

Densities and Melting Temperatures of Selected Materials

Note: densities and temperatures can be obtained from any edition of the CRC Handbook of Chemistry and Physics for inorganic compounds; such books can be found in Science Hall on a bookshelf near a Science computer lab, room 284. If you have access, you can look up these features on line. Page numbers are included in braces []. Fill in the blanks below using information on those pages then answer the three questions that follow the table. These answers are to be turned in at the beginning of the period, January 11.

Density refers to how many more times dense an object is with respect to water.

As an example of how to use a CRC book (I randomly chose the 64th edition), look up hematite. Hematite is an iron oxide. Look up **Iron** found on pages B-99 to B-102. Find **oxide** then find the correct oxide (hematite) on page B-101 in row i158. Read across the row until you reach the 6th column (density). Find the density (5.24 gm/cm³). Go to the next column and find the melting point. Now do the same for magnetite. Magnetite just so happens to be on the same page since it is a different kind of iron oxide. Accessing the information through the internet is acceptable but make sure that information comes from a reliable source.

No, you don't have to memorize the chemical formulas, densities, or melting points of the various minerals below. Just **answer the questions on the next page** and realize the general relationships. Those questions along with this page are **to be turned in** for credit (Jan. 11).

Material	Density (gm/cm ³)	Melting Point (°C)
Chromite (Cr ₂ O ₃); chromite ore	5.09	2435
Quartz (SiO ₂); makes glass	2.65	1610
Magnetite (Fe ₃ O ₄); iron oxide ore		
Hematite (Fe ₂ O ₃); iron oxide ore	5.24	
Cassiterite (SnO ₂); tin ore	6.95	1630
Gold (Au ⁰)		1063
Platinum (Pt ⁰)		
Pyrite (FeS ₂); fool's gold	5.0	1171
Silver (Ag ⁰)	10.5	961
Argentite (Ag ₂ S); silver ore	7.32	825
Chalcocite (Cu ₂ S); copper sulfide ore		
Malachite (CuCO ₃ Cu(OH) ₂); copper carbonate ore	4.0	1085
Azurite (CuCO ₃ Cu(OH) ₂); copper carbonate ore		1085
Cerussite (PbCO ₃); lead carbonate ore used in glazes	6.6	315
Galena (PbS); lead sulfide ore	7.5	1115
Lead (Pb ⁰)	11.3	328