

TABLE 1. Representative major element composition (wt%), trace element contents (ppm) and normalized cations (apfu) of fluorapatite of the Belvis granites.

Type	1							2							3			
#	639	8p	3p	628	768	769	771	523	528	1012	501	502	504	506	4160	4206	629	4164
P ₂ O ₅	41.65	41.41	41.85	42.49	42.81	42.36	42.56	42.10	42.30	42.37	42.16	43.00	42.64	41.97	39.11	39.52	40.06	39.34
SiO ₂															0.05	0.05	0.08	0.08
CaO	50.96	50.11	51.54	50.56	51.00	50.71	50.67	50.61	52.30	55.65	52.17	54.58	49.30	49.04	49.32	42.37	45.56	51.21
MnO	2.97	2.96	2.80	2.75	2.89	3.03	3.10	1.94	1.87	0.36	2.47	1.05	2.30	2.68	1.41	2.34	3.55	0.9
FeO*	1.49	1.57	1.40	1.47	1.06	1.24	1.09	0.71	0.67	0.04	0.84	0.28	0.90	1.03	2.68	4.20	3.86	1.43
MgO	0.09	0.06	0.09	0.11	0.08	0.09	0.09	0.04	0.09		0.03		0.06	0.07	0.05		0.04	0.02
Na ₂ O		0.15	0.14	0.12		0.11	0.13								0.38	0.83	0.73	0.32
F	3.24	2.69	3.16	3.22	2.82	2.90	3.01	3.41	3.09	3.28	2.77	2.89	2.55	2.97	3.77	2.22	2.22	4.02
Cl		0.04	0.02	0.02	0.05	0.02	0.04	0.02				0.02		0.03	0.20	0.73	0.81	0.09
OH ^a	0.22	0.53	0.27	0.25	0.44	0.40	0.35	0.13	0.22	0.25	0.46	0.44	0.54	0.33		0.39	0.43	
Sum	99.56	99.02	99.57	100.36	100.42	100.21	100.41	97.75	98.71	100.97	99.84	101.18	97.42	97.04	95.59	91.67	96.98	96.02
O = F,Cl	1.37	1.14	1.34	1.37	1.20	1.23	1.28	1.45	1.30	1.39	1.17	1.22	1.08	1.25	1.64	1.11	1.12	1.71
Total	98.19	97.44	98.23	98.99	99.22	98.98	99.13	96.30	97.41	99.58	98.67	99.96	96.34	95.79	93.95	90.56	95.86	94.31
Li	9.4	40.8	39.8	64.1	24.5	39.4	28.7	26.2	26.0	n.d.	n.d.	n.d.	n.d.	n.d.	39.9	68.5	65.1	24.8
Be	<2.21	<0.39	<0.34	<0.30	<0.36	0.45	1.0	23.3	1.8	n.d.	n.d.	n.d.	n.d.	n.d.	32.9	502	139	14.5
B	<3.17	<2.66	<2.70	<2.88	<1.80	<1.35	<1.70	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	17.7	23.1	22.3	14.5
Zn	17.3	8.5	16.2	17.9	3.9	3.5	5.5	20.8	25.5	n.d.	n.d.	n.d.	n.d.	n.d.	239	75.6	65.8	130
Sr	80.5	49.8	46.4	43.8	37.1	38.1	33.0	118	166	72.9	85.8	84.9	99.0	67.2	1690	2470	2250	1070
Zr	1.1	0.27	0.34	0.46	0.21	0.15	0.18	24.5	2.4	n.d.	1.2	1.5	57.0	370		0.01	0.65	
Hf	<1.35	<0.04	0.06	0.11	0.05	0.06	0.07	0.60	0.17	0.19	0.19	0.15	1.1	18.6		0.03	0.05	
Y	622	1720	2080	2990	1795	1583	2000	1230	2074	2900	2740	2620	1960	3285	<0.05	0.29	1.4	0.43
La	308	307	328	358	326	208	271	404	354	538	425	369	557	443	<0.02	<0.01	2.4	0.04
Ce	539	949	914	1120	918	752	854	1900	1380	1782	1512	1339	1790	1500	<0.01	<0.01	0.23	0.07
Pr	69.1	141	137	172	106	119	129	218	226	254	226	202	226	233	<0.01	<0.01	1.0	0.02
Nd	264	603	574	776	353	552	550	900	1064	1073	978	899	945	1089	<0.12	<0.13	0.30	<0.10
Sm	73.3	219	223	321	95.3	232	207	289	412	401	377	354	321	467	<0.05	<0.01	<0.01	<0.06
Eu	18.4	13.1	10.9	9.9	14.4	7.9	6.9	16.8	20.2	15.2	13.2	14.5	15.4	13.1	<0.01	<0.02	0.84	0.02
Gd	71.7	275	308	458	91	326	293	259	422	480	459	423	369	631	<0.07	<0.07	0.11	<0.05
Tb	16.7	55.6	65.2	96.0	20.4	67.0	57.3	43.9	75.8	102	98.1	92.1	70.5	129	<0.01	<0.01	0.84	0.01
Dy	100	345	406	596	130	430	377	245	435	636	602	569	422	785	<0.04	<0.04	0.16	0.04
Ho	16.1	53	62.7	93.3	20.9	67.2	53.3	35.4	64.8	97.2	91	86.9	62.3	117	<0.01	<0.01	0.41	<0.01
Er	41.3	120	141	204	50.7	150	131	85.0	155	218	204	199	138	252	<0.03	0.05	0.05	0.04
Tm	6.5	16.3	18.3	26.0	8.2	18.7	17.2	11.4	20.6	28.5	26	25.7	17.1	30	<0.01	<0.01	0.25	0.01
Yb	39.3	99	106	149	58.2	114	104	70.0	119	185	163	170	108	172	<0.05	0.05	0.03	0.07
Lu	4.7	11.9	12.2	17.2	7.4	13.7	12.1	8.1	14.0	19.0	17.1	17.4	11.8	18.6	<0.01	<0.01	1.4	<0.01
Th	9.8	3.6	4.5	5.1	0.84	0.26	1.2	10.8	3.2	3.5	3.7	2.2	11.0	46	<0.01	<0.01	<0.01	<0.01
U	289	308	358	354	250	156	186	233	187	431	326	234	450	351	5.1	<0.04	1.6	6.7
P	6.0019	6.0077	5.9801	6.0544	6.0791	6.0499	6.0634	6.1126	6.0535	5.9664	6.0062	6.0201	6.1640	6.1125	5.9189	6.1580	6.0178	5.9034
Si															0.0084	0.0100	0.0000	0.0147
LREE	0.0086	0.0151	0.0146	0.0183	0.0121	0.0124	0.0134	0.0248	0.0234	0.0267	0.0234	0.0207	0.0261	0.0254	0.0000	0.0000	0.0000	0.0000
Y+HREE	0.0090	0.0261	0.0307	0.0442	0.0227	0.0254	0.0292	0.0186	0.0326	0.0434	0.0415	0.0389	0.0302	0.0518	0.0000	0.0000	0.0000	0.0000
Ca	9.2946	9.2017	9.3215	9.1171	9.1649	9.1666	9.1351	9.2989	9.4740	9.9156	9.4053	9.6707	9.0183	9.0373	9.4477	8.3548	8.6627	9.7265
Mn	0.4277	0.4297	0.4006	0.3917	0.4103	0.4332	0.4421	0.2819	0.2678	0.0504	0.3513	0.1468	0.3332	0.3900	0.2131	0.3640	0.5334	0.1344
Fe	0.2124	0.2246	0.1982	0.2065	0.1491	0.1745	0.1528	0.1024	0.0940	0.0054	0.1188	0.0393	0.1285	0.1477	0.4002	0.6469	0.5725	0.2121
Sr	0.0009	0.0006	0.0005	0.0005	0.0004	0.0004	0.0004	0.0000	0.0000	0.0008	0.0010	0.0010	0.0012	0.0008	0.0207	0.0312	0.0387	0.0130
Na	0.0000	0.0502	0.0442	0.0398	0.0042	0.0350	0.0424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1307	0.2965	0.2494	0.1100
U	0.0012	0.0013	0.0015	0.0015	0.0011	0.0007	0.0008	0.0010	0.0008	0.0018	0.0014	0.0010	0.0019	0.0015	0.0000	0.0000	0.0000	0.0000
F	1.7459	1.4579	1.6852	1.7137	1.4936	1.5445	1.6001	1.8488	1.6520	1.7272	1.4757	1.5093	1.3791	1.6156	2.1293	1.2904	1.2466	2.2518
Cl		0.0128	0.0069	0.0066	0.0128	0.0069	0.0123	0.0073				0.0045		0.0090	0.0594	0.2280	0.2427	0.0258
OH	0.2541	0.5293	0.3080	0.2797	0.4936	0.4486	0.3876	0.1440	0.3448	0.2727	0.5220	0.4862	0.6186	0.3754		0.4816	0.5107	

Notes: Major elements analyzed with EMP and trace elements analyzed by LA-ICP-MS. Cations expressed as number of atoms per formula unit (apfu) of 10 T-site cations, calculated according to Ketcham (2015). FeO* = Fe total expressed as FeO. Blank = below detection limits. n.d. = not determined. ^a Calculated by stoichiometry, assuming (F + Cl + OH) = 2 in the formula. In type 3 apatite, the REE and Y trace content is expressed as the content just above the detection limit in each analysis.