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MAFIC MACROCRYSTS OF ULTRABASIC ALKALINE DIKES FROM THE MANTIQUEIRA RANGE, SE BRAZIL: TRACERS OF A COMPLEX PLUMBING SYSTEM
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Supplementary material C - Representative liquid compositions (rock matrix and liquids in equilibrium with macrocrysts) calculated for the studied dikes.

C1. Macrocryst amounts subtracted from whole-rock analyses in order to estimate the host liquid compositions of the studied dikes.

C2. Mean compositional values of the macrocrysts used in the mass balance calculations.

C3. Representative compositions of the host liquid of the studied dikes obtained by mass balance calculations.

C1. Macrocryst amounts subtracted from whole-rock analyses in order to estimate the host liquid compositions of the studied dikes.

Macrocryst type		Dike							
		MT-64A	MT-74F	MT-74E	MT-73C	MT-74B	MT-68F	MT-75	MT-79A
Pyroxene	A1	0.004							
	A2+A4	0.002	0.003	0.001	0.001	0.002	0.0005	0.001	0.0005
	A3+A5			0.004	0.001	0.001		0.001	0.001
	B1+B2	0.004	0.007						
	B3+B4			0.015	0.01	0.019			
	B5							0.05	0.02
	C	0.039	0.029	0.019	0.019	0.029	0.019	0.01	0.039
	D		0.002						
Olivine	type 1	0.019	0.009						
	type 2			0.13	0.04		0.001		
Amphibole					0.002	0.009	0.019		
Phlogopite								0.0005	0.006
Ilmenite		0.005		0.0001	0.005		0.0001	0.02	0.0001
Spinel			0.0001						
Σ macrocryst		**0.073**	**0.0501**	**0.1691**	**0.078**	**0.06**	**0.0396**	**0.0825**	**0.0666**
Liquid		0.927	0.9499	0.8309	0.903	0.942	0.9604	0.9195	0.9349

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C2. Mean compositional values of the macrocrysts used in the mass balance calculations.

	Mineral phases												
	Cpx A1	*Cpx A2+A4*	*Cpx A3+A5*	*Cpx B1+B2*	*Cpx B3+B4*	*Cpx B5+B6*	*Cpx C*	*Enstatite D*	*Olivines*	*Amphibole*	*Phlogopite*	*Ilmenite*	*Spinel*
Major element oxides (wt.%)													
SiO_2	53.7	49.5	47.9	51.0	49.1	45.8	46.4	51.2	40.1	38.3	35.4	0.390	
TiO_2	0.129	1.17	2.20	0.299	1.19	2.45	2.75	0.030	0.026	5.10	7.85	17.0	12.0
Al_2O_3	1.81	5.41	5.94	3.59	3.57	7.04	7.00	2.45	0.055	15.7	15.8	1.57	12.1
Fe_2O_3T [2]	4.61	5.95	6.30	13.1	13.7	8.59	7.44	26.7	13.8	12.1	17.5	80.4	71.2
MnO	0.135	0.115	0.096	0.279	0.539	0.335	0.136	0.535	0.189	0.165	0.079	0.950	0.658
MgO	16.8	14.8	14.0	11.5	9.78	9.55	12.9	21.6	47.1	12.9	15.3	0.400	5.01
CaO	22.3	22.1	23.1	20.3	20.8	21.0	22.3	0.548	0.215	11.8	0.485		0.012
Na_2O	0.609	0.597	0.537	1.07	1.76	1.42	0.631	0.035	0.013	2.33	0.609		
K_2O		0.010	0.005	0.005	0.007	0.005	0.009	0.020	0.005	1.64	8.87		0.011
P_2O_5	0.007	0.009	0.012	0.005	0.006	0.010	0.146		0.021	0.176	0.046		
Trace elements (ppm)													
Ba		0.185	1.04		0.335	3.66	176		0.038	2144	8270		
Co	37.4	22.1	27.6	38.6	22.8	21.5	33.9	96.4	137	47.9	71.2		
Cr	2998	2108	1805	377	53.1	1.76	1034	1134	240	14.8	825		
Cu	1.25	0.788	0.313	2.49	0.293	0.869	1.08	0.780	19.9	0.619	4.66		
Ga	2.73	7.64	5.63	17.6	6.00	22.2	10.9	14.7		6.98	17.2		
Ni	213	144	142	46.1	30.7	4.69	106	270	2086	80.4	329		
Sc	38.3	53.4	96.5	93.8	19.0	22.9	65.8	48.5	3.69	19.2	6.34		
V	132	168	192	408	319	244	262	163	4.44	304	316		
Zn	28.0	30.7	32.7	134	178	121	40.5	385	63.4	74.0	92.1		
Cl													
F													
S													
Rb		0.015	0.440		0.157	0.963	2.64	0.029	0.011	10.0	275		
Sr	71.3	114	353	22.5	618	539	443	0.068	0.025	2298	405		
Y	7.23	11.4	26.2	69.9	21.8	40.4	26.9	9.88	0.061	36.5	0.893		
Zr	6.15	69.7	317	96.5	698	581	267	1.39	0.035	365	23.0		
Nb	0.011	0.428	3.85	0.172	4.33	6.82	12.8	0.889	0.006	208	24.3		
Cs					0.005	0.027	0.034			0.012	1.81		
La	1.13	6.68	29.0	14.1	39.6	44.5	31.4	0.018	0.003	80.6	2.59		
Ce	4.85	22.2	86.7	60.4	91.9	131	83.4	0.122		202	4.63		
Pr	1.01	3.70	12.0	11.0	10.1	19.2	11.9	0.031	0.001	24.0	0.517		
Nd	5.93	19.7	55.2	60.1	36.4	91.4	56.3	0.121	0.027	91.8	2.10		
Sm	2.12	4.61	11.7	17.7	5.94	19.6	12.0	0.241	0.008	16.1	0.278		
Eu	0.604	1.49	3.63	2.76	1.99	5.78	3.66	0.060	0.006	5.04	0.443		
Gd	2.04	3.92	9.69	15.7	4.76	14.8	9.69	0.420	0.013	12.2	0.249		
Tb	0.262	0.545	1.27	2.58	0.675	2.08	1.22	0.161	0.001	1.65	0.025		
Dy	1.470	2.88	6.31	14.1	3.68	10.7	6.50	1.27	0.002	9.13	0.098		
Ho	0.329	0.467	1.06	2.79	0.775	1.81	1.09	0.325	0.001	1.52	0.034		
Er	0.705	1.13	2.32	7.01	2.36	4.53	2.56	1.18	0.012	3.54	0.086		
Tm	0.054	0.128	0.277	1.02	0.370	0.513	0.326	0.319	0.003	0.455	0.013		
Yb	0.580	0.843	1.71	6.95	3.75	3.65	1.89	3.74	0.026	2.88	0.023		
Lu	0.097	0.099	0.232	0.855	0.720	0.538	0.267	0.579	0.002	0.330	0.004		
Hf	0.125	2.74	10.7	5.21	14.2	17.9	8.80	0.270	0.045	8.04	0.580		
Pb	0.218	0.081	0.088	0.559	0.343	0.294	0.162		0.001	0.544	0.699		
Th	0.026	0.101	0.742	0.059	0.242	0.383	1.18		0.002	2.67	0.325		
U	0.005	0.015	0.049	0.016	0.029	0.048	0.151			0.241	0.035		

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C3. Representative compositions of the host liquid of the studied dikes obtained by mass balance calculations. Abbreviations: ne, normative nepheline; ol, normative olivine.

	Host magmatic liquid (rock matrix)							
	MT-64A	***MT-74F***	***MT-74E***	***MT-73C***	***MT-74B***	***MT-68F***	***MT-75***	***MT-79A***
(wt.%)								
SiO_2	42.63	42.72	41.57	41.58	41.34	42.5	37.9	38.13
TiO_2	2.11	2.18	2.66	3.38	2.52	2.83	3.63	4
Al_2O_3	13.19	12.77	15.84	16.46	14.86	15.65	11.79	9.94
$Fe_2O_3^T$	11.27	11.39	10.61	10.91	10.83	11.18	10.63	12.76
MnO	0.18	0.17	0.17	0.16	0.14	0.19	0.18	0.17
MgO	9.58	10.22	4.47	3.29	6.87	4.76	8.17	10.98
CaO	9.73	10.03	11.36	10.79	10.37	9.51	11.09	11.15
Na_2O	3.32	2.67	4.84	3.57	4.03	5.66	1.59	2.09
K_2O	2.03	2.2	2.09	2.99	2.1	1.92	4.2	2.65
P_2O_5	1.35	1.38	1.19	0.79	1.16	1.18	1.41	1.09
E.V.[1]	3.09	2.72	3.32	5.08	4.29	3.34	9.48	5.92
Total	98.48	98.45	98.12	99	98.51	98.72	100.07	98.88
Mg#[2]	66.82	67.95	50.48	42.04	60.5	50.63	65.15	67.1
ne	10.62	7.87	21.74	16.17	16.87	21.85	8.12	10.43
ol	19.35	20.54	4.99	3.63	12.01	7.64	11.71	17.42
(ppm)								
F		661		1032	624	877	1242	1461
S			1666	1516	1661	2337	983	1421
Cl	70.3					910		
Sc	24.9	23.4	23.5	25.8	22.2	17.5	27.2	22.2
V	187	179	229	263	237	195	290	255
Cr	204	262	287	13.3	182		266	492
Co	41.9	45	26.2	25.3	37	27.4	48.5	52.2
Cu	88.5	66.2	58.9	39.8	53	60.6	47.8	58.5
Ni	207	230	10.9		80.2	34.3	116	292
Zn	88.2	87.4	95.5	93.6	95.5	104	123	97.2
Ga	15.7	13.4	21.1	19.8	18.6	19.6	20.5	15.6
Rb	54	46.7	43.9	59.6	41.2	68.2	156	45.3
Sr	1600	1526	1897	1402	1432	1655	1679	1663
Y	25.8	26.9	30.8	27.8	27.8	29.3	36.5	25.4
Zr	269	260	327	250	289	353	567	350
Nb	110	108	178	103	104	103	183	134
Cs	0.827	0.813	1.19		1.62	2.22	5.05	1.6
Ba	1921	1925	1318	1437	1354	1579	1700	1378
La	80.4	81.8	132	68.3	117	152	137	87.7
Ce	157	159	210	139	192	212	264	188
Pr	16.9	17.2	21.2		18.9	21.5	29.5	21.1
Nd	60	61.3	72	75.5	66.7	75.8	110	75.8
Sm	9.88	10.1	11.6		10.6	12	18.1	12.3
Eu	3.13	3.18	3.65		3.29	3.66	5	3.68
Gd	7.78	7.9	8.94		8.89	9.55	14.2	9.16
Tb	0.984	0.997	1.16		1.11	1.2	1.69	1.12
Dy	5.21	5.25	6.24		5.61	6.02	8.39	5.73
Ho	0.926	0.925	1.1		0.966	1.04	1.42	0.941
Er	2.26	2.25	2.7		2.38	2.57	3.41	2.18
Tm	0.302	0.301	0.354		0.319	0.335	0.432	0.271
Yb	1.86	1.83	2.14		1.89	2.06	2.42	1.54
Lu	0.274	0.27	0.309		0.263	0.29	0.347	0.22
Hf	4.84	4.77	5.56		5.08	6.35	10.5	6.88
Pb	6.76	6.49	7.35		6.67	7.36	10.1	5.38
Th	10.9	10.6	18.9		18.1	17.5	15.4	9.75
U	2.59	2.49	4.51		4.37	4.23	3.16	1.58

[1] Estimated volatiles (H_2O+CO_2)

[2] Mg# = 100x(Fe^{2+}+Mg/Mg)