

Table . Analysed natural minerals used for instrument performance checks.

Mineral	Olivines		Pyroxenes			Amphiboles				Biotites		Feldspars		Ilmenite	Spinel	Glasses				
	No.	1	2	3	4	5	6	7	8	9	10	11	12			13	14	15	16	17
Wt. %																				
SiO ₂	40.81	38.95	50.73	53.94	55.36	42.14	39.54	58.92	54.67	38.63	33.09	65.63	64.39				74.60	50.94	76.71	
Al ₂ O ₃			8.73	.66		12.09	10.00		.27	13.08	17.65	20.83	18.58			55.32	10.53	12.49	12.06	
TiO ₂			.74	.26	.01	.94	2.88		.03	1.55	1.30			45.70			.18	4.06	.12	
ZFeO	9.55	16.62	6.34	2.93	.09	19.05	26.15	.80	27.82	11.00	31.40	.03	.03	46.54	1.97		3.45	13.30	1.23	
Fe ₂ O ₃			1.08	1.13		6.19	5.15		.73	2.50	2.42			11.60			1.55	1.87	.48	
FeO			5.37	1.91		13.48	21.52		27.16	8.75	29.22			36.10			2.05	11.62	.80	
MnO	.14	.30	.13	.07	<.01	.63	.41	.03	.80	.14	.04			4.77	.34		.06	.15	.03	
MgO	49.42	43.58	16.65	16.93	18.77	8.67	4.38	24.36	13.66	19.94	2.83			.31			.01	5.08	<.10	
CaO	<.05		15.82	24.55	25.70	11.56	10.79	13.38	.99	.18	.10	1.93					.15	9.30	.50	
Na ₂ O			1.27	.24	.02	1.63	2.02	.12	.05	.26	.13	9.06	1.14				5.68	2.66	3.75	
K ₂ O						.91	1.47	.02	.06	10.00	9.04	2.39	14.92				4.39	0.82	4.89	
Cr ₂ O ₃		.02		.21						.23										
NiO		.37																		
Nb ₂ O ₅														.92						
SrO																				
ZnO																	42.50			
BaO							.05			.45	.09		.82							
P ₂ O ₅																		.01	.38	<.01
F							.27		.07	.30	.23							.64		
Cl							.18				1.11							.37		
H ₂ O+		<.05	.04			1.66	1.21	2.19	1.27	3.52	2.92	.06					<.10	.02	.12	
H ₂ O-										.30	.04									
-O=F,Cl							.16		.03	.13	.34							.35		
Total	99.97	99.89	100.56*	99.90	99.96	99.90	99.71	99.82	99.73	99.70	99.87	99.93	99.92	99.40	100.13	99.97	99.39	99.57		

- Olivine (Fd₉₀), San Carlos, Gila Co. (USNM 111312/444) Analyst: E. Jaroswich.
- Olivine (Fd₉₃), Springwater meteorite (USNM 2566) Analyst: J. Norberg.
- Augite, Kakamui, New Zealand. Revised values for Al₂O₃, Fe₂O₃, FeO. Analyst: J. Norberg.
- Pyroxene P.S.U. Px-1. Reference: Goldich et al. Can. J. Earth Sci. 4, 747, 1967.
- Dioptase P.S.U. 63-1827. Analyst: C.O. Ingamells.
- Amphibole, Engels. Analyst: C.O. Ingamells.
- Hornblende P.S.U. 4-190. Analyst: C.O. Ingamells.
- Tremolite. Analyst: C.O. Ingamells.
- Grunerite. Analyst: E.H. Oslund and C.O. Ingamells.
- Biotite P.S.U. 5-110. Analyst: C.O. Ingamells.
- Biotite U.M. R-2208. Analyst: E.H. Oslund.

- Albite, Amelia Ab-1. Analyst: C.O. Ingamells.
- Orthoclase Or-1. Analyst: C.O. Ingamells.
- Ilmenite, Ilmen Mtns., Miask, USSR (USNM 96189). Analyst: D. Mills, J. Nelen, J. Norberg.
- Gahnite, Brazil (USNM 145883). Analyst: J. Nelen.
- Obsidian, comenditic, KNIS, Naivasha, Kenya. Analyst: S.A. Malik and D.A. Bungard.
- Basaltic glass, VG-A99, Makaopuhi, Hawaii (USNM 113498/1). Analyst: J. Norberg.
- Rhyolitic glass, VG-568, Yellowstone Nat. Park (USNM 72854). Analyst: J. Norberg.

*This total is unacceptably high probably due to the revised Al₂O₃ and the MgO values being too high.

ABEITE
WILLASTONITE

59.4
25.1

0-15

0-10
0-06
15-1

99.91
100-00