

CHEM 1094-DENSITY

1. Mercury is a dense material by any standard, particularly as a liquid. 150.0 mL of mercury has a mass of 2.04×10^3 g. Calculate the density of mercury. **(13.6 g/mL)**
2. The density of a sodium hydroxide solution is 1.1589 g/mL. What is the mass of 2.000 L of this solution? **(2318 g)**
3. The density of carbon tetrachloride is 1.595 g/mL. How many mL of carbon tetrachloride are needed if 500.0 g of it are required? **(313.5 mL)**
4. The density of benzene is 0.879 g/mL. How many grams of benzene are needed to fill a 25 mL graduated cylinder? **(22.0 g)**
5. The density of battery acid solution is 1.540 g/mL. How much does 969 mL of it weigh. **(1492 g)**
6. A glass bulb with a stopcock has a mass of 54.9762 g when evacuated, and 54.9845 g when filled with a gas. The bulb will hold 50.0 g of water ($d=1.00$ g/mL). Calculate the density of the gas. **(1.66×10^{-4} g/mL)**
7. A piece of aluminum has a mass of 40.3 g and occupies a volume of 14.93 cm^3 . Calculate the density of aluminum. **(2.70 g/cm³)**
8. Among natural minerals, gold is one of the most dense at 19.3 g/cm³. Find the volume of 68.3 g of gold. **(3.54 cm³)**
9. Milk is among the heavier items carried home from the grocery store. Find the mass of 4.00 L of milk ($d=1.03$ g/mL). **(4120 g)**
10. A student obtained the following data in order to obtain the density of a sample. Calculate the density of the sample. **(8.4318 g/mL)**
 - a) Mass of empty flask = 24.3251 g
 - b) Mass of flask filled to mark with water = 74.2613 g
 - c) Mass of empty flask and sample = 55.7884 g
 - d) Mass of flask and sample and water filled to mark = 101.9931 g

