Supplementary Table DR1. Compositions of natural majorite inclusions in diamonds[1]

Paragenesis/Study	Sample №	Location	SiO_2	TiO_2	Al_2O_3	Cr_2O_3	FeO	MnO	MgO	CaO	Na_2O	Total	Si	Ti	Al	Cr	Fe	Mn	Mg	Ca	Na	Total	Mg#
													Cations per 12-oxygen formula unit										
MjJd (Metabasitic)																							
Bulanova et al., 2010	J1-3	Juina	41.35	1.35	21.64	0.05	10.51	0.30	9.03	15.63	0.59	100.45	3.046	0.075	1.880	0.003	0.648	0.019	0.991	1.234	0.084	7.980	60.49
Bulanova et al., 2010	J8-1	Juina	41.88	0.22	22.22	0.03	16.64	0.41	9.45	8.21	0.98	100.04	3.112	0.012	1.946	0.002	1.034	0.026	1.046	0.654	0.141	7.973	50.30
Bulanova et al., 2010	J9-1	Juina	42.31	1.06	21.45	0.07	14.90	0.30	10.05	9.48	0.85	100.48	3.117	0.059	1.863	0.004	0.918	0.019	1.103	0.748	0.121	7.952	54.59
Bulanova et al., 2010	J9-2	Juina	41.59	0.95	21.10	0.06	14.86	0.28	10.58	8.68	0.92	99.02	3.107	0.053	1.858	0.004	0.928	0.018	1.178	0.695	0.133	7.975	55.92
Bulanova et al., 2010	J9-3	Juina	40.94	1.20	21.36	0.06	13.54	0.23	9.51	11.57	0.78	99.19	3.063	0.068	1.884	0.004	0.847	0.015	1.060	0.928	0.113	7.982	55.59
Davies et al., 2004	105A1	Buffalo hills	42.20	1.28	19.50	0.07	14.49	0.31	9.54	10.66	1.55	99.70	3.157	0.072	1.720	0.004	0.907	0.020	1.064	0.854	0.225	8.022	53.99
Davies et al., 2004	105A2	Buffalo hills	41.50	1.33	19.60	0.00	14.44	0.28	9.63	10.82	1.53	99.20	3.124	0.075	1.740	0.000	0.909	0.018	1.080	0.873	0.223	8.042	54.30
Stachel et al., 2000	KK-5	Kankan	44.26	0.06	21.13	0.05	12.18	0.35	16.64	4.53	1.41	100.73	3.170	0.003	1.784	0.003	0.730	0.021	1.776	0.348	0.196	8.031	70.88
Tsai et al., 1979	#6	Premier	42.30	0.25	22.20	0.21	14.30	0.00	16.80	4.14	0.03	100.23	3.059	0.014	1.893	0.012	0.865	0.000	1.811	0.321	0.004	7.977	67.67
Moore et al., 1991	B9-23	Monastery	41.97	0.13	21.35	0.10	16.39	0.41	13.59	5.89	0.93	100.76	3.080	0.007	1.847	0.006	1.006	0.025	1.486	0.463	0.132	8.053	59.64
Pokhilenko et al., 2004	Sl5-6	Slave	42.10	0.44	21.70	0.07	15.50	0.34	16.60	3.03	0.33	100.10	3.064	0.024	1.862	0.004	0.943	0.021	1.801	0.236	0.047	8.002	65.62
Sobolev et al., 1997	H-5	Arkhangelsk	40.5	0.34	21.2	0.06	17.9	0.32	10.7	7.6	0.23	98.81	3.064	0.019	1.891	0.004	1.132	0.021	1.206	0.616	0.034	7.987	51.58
MjEn (Metapyroxenitic)																							
Moore&Gurney, 1985	B9-17	Monastery	43.45	1.15	16.30	0.06	12.99	0.27	13.48	11.93	0.64	100.27	3.216	0.064	1.422	0.004	0.804	0.017	1.487	0.946	0.092	8.053	64.90
Moore&Gurney, 1985	A1-20	Monastery	45.43	0.81	14.82	0.06	9.77	0.29	18.20	9.27	0.58	99.23	3.316	0.044	1.275	0.003	0.596	0.018	1.980	0.725	0.082	8.041	76.85
Moore&Gurney, 1985	A1-24	Monastery	47.43	0.78	11.29	0.20	10.51	0.19	22.05	7.11	0.33	99.89	3.429	0.042	0.962	0.011	0.635	0.012	2.376	0.551	0.046	8.065	78.90
Moore&Gurney, 1985	S-6	Monastery	46.11	0.46	15.64	0.43	8.04	0.00	20.88	8.16	0.00	99.72	3.300	0.025	1.320	0.024	0.481	0.000	2.227	0.626	0.000	8.003	82.23
Moore&Gurney, 1985	A4-03	Monastery	42.08	1.21	18.32	0.01	14.74	0.27	10.31	11.89	1.08	99.92	3.154	0.068	1.619	0.001	0.924	0.017	1.152	0.955	0.157	8.046	55.48
**Wilding, 1990	bz7-3	Juina, Sao Luiz	45.70	2.31	12.71	0.27	11.57	0.21	21.91	4.77	0.58	100.11	3.307	0.126	1.084	0.015	0.700	0.013	2.363	0.370	0.081	8.059	77.14
**Deines et al., 1991	odd1-24	Jagersfontein	47.91	0.68	9.01	0.53	13.22	0.30	22.04	5.32	0.55	99.56	3.510	0.037	0.778	0.031	0.810	0.019	2.406	0.418	0.078	8.087	74.82
Deines et al., 1991		Jagersfontein	45.73	0.28	15.31	0.29	12.48	0.31	18.84	6.38	0.37	99.99	3.320	0.015	1.311	0.017	0.758	0.019	2.039	0.496	0.052	8.027	72.90
Moore&Gurney, 1989	A2-01	Monastery	44.25	0.57	15.87	0.11	11.56	0.29	17.86	8.77	0.35	99.63	3.241	0.031	1.371	0.006	0.708	0.018	1.950	0.688	0.050	8.064	73.36
**Wilding, 1990	bz22-1	Juina, Sao Luiz	42.30	1.99	17.82	0.08	12.12	0.24	10.33	14.08	1.15	100.32	3.150	0.111	1.565	0.005	0.755	0.015	1.146	1.124	0.166	8.037	60.30
Stachel et al., 2000	KK-1a	Kankan	42.43	1.48	17.19	0.04	12.78	0.25	10.92	14.67	0.69	100.56	3.161	0.083	1.510	0.002	0.796	0.016	1.212	1.171	0.100	8.050	60.36
Stachel et al., 2000	KK-81a	Kankan	45.05	1.16	16.64	0.08	10.32	0.26	15.18	9.89	1.37	100.02	3.281	0.064	1.429	0.005	0.629	0.016	1.648	0.772	0.193	8.035	72.38
Stachel et al., 2000	KK61-c	Kankan	43.12	1.37	18.23	0.14	12.62	0.36	17.22	6.35	0.59	100.20	3.144	0.075	1.567	0.008	0.769	0.022	1.871	0.496	0.083	8.036	70.86
Meyer&Svisero, 1975	MG25A	Brazil	40.50	0.86	19.60	0.20	16.00	0.34	13.10	8.39	0.00	98.99	3.049	0.049	1.740	0.012	1.008	0.022	1.470	0.677	0.000	8.026	59.33
Kaminsky et al., 2001	5-108a	Juina	42.46	1.83	17.22	0.10	12.68	0.23	12.30	12.18	0.88	99.88	3.159	0.102	1.511	0.006	0.789	0.014	1.364	0.971	0.127	8.044	63.35
Kaminsky et al., 2001	5-108b	Juina	41.46	1.95	18.82	0.12	13.37	0.30	12.46	10.70	0.67	99.85	3.083	0.109	1.650	0.007	0.831	0.019	1.381	0.852	0.097	8.028	62.42
Kaminsky et al., 2001	5-108c	Juina	40.98	2.36	18.03	0.07	14.20	0.25	11.88	11.12	0.61	99.50	3.078	0.133	1.596	0.004	0.892	0.016	1.330	0.895	0.089	8.033	59.85
*Tsai et al., 1979	MW52-78	Mwadui	41.14	1.93	17.82	0.14	15.75	0.29	12.39	9.57	0.75	99.78	3.091	0.109	1.578	0.008	0.990	0.018	1.387	0.770	0.109	8.061	58.37
Tsai et al., 1979	R4-1b	Jagersfontein	42.20	0.24	19.50	0.11	13.80	0.00	16.20	7.91	0.33	100.29	3.091	0.013	1.684	0.006	0.845	0.000	1.768	0.621	0.047	8.075	67.66
Tsai et al., 1979	R3-1	Jagersfontein	45.20	0.13	15.40	0.21	13.50	0.00	19.70	5.74	0.42	100.30	3.282	0.007	1.318	0.012	0.820	0.000	2.132	0.447	0.059	8.076	72.23
Moore&Gurney, 1989	B10-01	Monastery	41.70	1.14	18.30	0.06	14.72	0.25	10.33	13.15	0.76	100.41	3.122	0.064	1.615	0.004	0.922	0.016	1.153	1.055	0.110	8.060	55.57
Moore&Gurney, 1989	A1-23	Monastery	42.65	0.89	17.46	0.00	15.63	0.30	12.89	10.18	0.69	100.69	3.167	0.050	1.528	0.000	0.971	0.019	1.426	0.810	0.099	8.069	59.51
Tappert et al., 2005	JF-01	Jagersfontein	42.60	0.14	20.00	0.24	12.60	0.42	17.60	6.14	0.15	99.90	3.100	0.008	1.716	0.014	0.767	0.026	1.909	0.479	0.021	8.038	71.34
Tappert et al., 2005	JF-09	Jagersfontein	42.40	0.09	21.00	0.08	14.10	0.40	16.20	6.11	0.20	100.59	3.080	0.005	1.799	0.005	0.857	0.025	1.754	0.476	0.028	8.027	67.19
Tappert et al., 2005	JF-37	Jagersfontein	42.40	0.18	20.70	0.13	12.90	0.38	16.90	6.43	0.14	100.16	3.081	0.010	1.773	0.007	0.784	0.023	1.830	0.501	0.020	8.029	70.01
Tappert et al., 2005	JF-50	Jagersfontein	42.50	0.09	21.00	0.15	13.20	0.36	17.70	4.87	0.19	100.06	3.080	0.005	1.794	0.009	0.800	0.022	1.912	0.378	0.027	8.027	70.50
Tappert et al., 2005	JF-58	Jagersfontein	43.50	0.28	18.30	0.18	14.70	0.41	18.30	4.62	0.27	100.56	3.161	0.015	1.568	0.010	0.893	0.025	1.982	0.360	0.038	8.053	68.93
Tappert et al., 2005	JF-44	Jagersfontein	44.10	0.32	17.90	0.31	11.80	0.30	17.70	7.97	0.18	100.58	3.190	0.017	1.526	0.018	0.714	0.018	1.908	0.618	0.025	8.034	72.77
Tappert et al., 2005	JF-84	Jagersfontein	44.30	0.41	17.30	0.30	11.70	0.31	18.80	6.36	0.30	99.78	3.215	0.022	1.480	0.017	0.710	0.019	2.034	0.495	0.042	8.035	74.12
Tappert et al., 2005	JF-39	Jagersfontein	45.20	0.31	15.00	0.24	10.80	0.24	20.30	5.67	0.37	98.13	3.315	0.017	1.297	0.014	0.663	0.015	2.219	0.446	0.053	8.038	77.01
Tappert et al., 2005	JF-42	Jagersfontein	43.40	0.54	17.40	0.03	12.90	0.36	13.40	11.16	0.54	99.70	3.216	0.030	1.520	0.002	0.799	0.023	1.480	0.886	0.078	8.032	64.93
Tappert et al., 2005	JF-48	Jagersfontein	41.80	0.19	21.60	0.11	13.80	0.40	16.20	5.89	0.13	100.12	3.046	0.010	1.856	0.006	0.841	0.025	1.759	0.460	0.018	8.022	67.66
Tappert et al., 2005	JF-22	Jagersfontein	48.70	0.50	9.65	0.22	11.70	0.36	21.70	5.73	0.65	99.40	3.549	0.027	0.829	0.013	0.713	0.022	2.357	0.447	0.092	8.049	76.77
Moore et al., 1991	A1-32	Monastery	41.83	0.70	18.61	0.01	16.70	0.28	8.54	12.89	0.95	100.54	3.151	0.040	1.653	0.001	1.052	0.018	0.959	1.040	0.139	8.052	47.68
Moore et al., 1991	A2-05	Monastery	42.85	1.08	19.01	0.18	14.82	0.29	17.64	4.37	0.23	100.56	3.117	0.059	1.630	0.010	0.901	0.018	1.912	0.341	0.032	8.020	67.96
Moore et al., 1991	A4-04	Monastery	41.82	1.13	18.05	0.09	13.48	0.27	10.23	13.23	0.66	99.61	3.158	0.064	1.607	0.005	0.851	0.017	1.151	1.070	0.097	8.020	57.49
Moore et al., 1991	A6-01	Monastery	42.12	0.79	17.41	0.06	13.98	0.30	12.58	11.73	0.56	99.53	3.157	0.045	1.538	0.004	0.876	0.019	1.405	0.942	0.081	8.068	61.59
Moore et al., 1991	A1-14	Monastery	42.34	1.27	17.05	0.11	13.33	0.30	13.38	11.27	0.55	99.60	3.159	0.071	1.500	0.006	0.832	0.019	1.488	0.901	0.080	8.056	64.14
Moore et al., 1991	A4-14	Monastery	42.70	1.10	17.42	0.07	12.65	0.26	12.15	13.09	0.65	100.09	3.173	0.061	1.526	0.004	0.786	0.016	1.345	1.042	0.094	8.048	63.12
Moore et al., 1991	A1-23	Monastery	42.65	0.89	17.46	0.01	15.63	0.30	12.89	10.18	0.69	100.70	3.166	0.050	1.528	0.001	0.970	0.019	1.426	0.810	0.099	8.069	59.51
Moore et al., 1991	A4-10	Monastery	42.53	1.41	16.51	0.06	14.04	0.28	13.31	11.34	0.60	100.08	3.170	0.079	1.451	0.004	0.875	0.018	1.479	0.906	0.087	8.067	62.82
Moore et al., 1991	A4-06	Monastery	42.43	1.02	17.08	0.01	14.93	0.27	11.94	11.64	0.48	99.80	3.181	0.058	1.510	0.001	0.936	0.017	1.334	0.935	0.070	8.041	58.76
Moore et al., 1991	A2-06	Monastery	43.62	1.57	16.33	0.37	12.73	0.28	20.49	4.07	0.28	99.74	3.173	0.086	1.400	0.021	0.774	0.017	2.221	0.317	0.039	8.050	74.15
Moore et al., 1991	B9-17	Monastery	43.45	1.15	16.30	0.06	12.99	0.27	13.48	11.93	0.64	100.27	3.216	0.064	1.422	0.004	0.804	0.017	1.487	0.946	0.092	8.053	64.90
Moore et al., 1991	A2-01	Monastery	44.25	0.57	15.87	0.11	11.56	0.29	17.86	8.77	0.35	99.35	3.241	0.031	1.371	0.006	0.708	0.018	1.950	0.688	0.050	8.064	73.36
Moore et al., 1991	B9-15	Monastery	45.31	0.49	15.32	0.15	11.17	0.25	17.18	10.23	0.50	100.60	3.291	0.027	1.312	0.009	0.678	0.015	1.860	0.796	0.070	8.058	73.27
Moore et al., 1991	A4-11	Monastery	44.81	0.95	14.01	0.09	13.08	0.23	18.23	7.58	0.39	99.37	3.304	0.053	1.218	0.005	0.807	0.014	2.003	0.599	0.056	8.059	71.29
Moore et al., 1991	A5-13	Monastery	45.39	0.78	14.97	0.18	12.92	0.25	18.68	5.80	0.53	99.50	3.317	0.043	1.290	0.010	0.790	0.015	2.034	0.454	0.075	8.028	72.04
Moore et al., 1991	B9-07	Monastery	45.94	0.89	13.59	0.25	11.34	0.26	18.76	7.66	0.40	100.09	3.365	0.049	1.174	0.014	0.695	0.016	2.048	0.601	0.057	8.020	74.67
Harte&Caizer, 2007	BZ43, maj	Sao Luiz, Juina	43.33	1.48	15.95	0.15	12.13	0.25	13.92	11.72	0.97	99.9	3.215	0.083	1.395	0.003	0.753	0.016	1.539	0.932	0.140	8.074	67.16
Harte&Caizer, 2007	BZ19, maj	Sao Luiz, Juina	43.72	1.59	16.66	0.12	11.18	0.22	14.29	11.73	0.9	100.58	3.200	0.088	1.437	0.002	0.684	0.014	1.559	0.920	0.128	8.041	69.49
Harte&Caizer, 2007	BZ19, bulk	Sao Luiz, Juina	45.03	1.49	14.91	0.12	10.4	0.2	13.99	12.19	1.49	100	3.316	0.083	1.295	0.002	0.641	0.012	1.536	0.962	0.213	8.059	70.56
Harte&Caizer, 2007	BZ43, bulk	Sao Luiz, Juina	45.98	1.42	14.21	0.13	10.99	0.21	13.59	11.29	2.16	100	3.383	0.079	1.233	0.003	0.676	0.013	1.490	0.890	0.308	8.075	68.78

Peridotitic

Wang et al. 2000	S02	China, Shengli 1	41.43	0.04	11.18	15.35	6.85	0.5	20.69	4.52	0.03	100.63	3.055	0.002	0.972	0.895	0.422	0.031	2.273	0.357	0.004	8.012	84.33
Wang et al. 2000	S04-2	China, Shengli 1	41.8	0.07	15.74	9.49	6.7	0.42	19.58	5.49	0	99.29	3.062	0.004	1.359	0.550	0.410	0.026	2.138	0.431	0.000	7.980	83.89
Wang et al. 2000	S04-3	China, Shengli 1	42.16	0.07	15.34	10.3	7.1	0.49	19.97	5.42	0	100.85	3.053	0.004	1.310	0.590	0.430	0.030	2.155	0.421	0.000	7.993	83.37
Wang et al. 2000	S5(1)	China, Shengli 1	41.69	0.19	13.75	11.88	7	0.44	20.26	4.78	0.02	100.02	3.057	0.010	1.189	0.689	0.429	0.027	2.214	0.376	0.003	7.995	83.76
Wang et al. 2000	S06-1	China, Shengli 1	42.09	0.08	17.48	7.82	6.15	0.39	19.2	6.65	0.04	99.92	3.047	0.004	1.492	0.448	0.372	0.024	2.072	0.516	0.006	7.981	84.76
Wang et al. 2000	S10(1)	China, Shengli 1	42.33	0.05	13.85	12.27	5.08	0.29	24.26	1.7	0.02	99.88	3.055	0.003	1.178	0.700	0.307	0.018	2.609	0.131	0.003	8.004	89.48
Wang et al. 2000	S24(1)	China, Shengli 1	42.7	0	15.92	9.57	5.91	0.31	24.04	1.73	0	100.2	3.054	0.000	1.342	0.541	0.353	0.019	2.562	0.133	0.000	8.004	87.88
Wang et al. 2000	S30(2)-1	China, Shengli 1	42.26	0.04	15.19	8.92	5.81	0.28	22.73	3.35	0.03	98.64	3.081	0.002	1.305	0.514	0.354	0.017	2.469	0.262	0.004	8.009	87.46
Wang et al. 2000	Xiyu-1	China, Shengli 1	41.71	0.01	11.67	14.13	6.45	0.39	21.99	3.23	0	99.57	3.075	0.001	1.014	0.824	0.398	0.024	2.416	0.255	0.000	8.006	85.87
Wang et al. 2000	L08	China, pipe No 50	42.44	0.02	14.76	11.3	5.83	0.33	22.75	2.35	0.01	99.8	3.068	0.001	1.258	0.646	0.352	0.020	2.451	0.182	0.001	7.980	87.43
Wang et al. 2000	L09	China, pipe No 50	42.95	0	18.82	5.96	5.63	0.27	23.94	1.66	0	99.23	3.056	0.000	1.579	0.335	0.335	0.016	2.539	0.127	0.000	7.987	88.34
Wang et al. 2000	L10	China, pipe No 50	42.42	0.03	17.69	6.73	6.37	0.33	20.37	5.77	0.01	99.77	3.061	0.002	1.505	0.384	0.384	0.020	2.190	0.446	0.001	7.994	85.07
Wang et al. 2000	L16	China, pipe No 50	41.69	0.02	13.33	12.85	6.63	0.4	19.43	5.39	0.03	99.79	3.072	0.001	1.158	0.749	0.409	0.025	2.134	0.426	0.004	7.976	83.93
Stachel&Harris, 1997	G303-305	Akwatia, Ghana	40.80	0.02	7.00	20.56	6.73	0.29	22.70	1.57	0.11	99.78	3.062	0.001	0.619	1.220	0.422	0.018	2.539	0.126	0.016	8.025	85.74
Stachel&Harris, 1997	G204-206	Akwatia, Ghana	41.93	0.61	19.52	1.90	11.80	0.27	19.50	3.91	0.00	99.44	3.051	0.033	1.675	0.109	0.718	0.017	2.115	0.305	0.000	8.023	74.65
Tsai et al., 1979	#2	Premier	42.60	0.07	15.20	9.59	5.34	0.00	23.00	3.85	0.09	99.74	3.070	0.004	1.291	0.546	0.322	0.000	2.470	0.297	0.013	8.014	88.47
Tsai et al., 1979	#7	Premier	43.10	0.30	17.20	6.53	5.81	0.00	21.80	5.30	0.08	100.12	3.080	0.016	1.449	0.369	0.347	0.000	2.322	0.406	0.011	8.000	86.99
Meyer&Mahin, 1986	#2/13	Arkhangelsk	43.20	0.02	20.40	3.00	5.80	0.23	24.10	2.94	0.05	99.74	3.045	0.001	1.695	0.167	0.342	0.014	2.532	0.222	0.007	8.026	88.10
Meyer&Mahin, 1986	#10	Droujba	44.00	0.34	21.30	0.83	7.62	0.38	21.30	4.12	0.12	100.01	3.103	0.018	1.771	0.046	0.449	0.023	2.239	0.311	0.016	7.978	83.28
Moore&Gurney, 1989	A3-01	Monastery	43.77	0.51	16.19	5.34	7.23	0.27	22.86	3.66	0.07	99.90	3.134	0.027	1.367	0.302	0.433	0.016	2.439	0.281	0.010	8.009	84.93
*Moore&Gurney, 1989	A1-15	Monastery	46.30	1.05	13.60	1.20	9.07	0.23	23.60	5.16	0.14	100.35	3.302	0.056	1.143	0.068	0.541	0.014	2.508	0.394	0.019	8.046	82.26
*Moore&Gurney, 1985	P-50	Premier	44.00	0.07	19.23	2.75	5.63	0.21	24.90	1.90	0.00	98.69	3.117	0.004	1.606	0.154	0.334	0.013	2.629	0.144	0.000	7.999	88.74
Tsai et al., 1979	W2-1	Jagersfontein	40.30	0.59	17.50	1.93	15.50	0.00	16.80	5.42	0.00	98.04	3.050	0.034	1.562	0.116	0.981	0.000	1.895	0.440	0.000	8.077	65.89
Sobolev et al., 1997	Po-99	Arkhangelsk	44.90	0.71	16.60	1.23	8.65	0.21	23.50	3.77	0.25	99.82	3.200	0.038	1.395	0.069	0.516	0.013	2.496	0.288	0.035	8.048	82.88
Pokhilenko et al., 2004	Sl3-31	Slave	42.20	0.19	12.30	11.80	6.52	0.32	21.10	4.68	0.03	99.10	3.114	0.011	1.070	0.688	0.402	0.020	2.320	0.370	0.004	7.999	85.22
Pokhilenko et al., 2004	Sl3-30	Slave	42.30	0.06	9.46	12.80	7.64	0.33	21.20	5.11	0.01	99.00	3.166	0.003	0.835	0.757	0.478	0.021	2.364	0.410	0.001	8.036	83.18

* data from Collerson et al., 2010
** data from Stachel, 2001

[1] - For this table only inclusions with Si cations ≈3.05 and higher were used. The compositions were taken from all the published papers known to the authors.

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