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Appendix 1: Samples per lithological unit, locality and coordinates of samples used in geochronology, geothermobarometry and thermochrology as referred to in the respective sections.

Lithological Unit	Sample	Locality	Coordinates
Vumba Granite Gneiss	VGI	Vumba	
	VGII	Vumba	
	VGIII	Vumba	
	VGIV	Vumba	
	VGV	Vumba	
	VG3-1	Vumba	
	VG3-2	Vumba	18°57'52"/32°50'24"
	VG3-3	Vumba	
	VG3-4	Vumba	
	VG3-5	Vumba	
	VG3-6	Vumba	
	VGr1	Vumba	
	VGr2	Vumba	18°57'20"/32 °54'59"
	MpG	Machipanda	
	MkG	M'kwananda	
Macequece Formation	ma	Manica	
	ba	Manica	
	mb	Manica	
	mc	Manica	
	scg	Manica	
	8	Manica	
	epsc1	Manica	
	26aga	Penhalonga	
	26scg	Penhalonga	
	Ndqtz	Ndirire	
M'Beza/Vengo Formation	21sc	Vengo	
	mbsh	M'Beza	
	zash	Zambuzi	
Messica Granite Gneiss	PdGr1	Messica	19°00'50"/33°05'18"
	PdGr2	Messica	19°00'52"/33°07'18"
	PdGr3	Messica	
	PdGr4	Messica	
	PdGr5	Messica	

	PdGr6	Messica	
	CNO1	Messica	
	CNO2	Messica	
	CNO3	Messica	
	CNO4	Messica	
	CNO5	Messica	
	CNO6	Messica	
	MGn3	Messica	
	Mgn5	Messica	
	M'SKg	Messica	
Frontier Formation	GQZ	Garuzo	
	GSC	Garuzo	
	GMSC	Garuzo	19°02'16"/33°09'48"
	GAQZ1	Garuzo	
	CHQZ	Chicamba	19°09'28"/33°08'32"
	31CHQ1	Chimezi	
	31CHQ2	Chimezi	
Vanduzi Migmatite Gneiss	mh'gn	Matsinho	
	grR	Vanduzi	
	nzgg1	Vanduzi	
	mggnv	Vanduzi	
	gr5	Vanduzi	
Chimoio Granodioritic Gneiss	cvgna	Chimoio	19°06'06"/33°30'15"
	cvgnb	Chimoio	
	cvgnc	Chimoio	
	cvgnd	Chimoio	
	cvgne	Chimoio	
	cvgnf	Chimoio	
Nhansipfe Granitic Gneiss	nfgn1	Nhansipfe	
	nfgn2	Nhansipfe	19°06'28"/33°18'31"
	nfgn3	Nhansipfe	
	nfgn4	Nhansipfe	
	nfgn5	Nhansipfe	19°06'26"/33°18'33"
	nfgn6	Nhansipfe	
	mggn1	Nhansipfe	
	mggn2	Nhansipfe	

	nggn2	Nhansipfe	
	ndgn1	Nhansipfe	
	nzgg1	Nhansipfe	
	nzgn2	Nhansipfe	
	nzgn3	Nhansipfe	
	mrgn	Mombeza	
	chgn	Chibata	
	mhgn1	Matsinho	
	mhgn2	Matsinho	
	mhgn3	Matsinho	
	mhgn4	Matsinho	
	mhgn5	Matsinho	
	mhgn6	Matsinho	
	mhgr	Matsinho	
	mhgn6	Matsinho	
	agn1	Almada	
	agn2	Almada	
	agn3	Almada	
	agn4	Almada	
	agn5	Almada	
	agn6	Almada	
	pcy	Chibata	
	mcgr	Chibata	
	mxc	Chibata	
	GRP	Chibata	
	GRF	chibata	
Mafic Dykes	18S	Manica	
	MDo	Vumba	
	15M	Penhalonga	
	12T	Penhalonga	
	maamp1	Messica	
	maamp	Messica	19°00'29"/33°06'27"
	maamp2	Messica	
	amp*	Manica	
	mramp	Mombeza	
	chm	Chicamba	

	mbamp	Mombeza	18°59'53"/33°24'50"
	MXC	Chibata	19°03'54"/33°18'52"
	MX2	Chibata	
	MX	Chibata	
Tchinhadzandze Granodiorite Gneiss	ygr1	Tchinhadzandze	
	ygr2	Tchinhadzandze	
	ygr3	Tchinhadzandze	
	ygr4	Tchinhadzandze	
	ygr5	Tchinhadzandze	
	ygr6	Tchinhadzandze	

Appendix 2: Complete microprobe analyses, cation site allocations and recalculations of of mineral end-members proportions..

Garnets

Sample	mbamp	mbamp	mbamp	mbamp	mbamp	mbamp	mbamp	mbamp	mbamp
Analysis	21	22	33	34	15	12	11	45	46
SiO_2	37.67	37.87	38.12	37.57	38	38.18	38.06	38.12	38.34
TiO_2	nd	nd	nd	nd	nd	0.05	Nd	0.05	nd
Al_2O_3	21.6	21.77	21.44	21.14	21.31	21.51	21.44	21.33	21.83
FeO	30.51	30.23	29.8	29.41	30.55	30.14	29.78	30.53	29.46
MnO	1.61	1.52	1.39	1.46	1.42	1.26	1.33	1.6	1.61
MgO	3.23	3.28	3.22	3.19	2.77	3	2.91	2.65	3.27
CaO	7.26	7.13	7.47	7.38	7.29	7.1	7.26	7.51	7.02
TSi	2.938	2.953	2.982	2.977	2.987	2.997	3.001	2.985	2.994
[4]Al	0.062	0.047	0.018	0.023	0.013	0.003	0	0.015	0.006
Sum_T	3	3	3	3	3	3	3	3	3
[6]Al	1.922	1.952	1.957	1.95	1.959	1.986	1.991	1.952	2.002
Ti	0	0	0	0	0	0.003	0	0.003	0
Fe2+	1.99	1.971	1.949	1.949	2.008	1.979	1.964	1.999	1.924
Mg	0.376	0.381	0.375	0.377	0.325	0.351	0.342	0.309	0.381
Mn	0.106	0.1	0.092	0.098	0.095	0.084	0.089	0.106	0.106
Ca	0.607	0.596	0.626	0.627	0.614	0.597	0.613	0.63	0.587
Sum_cat	8	8	8	8	8	8	8	8	8
XGrs	0.197	0.196	0.206	0.206	0.202	0.198	0.204	0.207	0.196
XAlm	0.646	0.647	0.641	0.639	0.66	0.657	0.653	0.657	0.642
XPy	0.122	0.125	0.123	0.124	0.107	0.117	0.114	0.102	0.127
Xps	0.034	0.033	0.03	0.032	0.031	0.028	0.03	0.035	0.035

Garnets (cont.)

Sample	MaAmp	MaAmp	MaAmp	MaAmp	Gcmx	Gcmx	Mxc	mxc	mxc
Analysis	2	9	12	20	5	9	8	5	3
SiO_2	37.68	37.69	37.75	37.36	36.14	36.34	37.06	37.07	36.98
TiO_2	nd	0.11	nd	nd	ND	ND	nd	nd	nd
Al_2O_3	21.55	21.49	21.42	21.62	20.98	21.2	21.3	21.37	21.22
FeO	28.81	28.77	28.3	29.51	38.83	38.47	30.19	30.4	30.64
MnO	1.08	1.22	0.97	1.09	1.31	1.34	1.41	1.29	1.38
MgO	2.85	2.82	3.11	3.16	1.48	1.36	2.81	2.77	2.65
CaO	8.12	8.11	8.49	7.23	1.37	1.5	6.92	7	6.72
TSi	2.984	2.983	2.984	2.963	2.947	2.959	2.959	2.954	2.961
[4]Al	0.016	0.017	0.016	0.037	0.053	0.041	0.041	0.046	0.039
Sum_T	3	3	3	3	3	3	3	3	3
[6]Al	1.994	1.987	1.978	1.982	1.962	1.992	1.962	1.96	1.962
Ti	0	0.007	0	0	0	0	0	0	0
Fe2+	1.908	1.904	1.871	1.957	2.648	2.62	2.016	2.026	2.052
Mg	0.336	0.333	0.367	0.374	0.18	0.165	0.334	0.329	0.316
Mn	0.072	0.082	0.065	0.073	0.09	0.092	0.095	0.087	0.094
Ca	0.689	0.688	0.719	0.614	0.12	0.131	0.592	0.598	0.576
Sum_cat	8	8	8	8	8	8	8	8	8
XGrs	0.229	0.229	0.238	0.203	0.039	0.044	0.195	0.197	0.19
XAlm	0.635	0.633	0.619	0.648	0.872	0.871	0.664	0.666	0.675
XPy	0.112	0.111	0.121	0.124	0.059	0.055	0.11	0.108	0.104
XSps	0.024	0.027	0.022	0.024	0.030	0.031	0.031	0.029	0.031

Ilmenites

sample	Analysis	SiO_2	TiO_2	FeO	MnO	MgO	Ti	Fe^{2+}	Mn	Mg
mxc	7	0	49.84	48.1	0.35	0.39	4.037	4.332	0.032	0.063
mxc	8	0.18	49.85	48.32	0.4	0.46	4.013	4.325	0.036	0.073

Plagioclase feldspars

Sample	MaAmp	MaAmp	mbamp	mbamp	mbamp
Analysis	12	5	13	41	43
SiO_2	54.51	54.92	59.18	58.78	58.6
Al_2O_3	28.61	28.44	25.94	26.27	26.42
CaO	11.33	10.83	7.73	7.79	7.96
Na_2O	5.51	5.4	6.67	6.95	6.47
K_2O	0.15	0.14	0.34	0.32	0.25
Si	2.461	2.481	5.277	5.241	5.226
Al	1.521	1.513	2.724	2.759	2.775
Ca	0.548	0.524	0.738	0.744	0.761
Na	0.482	0.473	1.153	1.202	1.119
K	0.009	0.008	0.039	0.036	0.028
XAb	0.464	0.471	0.597	0.606	0.586
XAn	0.527	0.521	0.382	0.375	0.399
XOr	0.009	0.008	0.02	0.018	0.015

Pyroxenes

mineral	Opx	Opx	Cpx	Cpx	Cpx	Cpx
sample	mbamp	mbamp	mbamp	mbamp	mbamp	mbamp
Analysis	33	34	21	22	11	12
SiO_2	49.93	50.57	50.6	50.7	50.7	50.59
TiO_2	0.05	0.09	0.15	0.18	0.13	0.22
Al_2O_3	0.85	1.01	1.76	2	1.93	1.99
FeO	34.41	34.77	14.74	14.57	15.54	15.54
MnO	0.61	0.58	0.3	0.24	0.23	0.28
MgO	13.93	13.84	10.43	10.21	10.26	10.18
CaO	0.66	0.7	21.49	21.47	20.79	20.74
Na_2O	nd	nd	0.51	0.51	0.49	0.48
Si	1.963	1.968	1.929	1.935	1.935	1.933
[4]Al	0.037	0.032	0.071	0.065	0.065	0.067
[6]Al	0.002	0.014	0.008	0.025	0.022	0.023
Ti	0.001	0.003	0.004	0.005	0.004	0.006
Fe2+	1.132	1.132	0.47	0.465	0.496	0.497
Mg	0.816	0.803	0.593	0.581	0.584	0.58
Mn	0.02	0.019	0.01	0.008	0.007	0.009
Ca	0.028	0.029	0.878	0.878	0.85	0.849
Na	0	0	0.038	0.038	0.036	0.036
Sum_cat	4	4	4	4	4	4

Amphibole

Sample	Maamp	Maamp	Maamp	Maamp	mxc	mxc	mbamp	mbamp	mbamp
Analysis	11	14	18	20	6	9	15	45	46
SiO_2	48.72	49.22	49.07	47.75	41.72	42.33	42.01	42.17	42.18
TiO_2	0.84	0.74	0.81	0.94	2.1	1.95	2.21	1.93	2.09
Al_2O_3	7.37	7.44	7.54	8.36	10.49	10.46	11.9	12.22	11.99
FeO	16.27	16.82	16.49	16.84	22.05	21.86	21.09	20.37	20.4
MnO	nd	nd	0.13	0.17	0.14	0.1	0.14	0.12	0.14
MgO	11.14	11.45	11.16	10.65	6.76	6.88	7.85	8.13	8.17
CaO	11.74	11.63	11.71	11.61	11.51	11.44	11.22	11.36	11.2
Na2O	0.94	0.99	0.82	1.17	1.39	1.23	1.62	1.63	1.68
K2O	0.59	0.53	0.56	0.64	1.39	1.5	ND	ND	ND
Si	7.192	7.183	7.192	7.05	6.468	6.529	6.38	6.387	6.395
[4]Al	0.808	0.817	0.808	0.95	1.532	1.471	1.62	1.613	1.605
[6]Al	0.473	0.462	0.493	0.503	0.383	0.429	0.509	0.566	0.536
Ti	0.093	0.081	0.089	0.104	0.245	0.226	0.252	0.22	0.238
Mg	2.451	2.491	2.438	2.344	1.562	1.582	1.777	1.836	1.847
Fe2+	2.009	2.053	2.021	2.079	2.859	2.82	2.461	2.378	2.379
Mn	0	0	0.016	0.021	0.018	0.013	0.018	0.015	0.018
sum oct	5.026	5.087	5.057	5.051	5.067	5.07	5	5	5
Ca	1.857	1.818	1.839	1.837	1.912	1.891	1.826	1.844	1.82
Na[M4]	0.117	0.095	0.103	0.111	0.02	0.04	0	0	0
Na[A]	0.152	0.185	0.13	0.224	0.398	0.328	0.477	0.479	0.494
K	0.111	0.099	0.105	0.121	0.275	0.295	0	0	0
Sum_A	0.263	0.284	0.235	0.344	0.673	0.623	0.477	0.479	0.494
Sum_cat	15.263	15.284	15.235	15.344	15.673	15.623	15.538	15.54	15.539

ND=not determined, nd=not detected.

Appendix 3: Description of analytical techniques

1. In all tables of chemical analyses, iron oxide is presented as FeO which was calculated from Fe_2O_3 analyses, according to Le Maitre (1976).
2. X-Ray fluorescence analyses were executed using an ARL 8420 wavelength dispersive XRF Spectrometer.
   The samples were dried and roasted at 950 °C to determine loss on ignition.
   Major element analyses were executed on fused beads in which to 1g sample were added 6g of lithium tetraborate flux.
   Trace elements were analysed on pressed pellets.
   The XRF Spectrometer was calibrated with certified reference materials, and NBSGSC fundamental parameter was used for matrix correction.
3. Microprobe analyses were done using a Jeol 733 Superprobe with 4 wavelength spectrometers and Iemas Energy Dispersive System (EDS) from OXFORD/LINK, controlled by OXFORD/LINK ex1ll system.
   The analytical conditions were set for EDS mode with beam current of 20 nA, acceleration voltage of 20 kw, and beam size of <1.5 μm (de-focused beam for plagioclase and micas). Counting times on all silicates were 100 seconds (livetime acquisition).