

Table 1

Physical Parameters of Oxides and Silicates

No.	Mineral and formula	ρ , g/cm ³	M, g/mole	$\nu = \frac{M}{\rho}$, cm ³ / mole	$\bar{M} = \frac{M}{n}$, g	$\bar{\nu} = \frac{M}{\rho n}$, cm ³	v_0 (Å) ³	$l = \frac{1}{v_0}$	b	$K \cdot 10^{-4}$, kg/cm ³	$\Phi = \frac{K}{\rho}$, (km/ sec) ²	$d_1 = \frac{1}{0.1b\omega l}$, (Å) ⁻³	x
1	Zincite ZnO (zincite)	5.67	81.38	14.36	40.68	7.15	17.6	5.7	4.2	14.3	25.2	47.9	0.59
2	Bromellite BeO	3.0	25.0	8.32	12.5	4.16	10.2	9.8	7.2	37 (?)	123	141	1.02
3	Periclase MgO	3.58	40.32	11.25	20.0	5.65	13.8	7.25	5.3	17.4	48	78	0.75
4	Wüstite FeO (ferroxite)	5.74	71.85	12.5	35.8	6.3	14.8	6.7	5.0	15.4	27	67.3	0.70
5	Lime CaO (calcoxite)	3.35	56.08	16.76	28	8.35	20.4	4.9	3.6	11.4	34	35.2	0.51
6	Manganos. MnO	5.37	70.93	13.2	35.4	6.6	16.8	6.1	4.5	14.5	27	55.7	0.64
7	Bunsenite NiO	6.81	74.69	11.0	37.3	5.5	13.5	7.4	5.5	19.8	29.2	82	0.77
8	— CoO	6.44	74.93	11.65	37.4	5.8	14.3	7.0	5.2	19.0	29.6	73	0.73
9	Monteponite CdO	8.24	128.41	15.6	64.2	7.8	19.2	5.2	3.8	10.8	13.1	40	0.54
10	Rutile TiO ₂	4.26	79.9	18.8	26.6	6.25	11.5	8.7	3.2	21.5	50.5	111	0.59
11	Cassiterite SnO ₂	7.0	150.70	21.55	50.3	7.17	13.2	7.6	2.8	19	27	85	0.79
12	Stishovite SiO ₂	4.35	60.09	13.8	20.0	4.6	8.6	11.6	4.3	44	100	200	1.21
13	Pyrolusite MnO ₂	5.21	86.93	16.61	29	5.5	10.2	9.8	3.6	31*	59*	141	1.01
14	Baddeley. ZrO ₂	5.82	123.22	21.15	41.2	7.0	13.0	7.7	2.8	—	—	86	0.81
15	Quartz SiO ₂	2.65	60.09	22.70	20.0	7.55	13.9	7.2	2.65	3.7	14	76	0.75
16	Coesite SiO ₂	3.0	60.09	20.0	20.0	6.67	12.7	7.9	2.9	8.0*	26.7	91	0.82
17	Corundum Al ₂ O ₃	3.98	101.96	25.6	20.4	5.1	10.4	9.6	4.7	25	63	135	1.00
18	Hematite Fe ₂ O ₃	5.27	159.7	30.2	31.9	6.0	12.3	8.1	4.0	20.6	39	97	0.84
19	Ilmenite FeTiO ₃	4.78	151.75	31.71	30.4	6.35	13.0	7.7	3.8	18.5	39	88	0.80
20	Spinel MgAl ₂ O ₄	3.64	141	38.8	20.2	5.55	12.2	8.2	4.6	20	55	100	0.85
21	Gahnit. ZnAl ₂ O ₄	4.59	183.3	40.0	26.2	5.7	12.0	8.3	4.5	20*	43*	100	0.85
22	Hercynite FeAl ₂ O ₄	4.4	173.8	39.4	24.8	5.6	12.5	8.0	4.4	21*	48*	94	0.83
23	Magnetite FeFe ₂ O ₄	5.24	231.55	44.3	33	6.4	13.7	7.3	4.0	18	37	78	0.76
24	Chrom. FeCr ₂ O ₄	5.07	223.87	44.0	31.9	6.3	13.6	7.3	4.1	~20	~40	80	0.77
25	Chrysoberyl BeAl ₂ O ₄	3.69	126.97	34.2	18.1	4.9	10.6	9.4	5.3	27*	73*	133	0.99
26	Spinel-I Mg ₂ SiO ₄	3.53	140.73	40.0	20.1	5.7	12.3	8.1	4.5	15*	41*	97	0.85
27	Spinel-II Mg ₂ SiO ₄	3.87	140.73	36.3	20.1	5.2	11.2*	8.9*	4.94*	27.5*	~71*	118	0.94
28	Spinel-I Fe ₂ SiO ₄	4.85	203.78	42	29.1	6.0	12.9	7.8	4.3	13.5*	28*	90	0.81
29	Spinel-II Fe ₂ SiO ₄	5.37	203.78	37.9	29.1	5.4	11.6*	8.6*	4.7*	25.8*	48*	108	0.90
30	Forsterite Mg ₂ SiO ₄	3.22	140.73	43.67	20.1	6.24	13.4	7.5	4.1	13	40	79	0.78
31	Fayal. Fe ₂ SiO ₄	4.39	203.78	46.4	29.1	6.57	14.2	7.0	3.9	11	25	72	0.73
32	Monticellite CaMgSiO ₄	3.05	156.49	51.37	22.3	7.32	15.8	6.3	3.5	—	—	59	0.66
33	Phenak. Be ₂ SiO ₄	2.96	110.16	37.2	15.8	5.32	11.5	8.7	4.9	21*	71*	114	0.91
34	Zircon ZrSiO ₄	4.68	183.31	39.27	30.6	6.54	12.0	8.3	3.1	20	43	103	0.87
35	Sphene CaSiTiO ₅	3.52	196.07	55.70	24.5	6.95	13.6	7.3	3.2	—	—	77	0.76