

Densities of Typical Rock Types and Minerals

Rock Type	Range (g/cm ³)	Average (g/cm ³)	Mineral	Range (g/cm ³)	Average (g/cm ³)
Sediments(wet)			Metallic Minerals		
Overburden		1.92	Oxides, Carbonates		
Soil	1.2 – 2.4	1.92	Bauxite	2.3 – 2.55	2.45
Clay	1.63 – 2.6	2.21	Limonite	3.5 – 4.0	3.78
Gravel	1.70 – 2.40	2.0	Siderite	3.7 – 3.9	3.83
Sand	1.70 – 2.30	2.0	Rutile	4.18 – 4.3	4.25
Sandstone	1.61 – 2.76	2.35	Manganite	4.2 – 4.4	4.32
Shale	1.77 – 3.20	2.40	Chromite	4.3 – 4.6	4.36
Limestone	1.93 – 2.90	2.55	Ilmenite	4.3 – 5.0	4.67
Dolomite	2.28 – 2.90	2.70	Pyrolusite	4.7 – 5.0	4.82
Sedimentary rocks	(av.)	2.50	Magnetite	4.9 – 5.2	5.12
			Franklinite	5.0 – 5.22	5.12
			Hematite	4.9 – 5.3	5.18
			Cuprite	5.7 – 6.15	5.92
			Cassiterite	6.8 – 7.1	6.92
			Wolframite	7.1 – 7.5	7.32
			Granodiorite	2.67 – 2.79	2.73
Rock Type	Range (g/cm ³)	Average (g/cm ³)			
Igneous Rocks					
Rhyolite	2.35 – 2.70	2.52			
Andesite	2.40 – 2.80	2.61			
Granite	2.50 – 2.81	2.64			
Porphyry	2.60 – 2.89	2.74			
Quartzdiorite	2.62 – 2.96	2.79			
Diorite	2.72 – 2.99	2.85			
Lavas	2.80 – 3.00	2.90			
Diabase	2.50 – 3.20	2.91			
Basalt	2.70 – 3.30	2.99			
Gabbro	2.70 – 3.50	3.03			
Peridotite	2.78 – 3.37	3.15			
Acid igneous	2.30 – 3.11	2.61			
Basic igneous	2.09 – 3.17	2.79			

Rock Type	Range (g/cm ³)	Average (g/cm ³)
Metamorphic Rocks		
Quartzite	2.50 – 2.70	2.60
Schists	2.39 – 2.90	2.64
Graywacke	2.60 – 2.70	2.65
Marble	2.60 – 2.90	2.75
Serpentine	2.40 – 3.10	2.78
Slate	2.70 – 2.90	2.79
Gneiss	2.59 – 3.00	2.80
Amphibolite	2.90 – 3.04	2.96
Eclogite	3.20 – 3.54	3.37
Metamorphic	2.40 – 3.10	2.74

Mineral	Range (g/cm ³)	Average (g/cm ³)
Sulfides, Arsenides		
Sphalerite	3.5 – 4.0	3.75
Malachite	3.9 – 4.03	4.0
Chalcopyrite	4.1 – 4.3	4.2
Stannite	4.3 – 4.52	4.4
Stibnite	4.5 – 4.6	4.6
Pyrrhotite	4.5 – 4.8	4.65
Molybdenite	4.4 – 4.8	4.7
Marcasite	4.7 – 4.9	4.85
Pyrite	4.9 – 5.2	5.0
Bornite	4.9 – 5.4	5.1
Chalcocite	5.5 – 5.8	5.65
Cobaltite	5.8 – 6.3	6.1
Arsenopyrite	5.9 – 6.2	6.1
Bismuththinite	6.5 – 6.7	6.57
Galena	7.4 – 7.6	7.5
Cinnabar	8.0 – 8.2	8.1

Mineral	Range (g/cm³)	Average (g/cm³)
Non – metallic Minerals		
Petroleum	0.6 – 0.9	
Ice	0.88 – 0.92	
SeaWater	1.01 – 1.05	
Lignite	1.1 – 1.25	1.19
Softcoal	1.2 – 1.5	1.32
Anthracite	1.34 – 1.8	1.50
Chalk	1.53 – 2.6	2.01
Graphite	1.9 – 2.3	2.15
Rocksalt	2.1 – 2.6	2.22
Gypsum	2.2 – 2.6	2.35
Kaolinite	2.2 – 2.63	2.53
Orthoclase	2.5 – 2.6	
Quartz	2.5 – 2.7	2.65
Calcite	2.6 – 2.7	
Anhydrite	2.29 – 3.0	2.93
Biotite	2.7 – 3.2	2.92
Magnesite	2.9 – 3.12	3.03
Fluorite	3.01 – 3.25	3.14