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Tectonothermal evolution of the Southwestern central zone, Damara Belt, Namibia

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Appendix 4b - Compositional averages and AX data used for average P-T calculations

CZRL19

Mineral Compositions (averages from probe data)

SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi	CZRL19								
34.10	18.70	6.61	23.62	0.17	9.24	3.91	0.00	0.04	0.13
g	CZRL19								
36.56	21.38	2.45	37.55	0.00	0.00	0.00	0.64	0.00	1.88
cd	CZRL19								
47.29	33.21	6.77	10.79	0.23	0.00	0.00	0.00	0.00	0.41
fsp	CZRL19pl								
67.41	20.13	0.00	0.00	11.31	0.12	0.00	0.25	0.00	0.00
fsp	CZRL19ksp								
63.62	19.33	0.00	0.00	2.19	13.36	0.00	0.05	0.00	0.00

Activities (AX file for THERMOCALC)

Endmember	Activity
phl	0.0142
ann	0.091
east	0.019
py	0.00133
gr	0.0000089
alm	0.56
crd	0.29
fcrd	0.24
an	0.017
ab	0.98
san	0.82
ab	0.55
q	
H2O	0.5
sill	

CZRL20

Mineral Compositions (averages from probe data)

SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi	CZRL20								
34.05	19.10	6.20	23.66	0.18	8.96	3.71	0.01	0.06	0.03
g	CZRL20								
36.48	21.52	2.60	37.28	0.00	0.00	0.00	0.65	0.00	1.79

Activities (AX file for THERMOCALC)

Endmember	Activity	
phl	0.01	
ann	0.09	
east	0.02	
py	0.00	
gr	0.00	
alm	0.54	
q		
H2O	0.50	
sill		
crd	0.29	
fcrd	0.24	*Note - these*
an	0.02	*activities are*
ab	0.98	*estimates from*
san	0.82	*CZRL19*
ab	0.55	

LCZ11-1b

Mineral Compositions (averages from probe data)

SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi	LCZ11-1b								
34.52	17.43	8.86	20.96	0.13	9.3	4.81	0.01	0.03	0.13
g	LCZ11-1b								
37.05	21.82	4.5	32.12	0	0	0	1.27	0	3.57
cd	LCZ11-1b								
47.76	33.53	8.27	8.45	0.09	0	0	0	0	0.29
sp	LCZ11-1b								
56.8	0	3.49	35.1	0	0	0	0	0	0.49
*									

Activities (AX file for THERMOCALC)

Endmember	Activity	
phl	0.027	
ann	0.065	
east	0.025	
py	0.0079	
gr	0.000086	
alm	0.32	
crd	0.41	
fcrd	0.15	
mt	0.86	
q		
H2O	0.5	
ilm		
san	0.8	*Note - these*
an	0.5	*activities are*
ab	0.5	*estimates*

LG003

Mineral Compositions (averages from probe data)

SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi	LG003								
34.45	18.27	9.26	20.43	0.18	9.01	3.50	0.04	0.07	0.06
g	LG003								
36.89	21.84	4.49	34.68	0.00	0.00	0.00	0.70	0.00	1.77
cd	LG003								
47.62	33.50	8.11	8.95	0.20	0.00	0.00	0.00	0.00	0.15

Activities (AX file for THERMOCALC)

Endmember	Activity	
phl	0.034	
ann	0.059	
east	0.034	
py	0.0076	
gr	0.0000146	
alm	0.4	
crd	0.4	
fcrd	0.16	
q		
H2O	0.5	
mt		
ilm		
ru		
san	0.8	*Note - these*
an	0.5	*activities are*
ab	0.5	*estimates*

LID004

Mineral Compositions (averages from probe data)

SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi	LID004								
36.54	16.18	12.57	17.75	0.18	8.99	3.51	0.01	0.05	0.08
g	LID004								
37.54	22.08	5.30	30.59	0.00	0.00	0.00	2.11	0.00	3.04
fsp	LID004								
55.00	28.76	0.00	0.00	5.73	0.05	0.00	10.14	0.00	0.00
opx	LID004								
49.30	1.30	13.80	25.12	0.14	0.06	0.05	0.27	0.02	0.90
amph	LID004								
36.47	33.04	5.90	8.05	1.55	0.07	0.74	2.02	0.00	0.01

*

Activities (AX file for THERMOCALC)

Endmember	Activity
phl	0.076
ann	0.04
east	0.036
py	0.01
gr	0.00042
alm	0.26
ann	0.66
ab	0.52
san	0.8
en	0.19
fs	0.2
mgts	0.03
q	
H2O	0.50

Note - activity for san is an estimate

LID039

Mineral Compositions (averages from probe data)

SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi	LID039								
37.06	17.10	13.64	15.97	0.18	8.87	3.09	0.04	0.04	0.12
g	LID039								
37.75	22.09	5.58	28.73	0.00	0.00	0.00	2.69	0.00	3.69
fsp	LID039								
57.51	26.68	0.00	0.00	6.90	0.14	0.00	8.49	0.00	0.00
opx	LID039								
50.36	1.45	15.29	29.05	0.03	0.03	0.06	0.32	0.00	1.35

Activities (AX file for THERMOCALC)

Endmember	Activity
phl	0.094
ann	0.025
east	0.052
py	0.015
gr	0.00089
alm	0.24
ann	0.54
ab	0.6
san	0.8
en	0.21
fs	0.24
mgts	0.025
q	
H2O	0.5

Note - activity for san is an estimate

LID042

Mineral Compositions (averages from probe data)

SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi	LID042								
35.39	18.51	9.25	20.21	0.19	9.23	3.93	0.01	0.04	0.05
g	LID042								
37.51	21.55	4.21	34.88	0.00	0.00	0.00	0.83	0.00	1.38
cd	LID042								
48.27	33.85	7.87	9.19	0.17	0.00	0.00	0.00	0.00	0.13

Activities (AX file for THERMOCALC)

Endmember	Activity	
phl	0.03	
ann	0.06	
east	0.03	
py	0.01	
gr	0.00	
alm	0.46	
crd	0.38	
fcrd	0.18	
q		
H2O	0.50	
ilm		
mt		
san	0.80	*Note - these activities are estimates*
an	0.50	
ab	0.50	

LKR012

Mineral Compositions (averages from probe data)

SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi	LKR012								
36.09	17.82	11.85	17.52	0.11	9.37	3.93	0.01	0.08	0.03
g	LKR012								
37.41	22.20	6.41	32.68	0.00	0.00	0.00	0.79	0.00	0.75
fsp	LKR012ksp								
63.49	19.34	0.00	0.00	1.81	13.83	0.00	0.07	0.00	0.00
fsp	LKR012pl								
61.90	23.96	0.00	0.00	8.84	0.27	0.00	4.41	0.00	0.00

Activities (AX file for THERMOCALC)

Endmember	Activity	
phl	0.062	
ann	0.035	
east	0.046	
py	0.021	
gr	0.000026	
alm	0.32	
san	0.84	
ab	0.47	
an	0.3	
ab	0.78	
q		
H2O	0.5	
mt		
ilm		
crd	0.4	*Note - these activities are estimates*
fcrd	0.15	

LKR013

Mineral Compositions (averages from probe data)

SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi	LKR013								
35.17	17.85	11.33	18.01	0.21	8.35	5.53	0.04	0.06	0.06
g	LKR013								
37.39	21.97	5.61	32.59	0.00	0.00	0.00	1.01	0.00	1.64

Activities (AX file for THERMOCALC)

Endmember	Activity
phl	0.045
ann	0.033
east	0.037
py	0.014
gr	0.00005
alm	0.33
q	
H2O	0.5
an	0.5
ab	0.5
san	0.8
crd	0.4
fcrd	0.2

Note - these activities are estimates

LHA006

Mineral Compositions (averages from probe data)

SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi	LHA006								
35.59	17.49	10.72	19.00	0.17	9.33	4.26	0.01	0.04	0.29
g	LHA006								
37.53	21.53	4.17	27.43	0.00	0.00	0.00	0.59	0.00	8.80
cd	LHA006								
48.18	34.41	9.36	6.49	0.18	0.00	0.00	0.00	0.00	0.57
fsp	LHA006								
63.70	23.12	0.00	0.00	9.81	0.25	0.00	3.08	0.00	0.00
sp	LHA006								
58.16	0.00	4.96	34.00	0.00	0.00	0.00	0.00	0.00	1.17

Activities (AX file for THERMOCALC)

Endmember	Activity
phl	0.046
ann	0.047
east	0.035
py	0.0057
gr	0.0000086
alm	0.23
crd	0.57
fcrd	0.065
an	0.21
ab	0.84
san	0.8
mt	0.81
q	
H2O	0.5
sill	

Note - activity for san is an estimate

LHA008

Mineral Compositions (averages from probe data)

	SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi		LHA008								
	37.89	13.61	12.98	17.57	0.09	9.32	4.41	0.01	0.05	0.03
fsp		LHA008								
	50.42	32.26	0.00	0.00	3.56	0.12	0.00	13.79	0.00	0.00
fsp		LHA008								
	58.85	26.40	0.00	0.00	7.11	0.78	0.00	7.07	0.00	0.00
fsp		LHA008								
	63.77	18.87	0.00	0.00	1.05	14.82	0.00	0.15	0.00	0.00
sp		LHA008								
	57.51	0.00	4.35	37.44	0.00	0.00	0.00	0.00	0.00	0.32
cd		LHA006								
	48.18	34.41	9.36	6.49	0.18	0.00	0.00	0.00	0.00	0.57

*

Activities (AX file for THERMOCALC)

Endmember	Activity
phl	0.087
ann	0.042
east	0.011
an	0.6
ab	0.51
san	0.9
mt	0.83
crd	0.57
fcrd	0.065
q	
H2O	
py	0.0057
gr	0.0000086
alm	0.23

Note - these activities are estimates from LHA006

LHA009

Mineral Compositions (averages from probe data)

	SiO_2	Al_2O_3	MgO	FeO	Na_2O	K_2O	TiO_2	CaO	Cr_2O_3	MnO
bi		LHA009								
	35.16	18.33	7.80	21.97	0.13	9.20	4.13	0.00	0.08	0.05
cd		LHA009								
	47.43	33.40	7.74	9.45	0.21	0.00	0.00	0.00	0.00	0.13
fsp		LHA009ksp								
	64.71	19.04	0.00	0.00	1.99	13.71	0.00	0.03	0.00	0.00
fsp		LHA009ksp2								
	67.38	20.13	0.00	0.00	9.75	3.11	0.00	0.52	0.00	0.00
fsp		LHA009pl								
	65.81	19.40	0.00	0.00	3.91	11.24	0.00	0.04	0.00	0.00
sp		LHA009								
	55.12	0.00	3.07	35.45	0.00	0.00	0.00	0.00	0.00	0.15

Activities (AX file for THERMOCALC)

Endmember	Activity
phl	0.0209
ann	0.072
east	0.023
crd	0.43
fcrd	0.14
san	0.83
ab	0.51
san	0.6
ab	0.89
san	0.73
ab	0.77
mt	0.87
q	
H2O	0.5
sill	
py	0.0057
gr	0.0000086
alm	0.23

Note - these activities are estimates from LHA006