36.16	36.42	36.16	36.35	35.37	35.68	35.53	36.97	35.7	35.79
Fe2O3	1.0733	0.6932	0	2.3168	2.4632	3.6458	0	0	3.115	0	0	0	1.9773	2.6546	2.4337	0
Cr2O3	0.01	0.02	0.02	0.02	0.04	0.05	0.04	0	0.03	0.01	0.05	0.03	0	0.08	0.06	0
V2O3	0	0.05	0.05	0.03	0.07	0.08	0.03	0.01	0.05	0.07	0.05	0.02	0	0.08	0.05	0.08
Al2O3	33.69	34.61	34.75	34.47	32.79	32.69	32.95	33.33	30.75	33.93	33.25	33.09	30.33	31.9	31.22	33.09
B2O3	10.6753	10.7789	10.7469	10.8789	10.8036	10.8979	10.5433	10.6504	10.5372	10.6394	10.5198	10.5378	10.3547	10.7486	10.4178	10.4828
ZnO	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FeO	9.3542	8.1462	8.53	4.5153	5.4136	3.0394	7.68	7.72	7.5071	7.03	8.93	8.21	8.1009	6.6814	10.7002	8.28
MnO	0.2	0.03	0.01	0	0.04	0.01	0.03	0.07	0.03	0.01	0.06	0	0.01	0.01	0.09	0
CaO	0.06	0.01	0.03	0.25	0	0.54	0.28	0.24	0	0.21	0.21	0.17	0.01	0.02	0	0.12
MgO	3.45	4.16	4.21	5.32	5.94	6.02	5.05	5.8	5.04	5.54	5.19	5.45	5.35	5.73	2.56	5.25
K2O	0.02	0.03	0.01	0.01	0.03	0.01	0.01	0.04	0	0	0.03	0.01	0.04	0.01	0.04	0.02
Na2O	2	1.62	1.76	1.34	2.14	1.74	2.05	2.06	2.48	1.76	2.03	2.13	2.55	2.39	2.2	1.78
Li2O	0.3939	0.3126	0.2857	0.4802	0.3814	0.6538	0.3116	0.1624	0.3607	0.1965	0.0407	0.1174	0.2433	0.3462	0.3978	0.0805
F	0.61	0	0	0	0.07	0.06	0.22	0.68	0.53	0.42	0.55	0.45	0.47	0.77	0.61	0.42
H2O	3.394	3.7189	3.7079	3.7534	3.6943	3.7316	3.5333	3.3522	3.3843	3.4717	3.3688	3.4224	3.3497	3.3434	3.3051	3.4176
Total#	101.8207	101.5399	101.2806	101.2247	101.5761	101.6885	99.5982	100.925	100.8342	100.1175	100.3793	100.0775	99.1759	102.2741	100.8345	99.3509
O=F	-0.2569	0	0	0	-0.0295	-0.0253	-0.0926	-0.2863	-0.2232	-0.1769	-0.2316	-0.1895	-0.1979	-0.3242	-0.2569	-0.1769
Total	101.5639	101.5399	101.2806	101.2247	101.5466	101.6632	99.5056	100.6387	100.611	99.9407	100.1478	99.8881	98.978	101.9499	100.5777	99.1741
apfu																
Group T																
Si4+	5.998	5.9919	5.9774	5.9848	5.9782	5.952	5.961	5.9435	5.9644	5.9382	5.8438	5.8849	5.9638	5.9781	5.9561	5.934
Al3+	0.002	0.0081	0.0226	0.0152	0.0218	0.048	0.039	0.0565	0.0356	0.0618	0.1562	0.1151	0.0362	0.0219	0.0439	0.066
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0	0	0	0	0.0472	0	0	0	0.0361	0	0	0
Cr3+	0.0013	0.0025	0.0026	0.0025	0.0051	0.0063	0.0052	0	0.0039	0.0013	0.0065	0.0039	0	0.0102	0.0079	0
V3+	0	0.0065	0.0065	0.0038	0.009	0.0102	0.004	0.0013	0.0066	0.0092	0.0066	0.0026	0	0.0104	0.0067	0.0106
Al3+	5.9987	5.991	5.991	5.9936	5.9859	5.9835	5.9908	5.9987	5.9422	5.9895	5.9868	5.9934	5.9639	5.9794	5.9854	5.9894
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0061	0.0243	0.0256	0.0457	0.0654	0.144	0.0881	0.0479	0.1067	0.059	0.0907	0.0943	0.1086	0.0657	0.1318	0.0674
Fe3+	0.1315	0.0841	0	0.2785	0.2982	0.4376	0	0	0.3394	0	0	0	0.2136	0.323	0.3055	0
Al3+	0.4638	0.5782	0.61	0.4816	0.2095	0.1131	0.372	0.3552	0	0.4813	0.3314	0.3239	0	0.0781	0.1094	0.4108
Zn2+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fe2+	1.2737	1.0985	1.1537	0.6033	0.7284	0.4054	1.0588	1.0536	1.0356	0.9604	1.2339	1.1325	1.1372	0.9035	1.493	1.1481
Mn2+	0.0276	0.0041	0.0014	0	0.0055	0.0014	0.0042	0.0097	0.0042	0.0014	0.0084	0	0.0014	0.0014	0.0127	0
Mg2+	0.8374	1	1.015	1.2671	1.4246	1.4313	1.2411	1.411	1.2393	1.3492	1.2783	1.3401	1.3387	1.3813	0.6367	1.2976
Li+	0.2579	0.2027	0.1858	0.3086	0.2467	0.4193	0.2066	0.1066	0.2392	0.1291	0.0271	0.0779	0.1643	0.2251	0.2669	0.0537
Total	2.998	2.9919	2.9915	2.9848	2.9782	2.952	2.9706	2.984	2.9644	2.9803	2.9698	2.9686	2.9638	2.9781	2.9561	2.9775
Group A																
Ca2+	0.0105	0.0017	0.0052	0.0428	0	0.0923	0.0495	0.042	0	0.0368	0.0372	0.03	0.0018	0.0035	0	0.0213
K+	0.0042	0.0062	0.0021	0.002	0.0062	0.002	0.0021	0.0083	0	0	0.0063	0.0021	0.0086	0.0021	0.0085	0.0042
Na+	0.6313	0.5065	0.5519	0.4151	0.6675	0.538	0.6552	0.6518	0.7931	0.5575	0.6503	0.6812	0.8299	0.7493	0.7116	0.5722
Total	0.646	0.5144	0.5591	0.4599	0.6737	0.6324	0.7068	0.7021	0.7931	0.5942	0.6938	0.7133	0.8402	0.7548	0.7202	0.5978
Group Z																
OH-	3.6859	4	4	4	3.9644	3.9697	3.8853	3.649	3.7235	3.783	3.7126	3.7653	3.7505	3.6062	3.6781	3.7798
F-	0.3141	0	0	0	0.0356	0.0303	0.1147	0.351	0.2765	0.217	0.2874	0.2347	0.2495	0.3938	0.3219	0.2202
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Ribeiro da Costa et al. 2014	Ribeiro da Costa et al. 2014	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015
Sample	P_7	P_7	CALT	CALT	CALT	CALT	CALT	CALT	CALT	CALT	CALT	CALT	CALT
Area	Penamacor	Penamacor	Castelo Branco	Castelo Branco	Castelo Branco	Castelo Branco	Castelo Branco	Castelo Branco	Castelo Branco	Castelo Branco	Castelo Branco	Castelo Branco	Castelo Branco
Local	Penamacor	Penamacor	Granito de Alcains	Granito de Alcains	Granito de Alcains	Granito de Alcains	Granito de Alcains	Granito de Alcains	Granito de Alcains	Granito de Alcains	Granito de Alcains	Granito de Alcains	Granito de Alcains
Rock Type	Tourmalinite	Tourmalinite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment			CALT Internal facies	CALT Internal facies	CALT Internal facies	CALT Internal facies	CALT Internal facies	CALT Internal facies	CALT Internal facies	CALT Internal facies	CALT Internal facies	CALT Internal facies	CALT Internal facies
Analysis	26	28	4	5	1	2	3	4	1	2	3	1	2
wt.%													
TiO2	1.3	0.93	0.658	0.702	0.58	0.513	1.448	0.896	0.59	0.618	0.677	0.658	0.705
SiO2	35.68	36.09	36.169	36.25	36.025	36.586	35.959	36.13	36.134	36.234	35.969	36.183	36.052
Fe2O3	1.0995	0.3317	0.1108	0	0.0124	1.0973	0.0715	0.0958	0	0.9797	0	0	0
Cr2O3	0.04	0.03	0.003	0.057	0.05	0.065	0.075	0.072	0.072	0.013	0.076	0.072	0.023
V2O3	0.05	0.06	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al2O3	30.69	31.12	33.282	33.649	32.779	32.913	32.16	32.646	34.585	32.763	33.56	33.828	33.729
B2O3	10.4301	10.522	10.5251	10.5638	10.4778	10.6354	10.5217	10.5311	10.6159	10.5411	10.5282	10.5832	10.5412
ZnO	n.a.	n.a.	0.092	0.102	0.131	0.142	0.105	0.14	0.17	0.098	0.11	0.121	0.133
FeO	9.0207	9.7715	8.4073	8.44	8.5299	7.6457	9.0217	9.2838	7.828	7.7325	8.155	8.498	8.5
MnO	0.12	0.05	0.031	0.073	0.061	0	0.037	0.035	0.03	0.053	0.035	0.05	0.041
CaO	0.04	0.04	0.164	0.125	0.154	0.149	0.195	0.174	0.136	0.15	0.147	0.151	0.153
MgO	5.17	5.42	3.996	3.984	4.478	4.62	4.504	4.239	3.906	4.422	4.09	3.882	3.852
K2O	0	0.02	0.061	0.046	0.056	0.051	0.04	0.043	0.035	0.029	0.06	0.047	0.048
Na2O	2.48	2.73	2.028	1.869	2.066	2.144	2.153	2.047	1.852	2.066	2.085	2.011	1.92
Li2O	0.1513	0.1224	0.401	0.3424	0.2935	0.4059	0.2511	0.2578	0.3865	0.3932	0.391	0.3834	0.3631
F	0.52	0.57	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
H2O	3.3521	3.3601	3.6314	3.6447	3.615	3.6694	3.6302	3.6335	3.6627	3.6369	3.6325	3.6514	3.6369
Total#	100.1437	101.1677	99.5596	99.8479	99.3086	100.6366	100.1721	100.224	100.0031	99.7293	99.5157	100.119	99.6972
O=F	-0.219	-0.24	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	99.9247	100.9277	99.5596	99.8479	99.3086	100.6366	100.1721	100.224	100.0031	99.7293	99.5157	100.119	99.6972
apfu													
Group T			T										
Si4+	5.9457	5.9615	5.9728	5.9642	5.9759	5.979	5.94	5.9629	5.9159	5.9744	5.938	5.9423	5.9444
Al3+	0.0543	0.0385	0.0272	0.0358	0.0241	0.021	0.06	0.0371	0.0841	0.0256	0.062	0.0577	0.0556
Total	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B			B										
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G			G										
Fe3+	0.015	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0053	0.0039	0.0004	0.0074	0.0066	0.0084	0.0098	0.0094	0.0093	0.0017	0.0099	0.0093	0.003
V3+	0.0067	0.0079	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al3+	5.9731	5.9881	5.9996	5.9926	5.9934	5.9916	5.9902	5.9906	5.9907	5.9983	5.9901	5.9907	5.997
Total	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D			D										
Ti4+	0.163	0.1156	0.0817	0.0869	0.0724	0.0631	0.1799	0.1112	0.0727	0.0767	0.0841	0.0813	0.0875
Fe3+	0.1229	0.0412	0.0138	0	0.0015	0.1349	0.0089	0.0119	0	0.1216	0	0	0
Al3+	0	0.0318	0.4506	0.4965	0.3908	0.3266	0.2109	0.3224	0.5987	0.3429	0.4775	0.4992	0.5018
Zn2+	n.a.	n.a.	0.0112	0.0124	0.016	0.0171	0.0128	0.0171	0.0205	0.0119	0.0134	0.0147	0.0162
Fe2+	1.2571	1.3499	1.1611	1.1613	1.1833	1.0449	1.2463	1.2814	1.0718	1.0663	1.1259	1.1672	1.1721
Mn2+	0.0169	0.007	0.0043	0.0102	0.0086	0	0.0052	0.0049	0.0042	0.0074	0.0049	0.007	0.0057
Mg2+	1.2843	1.3347	0.9837	0.9772	1.1074	1.1255	1.1091	1.0429	0.9533	1.0869	1.0066	0.9504	0.9468
Li+	0.1014	0.0813	0.2663	0.2265	0.1958	0.2667	0.1668	0.1711	0.2545	0.2607	0.2596	0.2532	0.2407
Total	2.9457	2.9615	2.9728	2.971	2.9759	2.979	2.94	2.9629	2.9758	2.9744	2.972	2.9729	2.9708
Group A			A										
Ca2+	0.0071	0.0071	0.029	0.022	0.0274	0.0261	0.0345	0.0308	0.0239	0.0265	0.026	0.0266	0.027
K+	0	0.0042	0.0129	0.0097	0.0119	0.0106	0.0084	0.0091	0.0073	0.0061	0.0126	0.0098	0.0101
Na+	0.8013	0.8743	0.6493	0.5962	0.6645	0.6793	0.6896	0.655	0.5879	0.6605	0.6674	0.6403	0.6138
Total	0.8084	0.8856	0.6912	0.6279	0.7037	0.7161	0.7325	0.6948	0.6191	0.6931	0.706	0.6768	0.6509
Group Z			Z										
OH-	3.726	3.7022	4	4	4	4	4	4	4	4	4	4	4
F-	0.274	0.2978	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015
Sample	CALT	INFX1	INFX1	INFX1	INFX1	GIN	GIN	GIN	GIN	GIN	GIN	GIN
Area	Castelo Branco	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)
Local	Granito de Alcains	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	CALT Internal facies	Internal Facies	Internal Facies	Internal Facies	Internal Facies							
Analysis	3	1	2	3	4	1	2	3	4	1	2	3
wt.%												
TiO2	0.456	1.187	1.205	1.144	1.004	0.737	0.6	0.745	0.747	0.79	0.318	0.154
SiO2	36.486	36.269	36.207	36.12	36.517	36.023	36.377	36.548	36.402	35.829	36.324	36.581
Fe2O3	0	0	0	0.2153	1.42	0	0.804	2.4996	1.5908	0	0	0
Cr2O3	0.065	0.107	0.027	0.12	0.095	0.048	0.06	0.045	0.08	0.071	0.054	0.049
V2O3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al2O3	33.971	32.782	33.667	32.309	32.622	33.175	32.936	32.314	32.148	32.752	34.357	34.85
B2O3	10.62	10.6326	10.6025	10.5462	10.6511	10.5447	10.5812	10.6412	10.5991	10.5042	10.5706	10.6286
ZnO	0.118	0.048	0.02	0.036	0.101	0.131	0.088	0.092	0.104	0.09	0.07	0.106
FeO	8.561	7.307	8.157	7.0363	6.0423	9.302	8.4165	7.1039	8.0406	9.248	8.838	9.018
MnO	0.024	0.072	0.071	0.022	0.018	0.072	0.032	0.026	0.045	0.069	0.033	0.05
CaO	0.106	0.422	0.238	0.445	0.357	0.133	0.121	0.107	0.201	0.185	0.069	0.053
MgO	3.9	5.662	4.275	5.503	5.437	4.122	4.259	4.372	4.534	4.424	3.513	3.288
K2O	0.043	0.032	0.027	0.059	0.051	0.024	0.017	0.027	0.036	0.029	0.009	0.009
Na2O	1.978	1.946	1.626	1.969	1.821	2.092	2.039	2.172	2.198	2.172	1.669	1.522
Li2O	0.3831	0.2324	0.2777	0.3185	0.3875	0.2543	0.3456	0.4954	0.3915	0.2294	0.3337	0.3273
F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
H2O	3.6641	3.6685	3.6581	3.6387	3.6748	3.6381	3.6507	3.6714	3.6569	3.6242	3.6471	3.6671
Total#	100.3752	100.3675	100.0583	99.482	100.1987	100.2961	100.327	100.8595	100.7739	100.0168	99.8054	100.3029
O=F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	100.3752	100.3675	100.0583	99.482	100.1987	100.2961	100.327	100.8595	100.7739	100.0168	99.8054	100.3029
apfu												
Group T												
Si4+	5.9713	5.9287	5.9354	5.9527	5.9589	5.9376	5.9753	5.9695	5.9693	5.9284	5.9725	5.982
Al3+	0.0287	0.0713	0.0646	0.0473	0.0411	0.0624	0.0247	0.0305	0.0307	0.0716	0.0275	0.018
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group B												
B3+	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3
Group G												
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0084	0.0138	0.0035	0.0156	0.0123	0.0063	0.0078	0.0058	0.0104	0.0093	0.007	0.0063
V3+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al3+	5.9916	5.9862	5.9965	5.9844	5.9877	5.9937	5.9922	5.9942	5.9896	5.9907	5.993	5.9937
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group D												
Ti4+	0.0561	0.146	0.1486	0.1418	0.1233	0.0914	0.0741	0.0915	0.0922	0.0983	0.0393	0.0189
Fe3+	0	0	0	0.0267	0.1744	0	0.0994	0.3072	0.1963	0	0	0
Al3+	0.5322	0.2582	0.4435	0.2438	0.2451	0.3885	0.3592	0.1957	0.1927	0.3246	0.6374	0.7049
Zn2+	0.0143	0.0058	0.0024	0.0044	0.0122	0.0159	0.0107	0.0111	0.0126	0.011	0.0085	0.0128
Fe2+	1.1717	0.9989	1.1183	0.9698	0.8246	1.2823	1.1562	0.9704	1.1027	1.2797	1.2153	1.2333
Mn2+	0.0033	0.01	0.0099	0.0031	0.0025	0.0101	0.0045	0.0036	0.0063	0.0097	0.0046	0.0069
Mg2+	0.9515	1.3798	1.0447	1.352	1.3226	1.0129	1.0429	1.0645	1.1084	1.0912	0.8611	0.8016
Li+	0.2521	0.1528	0.1831	0.2111	0.2543	0.1685	0.2283	0.3254	0.2582	0.1526	0.2206	0.2152
Total	2.9813	2.9513	2.9505	2.9527	2.9589	2.9695	2.9753	2.9695	2.9693	2.9672	2.9869	2.9937
Group A												
Ca2+	0.0186	0.0739	0.0418	0.0786	0.0624	0.0235	0.0213	0.0187	0.0353	0.0328	0.0122	0.0093
K+	0.009	0.0067	0.0056	0.0124	0.0106	0.005	0.0036	0.0056	0.0075	0.0061	0.0019	0.0019
Na+	0.6276	0.6168	0.5168	0.6292	0.5761	0.6686	0.6494	0.6878	0.6988	0.6968	0.5321	0.4826
Total	0.6552	0.6973	0.5643	0.7201	0.6492	0.6971	0.6742	0.7122	0.7417	0.7357	0.5461	0.4937
Group Z												
OH-	4	4	4	4	4	4	4	4	4	4	4	4
F-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	4	4	4	4	4	4	4	4	4	4	4	4

Source	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015
Sample	GIN	GIN	GIN	GIN	GIN	GIN	GIN	GIN	GIN	GIN	GIN	GIN4-pa17
Area	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)
Local	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment												Internal facies
Analysis	4	1	2	3	4	5	6	1	2	3	4	1
wt.%												
TiO2	0.838	0.694	0.717	0.279	0.72	0.71	0.554	0.653	0.703	0.548	0.616	0.867
SiO2	36.186	36.03	36.153	35.779	36.083	36.09	36.181	36.07	36.012	36.299	36.221	36.035
Fe2O3	0	0	0	0	0	0	0	0	0	0	0	0
Cr2O3	0.065	0.087	0.043	0.049	0.072	0.07	0.067	0.071	0.064	0.093	0.059	0.105
V2O3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al2O3	32.984	33.884	33.872	34.521	32.985	33.754	32.742	34.15	33.864	33.815	33.78	33.657
B2O3	10.5557	10.5811	10.5774	10.4991	10.5331	10.5555	10.5229	10.6166	10.584	10.6056	10.616	10.5868
ZnO	0.083	0.132	0.056	0.119	0.135	0.113	0.044	0.15	0.173	0.121	0.101	0.042
FeO	9.048	9.015	8.836	9.435	9.338	10.06	9.154	8.709	8.782	8.871	8.862	6.967
MnO	0.042	0.072	0.069	0.004	0.075	0.034	0.026	0.032	0.055	0.039	0.04	0.007
CaO	0.188	0.125	0.104	0.055	0.13	0.123	0.118	0.134	0.148	0.136	0.141	0.312
MgO	4.2	3.815	3.836	3.22	4.135	3.058	4.354	3.869	3.857	3.775	4.047	5.01
K2O	0.043	0.038	0.043	0.019	0.036	0.011	0.037	0.067	0.053	0.043	0.046	0.035
Na2O	2.072	1.958	1.869	1.606	2.078	1.938	2.275	2.059	2.074	2.115	2.135	1.913
Li2O	0.3038	0.2992	0.3112	0.2599	0.2559	0.3417	0.3075	0.3497	0.347	0.394	0.3402	0.3432
F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
H2O	3.6419	3.6507	3.6494	3.6224	3.6341	3.6419	3.6306	3.663	3.6517	3.6591	3.6627	3.6527
Total#	100.2503	100.3809	100.1361	99.4673	100.2101	100.5001	100.0131	100.5933	100.3677	100.5137	100.6669	99.5327
O=F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	100.2503	100.3809	100.1361	99.4673	100.2101	100.5001	100.0131	100.5933	100.3677	100.5137	100.6669	99.5327
apfu												
Group T												
Si4+	5.9583	5.9183	5.9406	5.923	5.9541	5.9425	5.976	5.9051	5.9137	5.9488	5.9302	5.916
Al3+	0.0417	0.0817	0.0594	0.077	0.0459	0.0575	0.024	0.0949	0.0863	0.0512	0.0698	0.084
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group B												
B3+	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3
Group G												
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0085	0.0113	0.0056	0.0064	0.0094	0.0091	0.0087	0.0092	0.0083	0.0121	0.0076	0.0136
V3+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al3+	5.9915	5.9887	5.9944	5.9936	5.9906	5.9909	5.9913	5.9908	5.9917	5.9879	5.9924	5.9864
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group D												
Ti4+	0.1038	0.0858	0.0886	0.0347	0.0894	0.088	0.0688	0.0804	0.0869	0.0676	0.0759	0.1071
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0
Al3+	0.3676	0.4894	0.5058	0.6647	0.3782	0.502	0.3584	0.5034	0.4761	0.4921	0.4559	0.4418
Zn2+	0.0101	0.016	0.0068	0.0145	0.0164	0.0137	0.0054	0.0181	0.021	0.0146	0.0122	0.0051
Fe2+	1.2459	1.2384	1.2143	1.3062	1.2886	1.3853	1.2645	1.1924	1.2061	1.2158	1.2134	0.9566
Mn2+	0.0059	0.01	0.0096	0.0006	0.0105	0.0047	0.0036	0.0044	0.0077	0.0054	0.0055	0.001
Mg2+	1.031	0.9342	0.9397	0.7947	1.0172	0.7506	1.0721	0.9442	0.9442	0.9223	0.9878	1.2262
Li+	0.2011	0.1976	0.2057	0.173	0.1698	0.2263	0.2043	0.2302	0.2292	0.2597	0.224	0.2266
Total	2.9654	2.9714	2.9705	2.9884	2.9702	2.9707	2.9771	2.9732	2.971	2.9775	2.9747	2.9643
Group A												
Ca2+	0.0332	0.022	0.0183	0.0098	0.023	0.0217	0.0209	0.0235	0.026	0.0239	0.0247	0.0549
K+	0.009	0.008	0.009	0.004	0.0076	0.0023	0.0078	0.014	0.0111	0.009	0.0096	0.0073
Na+	0.6615	0.6236	0.5954	0.5155	0.6648	0.6187	0.7285	0.6536	0.6603	0.672	0.6777	0.6089
Total	0.7037	0.6535	0.6228	0.5292	0.6954	0.6427	0.7572	0.6911	0.6975	0.7049	0.7121	0.6711
Group Z												
OH-	4	4	4	4	4	4	4	4	4	4	4	4
F-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	4	4	4	4	4	4	4	4	4	4	4	4

Source	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015
Sample	GIN4-pa17	GIN4-pa17	GIN4-pa17	GIN4-pa17	GIN4-pa17	GIN4-pa17	GIN4-pa17	GR2-pa	GR2-pa	GR2-pa	GR2-pa	GR2-pa
Area	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)
Local	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	Internal facies	Internal facies	Internal facies	Internal facies	Internal facies	Internal facies	Internal facies	External facies	External facies	External facies	External facies	External facies
Analysis	2	3	1	2	4	5	6	1	2	3	4	5
wt.%												
TiO2	1.045	0.791	1.066	0.955	0.914	0.8	0.91	0.477	0.506	0.454	0.231	0.511
SiO2	36.025	36.061	36.205	36.221	36.14	36.256	36.188	36.381	36.534	36.364	36.657	36.431
Fe2O3	0	0	0	0	0	0	0	0	0	0	0.005	0
Cr2O3	0.085	0.079	0.111	0.061	0.046	0.072	0.074	0.084	0.062	0.062	0.072	0.037
V2O3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al2O3	33.507	33.803	32.83	34.055	33.827	33.542	33.667	34.053	33.958	34.002	34.772	34.018
B2O3	10.5863	10.6052	10.5816	10.6498	10.6284	10.6166	10.6058	10.6239	10.6689	10.6292	10.6355	10.6531
ZnO	0.063	0.015	0	0.008	0	0.035	0.024	0.055	0.056	0.124	0.042	0.094
FeO	7.175	6.83	7.514	7.155	7.169	7.238	7.227	8.098	8.354	8.243	8.2905	8.259
MnO	0.01	0.029	0.061	0.021	0.03	0.041	0	0.03	0.063	0.033	0.017	0.021
CaO	0.398	0.361	0.35	0.267	0.297	0.306	0.264	0.138	0.144	0.129	0.06	0.129
MgO	4.898	5.119	5.151	4.798	4.944	5.078	4.801	4.22	4.324	4.355	3.518	4.242
K2O	0.028	0.034	0.066	0.046	0.054	0.035	0.046	0.015	0.056	0.022	0.042	0.087
Na2O	1.834	1.903	1.978	1.853	1.937	1.933	1.941	2.001	2.083	1.996	1.613	2.129
Li2O	0.3418	0.3459	0.3117	0.345	0.3418	0.3217	0.3666	0.3725	0.3571	0.3196	0.4061	0.3868
F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
H2O	3.6525	3.659	3.6509	3.6744	3.667	3.6629	3.6592	3.6655	3.681	3.6673	3.6695	3.6755
Total#	99.6485	99.6351	99.8762	100.1092	99.9953	99.9372	99.7736	100.2139	100.8469	100.4001	100.0306	100.6734
O=F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	99.6485	99.6351	99.8762	100.1092	99.9953	99.9372	99.7736	100.2139	100.8469	100.4001	100.0306	100.6734
apfu												
Group T												
Si4+	5.9146	5.91	5.9468	5.9113	5.91	5.9355	5.9304	5.9519	5.9517	5.9462	5.9905	5.9438
Al3+	0.0854	0.09	0.0532	0.0887	0.09	0.0645	0.0696	0.0481	0.0483	0.0538	0.0095	0.0562
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group B												
B3+	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3
Group G												
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.011	0.0102	0.0144	0.0079	0.0059	0.0093	0.0096	0.0109	0.008	0.008	0.0093	0.0048
V3+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al3+	5.989	5.9898	5.9856	5.9921	5.9941	5.9907	5.9904	5.9891	5.992	5.992	5.9907	5.9952
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group D												
Ti4+	0.1291	0.0975	0.1317	0.1173	0.1124	0.0985	0.1122	0.0587	0.062	0.0558	0.0284	0.0627
Fe3+	0	0	0	0	0	0	0	0	0	0	0.0006	0
Al3+	0.4092	0.4494	0.3165	0.4695	0.4354	0.4166	0.4425	0.5287	0.4797	0.507	0.6971	0.4897
Zn2+	0.0076	0.0018	0	0.001	0	0.0042	0.0029	0.0066	0.0067	0.015	0.0051	0.0113
Fe2+	0.9852	0.9361	1.0322	0.9766	0.9804	0.991	0.9905	1.108	1.1382	1.1272	1.1331	1.1269
Mn2+	0.0014	0.004	0.0085	0.0029	0.0042	0.0057	0	0.0042	0.0087	0.0046	0.0024	0.0029
Mg2+	1.1988	1.2507	1.2613	1.1673	1.2053	1.2393	1.1729	1.0292	1.0501	1.0616	0.8571	1.0317
Li+	0.2257	0.228	0.2059	0.2264	0.2248	0.2118	0.2416	0.2451	0.2339	0.2102	0.2669	0.2538
Total	2.957	2.9675	2.9561	2.9609	2.9625	2.9672	2.9626	2.9804	2.9793	2.9814	2.9905	2.9791
Group A												
Ca2+	0.07	0.0634	0.0616	0.0467	0.052	0.0537	0.0464	0.0242	0.0251	0.0226	0.0105	0.0226
K+	0.0059	0.0071	0.0138	0.0096	0.0113	0.0073	0.0096	0.0031	0.0116	0.0046	0.0088	0.0181
Na+	0.5838	0.6047	0.6299	0.5863	0.6141	0.6136	0.6167	0.6347	0.6579	0.6328	0.5111	0.6735
Total	0.6597	0.6752	0.7053	0.6426	0.6775	0.6745	0.6727	0.662	0.6947	0.66	0.5303	0.7141
Group Z												
OH-	4	4	4	4	4	4	4	4	4	4	4	4
F-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	4	4	4	4	4	4	4	4	4	4	4	4

Source	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015
Sample	GR2-pa	GR2-pa	GR2-pa	GR2-pa	GR2-pa	GR2-pa	GR2-pa	GR2-pa	GR2-pa	GR2-pa	GR2-pa	GR2-pa
Area	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)	Castelo Branco (CB)
Local	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB	Granito CB
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	External facies	External facies	External facies	External facies	External facies	External facies	External facies	External facies	External facies	External facies	External facies	External facies
Analysis	6	1	2	3	1	2	3	1	2	3	4	5
wt.%												
TiO2	0.513	0.378	0.404	0.441	0.481	0.572	0.466	0.519	0.479	0.472	0.618	0.632
SiO2	36.64	35.995	36.027	36.158	36.11	36.195	36.162	36.115	35.957	36.025	35.458	35.486
Fe2O3	0.0877	0	0	0	0	0	0	0	0	0	0	0
Cr2O3	0.025	0.067	0.062	0.046	0.057	0.043	0.109	0.01	0.058	0.058	0.082	0.047
V2O3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al2O3	33.996	34.195	34.095	34.206	34.186	34.271	34.194	33.87	34.344	34.095	34.423	34.029
B2O3	10.651	10.5692	10.5769	10.6086	10.6083	10.6538	10.6172	10.5835	10.5833	10.5795	10.4835	10.4647
ZnO	0.066	0.032	0.065	0.063	0.065	0.055	0.09	0.074	0.137	0.025	0.098	0.051
FeO	8.0171	8.457	8.428	8.374	8.557	8.487	8.374	8.818	8.453	8.625	10.769	10.981
MnO	0.033	0.018	0.084	0.035	0.024	0.032	0.051	0.01	0	0.041	0.058	0.056
CaO	0.145	0.098	0.128	0.132	0.102	0.144	0.128	0.16	0.142	0.144	0.121	0.157
MgO	4.151	4.137	4.16	4.145	4.143	4.233	4.159	4.094	3.942	4.036	2.251	2.464
K2O	0.056	0.035	0.039	0.05	0.048	0.033	0.036	0.055	0.046	0.035	0.033	0.024
Na2O	1.934	1.944	1.989	1.991	1.997	2.064	1.995	1.982	1.931	1.98	1.759	1.749
Li2O	0.409	0.3004	0.3104	0.3346	0.3042	0.3174	0.3236	0.3075	0.3307	0.3216	0.3182	0.2758
F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
H2O	3.6748	3.6466	3.6493	3.6602	3.6601	3.6758	3.6632	3.6515	3.6515	3.6501	3.617	3.6105
Total#	100.3987	99.8721	100.0176	100.2444	100.3426	100.776	100.368	100.2495	100.0546	100.0872	100.0888	100.0271
O=F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	100.3987	99.8721	100.0176	100.2444	100.3426	100.776	100.368	100.2495	100.0546	100.0872	100.0888	100.0271
apfu												
Group T												
Si4+	5.979	5.9192	5.9202	5.924	5.9163	5.9048	5.9198	5.9309	5.9051	5.9184	5.8786	5.8938
Al3+	0.021	0.0808	0.0798	0.076	0.0837	0.0952	0.0802	0.0691	0.0949	0.0816	0.1214	0.1062
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group B												
B3+	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3
Group G												
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0032	0.0087	0.0081	0.006	0.0074	0.0055	0.0141	0.0013	0.0075	0.0075	0.0107	0.0062
V3+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al3+	5.9968	5.9913	5.9919	5.994	5.9926	5.9945	5.9859	5.9987	5.9925	5.9925	5.9893	5.9938
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group D												
Ti4+	0.063	0.0468	0.0499	0.0544	0.0593	0.0702	0.0574	0.0641	0.0592	0.0583	0.0771	0.079
Fe3+	0.0108	0	0	0	0	0	0	0	0	0	0	0
Al3+	0.5204	0.5553	0.5314	0.5348	0.5249	0.4997	0.5311	0.4877	0.56	0.5275	0.6154	0.561
Zn2+	0.008	0.0039	0.0079	0.0076	0.0079	0.0066	0.0109	0.009	0.0166	0.003	0.012	0.0063
Fe2+	1.0941	1.1631	1.1582	1.1474	1.1725	1.1579	1.1464	1.2111	1.161	1.185	1.4931	1.5253
Mn2+	0.0046	0.0025	0.0117	0.0049	0.0033	0.0044	0.0071	0.0014	0	0.0057	0.0081	0.0079
Mg2+	1.0098	1.0142	1.0191	1.0124	1.0119	1.0295	1.015	1.0023	0.9651	0.9885	0.5563	0.6101
Li+	0.2684	0.1986	0.2051	0.2205	0.2004	0.2082	0.213	0.2031	0.2184	0.2125	0.2122	0.1842
Total	2.979	2.9844	2.9834	2.9819	2.9802	2.9766	2.9809	2.9786	2.9803	2.9806	2.9743	2.9737
Group A												
Ca2+	0.0254	0.0173	0.0225	0.0232	0.0179	0.0252	0.0225	0.0282	0.025	0.0253	0.0215	0.0279
K+	0.0117	0.0073	0.0082	0.0105	0.01	0.0069	0.0075	0.0115	0.0096	0.0073	0.007	0.0051
Na+	0.6119	0.6198	0.6337	0.6324	0.6344	0.6529	0.6332	0.6311	0.6149	0.6307	0.5654	0.5632
Total	0.6489	0.6444	0.6644	0.6661	0.6623	0.6849	0.6632	0.6708	0.6495	0.6634	0.5939	0.5962
Group Z												
OH-	4	4	4	4	4	4	4	4	4	4	4	4
F-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	4	4	4	4	4	4	4	4	4	4	4	4

Source	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015
Sample	GR2-pa	p22	p22	p22	p22	p22	p22	p22	p22	p22	p22	p22
Area	Castelo Branco (CB)	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto
Local	Granito CB	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	External facies	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite
Analysis	6	1	2	3	4	5	6	1	2	3	4	5
wt.%												
TiO2	0.408	0.073	0.074	0.09	0.331	0.322	0.442	0.13	0.057	0.083	0.296	0.267
SiO2	35.429	36.158	35.973	36.135	35.444	35.294	34.673	35.949	36.254	35.988	35.346	35.235
Fe2O3	0	0	0	0.1296	0	0	0	0	0	0	0	0
Cr2O3	0.061	0.035	0.047	0.039	0.064	0.081	0.038	0.034	0.086	0.061	0.04	0.063
V2O3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al2O3	34.602	34.825	34.817	34.654	33.454	32.868	33.225	34.375	34.96	34.341	33.541	33.369
B2O3	10.4237	10.4892	10.4613	10.474	10.357	10.289	10.2509	10.457	10.5271	10.4484	10.3546	10.3501
ZnO	0.09	0.186	0.206	0.223	0.251	0.241	0.182	0.163	0.177	0.218	0.22	0.205
FeO	11.434	12.76	12.729	12.7603	13.788	14.012	14.034	13.349	12.629	13.138	13.815	14.096
MnO	0.029	0.097	0.089	0.097	0.138	0.091	0.115	0.105	0.085	0.098	0.139	0.125
CaO	0.083	0	0.051	0.019	0.054	0.047	0.099	0.04	0.026	0.041	0.073	0.062
MgO	1.625	0.511	0.5	0.502	0.657	0.873	0.769	0.599	0.608	0.602	0.741	0.872
K2O	0.029	0.035	0.014	0.014	0.036	0.043	0.044	0.029	0.013	0.027	0.037	0.027
Na2O	1.472	1.408	1.386	1.362	1.896	1.915	1.992	1.538	1.429	1.53	1.887	2.042
Li2O	0.3025	0.3904	0.3846	0.3808	0.3274	0.2746	0.2607	0.3384	0.3977	0.3608	0.3033	0.273
F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
H2O	3.5964	3.619	3.6093	3.6137	3.5734	3.5499	3.5368	3.6079	3.6321	3.6049	3.5725	3.571
Total#	99.5846	100.5866	100.3412	100.4935	100.3708	99.9005	99.6613	100.7142	100.8809	100.5411	100.3655	100.5571
O=F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	99.5846	100.5866	100.3412	100.4935	100.3708	99.9005	99.6613	100.7142	100.8809	100.5411	100.3655	100.5571
apfu												
Group T												
Si4+	5.9075	5.9914	5.9767	5.9963	5.948	5.962	5.8789	5.9751	5.9856	5.9865	5.933	5.9169
Al3+	0.0925	0.0086	0.0233	0.0037	0.052	0.038	0.1211	0.0249	0.0144	0.0135	0.067	0.0831
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group B												
B3+	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3
Group G												
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.008	0.0046	0.0062	0.0051	0.0085	0.0108	0.0051	0.0045	0.0112	0.008	0.0053	0.0084
V3+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al3+	5.992	5.9954	5.9938	5.9949	5.9915	5.9892	5.9949	5.9955	5.9888	5.992	5.9947	5.9916
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group D												
Ti4+	0.0512	0.0091	0.0092	0.0112	0.0418	0.0409	0.0564	0.0163	0.0071	0.0104	0.0374	0.0337
Fe3+	0	0	0	0.0162	0	0	0	0	0	0	0	0
Al3+	0.7154	0.7969	0.8004	0.7787	0.5732	0.5165	0.5234	0.7134	0.7996	0.7272	0.5736	0.5295
Zn2+	0.0111	0.0228	0.0253	0.0273	0.0311	0.0301	0.0228	0.02	0.0216	0.0268	0.0273	0.0254
Fe2+	1.5944	1.7682	1.7687	1.7709	1.9351	1.9795	1.99	1.8556	1.7438	1.8277	1.9393	1.9796
Mn2+	0.0041	0.0136	0.0125	0.0136	0.0196	0.013	0.0165	0.0148	0.0119	0.0138	0.0198	0.0178
Mg2+	0.4039	0.1262	0.1238	0.1242	0.1644	0.2198	0.1944	0.1484	0.1496	0.1493	0.1854	0.2183
Li+	0.2028	0.2601	0.257	0.2541	0.221	0.1865	0.1778	0.2262	0.2641	0.2414	0.2047	0.1844
Total	2.9829	2.997	2.9969	2.9963	2.9861	2.9864	2.9812	2.9946	2.9976	2.9965	2.9875	2.9888
Group A												
Ca2+	0.0148	0	0.0091	0.0034	0.0097	0.0085	0.018	0.0071	0.0046	0.0073	0.0131	0.0112
K+	0.0062	0.0074	0.003	0.003	0.0077	0.0093	0.0095	0.0061	0.0027	0.0057	0.0079	0.0058
Na+	0.4759	0.4523	0.4465	0.4382	0.6169	0.6272	0.6548	0.4956	0.4574	0.4935	0.6141	0.6649
Total	0.4969	0.4597	0.4585	0.4445	0.6343	0.645	0.6824	0.5089	0.4648	0.5065	0.6352	0.6818
Group Z												
OH-	4	4	4	4	4	4	4	4	4	4	4	4
F-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	4	4	4	4	4	4	4	4	4	4	4	4

Source	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015
Sample	p22	p22	p22	p22	p22	p22	p22	p22	p22	p22	p22	p22
Area	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto
Local	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite
Analysis	6	1	2	3	4	5	6	7	8	1	2	3
wt.%												
TiO2	0.268	0.106	0.111	0.1	0.285	0.289	0.372	0.418	0.355	0.069	0.395	0.493
SiO2	35.347	35.816	36.167	35.804	34.967	35.138	35.474	35.323	34.802	36.131	35.313	35.241
Fe2O3	0	0	1.5626	0	0	0	0	0	0	0	0	0
Cr2O3	0.056	0.073	0.025	0.054	0.07	0.059	0.048	0.049	0.03	0.047	0.061	0.075
V2O3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al2O3	33.361	34.509	34.15	34.437	33.204	33.195	33.24	32.875	32.988	34.788	32.966	33.028
B2O3	10.3406	10.4134	10.4848	10.4144	10.2599	10.2806	10.3426	10.3079	10.2219	10.494	10.3298	10.3218
ZnO	0.193	0.129	0.166	0.174	0.232	0.236	0.241	0.299	0.239	0.172	0.249	0.215
FeO	14.085	13.137	11.706	13.257	14.324	14.354	13.92	14.233	13.968	12.391	13.912	14.224
MnO	0.169	0.105	0.094	0.08	0.107	0.102	0.097	0.087	0.094	0.144	0.147	0.128
CaO	0.052	0.017	0.019	0.024	0.047	0.002	0.055	0.053	0.087	0.031	0.069	0.084
MgO	0.644	0.499	0.5	0.527	0.623	0.584	0.751	0.769	0.826	0.78	0.985	0.733
K2O	0.047	0.002	0.032	0.007	0.033	0.029	0.046	0.031	0.037	0.013	0.035	0.042
Na2O	1.951	1.359	1.379	1.406	1.827	1.857	1.82	1.944	1.875	1.455	2.029	1.931
Li2O	0.3081	0.3245	0.5042	0.3175	0.2325	0.2467	0.2929	0.2709	0.2458	0.3866	0.2803	0.2745
F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
H2O	3.5677	3.5928	3.6175	3.5932	3.5399	3.547	3.5684	3.5564	3.5268	3.6207	3.564	3.5612
Total#	100.3894	100.0827	100.518	100.1951	99.7513	99.9193	100.2679	100.2161	99.2955	100.5223	100.3351	100.3516
O=F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	100.3894	100.0827	100.518	100.1951	99.7513	99.9193	100.2679	100.2161	99.2955	100.5223	100.3351	100.3516
apfu												
Group T												
Si4+	5.9412	5.9779	5.9954	5.9754	5.9235	5.9405	5.9614	5.956	5.9175	5.9842	5.9417	5.9341
Al3+	0.0588	0.0221	0.0046	0.0246	0.0765	0.0595	0.0386	0.044	0.0825	0.0158	0.0583	0.0659
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group B												
B3+	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3
Group G												
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0074	0.0096	0.0033	0.0071	0.0094	0.0079	0.0064	0.0065	0.004	0.0062	0.0081	0.01
V3+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al3+	5.9926	5.9904	5.9967	5.9929	5.9906	5.9921	5.9936	5.9935	5.996	5.9938	5.9919	5.99
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group D												
Ti4+	0.0339	0.0133	0.0138	0.0126	0.0363	0.0368	0.047	0.053	0.0454	0.0086	0.05	0.0625
Fe3+	0	0	0.1949	0	0	0	0	0	0	0	0	0
Al3+	0.5573	0.7758	0.6706	0.756	0.5622	0.5625	0.5512	0.4956	0.5322	0.7809	0.4871	0.4987
Zn2+	0.024	0.0159	0.0203	0.0214	0.029	0.0295	0.0299	0.0372	0.03	0.021	0.0309	0.0267
Fe2+	1.9799	1.8337	1.6229	1.8503	2.0293	2.0295	1.9563	2.0071	1.9863	1.7163	1.9576	2.0031
Mn2+	0.0241	0.0148	0.0132	0.0113	0.0154	0.0146	0.0138	0.0124	0.0135	0.0202	0.0209	0.0183
Mg2+	0.1614	0.1242	0.1236	0.1311	0.1573	0.1472	0.1881	0.1933	0.2094	0.1926	0.2471	0.184
Li+	0.2082	0.2178	0.3361	0.2131	0.1584	0.1677	0.1979	0.1837	0.1681	0.2575	0.1897	0.1859
Total	2.9887	2.9956	2.9954	2.9958	2.9879	2.9877	2.9843	2.9823	2.9849	2.9971	2.9833	2.9792
Group A												
Ca2+	0.0094	0.003	0.0034	0.0043	0.0085	0.0004	0.0099	0.0096	0.0158	0.0055	0.0124	0.0152
K+	0.0101	0.0004	0.0068	0.0015	0.0071	0.0063	0.0099	0.0067	0.008	0.0027	0.0075	0.009
Na+	0.6358	0.4398	0.4432	0.455	0.6001	0.6087	0.593	0.6355	0.6181	0.4672	0.6619	0.6304
Total	0.6552	0.4432	0.4534	0.4607	0.6157	0.6153	0.6128	0.6518	0.642	0.4755	0.6819	0.6546
Group Z												
OH-	4	4	4	4	4	4	4	4	4	4	4	4
F-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	4	4	4	4	4	4	4	4	4	4	4	4

Source	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015
Sample	p22	p22	p22	p22	p22	p22	p22	P12A	P12A	P12A	P12A	P12A
Area	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto	Penamacor/Monsanto
Local	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor	Granito Penamacor
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr. or aplite	Muscovite Gr.	Muscovite Gr.	Muscovite Gr.	Muscovite Gr.	Muscovite Gr.
Analysis	4	1	2	3	4	5	6	1	2	3	1	2
wt.%												
TiO2	0.279	0.335	0.096	0.088	0.317	0.308	0.383	0.229	0.255	0.1	0.281	0.213
SiO2	34.98	35.391	35.955	35.879	35.407	35.222	34.678	35.604	35.754	36.36	35.872	35.868
Fe2O3	0	0	0	0	0	0	0	0	0	0.0925	0	0
Cr2O3	0.04	0.033	0.047	0.041	0.048	0.062	0.043	0.056	0.079	0.039	0.066	0.021
V2O3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al2O3	33.039	33.163	34.55	34.417	33.073	33.353	33.055	33.355	33.456	34.493	33.412	33.553
B2O3	10.2381	10.3271	10.4567	10.4285	10.3295	10.3564	10.2443	10.3786	10.431	10.5399	10.445	10.4411
ZnO	0.26	0.199	0.15	0.221	0.219	0.196	0.231	0.181	0.145	0.103	0.098	0.164
FeO	14.13	14.067	13.34	13.177	14.372	13.856	14.214	12.78	13.123	12.2218	13.223	13.099
MnO	0.094	0.106	0.101	0.125	0.116	0.169	0.148	0.093	0.102	0.068	0.129	0.113
CaO	0.056	0.056	0.031	0.02	0.049	0.083	0.066	0.059	0.046	0.02	0.039	0.071
MgO	0.663	0.745	0.578	0.562	0.675	1.076	0.879	1.576	1.418	1.288	1.358	1.354
K2O	0.036	0.022	0.002	0.023	0.034	0.028	0.058	0.045	0.042	0.025	0.033	0.037
Na2O	1.854	1.904	1.392	1.444	1.929	2.011	2.014	1.862	1.99	1.571	2.008	1.911
Li2O	0.2613	0.2924	0.3038	0.3262	0.2782	0.2512	0.2149	0.2813	0.3079	0.3667	0.3218	0.3174
F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
H2O	3.5324	3.5631	3.6078	3.5981	3.5639	3.5732	3.5345	3.5808	3.5989	3.6365	3.6037	3.6024
Total#	99.4628	100.2036	100.6102	100.3498	100.4105	100.5448	99.7627	100.0808	100.7478	100.9243	100.8895	100.7649
O=F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	99.4628	100.2036	100.6102	100.3498	100.4105	100.5448	99.7627	100.0808	100.7478	100.9243	100.8895	100.7649
apfu												
Group T												
Si4+	5.9383	5.9564	5.9763	5.9797	5.9577	5.9111	5.8835	5.9625	5.9575	5.9959	5.9692	5.9707
Al3+	0.0617	0.0436	0.0237	0.0203	0.0423	0.0889	0.1165	0.0375	0.0425	0.0041	0.0308	0.0293
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group B												
B3+	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3
Group G												
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0054	0.0044	0.0062	0.0054	0.0064	0.0082	0.0058	0.0074	0.0104	0.0051	0.0087	0.0028
V3+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al3+	5.9946	5.9956	5.9938	5.9946	5.9936	5.9918	5.9942	5.9926	5.9896	5.9949	5.9913	5.9972
Total	6	6	6	6	6	6	6	6	6	6	6	6
Group D												
Ti4+	0.0356	0.0424	0.012	0.011	0.0401	0.0389	0.0489	0.0289	0.032	0.0124	0.0352	0.0267
Fe3+	0	0	0	0	0	0	0	0	0	0.0115	0	0
Al3+	0.5541	0.5388	0.7507	0.7455	0.5228	0.5164	0.4989	0.5532	0.5379	0.7047	0.5305	0.5562
Zn2+	0.0326	0.0247	0.0184	0.0272	0.0272	0.0243	0.0289	0.0224	0.0178	0.0125	0.012	0.0202
Fe2+	2.0061	1.98	1.8544	1.8367	2.0224	1.9447	2.0168	1.7899	1.8287	1.6855	1.8402	1.8236
Mn2+	0.0135	0.0151	0.0142	0.0176	0.0165	0.024	0.0213	0.0132	0.0144	0.0095	0.0182	0.0159
Mg2+	0.1678	0.1869	0.1432	0.1396	0.1693	0.2692	0.2223	0.3935	0.3522	0.3166	0.3369	0.336
Li+	0.1784	0.1979	0.2031	0.2186	0.1882	0.1695	0.1466	0.1895	0.2063	0.2432	0.2153	0.2125
Total	2.9881	2.9859	2.996	2.9963	2.9866	2.987	2.9837	2.9904	2.9893	2.9959	2.9883	2.9911
Group A												
Ca2+	0.0102	0.0101	0.0055	0.0036	0.0088	0.0149	0.012	0.0106	0.0082	0.0035	0.007	0.0127
K+	0.0078	0.0047	0.0004	0.0049	0.0073	0.006	0.0126	0.0096	0.0089	0.0053	0.007	0.0079
Na+	0.6102	0.6213	0.4486	0.4666	0.6293	0.6544	0.6625	0.6046	0.6429	0.5023	0.6478	0.6168
Total	0.6282	0.6361	0.4545	0.4751	0.6454	0.6753	0.6871	0.6248	0.66	0.5111	0.6618	0.6373
Group Z												
OH-	4	4	4	4	4	4	4	4	4	4	4	4
F-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	4	4	4	4	4	4	4	4	4	4	4	4

Source	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015	Project 2015
Sample	P12A	P12A	CTV	CTV	CTV	CTV	CTV	CTV	CTV	CTV	CTV	CTV	CTV	CTV	CTV	CTV
Area	Penamacor/Monsanto	Penamacor/Monsanto	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova
Local	Granito Penamacor	Granito Penamacor	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova	Idanha-a-Nova
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment	Muscovite Gr.	Muscovite Gr.														
Analysis	3	4	1	2	3	1	2	3	1	2	3	1	2	4	5	6
wt.%																
TiO2	0.287	0.401	0.397	0.642	0.261	0.438	0.457	0.548	0.388	0.319	0.497	0.452	0.225	0.388	0.312	0.276
SiO2	35.284	35.805	35.998	36.003	36.63	35.57	35.938	35.919	35.937	35.801	35.571	35.726	36.009	36.28	35.707	35.533
Fe2O3	0	0	0.9287	2.133	5.167	0	0	0	0	0	0	1.6597	0.9996	0.6532	0	0
Cr2O3	0.051	0.074	0.038	0.068	0.058	0.07	0.073	0.054	0.061	0.055	0.071	0.016	0.047	0.041	0.038	0.072
V2O3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al2O3	32.918	33.211	32.845	32.26	30.864	34.255	34.231	34.127	33.926	34.082	33.343	32.733	33.301	33.38	33.743	33.722
B2O3	10.3217	10.4303	10.4566	10.4759	10.6298	10.4354	10.4762	10.502	10.486	10.4839	10.3901	10.3818	10.4473	10.5377	10.4265	10.4161
ZnO	0.122	0.143	0.152	0.115	0.191	0.153	0.179	0.159	0.121	0.164	0.156	0.194	0.142	0.165	0.088	0.143
FeO	13.473	12.911	10.7523	9.9757	7.1537	11.476	11.369	10.774	10.421	10.843	11.671	10.8706	10.7816	9.9353	11.299	11.528
MnO	0.087	0.084	0.101	0.072	0.026	0.064	0.078	0.113	0.095	0.052	0.084	0.07	0.116	0.049	0.107	0.067
CaO	0.049	0.061	0.061	0.039	0.025	0.053	0.048	0.06	0.055	0.088	0.037	0.029	0.028	0.064	0.061	0.071
MgO	1.482	1.628	2.628	2.594	3.73	1.672	1.532	2.122	2.484	2.403	2.233	1.82	2.028	2.975	2.21	2.298
K2O	0.051	0.052	0.005	0.037	0.043	0.031	0.038	0.05	0.025	0.008	0.021	0.028	0.032	0.041	0.02	0.018
Na2O	2.064	1.97	1.877	1.953	2.627	1.694	1.682	1.793	1.926	1.86	1.781	1.661	1.792	1.905	1.838	1.858
Li2O	0.2562	0.3004	0.3234	0.4296	0.704	0.3399	0.4041	0.3769	0.3855	0.3311	0.2415	0.391	0.41	0.3735	0.3147	0.2623
F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
H2O	3.5612	3.5987	3.6078	3.6144	3.6675	3.6004	3.6145	3.6234	3.6179	3.6172	3.5848	3.5819	3.6045	3.6357	3.5974	3.5938
Total#	100.0071	100.6693	100.1709	100.4116	101.777	99.8518	100.1199	100.2213	99.9283	100.1071	99.6814	99.614	99.963	100.4233	99.7616	99.8582
O=F	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Total	100.0071	100.6693	100.1709	100.4116	101.777	99.8518	100.1199	100.2213	99.9283	100.1071	99.6814	99.614	99.963	100.4233	99.7616	99.8582
apfu																
Group T																
Si4+	5.9414	5.9664	5.9835	5.9733	5.9893	5.9243	5.9623	5.9445	5.9566	5.9352	5.9503	5.981	5.9906	5.984	5.9522	5.9291
Al3+	0.0586	0.0336	0.0165	0.0267	0.0107	0.0757	0.0377	0.0555	0.0434	0.0648	0.0497	0.019	0.0094	0.016	0.0478	0.0709
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																
Fe3+	0	0	0	0	0.0555	0	0	0	0	0	0	0	0	0	0	0
Cr3+	0.0068	0.0097	0.005	0.0089	0.0075	0.0092	0.0096	0.0071	0.008	0.0072	0.0094	0.0021	0.0062	0.0053	0.005	0.0095
V3+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Al3+	5.9932	5.9903	5.995	5.9911	5.937	5.9908	5.9904	5.9929	5.992	5.9928	5.9906	5.9979	5.9938	5.9947	5.995	5.9905
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																
Ti4+	0.0364	0.0503	0.0496	0.0801	0.0321	0.0549	0.057	0.0682	0.0484	0.0398	0.0625	0.0569	0.0282	0.0481	0.0391	0.0346
Fe3+	0	0	0.1162	0.2663	0.5802	0	0	0	0	0	0	0.2091	0.1251	0.0811	0	0
Al3+	0.4811	0.4985	0.4227	0.2903	0	0.6576	0.6651	0.6082	0.5921	0.6016	0.5334	0.4417	0.5262	0.4781	0.5865	0.5704
Zn2+	0.0152	0.0176	0.0187	0.0141	0.0231	0.0188	0.0219	0.0194	0.0148	0.0201	0.0193	0.024	0.0174	0.0201	0.0108	0.0176
Fe2+	1.8973	1.7993	1.4947	1.3842	0.9782	1.5985	1.5774	1.4912	1.4446	1.5033	1.6328	1.522	1.5001	1.3705	1.5752	1.6087
Mn2+	0.0124	0.0119	0.0142	0.0101	0.0036	0.009	0.011	0.0158	0.0133	0.0073	0.0119	0.0099	0.0163	0.0068	0.0151	0.0095
Mg2+	0.372	0.4044	0.6512	0.6416	0.9092	0.4151	0.3789	0.5235	0.6138	0.5939	0.5569	0.4542	0.503	0.7315	0.5492	0.5716
Li+	0.1735	0.2013	0.2162	0.2866	0.4629	0.2277	0.2696	0.2508	0.2569	0.2207	0.1625	0.2632	0.2743	0.2477	0.211	0.176
Total	2.9879	2.9832	2.9835	2.9733	2.9893	2.9817	2.981	2.9773	2.9839	2.9867	2.9792	2.981	2.9906	2.984	2.987	2.9885
Group A																
Ca2+	0.0088	0.0109	0.0109	0.0069	0.0044	0.0095	0.0085	0.0106	0.0098	0.0156	0.0066	0.0052	0.005	0.0113	0.0109	0.0127
K+	0.011	0.0111	0.0011	0.0078	0.009	0.0066	0.008	0.0106	0.0053	0.0017	0.0045	0.006	0.0068	0.0086	0.0043	0.0038
Na+	0.6739	0.6365	0.6049	0.6282	0.8328	0.547	0.541	0.5753	0.619	0.5979	0.5776	0.5391	0.578	0.6092	0.594	0.6011
Total	0.6937	0.6584	0.6168	0.643	0.8462	0.5631	0.5576	0.5965	0.634	0.6152	0.5888	0.5503	0.5898	0.6291	0.6092	0.6176
Group Z																
OH-	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
F-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo
Sample	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment															
Analysis	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
wt.%															
TiO2	0.468	0.444	0.609	0.451	0.145	0.22	0.607	0.187	0.595	0.204	0.829	0.714	0.801	0.559	0.8
SiO2	35.317	35.279	35.572	35.358	35.97	36.386	35.637	36.31	35.778	36.467	35.595	35.394	35.527	35.459	35.344
Fe2O3	0	0	0	0	0	0	0	0	0	0.595	0	0	0	0	0
Cr2O3	0.036	0.028	0.032	0.003	0.071	0.077	0.065	0.058	0.044	0.049	0.037	0.077	0.013	0.047	0.038
V2O3															
Al2O3	33.937	33.928	34.453	34.017	35.015	34.865	33.656	34.876	33.616	34.76	33.261	33.452	33.31	33.625	33.347
B2O3	10.4254	10.4196	10.5364	10.4251	10.5146	10.5669	10.4685	10.5462	10.4706	10.5785	10.4083	10.4149	10.4197	10.4173	10.3958
ZnO	0.209	0.159	0.174	0.113	0.133	0.125	0.12	0.123	0.179	0	0.281	0.208	0.237	0.129	0.163
FeO	11.66	11.591	9.547	11.866	11.18	10.19	9.503	10.022	10.557	9.7626	11.583	11.67	11.564	11.745	11.445
MnO	0.094	0.103	0.086	0.083	0.082	0.063	0.07	0.049	0.07	0.074	0.059	0.091	0.055	0.128	0.074
CaO	0.066	0.065	0.135	0.066	0.038	0.035	0.125	0.013	0.095	0.036	0.047	0.083	0.061	0.066	0.072
MgO	2.292	2.317	3.359	2.176	1.799	2.354	3.567	2.466	2.935	2.256	2.053	2.29	2.332	2.275	2.382
K2O	0.026	0.043	0.041	0.025	0.014	0.027	0.026	0.01	0.045	0.027	0.045	0.017	0.028	0.031	0.037
Na2O	1.766	1.824	1.743	1.689	1.31	1.3	1.809	1.274	1.72	1.298	1.824	1.829	1.841	1.729	1.834
Li2O	0.189	0.2086	0.2302	0.1855	0.2749	0.3133	0.2412	0.2934	0.2338	0.3928	0.2898	0.2196	0.2379	0.199	0.2326
F	0.219	0.394	0.248	0.295	0.164	0.077	0.12	0.127	0.152	0.064	0.264	0.276	0.251	0.395	0.303
H2O	3.4931	3.4082	3.5177	3.457	3.55	3.6093	3.5549	3.5784	3.5405	3.6194	3.4659	3.4625	3.476	3.4069	3.4431
Total#	100.1976	100.2113	100.2833	100.2096	100.2606	100.2085	99.5697	99.933	100.031	100.1833	100.042	100.1981	100.1536	100.2111	99.9105
O=F	-0.0922	-0.1659	-0.1044	-0.1242	-0.0691	-0.0324	-0.0505	-0.0535	-0.064	-0.0269	-0.1112	-0.1162	-0.1057	-0.1663	-0.1276
Total	100.1054	100.0454	100.1788	100.0854	100.1915	100.1761	99.5191	99.8796	99.967	100.1564	99.9308	100.0819	100.0479	100.0448	99.783
apfu															
Group T	T					T									
Si4+	5.8878	5.8848	5.8679	5.8949	5.9458	5.9848	5.9167	5.984	5.9389	5.9916	5.9439	5.9066	5.9261	5.9161	5.9091
Al3+	0.1122	0.1152	0.1321	0.1051	0.0542	0.0152	0.0833	0.016	0.0611	0.0084	0.0561	0.0934	0.0739	0.0839	0.0909
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B	B					B									
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G	G					G									
Fe3+															
Cr3+	0.0047	0.0037	0.0042	0.0004	0.0093	0.01	0.0085	0.0076	0.0058	0.0064	0.0049	0.0102	0.0017	0.0062	0.005
V3+															
Al3+	5.9953	5.9963	5.9958	5.9996	5.9907	5.99	5.9915	5.9924	5.9942	5.9936	5.9951	5.9898	5.9983	5.9938	5.995
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D	D					D									
Ti4+	0.0587	0.0557	0.0756	0.0566	0.018	0.0272	0.0758	0.0232	0.0743	0.0252	0.1041	0.0896	0.1005	0.0702	0.1006
Fe3+	0	0	0	0	0	0	0	0	0	0.0736	0	0	0	0	0
Al3+	0.5607	0.5585	0.5702	0.5793	0.7766	0.7536	0.5109	0.7657	0.5212	0.7289	0.4948	0.4962	0.4763	0.5343	0.4849
Zn2+	0.0257	0.0196	0.0212	0.0139	0.0162	0.0152	0.0147	0.015	0.0219	0	0.0346	0.0256	0.0292	0.0159	0.0201
Fe2+	1.6257	1.617	1.3171	1.6545	1.5455	1.4017	1.3195	1.3813	1.4656	1.3415	1.6176	1.6287	1.6132	1.6388	1.6003
Mn2+	0.0133	0.0146	0.012	0.0117	0.0115	0.0088	0.0098	0.0068	0.0098	0.0103	0.0083	0.0129	0.0078	0.0181	0.0105
Mg2+	0.5696	0.5762	0.826	0.5408	0.4433	0.5772	0.8829	0.6059	0.7263	0.5526	0.5111	0.5697	0.5799	0.5659	0.5937
Li+	0.1267	0.1399	0.1527	0.1244	0.1828	0.2073	0.1611	0.1944	0.1561	0.2595	0.1946	0.1474	0.1596	0.1335	0.1564
Total	2.9804	2.9814	2.9748	2.9811	2.994	2.9909	2.9747	2.9923	2.9752	2.9916	2.9653	2.9701	2.9665	2.9766	2.9665
Group A	A					A									
Ca2+	0.0118	0.0116	0.0239	0.0118	0.0067	0.0062	0.0222	0.0023	0.0169	0.0063	0.0084	0.0148	0.0109	0.0118	0.0129
K+	0.0055	0.0092	0.0086	0.0053	0.003	0.0057	0.0055	0.0021	0.0095	0.0057	0.0096	0.0036	0.006	0.0066	0.0079
Na+	0.5708	0.5899	0.5575	0.546	0.4198	0.4146	0.5823	0.4071	0.5536	0.4135	0.5906	0.5918	0.5954	0.5593	0.5945
Total	0.5882	0.6107	0.59	0.5631	0.4295	0.4264	0.6101	0.4115	0.58	0.4255	0.6085	0.6103	0.6123	0.5777	0.6153
Group Z	Z					Z									
OH-	3.8845	3.7921	3.8706	3.8445	3.9143	3.9599	3.937	3.9338	3.9202	3.9667	3.8606	3.8543	3.8676	3.7916	3.8398
F-	0.1155	0.2079	0.1294	0.1555	0.0857	0.0401	0.063	0.0662	0.0798	0.0333	0.1394	0.1457	0.1324	0.2084	0.1602
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo
Sample	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Medelim Granite	Medelim Granite	Medelim Gra	Medelim Gra	Medelim Gra	Medelim Gra	Medelim Gra	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment																	
Analysis	6	1	2	3	4	5	6	1	2	3	1	2	3	1	2	3	4
wt.%																	
TiO2	0.633	0.428	0.37	0.491	0.506	0.289	0.046	0.248	0.735	0.743	0.19	0.137	0.138	0.427	0.565	0.498	0.473
SiO2	35.868	35.911	36.267	35.842	35.924	36.293	36.992	35.815	35.8	35.833	36.823	37.084	36.789	35.721	35.649	35.717	35.638
Fe2O3	0	0	0	0	0	0	2.609	0	0	0	2.5972	3.3431	2.4936	0	0	0	0
Cr2O3	0.098	0.086	0.054	0.07	0.072	0.054	0.088	0.035	0.044	0.058	0.079	0.031	0.057	0.029	0.019	0.089	0.073
V2O3																	
Al2O3	33.202	34.219	34.445	34.272	34.165	34.841	35.455	34.529	33.406	33.256	34.833	35.091	34.947	33.678	33.692	34.008	33.769
B2O3	10.4471	10.5292	10.5814	10.5118	10.5139	10.5784	10.7191	10.4824	10.4575	10.4436	10.6806	10.7523	10.667	10.4371	10.4301	10.4714	10.4332
ZnO	0.228	0.194	0.169	0.091	0.177	0.167	0.185	0.247	0.185	0.208	0.119	0.101	0.151	0.136	0.048	0.156	0.168
FeO	11.484	10.928	10.7	10.745	10.689	10.729	6.6834	11.698	11.424	11.523	7.331	6.4549	7.3982	10.88	10.677	10.752	11.159
MnO	0.068	0.132	0.06	0.076	0.076	0.09	0.059	0.088	0.112	0.118	0.063	0	0.04	0.089	0.097	0.08	0.13
CaO	0.079	0.085	0.071	0.057	0.07	0.02	0.024	0.032	0.062	0.043	0.03	0.03	0.01	0.082	0.07	0.084	0.062
MgO	2.289	2.508	2.497	2.506	2.502	2.253	0.464	1.712	2.254	2.189	0.521	0.441	0.483	2.571	2.633	2.398	2.329
K2O	0.057	0.037	0.027	0.03	0.023	0.018	0.021	0.03	0.035	0.039	0.017	0.022	0.029	0.038	0.036	0.062	0.03
Na2O	1.852	1.662	1.619	1.657	1.649	1.376	2.287	1.532	1.836	1.822	2.48	2.472	2.421	1.748	1.722	1.743	1.706
Li2O	0.3003	0.2484	0.2976	0.2697	0.2784	0.2674	1.289	0.2705	0.289	0.2883	1.2543	1.3792	1.2358	0.2744	0.2745	0.3117	0.257
F	0.434	0.132	0.202	0.17	0.189	0.176	0.723	0.213	0.365	0.314	0.44	0.674	0.638	0.192	0.293	0.265	0.279
H2O	3.3987	3.5702	3.555	3.5462	3.5379	3.5663	3.3555	3.5157	3.435	3.4544	3.4764	3.3902	3.3778	3.51	3.4597	3.4872	3.4674
Total#	100.4381	100.6697	100.915	100.3348	100.3723	100.718	101	100.4476	100.4395	100.3323	100.9345	101.4028	100.8754	99.8124	99.6653	100.1222	99.9736
O=F	-0.1827	-0.0556	-0.0851	-0.0716	-0.0796	-0.0741	-0.3044	-0.0897	-0.1537	-0.1322	-0.1853	-0.2838	-0.2686	-0.0808	-0.1234	-0.1116	-0.1175
Total	100.2553	100.6141	100.83	100.2632	100.2927	100.6439	100.6956	100.3579	100.2858	100.2001	100.7492	101.1189	100.6068	99.7316	99.5419	100.0106	99.8561
apfu																	
Group T																	
Si4+	5.9673	5.9279	5.9571	5.9262	5.9386	5.9631	5.9981	5.9384	5.95	5.9634	5.9922	5.9944	5.9944	5.9485	5.9405	5.9284	5.9369
Al3+	0.0327	0.0721	0.0429	0.0738	0.0614	0.0369	0.0019	0.0616	0.05	0.0366	0.0078	0.0056	0.0056	0.0515	0.0595	0.0716	0.0631
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B																	
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G																	
Fe3+																	
Cr3+	0.0129	0.0112	0.007	0.0092	0.0094	0.007	0.0113	0.0046	0.0058	0.0076	0.0102	0.004	0.0073	0.0038	0.0025	0.0117	0.0096
V3+																	
Al3+	5.9871	5.9888	5.993	5.9908	5.9906	5.993	5.9887	5.9954	5.9942	5.9924	5.9898	5.996	5.9927	5.9962	5.9975	5.9883	5.9904
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D																	
Ti4+	0.0792	0.0532	0.0457	0.0611	0.0629	0.0357	0.0056	0.0309	0.0919	0.093	0.0233	0.0167	0.0169	0.0535	0.0708	0.0622	0.0593
Fe3+	0	0	0	0	0	0	0.3183	0	0	0	0.3181	0.4067	0.3058	0	0	0	0
Al3+	0.4903	0.5964	0.6323	0.614	0.6044	0.7168	0.7849	0.6905	0.4994	0.494	0.683	0.6836	0.7128	0.5622	0.56	0.5928	0.5767
Zn2+	0.028	0.0236	0.0205	0.0111	0.0216	0.0203	0.0221	0.0302	0.0227	0.0256	0.0143	0.0121	0.0182	0.0167	0.0059	0.0191	0.0207
Fe2+	1.5978	1.5086	1.4699	1.4858	1.4778	1.4743	0.9063	1.6221	1.5879	1.6038	0.9977	0.8726	1.0081	1.5152	1.488	1.4925	1.5547
Mn2+	0.0096	0.0185	0.0083	0.0106	0.0106	0.0125	0.0081	0.0124	0.0158	0.0166	0.0087	0	0.0055	0.0126	0.0137	0.0112	0.0183
Mg2+	0.5677	0.6172	0.6114	0.6177	0.6166	0.5518	0.1122	0.4232	0.5585	0.5431	0.1264	0.1063	0.1173	0.6383	0.6541	0.5934	0.5784
Li+	0.2009	0.1649	0.1966	0.1794	0.1851	0.1767	0.8405	0.1804	0.1932	0.1929	0.8208	0.8966	0.8098	0.1837	0.1839	0.208	0.1722
Total	2.9736	2.9823	2.9848	2.9796	2.979	2.9881	2.9981	2.9897	2.9694	2.969	2.9922	2.9944	2.9944	2.9822	2.9764	2.9793	2.9802
Group A																	
Ca2+	0.0141	0.015	0.0125	0.0101	0.0124	0.0035	0.0042	0.0057	0.011	0.0077	0.0052	0.0052	0.0017	0.0146	0.0125	0.0149	0.0111
K+	0.0121	0.0078	0.0057	0.0063	0.0049	0.0038	0.0043	0.0063	0.0074	0.0083	0.0035	0.0045	0.006	0.0081	0.0077	0.0131	0.0064
Na+	0.5974	0.5319	0.5156	0.5312	0.5285	0.4383	0.719	0.4925	0.5916	0.5879	0.7825	0.7747	0.7648	0.5644	0.5564	0.5609	0.551
Total	0.6236	0.5547	0.5338	0.5476	0.5458	0.4456	0.7275	0.5045	0.6101	0.6039	0.7912	0.7845	0.7726	0.5871	0.5765	0.589	0.5685
Group Z																	
OH-	3.7716	3.9311	3.8951	3.9111	3.9012	3.9085	3.6292	3.8883	3.8081	3.8347	3.7736	3.6554	3.6712	3.8989	3.8456	3.8609	3.853
F-	0.2284	0.0689	0.1049	0.0889	0.0988	0.0915	0.3708	0.1117	0.1919	0.1653	0.2264	0.3446	0.3288	0.1011	0.1544	0.1391	0.147
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo
Sample	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment															
Analysis	1	2	3	4	1	2	3	4	5	1	2	3	4	5	1
wt.%															
TiO2	0.487	0.177	0.2	0.208	0.221	0.2	0.283	0.22	0.209	0.611	0.319	0.517	0.479	0.416	0.471
SiO2	35.872	36.402	36.279	36.257	35.963	36.386	36.163	36.407	36.453	35.801	35.777	35.789	35.922	36.052	35.237
Fe2O3	0	0.4811	0	0	0.7057	2.2006	1.7856	2.298	2.5789	1.0296	0	0.8618	1.8437	1.6821	0
Cr2O3	0.034	0.055	0.043	0.066	0.025	0.081	0.057	0.066	0.064	0.048	0.049	0.078	0.06	0.029	0.048
V2O3															
Al2O3	34.073	34.69	34.878	34.847	34.342	34.35	33.933	34.372	34.287	33.493	34.343	33.622	33.475	33.957	33.82
B2O3	10.5089	10.5577	10.5455	10.5447	10.4337	10.5547	10.4962	10.5623	10.5748	10.4151	10.3876	10.4048	10.4406	10.4737	10.3965
ZnO	0.127	0.097	0.093	0.121	0.294	0.211	0.213	0.264	0.214	0.277	0.232	0.275	0.251	0.253	0.198
FeO	9.422	9.4991	10.057	10.026	11.792	10.4849	10.9593	10.3393	10.1495	10.9185	12.056	10.9456	10.266	10.1775	11.742
MnO	0.099	0.072	0.088	0.071	0.052	0.028	0.037	0.061	0.075	0.023	0.048	0.051	0.042	0.034	0.11
CaO	0.094	0.025	0.039	0.042	0.018	0.011	0.024	0.025	0.006	0.016	0	0.02	0.014	0.008	0.075
MgO	3.432	2.522	2.467	2.453	0.865	0.834	0.936	0.842	0.873	1.075	0.888	1.056	1.087	0.955	2.162
K2O	0.029	0.031	0.005	0.028	0	0.027	0.01	0.026	0.016	0.029	0.023	0.038	0.013	0.017	0.027
Na2O	1.651	1.268	1.264	1.303	1.171	1.163	1.389	1.103	1.155	1.81	1.318	1.752	1.683	1.592	1.779
Li2O	0.2428	0.3505	0.2883	0.3046	0.354	0.5243	0.4992	0.5191	0.5443	0.5538	0.3528	0.5417	0.5939	0.612	0.2079
F	0.256	0.154	0.012	0.134	0.151	0.093	0.251	0.17	0.062	0.51	0.234	0.341	0.246	0.424	0.37
H2O	3.5044	3.5696	3.6327	3.5746	3.5282	3.5975	3.5024	3.5636	3.6191	3.3516	3.473	3.4282	3.4856	3.4126	3.4116
Total#	99.832	99.951	99.8915	99.9799	99.9157	100.746	100.5386	100.8382	100.8806	99.9617	99.5004	99.7211	99.9018	100.0948	100.055
O=F	-0.1078	-0.0648	-0.0051	-0.0564	-0.0636	-0.0392	-0.1057	-0.0716	-0.0261	-0.2147	-0.0985	-0.1436	-0.1036	-0.1785	-0.1558
Total	99.7243	99.8862	99.8864	99.9235	99.8521	100.7068	100.4329	100.7667	100.8545	99.747	99.4019	99.5775	99.7982	99.9163	99.8993
apfu															
Group T															
Si4+	5.9329	5.9927	5.9793	5.9762	5.9908	5.9917	5.9882	5.9909	5.9914	5.9744	5.9862	5.9783	5.98	5.9827	5.8908
Al3+	0.0671	0.0073	0.0207	0.0238	0.0092	0.0083	0.0118	0.0091	0.0086	0.0256	0.0138	0.0217	0.02	0.0173	0.1092
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B															
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G															
Fe3+															
Cr3+	0.0044	0.0072	0.0056	0.0086	0.0033	0.0105	0.0075	0.0086	0.0083	0.0063	0.0065	0.0103	0.0079	0.0038	0.0063
V3+															
Al3+	5.9956	5.9928	5.9944	5.9914	5.9967	5.9895	5.9925	5.9914	5.9917	5.9937	5.9935	5.9897	5.9921	5.9962	5.9937
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D															
Ti4+	0.0606	0.0219	0.0248	0.0258	0.0277	0.0248	0.0353	0.0272	0.0258	0.0767	0.0402	0.065	0.06	0.0519	0.0592
Fe3+	0	0.0596	0	0	0.0885	0.2727	0.2225	0.2846	0.319	0.1293	0	0.1083	0.231	0.2101	0
Al3+	0.579	0.7305	0.7599	0.7542	0.7364	0.6688	0.6181	0.6656	0.6414	0.5681	0.7651	0.6079	0.5557	0.6278	0.5607
Zn2+	0.0155	0.0118	0.0113	0.0147	0.0362	0.0257	0.026	0.0321	0.026	0.0341	0.0287	0.0339	0.0309	0.031	0.0244
Fe2+	1.3032	1.3078	1.3862	1.3821	1.6428	1.4439	1.5177	1.4229	1.3951	1.5238	1.687	1.5291	1.4293	1.4125	1.6417
Mn2+	0.0139	0.01	0.0123	0.0099	0.0073	0.0039	0.0052	0.0085	0.0104	0.0033	0.0068	0.0072	0.0059	0.0048	0.0156
Mg2+	0.8462	0.6189	0.6061	0.6028	0.2148	0.2047	0.2311	0.2066	0.2139	0.2674	0.2215	0.263	0.2698	0.2363	0.5388
Li+	0.1615	0.2321	0.1911	0.2019	0.2371	0.3472	0.3324	0.3436	0.3598	0.3717	0.2374	0.3639	0.3976	0.4084	0.1398
Total	2.9798	2.9927	2.9917	2.9914	2.9908	2.9917	2.9882	2.9909	2.9914	2.9744	2.9866	2.9783	2.98	2.9827	2.9803
Group A															
Ca2+	0.0167	0.0044	0.0069	0.0074	0.0032	0.0019	0.0043	0.0044	0.0011	0.0029	0	0.0036	0.0025	0.0014	0.0134
K+	0.0061	0.0065	0.0011	0.0059	0	0.0057	0.0021	0.0055	0.0034	0.0062	0.0049	0.0081	0.0028	0.0036	0.0058
Na+	0.5294	0.4047	0.4039	0.4164	0.3782	0.3713	0.4459	0.3519	0.3681	0.5856	0.4276	0.5674	0.5432	0.5122	0.5766
Total	0.5522	0.4156	0.4119	0.4297	0.3814	0.3789	0.4523	0.3618	0.3725	0.5947	0.4325	0.5791	0.5485	0.5172	0.5958
Group Z															
OH-	3.8661	3.9198	3.9937	3.9301	3.9204	3.9516	3.8686	3.9115	3.9678	3.7308	3.8762	3.8199	3.8705	3.7775	3.8044
F-	0.1339	0.0802	0.0063	0.0699	0.0796	0.0484	0.1314	0.0885	0.0322	0.2692	0.1238	0.1801	0.1295	0.2225	0.1956
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo
Sample	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment															
Analysis	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1
wt.%															
TiO2	0.463	0.45	0.382	0.451	0.609	0.401	0.434	0.505	0.542	0.476	0.467	0.47	0.487	0.451	0.166
SiO2	35.618	35.675	35.645	35.691	35.774	36.074	36.068	36.056	36.032	35.224	35.798	35.684	35.754	35.756	35.715
Fe2O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr2O3	0.032	0.039	0.043	0.047	0.046	0.036	0.02	0.044	0.069	0.064	0.066	0.085	0.039	0.063	0.046
V2O3															
Al2O3	33.643	33.888	33.983	34.096	33.998	34.153	34.33	34.36	34.211	33.459	33.758	33.571	33.669	33.628	34.913
B2O3	10.433	10.4473	10.432	10.4635	10.5211	10.5326	10.5548	10.5525	10.5263	10.3499	10.4509	10.4154	10.4204	10.4144	10.4933
ZnO	0.177	0.139	0.159	0.137	0.117	0.16	0.102	0.161	0.162	0.149	0.129	0.175	0.123	0.149	0.088
FeO	11.765	11.642	11.546	11.487	9.963	10.231	10.158	10.323	10.339	11.607	11.607	11.131	11.478	11.086	9.755
MnO	0.063	0.075	0.057	0.076	0.056	0.112	0.098	0.076	0.064	0.103	0.095	0.079	0.082	0.079	0.053
CaO	0.068	0.058	0.064	0.089	0.107	0.077	0.09	0.09	0.089	0.088	0.075	0.077	0.083	0.067	0.061
MgO	2.228	2.138	2.053	2.088	3.246	2.85	2.802	2.682	2.511	2.195	2.097	2.292	2.029	2.176	2.888
K2O	0.04	0.038	0.011	0.016	0.034	0.037	0.013	0.028	0.028	0.055	0.043	0.04	0.018	0.044	0.029
Na2O	1.761	1.671	1.633	1.635	1.796	1.662	1.757	1.621	1.647	1.771	1.655	1.726	1.648	1.7	1.384
Li2O	0.233	0.243	0.2576	0.2619	0.25	0.2798	0.3186	0.2893	0.331	0.2388	0.2688	0.2927	0.2964	0.3222	0.2292
F	0.276	0.319	0.251	0.264	0.246	0.304	0.251	0.259	0.147	0.202	0.208	0.124	0.284	0.138	0.261
H2O	3.4687	3.4533	3.4803	3.485	3.5134	3.4898	3.5226	3.518	3.5621	3.4752	3.5072	3.5347	3.4606	3.5277	3.4967
Total#	100.2687	100.2756	99.9969	100.2874	100.2765	100.3993	100.519	100.5649	100.2605	99.4568	100.2248	99.6968	99.8714	99.6014	99.5781
O=F	-0.1162	-0.1343	-0.1057	-0.1112	-0.1036	-0.128	-0.1057	-0.1091	-0.0619	-0.0851	-0.0876	-0.0522	-0.1196	-0.0581	-0.1099
Total	100.1525	100.1413	99.8912	100.1762	100.1729	100.2713	100.4133	100.4558	100.1986	99.3718	100.1373	99.6446	99.7518	99.5433	99.4682
apfu															
Group T															
Si4+	5.9337	5.935	5.9387	5.9285	5.9098	5.9528	5.9393	5.9386	5.9494	5.9152	5.9535	5.9548	5.9636	5.9673	5.9157
Al3+	0.0663	0.065	0.0613	0.0715	0.0902	0.0472	0.0607	0.0614	0.0506	0.0848	0.0465	0.0452	0.0364	0.0327	0.0843
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B															
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G															
Fe3+															
Cr3+	0.0042	0.0051	0.0057	0.0062	0.006	0.0047	0.0026	0.0057	0.009	0.0085	0.0087	0.0112	0.0051	0.0083	0.006
V3+															
Al3+	5.9958	5.9949	5.9943	5.9938	5.994	5.9953	5.9974	5.9943	5.991	5.9915	5.9913	5.9888	5.9949	5.9917	5.994
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D															
Ti4+	0.058	0.0563	0.0479	0.0564	0.0757	0.0498	0.0538	0.0626	0.0673	0.0601	0.0584	0.059	0.0611	0.0566	0.0207
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Al3+	0.5434	0.5847	0.6173	0.6096	0.5351	0.5997	0.6045	0.6143	0.6159	0.5458	0.5789	0.5685	0.5873	0.59	0.7372
Zn2+	0.0218	0.0171	0.0196	0.0168	0.0143	0.0195	0.0124	0.0196	0.0197	0.0185	0.0158	0.0216	0.0151	0.0184	0.0108
Fe2+	1.6391	1.6198	1.6088	1.5957	1.3765	1.4119	1.3989	1.4219	1.4277	1.6301	1.6144	1.5534	1.6011	1.5473	1.3513
Mn2+	0.0089	0.0106	0.008	0.0107	0.0078	0.0157	0.0137	0.0106	0.009	0.0147	0.0134	0.0112	0.0116	0.0112	0.0074
Mg2+	0.5533	0.5302	0.5099	0.517	0.7994	0.7011	0.6878	0.6585	0.6181	0.5495	0.5199	0.5702	0.5045	0.5414	0.7131
Li+	0.1561	0.1626	0.1726	0.1749	0.1661	0.1857	0.211	0.1916	0.2198	0.1613	0.1797	0.1965	0.1988	0.2163	0.1527
Total	2.9807	2.9812	2.984	2.9812	2.9748	2.9834	2.9821	2.9791	2.9776	2.98	2.9805	2.9803	2.9796	2.9811	2.9931
Group A															
Ca2+	0.0121	0.0103	0.0114	0.0158	0.0189	0.0136	0.0159	0.0159	0.0157	0.0158	0.0134	0.0138	0.0148	0.012	0.0108
K+	0.0085	0.0081	0.0023	0.0034	0.0072	0.0078	0.0027	0.0059	0.0059	0.0118	0.0091	0.0085	0.0038	0.0094	0.0061
Na+	0.5688	0.539	0.5275	0.5266	0.5752	0.5317	0.561	0.5177	0.5273	0.5766	0.5336	0.5584	0.5329	0.5501	0.4445
Total	0.5894	0.5574	0.5413	0.5458	0.6014	0.5532	0.5796	0.5394	0.5489	0.6042	0.5561	0.5807	0.5516	0.5714	0.4614
Group Z															
OH-	3.8546	3.8322	3.8677	3.8613	3.8715	3.8413	3.8693	3.8651	3.9232	3.8927	3.8906	3.9346	3.8502	3.9272	3.8633
F-	0.1454	0.1678	0.1323	0.1387	0.1285	0.1587	0.1307	0.1349	0.0768	0.1073	0.1094	0.0654	0.1498	0.0728	0.1367
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo
Sample	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment															
Analysis	2	3	4	5	1	2	3	1	2	3	1	2	3	4	5
wt.%															
TiO2	0.161	0.234	0.182	0.181	0.636	0.544	0.526	0.204	0.581	0.622	0.439	0.587	0.445	0.478	0.485
SiO2	35.889	36.013	35.978	36.021	35.825	35.769	35.911	35.861	35.821	35.621	35.901	35.75	35.757	35.9	35.682
Fe2O3	0	0	0	0	0.8359	0	0.2498	0	0	0	0	0	0	0	0
Cr2O3	0.026	0.069	0.077	0.046	0.022	0.071	0.051	0.053	0.05	0.028	0.013	0.012	0.053	0.019	0.045
V2O3															
Al2O3	34.904	34.96	34.979	35.09	33.129	33.344	33.46	35.108	34.05	33.661	34.19	33.677	33.691	33.706	33.547
B2O3	10.5136	10.5547	10.5392	10.5312	10.4239	10.4116	10.4408	10.5008	10.4859	10.4142	10.4958	10.4444	10.4324	10.4429	10.4078
ZnO	0.041	0.097	0.103	0.132	0.192	0.208	0.139	0.175	0.111	0.118	0.147	0.132	0.165	0.161	0.234
FeO	9.64	9.571	9.797	9.824	10.4179	11.213	11.3902	10.523	10.468	10.406	10.413	10.536	11.105	11.388	11.506
MnO	0.087	0.059	0.077	0.038	0.08	0.097	0.084	0.081	0.091	0.071	0.098	0.078	0.109	0.099	0.093
CaO	0.046	0.07	0.048	0.046	0.059	0.067	0.063	0.041	0.076	0.1	0.084	0.088	0.084	0.067	0.054
MgO	2.916	2.92	2.819	2.61	2.254	2.272	2.035	1.973	2.727	2.673	2.565	2.749	2.255	2.03	2.12
K2O	0.021	0.03	0.03	0.009	0.032	0.019	0.031	0.016	0.025	0.042	0.031	0.024	0.028	0.031	0.03
Na2O	1.405	1.434	1.35	1.266	1.717	1.752	1.661	1.309	1.539	1.61	1.64	1.647	1.722	1.655	1.673
Li2O	0.2523	0.275	0.2418	0.2626	0.3791	0.2949	0.3163	0.2985	0.2348	0.2746	0.301	0.2552	0.3032	0.3115	0.2602
F	0.222	0.311	0.192	0.05	0.272	0.361	0.209	0.07	0.229	0.288	0.26	0.223	0.247	0.152	0.385
H2O	3.5222	3.4941	3.5452	3.6098	3.4675	3.4211	3.5032	3.5898	3.5093	3.4566	3.498	3.4978	3.4823	3.5309	3.4084
Total#	99.6461	100.0918	99.9581	99.7167	99.7422	99.8446	100.0703	99.8031	99.998	99.3854	100.0758	99.7004	99.879	99.9714	99.9303
O=F	-0.0935	-0.131	-0.0808	-0.0211	-0.1145	-0.152	-0.088	-0.0295	-0.0964	-0.1213	-0.1095	-0.0939	-0.104	-0.064	-0.1621
Total	99.5526	99.9609	99.8773	99.6956	99.6277	99.6926	99.9823	99.7736	99.9016	99.2641	99.9663	99.6065	99.775	99.9073	99.7682
apfu															
Group T															
Si4+	5.933	5.9303	5.9333	5.9449	5.9734	5.9711	5.978	5.9356	5.9374	5.9449	5.9451	5.9492	5.9572	5.975	5.9588
Al3+	0.067	0.0697	0.0667	0.0551	0.0266	0.0289	0.022	0.0644	0.0626	0.0551	0.0549	0.0508	0.0428	0.025	0.0412
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B															
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G															
Fe3+															
Cr3+	0.0034	0.009	0.01	0.006	0.0029	0.0094	0.0067	0.0069	0.0066	0.0037	0.0017	0.0016	0.007	0.0025	0.0059
V3+															
Al3+	5.9966	5.991	5.99	5.994	5.9971	5.9906	5.9933	5.9931	5.9934	5.9963	5.9983	5.9984	5.993	5.9975	5.9941
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D															
Ti4+	0.02	0.029	0.0226	0.0225	0.0798	0.0683	0.0659	0.0254	0.0724	0.0781	0.0547	0.0735	0.0558	0.0599	0.0609
Fe3+	0	0	0	0	0.1049	0	0.0313	0	0	0	0	0	0	0	0
Al3+	0.737	0.7243	0.742	0.7762	0.4866	0.5407	0.5494	0.7912	0.5956	0.5696	0.6196	0.5557	0.5795	0.5892	0.5673
Zn2+	0.005	0.0118	0.0125	0.0161	0.0236	0.0256	0.0171	0.0214	0.0136	0.0145	0.018	0.0162	0.0203	0.0198	0.0289
Fe2+	1.3328	1.3181	1.3512	1.3559	1.4527	1.5654	1.5857	1.4566	1.4511	1.4524	1.4421	1.4663	1.5473	1.5851	1.6069
Mn2+	0.0122	0.0082	0.0108	0.0053	0.0113	0.0137	0.0118	0.0114	0.0128	0.01	0.0137	0.011	0.0154	0.014	0.0132
Mg2+	0.7186	0.7168	0.693	0.6421	0.5603	0.5654	0.505	0.4868	0.6738	0.665	0.6332	0.682	0.5601	0.5037	0.5278
Li+	0.1677	0.1821	0.1603	0.1743	0.2542	0.198	0.2118	0.1987	0.1565	0.1843	0.2005	0.1708	0.2032	0.2085	0.1747
Total	2.9933	2.9903	2.9925	2.9925	2.9734	2.9772	2.978	2.9915	2.9759	2.974	2.9818	2.9755	2.9814	2.98	2.9797
Group A															
Ca2+	0.0081	0.0124	0.0085	0.0081	0.0105	0.012	0.0112	0.0073	0.0135	0.0179	0.0149	0.0157	0.015	0.0119	0.0097
K+	0.0044	0.0063	0.0063	0.0019	0.0068	0.004	0.0066	0.0034	0.0053	0.0089	0.0065	0.0051	0.006	0.0066	0.0064
Na+	0.4503	0.4578	0.4317	0.4051	0.5551	0.5671	0.5361	0.4201	0.4946	0.521	0.5266	0.5314	0.5562	0.5341	0.5417
Total	0.4629	0.4765	0.4465	0.4151	0.5724	0.5831	0.5539	0.4307	0.5134	0.5478	0.548	0.5522	0.5772	0.5526	0.5577
Group Z															
OH-	3.8839	3.838	3.8999	3.9739	3.8566	3.8094	3.89	3.9634	3.88	3.848	3.8638	3.8826	3.8699	3.92	3.7967
F-	0.1161	0.162	0.1001	0.0261	0.1434	0.1906	0.11	0.0366	0.12	0.152	0.1362	0.1174	0.1301	0.08	0.2033
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo
Sample	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment															
Analysis	1	2	3	1	2	3	4	5	6	7	8	9	10	11	12
wt.%															
TiO2	0.465	0.243	0.541	0.231	0.254	0.14	0.324	0.316	0.317	0.359	0.303	0.408	0.318	0.304	0.613
SiO2	35.67	35.969	35.783	35.894	35.219	35.77	35.214	35.327	35.253	35.293	35.374	35.438	35.241	35.469	35.108
Fe2O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cr2O3	0.074	0.066	0.065	0.049	0.068	0.056	0.048	0.071	0.035	0.086	0.061	0.045	0.059	0.037	0.045
V2O3															
Al2O3	33.862	34.682	33.791	35.363	34.292	34.442	33.61	33.694	33.791	33.628	33.64	33.681	33.849	33.744	33.208
B2O3	10.4368	10.4912	10.4487	10.4925	10.3634	10.4023	10.3082	10.3326	10.3603	10.3485	10.3378	10.3332	10.3306	10.3593	10.2753
ZnO	0.152	0.13	0.177	0.476	0.362	0.363	0.32	0.345	0.254	0.302	0.333	0.29	0.389	0.25	0.332
FeO	10.539	10.613	10.591	10.295	12.486	12.627	12.785	12.83	12.732	12.894	12.968	12.585	12.754	12.914	12.87
MnO	0.06	0.096	0.083	0.128	0.181	0.154	0.169	0.154	0.172	0.133	0.148	0.159	0.152	0.166	0.127
CaO	0.083	0.019	0.078	0.048	0.033	0.016	0.03	0.034	0.07	0.07	0.041	0.026	0.033	0.035	0.071
MgO	2.671	2.14	2.488	0.5	0.771	0.576	0.945	0.842	1.234	1.097	0.943	0.815	0.87	0.891	0.932
K2O	0.041	0.029	0.024	0.023	0.044	0.007	0.042	0.033	0.033	0.036	0.047	0.032	0.036	0.039	0.045
Na2O	1.598	1.371	1.674	1.923	1.797	1.426	1.784	1.801	1.833	1.798	1.721	1.732	1.728	1.782	1.748
Li2O	0.2512	0.2881	0.2999	0.7201	0.3689	0.3507	0.3216	0.3461	0.2903	0.2989	0.304	0.3758	0.3175	0.3424	0.3175
F	0.18	0.126	0.101	0.533	0.523	0.368	0.511	0.406	0.424	0.337	0.406	0.225	0.488	0.399	0.394
H2O	3.5156	3.5599	3.5571	3.3674	3.3276	3.4145	3.3143	3.3725	3.3735	3.4107	3.3742	3.4585	3.3329	3.385	3.3584
Total#	99.5986	99.8232	99.7018	100.043	100.0899	100.1125	99.7261	99.9042	100.172	100.0911	100.001	99.6035	99.898	100.1167	99.4441
O=F	-0.0758	-0.0531	-0.0425	-0.2244	-0.2202	-0.155	-0.2152	-0.171	-0.1785	-0.1419	-0.171	-0.0947	-0.2055	-0.168	-0.1659
Total	99.5228	99.7701	99.6593	99.8186	99.8697	99.9576	99.5109	99.7332	99.9935	99.9492	99.83	99.5088	99.6925	99.9487	99.2782
apfu															
Group T															
Si4+	5.9402	5.9589	5.9522	5.9458	5.9067	5.9766	5.9374	5.9424	5.9141	5.9276	5.9473	5.9607	5.9291	5.9509	5.9385
Al3+	0.0598	0.0411	0.0478	0.0542	0.0933	0.0234	0.0626	0.0576	0.0859	0.0724	0.0527	0.0393	0.0709	0.0491	0.0615
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B															
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G															
Fe3+															
Cr3+	0.0097	0.0086	0.0085	0.0064	0.009	0.0074	0.0064	0.0094	0.0046	0.0114	0.0081	0.006	0.0078	0.0049	0.006
V3+															
Al3+	5.9903	5.9914	5.9915	5.9936	5.991	5.9926	5.9936	5.9906	5.9954	5.9886	5.9919	5.994	5.9922	5.9951	5.994
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D															
Ti4+	0.0583	0.0303	0.0677	0.0288	0.032	0.0176	0.0411	0.04	0.04	0.0454	0.0383	0.0516	0.0403	0.0384	0.078
Fe3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Al3+	0.596	0.7394	0.5854	0.8561	0.6939	0.7664	0.6228	0.6317	0.5999	0.5955	0.6212	0.6436	0.6488	0.6283	0.5647
Zn2+	0.0187	0.0159	0.0217	0.0582	0.0448	0.0448	0.0398	0.0428	0.0315	0.0374	0.0413	0.036	0.0483	0.031	0.0415
Fe2+	1.4678	1.4704	1.4734	1.4262	1.7513	1.7644	1.8028	1.8049	1.7863	1.8111	1.8234	1.7703	1.7945	1.812	1.8206
Mn2+	0.0085	0.0135	0.0117	0.018	0.0257	0.0218	0.0241	0.0219	0.0244	0.0189	0.0211	0.0227	0.0217	0.0236	0.0182
Mg2+	0.6631	0.5285	0.617	0.1235	0.1928	0.1435	0.2375	0.2111	0.3086	0.2747	0.2364	0.2044	0.2182	0.2229	0.235
Li+	0.1682	0.1919	0.2006	0.4797	0.2488	0.2357	0.2181	0.2342	0.1959	0.2019	0.2055	0.2542	0.2148	0.2311	0.216
Total	2.9806	2.9899	2.9774	2.9904	2.9893	2.9941	2.9863	2.9867	2.9867	2.9849	2.9872	2.9828	2.9866	2.9872	2.974
Group A															
Ca2+	0.0148	0.0034	0.0139	0.0085	0.0059	0.0029	0.0054	0.0061	0.0126	0.0126	0.0074	0.0047	0.0059	0.0063	0.0129
K+	0.0087	0.0061	0.0051	0.0049	0.0094	0.0015	0.009	0.0071	0.0071	0.0077	0.0101	0.0069	0.0077	0.0083	0.0097
Na+	0.516	0.4404	0.5399	0.6176	0.5843	0.462	0.5832	0.5874	0.5962	0.5855	0.561	0.5648	0.5637	0.5797	0.5733
Total	0.5395	0.4499	0.5589	0.631	0.5997	0.4663	0.5977	0.6006	0.6159	0.6058	0.5785	0.5764	0.5774	0.5943	0.5958
Group Z															
OH-	3.9052	3.934	3.9469	3.7208	3.7226	3.8055	3.7275	3.784	3.775	3.821	3.7841	3.8803	3.7403	3.7883	3.7892
F-	0.0948	0.066	0.0531	0.2792	0.2774	0.1945	0.2725	0.216	0.225	0.179	0.2159	0.1197	0.2597	0.2117	0.2108
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo
Sample	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment															
Analysis	13	1	2	3	4	5	6	7	8	9	10	11	12	13	14
wt.%															
TiO2	0.377	0.412	0.393	0.409	0.56	0.481	0.608	0.646	0.674	0.669	0.665	0.67	0.743	0.758	0.777
SiO2	35.202	35.772	35.587	35.435	35.605	35.487	35.724	35.531	35.819	35.664	35.581	35.439	35.48	35.583	35.49
Fe2O3	0	1.3321	0	0	0	0	1.6141	0	1.462	0	0	0.3295	0	0	0.1141
Cr2O3	0.056	0.054	0.081	0.085	0.081	0.054	0.054	0.106	0.096	0.056	0.05	0.056	0.032	0.092	0.094
V2O3															
Al2O3	33.539	32.755	33.266	33.508	33.087	32.967	32.435	32.873	32.394	33.032	32.681	32.299	32.713	32.847	32.416
B2O3	10.2708	10.3923	10.3465	10.3517	10.3587	10.3164	10.3926	10.3657	10.4249	10.3907	10.3684	10.3145	10.3493	10.3782	10.3371
ZnO	0.289	0.395	0.294	0.324	0.262	0.336	0.273	0.268	0.197	0.199	0.25	0.152	0.236	0.234	0.191
FeO	12.615	11.6613	13.044	12.843	12.634	12.597	11.2517	12.419	10.9495	11.881	12.118	11.5445	11.977	11.723	11.8704
MnO	0.13	0.135	0.147	0.159	0.129	0.134	0.066	0.135	0.088	0.122	0.103	0.089	0.104	0.07	0.095
CaO	0.045	0.045	0.06	0.03	0.055	0.067	0.043	0.046	0.046	0.052	0.061	0.033	0.051	0.036	0.069
MgO	0.842	1.232	1.032	1.022	1.362	1.402	1.681	1.842	2.091	1.981	2.14	2.397	2.214	2.26	2.214
K2O	0.035	0.033	0.025	0.059	0.027	0.039	0.035	0.042	0.054	0.026	0.036	0.028	0.04	0.038	0.058
Na2O	1.62	1.918	1.732	1.794	1.82	1.759	1.872	1.874	1.935	1.906	1.993	1.997	1.869	1.881	1.952
Li2O	0.3379	0.4622	0.3115	0.3222	0.3167	0.2936	0.4226	0.2507	0.4043	0.3047	0.269	0.2814	0.2321	0.2569	0.2806
F	0.421	0.423	0.369	0.393	0.274	0.351	0.45	0.363	0.32	0.282	0.244	0.484	0.353	0.471	0.497
H2O	3.344	3.385	3.3948	3.3852	3.4441	3.393	3.3723	3.4043	3.4451	3.4513	3.4616	3.3292	3.4034	3.3574	3.3309
Total#	99.1238	100.4069	100.0827	100.12	100.0155	99.677	100.2943	100.1656	100.3998	100.0168	100.021	99.4432	99.7968	99.9854	99.786
O=F	-0.1773	-0.1781	-0.1554	-0.1655	-0.1154	-0.1478	-0.1895	-0.1528	-0.1347	-0.1187	-0.1027	-0.2038	-0.1486	-0.1983	-0.2093
Total	98.9465	100.2288	99.9274	99.9545	99.9001	99.5292	100.1048	100.0128	100.265	99.898	99.9183	99.2394	99.6481	99.7871	99.5768
apfu															
Group T															
Si4+	5.957	5.9827	5.9781	5.9496	5.9741	5.9787	5.9745	5.9577	5.9718	5.9655	5.9645	5.9717	5.9585	5.9592	5.9672
Al3+	0.043	0.0173	0.0219	0.0504	0.0259	0.0213	0.0255	0.0423	0.0282	0.0345	0.0355	0.0283	0.0415	0.0408	0.0328
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group B															
B3+	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group G															
Fe3+															
Cr3+	0.0075	0.0071	0.0108	0.0113	0.0107	0.0072	0.0071	0.0141	0.0127	0.0074	0.0066	0.0075	0.0042	0.0122	0.0125
V3+															
Al3+	5.9925	5.9929	5.9892	5.9887	5.9893	5.9928	5.9929	5.9859	5.9873	5.9926	5.9934	5.9925	5.9958	5.9878	5.9875
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Group D															
Ti4+	0.048	0.0518	0.0497	0.0517	0.0707	0.061	0.0765	0.0815	0.0845	0.0842	0.0839	0.0849	0.0939	0.0955	0.0983
Fe3+	0	0.1677	0	0	0	0	0.2031	0	0.1834	0	0	0.0418	0	0	0.0144
Al3+	0.6536	0.4462	0.575	0.5916	0.5277	0.5318	0.3747	0.468	0.3497	0.4849	0.4277	0.3936	0.4376	0.4547	0.4034
Zn2+	0.0361	0.0488	0.0365	0.0402	0.0325	0.0418	0.0337	0.0332	0.0242	0.0246	0.0309	0.0189	0.0293	0.0289	0.0237
Fe2+	1.7853	1.6311	1.8325	1.8034	1.7728	1.7749	1.5737	1.7415	1.5267	1.662	1.6988	1.6269	1.6822	1.6419	1.6692
Mn2+	0.0186	0.0191	0.0209	0.0226	0.0183	0.0191	0.0093	0.0192	0.0124	0.0173	0.0146	0.0127	0.0148	0.0099	0.0135
Mg2+	0.2124	0.3072	0.2584	0.2558	0.3407	0.3521	0.4191	0.4604	0.5197	0.494	0.5348	0.6021	0.5543	0.5642	0.5549
Li+	0.23	0.3108	0.2104	0.2175	0.2137	0.199	0.2843	0.1691	0.2711	0.205	0.1813	0.1907	0.1567	0.173	0.1898
Total	2.984	2.9827	2.9834	2.9828	2.9764	2.9797	2.9745	2.9728	2.9718	2.9719	2.972	2.9717	2.9687	2.9682	2.9672
Group A															
Ca2+	0.0082	0.0081	0.0108	0.0054	0.0099	0.0121	0.0077	0.0083	0.0082	0.0093	0.011	0.006	0.0092	0.0065	0.0124
K+	0.0076	0.007	0.0054	0.0126	0.0058	0.0084	0.0075	0.009	0.0115	0.0055	0.0077	0.006	0.0086	0.0081	0.0124
Na+	0.5315	0.6219	0.5641	0.584	0.5921	0.5746	0.607	0.6092	0.6255	0.6181	0.6477	0.6524	0.6086	0.6108	0.6363
Total	0.5472	0.637	0.5803	0.6021	0.6077	0.5951	0.6222	0.6265	0.6452	0.633	0.6664	0.6644	0.6263	0.6254	0.6612
Group Z															
OH-	3.7747	3.7763	3.804	3.7913	3.8546	3.813	3.762	3.8075	3.8313	3.8508	3.8706	3.7421	3.8125	3.7505	3.7357
F-	0.2253	0.2237	0.196	0.2087	0.1454	0.187	0.238	0.1925	0.1687	0.1492	0.1294	0.2579	0.1875	0.2495	0.2643
Total	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Source	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo	MOSTMEG_Ivo
Sample	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1	GMED1
Area	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor	Penamacor
Local	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite	Medelim Granite
Rock Type	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
Comment									
Analysis	15	16	17	18	1	2	3	4	5
wt.%									
TiO2	0.832	1.09	0.759	0.737	0.318	0.269	0.269	0.193	0.306
SiO2	35.53	35.61	35.569	35.212	35.664	35.844	35.741	35.517	35.77
Fe2O3	0.2471	1.7214	0.0954	0	0.3721	1.0891	0.7791	0	0.3058
Cr2O3	0.093	0.08	0.09	0.117	0.035	0.057	0.042	0.048	0.087
V2O3									
Al2O3	32.666	31.873	32.715	32.576	32.608	32.62	32.73	32.928	32.972
B2O3	10.3527	10.3946	10.3587	10.2789	10.3541	10.4027	10.3729	10.3269	10.384
ZnO	0.137	0.176	0.201	0.236	0.226	0.265	0.246	0.24	0.236
FeO	11.4207	10.5821	11.5501	11.998	11.4422	10.858	10.88	11.455	11.3348
MnO	0.119	0.095	0.076	0.137	0.185	0.173	0.205	0.221	0.178
CaO	0.056	0.078	0.063	0.041	0.047	0.047	0.056	0.039	0.049
MgO	2.21	2.332	2.202	1.995	2.422	2.278	2.253	2.294	2.175
K2O	0.033	0.037	0.044	0.045	0.018	0.017	0.033	0.024	0.035
Na2O	1.822	1.921	1.888	1.829	1.967	1.994	1.954	2.015	1.905
Li2O	0.2923	0.3842	0.3017	0.2423	0.2821	0.382	0.3738	0.2993	0.3318
F	0.374	0.296	0.385	0.336	0.564	0.482	0.359	0.568	0.565
H2O	3.3946	3.446	3.3914	3.3871	3.305	3.3606	3.4086	3.2937	3.3148
Total#	99.5793	100.1162	99.6893	99.1673	99.8095	100.1385	99.7024	99.4619	99.9492
O=F	-0.1575	-0.1246	-0.1621	-0.1415	-0.2375	-0.203	-0.1512	-0.2392	-0.2379
Total	99.4218	99.9916	99.5272	99.0259	99.572	99.9355	99.5512	99.2228	99.7113
apfu									
Group T									
Si4+	5.965	5.9543	5.9681	5.954	5.9866	5.9887	5.9887	5.9777	5.9872
Al3+	0.035	0.0457	0.0319	0.046	0.0134	0.0113	0.0113	0.0223	0.0128
Total	6	6	6	6	6	6	6	6	6
Group B									
B3+	3	3	3	3	3	3	3	3	3
Total	3	3	3	3	3	3	3	3	3
Group G									
Fe3+									
Cr3+	0.0123	0.0106	0.0119	0.0156	0.0046	0.0075	0.0056	0.0064	0.0115
V3+									
Al3+	5.9877	5.9894	5.9881	5.9844	5.9954	5.9925	5.9944	5.9936	5.9885
Total	6	6	6	6	6	6	6	6	6
Group D									
Ti4+	0.1051	0.1371	0.0958	0.0938	0.0402	0.0338	0.0339	0.0244	0.0385
Fe3+	0.0312	0.2166	0.0121	0	0.047	0.1369	0.0982	0	0.0385
Al3+	0.4408	0.246	0.4494	0.4616	0.4423	0.4196	0.4578	0.5156	0.503
Zn2+	0.017	0.0217	0.0249	0.0295	0.028	0.0327	0.0304	0.0298	0.0292
Fe2+	1.6035	1.4798	1.6208	1.6967	1.6063	1.5172	1.5246	1.6123	1.5867
Mn2+	0.0169	0.0135	0.0108	0.0196	0.0263	0.0245	0.0291	0.0315	0.0252
Mg2+	0.5531	0.5813	0.5508	0.5029	0.6061	0.5674	0.5628	0.5756	0.5427
Li+	0.1974	0.2583	0.2035	0.1648	0.1904	0.2567	0.2519	0.2026	0.2233
Total	2.965	2.9543	2.9681	2.9687	2.9866	2.9887	2.9887	2.9919	2.9872
Group A									
Ca2+	0.0101	0.014	0.0113	0.0074	0.0085	0.0084	0.0101	0.007	0.0088
K+	0.0071	0.0079	0.0094	0.0097	0.0039	0.0036	0.0071	0.0052	0.0075
Na+	0.5931	0.6228	0.6142	0.5996	0.6402	0.6459	0.6348	0.6575	0.6182
Total	0.6102	0.6446	0.6349	0.6168	0.6525	0.658	0.6519	0.6697	0.6345
Group Z									
OH-	3.8014	3.8435	3.7957	3.8203	3.7006	3.7453	3.8098	3.6977	3.7009
F-	0.1986	0.1565	0.2043	0.1797	0.2994	0.2547	0.1902	0.3023	0.2991
Total	4	4	4	4	4	4	4	4	4