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Title of article Mineralogy of spinel peridotite inclusions of alkali basalts from Sardinia

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TABLE 2

CHEMICAL ANALYSES AND STRUCTURAL FORMULAE OF OLIVINE

	1		2		3	4	5	6	7	8	9	10	11	12
	core	rim	core	rim										
SiO_2	41.47	41.43	41.46	41.00	41.46	40.92	40.90	41.37	41.18	41.17	41.23	41.29	39.41	39.47
TiO_2	.04	-	.02	.05	.01	.01	.03	-	-	-	.01	-	.04	.06
Al_2O_3	-	-	.05	.04	-	-	.05	-	.03	.01	.03	.03	.05	.07
Cr_2O_3	.02	.02	-	0.04	.02	-	.01	.01	.02	.03	.03	.02	.03	.01
FeO	8.17	8.14	8.61	8.62	9.06	9.40	9.19	8.72	8.45	9.23	8.56	8.42	16.46	18.45
MnO	.11	.11	.11	.12	.13	.12	.13	.13	.13	.15	.14	.14	.21	.33
MgO	50.00	50.05	49.66	49.75	49.49	49.27	49.20	49.15	49.58	48.85	49.82	49.90	43.27	41.13
NiO	.38	.39	.43	.40	.38	-	.38	-	-	.33	-	-	.17	-
CaO	.05	.04	.06	.06	.05	.06	.07	.06	.06	.06	.06	.06	.23	.25
Na_2O	-	-	.02	.02	-	-	.02	-	.02	-	.01	.01	.04	.03
K_2O	.03	.03	.03	.02	.02	-	.03	-	-	-	.02	.03	.02	.03
	100.38	100.21	100.15	100.24	100.62	99.78	100.01	99.44	99.47	99.85	99.91	99.90	99.93	99.83
$Mg(x10^2)/(Mg+Fe)_t$	91.6	91.6	91.1	91.1	90.7	90.3	90.5	91.0	91.3	90.4	91.2	91.4	82.4	79.9

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de Albuquerque and others

Si	1.006	1.006	1.003	1.000	1.006	1.002	1.001	1.012	1.007	1.008	1.005	1.005	.999	1.009
Al^{IV}	-	-	-	-	-	-	-	-	-	-	-	-	.001	-
Al^{VI}	-	-	.001	.001	-	-	.001	-	.001	-	.001	.001	-	.002
Ti	.001	-	-	.001	-	-	.001	-	-	-	-	-	.001	.001
Cr	-	-	-	.001	-	-	-	-	-	.001	.001	-	.001	-
Fe	.166	.165	.175	.176	.184	.193	.188	.178	.173	.189	.174	.171	.349	.394
Mn	.002	.002	.002	.003	.003	.003	.003	.003	.003	.003	.003	.003	.005	.007
Mg	1.808	1.811	1.803	1.808	1.791	1.799	1.794	1.793	1.807	1.783	1.809	1.811	1.634	1.567
Ni	.007	.008	.008	.008	.007	-	.008	-	-	.007	-	-	.004	-
Ca	.001	.001	.002	.002	.001	.002	.002	.002	.002	.002	.002	.002	.006	.007
Na	-	-	.001	.001	-	-	.001	-	.001	-	.001	.001	.002	.002
K	.001	.001	.001	.001	.001	-	.001	-	-	.001	.001	.001	.001	.081

1, 2, 3, 4, 5 - Lherzolite (s.s.) (SAR-83, SAR-84, SAR-92, SAR-106, SAR-107)

6, 7 - Harzburgite-lherzolite (SAR-72, SAR-111)

8 - Wehrlite (SAR-94)

9 - Lherzolite-dunite (SAR-101-1)

10 - Pyroxenite (SAR-101-2)

11, 12 - Alkali basalt (SAR-70, SAR-73)

TABLE 3

CHEMICAL ANALYSES AND STRUCTURAL FORMULAE OF ORTHOPYROXENE

	1		2		3	4	5	6	7	9	10	
	core	rim	core	rim							core	rim
SiO_2	56.06	56.25	55.35	55.61	55.80	54.92	55.16	55.89	56.86	56.76	56.57	56.48
Al_2O_3	3.63	3.46	4.10	4.06	3.88	4.14	4.46	3.81	2.46	2.33	2.57	2.51
Cr_2O_3	.53	.47	.48	.44	.43	.41	.38	.53	.56	.45	.56	.51
TiO_2	.11	.10	.11	.10	.13	.12	.07	.04	.05	.05	.07	.06
MgO	33.39	33.50	33.14	33.35	32.93	32.85	32.57	33.10	33.76	34.21	33.86	33.99
NiO	.13	.13	1.2	.10	.10	.12	.10	-	-	-	-	-
FeO_t	5.37	5.37	5.65	5.61	5.89	6.14	5.98	5.57	5.38	5.48	5.46	5.50
MnO	.13	.13	.12	.11	0.12	.14	.13	.15	.13	.12	.13	.13
CaO	.64	.63	.69	.72	.69	.67	.68	.77	.71	.62	.69	.64
Na_2O	.13	.14	.12	.10	.06	.04	.14	.02	.06	.03	.03	.03
K_2O	.02	.03	.02	.03	.02	.01	.03	.01	.01	.02	.03	.03
	100.14	100.21	99.94	100.23	100.05	99.56	99.70	99.89	99.98	100.07	99.97	99.88
$Mg(x10^2)/(Mg+Fe_t)$	91.7	91.8	91.3	91.4	90.9	90.5	90.7	91.4	91.8	91.8	91.7	91.7

Si	1.926	1.931	1.910	1.912	1.922	1.907	1.910	1.925	1.954	1.950	1.946	1.945
Al^{IV}	.074	.069	.090	.088	.078	.093	.090	.075	.046	.050	.054	.055
Al^{VI}	.073	.071	.077	.076	.080	.076	.083	.080	.054	.045	.051	.047
Cr	.014	.013	.013	.012	.012	.011	.010	.014	.015	.012	.015	.014
Ti	.033	.003	.003	.003	.003	.003	.002	.001	.001	.001	.002	.002
Fe	.154	.154	.163	.161	.170	.178	.174	.161	.155	.158	.157	.158
Mn	.004	.004	.004	.003	.004	.004	.004	.004	.004	.004	.004	.004
Mg	1.710	1.714	1.705	1.709	1.691	1.700	1.689	1.700	1.730	1.752	1.737	1.745
Ni	.004	.004	.003	.003	.003	-	.003	-	-	-	-	-
Ca	.024	.023	.026	.027	.026	.025	.026	.028	.026	.023	.025	.024
Na	.009	.009	.008	.007	.004	.003	.009	.001	.004	.002	.002	.002
K	.001	.001	.001	.001	.001	-	.001	-	-	.001	.001	.001

Key as in Table 2.

TABLE 4

CHEMICAL ANALYSES AND STRUCTURAL FORMULAE OF THE CORES OF THE CRYSTALS OF CLINOPYROXENE

	1	2	3	4	5	6	7	8	9	10
SiO_2	52. 8	52.28	52.48	51.35	52.07	52.44	53.10	52.51	53.43	53.06
Al_2O_3	5.41	5.98	5.84	5.66	6.44	4.24	3.34	5.17	2.55	2.88
Cr_2O_3	1.41	1.11	1.08	.85	.93	.95	1.38	1.17	.85	1.14
TiO_2	.31	.33	.40	.53	.23	.13	.11	.27	.12	.12
MgO	15.59	15.51	15.19	15.47	15.04	16.44	16.52	14.68	17.18	17.13
NiO	.02	.11	-	.07	.06	.06	-	-	-	-
FeO_t	2.20	2.22	2.42	2.66	2.77	2.27	2.14	2.78	2.19	2.31
MnO	.10	.08	.07	.09	.07	.08	.09	.07	.07	.07
CaO	21.12	20.64	20.37	21.62	20.55	22.17	22.04	20.87	22.79	22.56
Na_2O	1.56	1.69	1.68	1.12	1.74	.71	.84	1.94	.53	.58
K_2O	.02	.02	.02	.01	.03	.03	.02	.03	.02	.03
	99.92	99.97	99.55	99.43	99.93	99.42	99.58	99.49	99.73	99.88
$Mg(x10^2)/(Mg+Fe_t)$	92.7	92.6	91.8	91.2	90.6	92.8	93.2	90.4	93.3	93.0
K_D(Fe/Mg)opx/cpx	1.14	1.19	1.00	1.09	1.12	1.22	1.02	1.26	1.20	1.23

Si	1.913	1.892	1.904	1.877	1.887	1.911	1.933	1.915	1.943	1.929
Al^{IV}	.087	.108	.096	.123	.113	.089	.067	.085	.057	.071
Al^{VI}	.131	.148	.153	.121	.162	.093	.076	.137	.052	.053
Cr	.036	.032	.031	.025	.027	.027	.040	.034	.024	.033
Ti	.009	.009	.011	.015	.006	.004	.003	.007	.003	.003
Fe	.074	.067	.073	.081	.084	.069	.065	.085	.067	.070
Mn	.002	.003	.002	.003	.002	.003	.003	.002	.002	.002
Mg	.818	.837	.821	.843	.813	.893	.896	.798	.931	.928
Ni	.001	-	.002	-	.002	-	-	.002	-	-
Ca	.811	.801	.792	.847	.798	.866	.860	.815	.888	.879
Na	.139	.119	.118	.079	.122	.050	.059	.137	.037	.041
K	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001

Key as in Table 2.

TABLE 5

CHEMICAL ANALYSES AND STRUCTURAL FORMULAE OF THE RIMS OF THE CLINOPYROXENE OF THE INCLUSIONS AND OF THE CLINOPYROXENE OF THE BASALT

	1	2	2a	8	10	11	12
SiO_2	51.91	51.71	52.24	50.82	53.00	46.08	46.80
Al_2O_3	3.49	5.08	3.67	4.55	2.68	6.30	5.59
Cr_2O_3	1.19	1.22	1.10	1.42	1.10	.03	.07
TiO_2	.44	.37	.35	.60	.13	2.91	2.57
MgO	16.26	16.20	16.86	15.63	17.40	12.62	13.52
NiO	.04	.03	.03	.07	2.34	.01	-
FeO_t	2.73	2.59	2.62	2.61	.08	.08	7.67
MnO	.07	0.08	.07	.05	-	.12	.10
CaO	22.98	22.57	22.61	23.36	22.60	22.43	22.43
Na_2O	.64	.48	.43	.54	.58	.53	.60
K_2O	.02	.02	.02	.03	.03	.06	.08
	99.77	100.35	100.00	99.68	99.94	99.17	99.43
$Mg(x10^2)/(Mg+Fe_t)$	91.4	91.8	92.0	91.4	93.0	73.6	75.9

Si	1.900	1.875	1.901	1.866	1.927	1.750	1.769
Al^{IV}	.100	.125	.099	.134	.073	.250	.231
Al^{VI}	.051	.092	.059	.063	.042	.032	.018
Cr	.034	.035	.032	.041	.032	.001	.002
Ti	.012	.010	.010	.017	.004	.083	.073
Fe	.084	.079	.080	.080	.071	.257	.242
Mn	.002	.003	.002	.002	.003	.004	.003
Mg	.887	.876	.915	.855	.943	.714	.762
Ni	.001	.001	.001	.002	-	-	-
Ca	.901	.877	.882	.919	.881	.913	.908
Na	.045	.034	.030	.038	.041	.039	.044
K	.001	.001	.001	.001	.001	.003	.004

Key as in Table 2.

TABLE 6

CHEMICAL ANALYSES AND STRUCTURAL FORMULAE OF SPINEL

	1		2		3	4	5	6	7	8	9	10
	core	rim	core	rim								
SiO_2	.09	.09	.03	.02	.08	.13	.03	.09	-	.01	.02	.02
TiO_2	.07	.07	.14	.15	.17	.19	.08	.08	.18	.22	.23	.20
Al_2O_3	46.26	45.05	52.70	52.84	50.68	53.67	56.96	46.30	31.94	41.29	29.38	32.29
Cr_2O_3	20.46	21.82	15.47	15.14	15.74	13.29	11.75	21.66	38.20	25.16	37.79	34.46
FeO	12.63	12.83	11.45	11.26	11.47	11.71	11.63	11.28	13.32	14.86	15.20	15.85
MnO	.15	.16	.11	.11	.14	.14	.11	.18	.28	.25	.26	.25
MgO	19.42	19.26	20.91	20.92	21.17	20.33	20.11	20.46	16.60	17.49	16.40	16.76
NiO	.31	.34	.33	.38	.36	-	.39	-	-	.25	-	-
CaO	.01	.02	.01	.02	.01	-	.01	-	.01	.03	.02	.01
Na_2O	-	-	.01	.02	-	-	.01	-	-	.01	.01	-
K_2O	.04	.03	.02	.02	.03	-	.02	-	.01	.02	.03	.02
	99.94	99.67	101.18	100.88	99.85	99.46	101.10	100.05	100.84	99.59	99.34	99.86

Si	.020	.020	.006	.004	.017	.028	.006	.019	-	.002	.005	.005
Al^{IV}	11.929	11.662	12.998	13.052	12.72	13.369	13.864	11.805	8.718	10.955	8.234	8.919
Al^{VI}	-	-	-	-	-	-	-	-	-	-	-	-
Cr	3.539	3.789	2.560	2.509	2.650	2.221	1.919	3.705	6.995	4.478	7.105	6.385
Ti	.012	.012	.022	.024	.027	.030	.012	.013	.031	.037	.041	.035
Fe	2.311	2.357	2.004	1.974	2.043	2.010	2.009	2.041	2.580	2.798	3.023	3.054
Mn	.028	.030	.020	.020	.025	.025	.019	.033	.055	.048	.052	.050
Mg	6.333	6.305	6.522	6.535	6.720	6.405	6.190	6.598	5.730	5.869	5.813	5.855
Ni	.055	.060	.056	.064	.062	-	.065	-	-	.045	-	-
Ca	.002	.005	.002	.005	.002	-	.002	-	.003	.007	.005	.003
Na	-	-	.004	.008	-	-	.004	-	-	.004	.005	-
K	.011	.008	.005	.005	.008	-	.005	-	.003	.006	.009	.006

Key as in Table 2.

TABLE 7

CHEMICAL ANALYSES OF GLASSES

	1	2	3	4	5	6	7
SiO_2	48.39	48.13	50.50	52.38	59.98	54.41	54.42
TiO_2	1.78	1.62	.88	.36	.19	.13	.30
Al_2O_3	7.26	8.30	5.12	2.95	25.24	28.65	28.14
FeO_t	2.84	2.75	2.90	2.54	.43	.33	.55
MnO	.05	.06	.05	.11	-	-	.01
MgO	14.11	14.02	15.26	16.08	.18	.11	.11
CaO	23.45	22.22	23.10	23.60	6.71	11.30	10.49
Na_2O	.52	.77	.60	.57	6.86	5.10	5.17
K_2O	.02	.03	.02	.03	.31	.13	.62
Cr_2O_3	1.70	2.01	1.35	.88	.03	.04	.21
NiO	.06	.07	.06	.05	.01	.01	.04
	100.18	99.98	99.84	99.55	99.94	100.21	100.06

1, 2, 3, 4 - Wehrlite (SAR-94)

5 - Lherzolite (SAR-83)

6, 7 - Lherzolite (SAR-84)