

Chem 121
Fall 2006

Extra Practice Problems Dealing with Moles, Grams, Stoichiometry

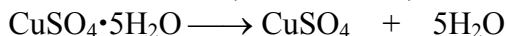
This is not meant to be a tutorial, just some extra practice problems. Return to my homepage for access to the answers posted. If you are not getting the right answers (including correct number of sig. fig.) you need to get help, by coming to see me or a tutor.

1. How many H atoms are in 78.9 g of C_6H_{14} ?
2. How many anions are in 375 mg of $CaCl_2$?
3. How many ions are in 375 mg of $CaCl_2$?
4. How many moles of cations are in 375 mg of $CaCl_2$?
5. How many grams are in 583 molecules of CO_2 ?
6. Fermentation is a complex chemical process of wine making in which glucose is converted into ethanol and carbon dioxide:



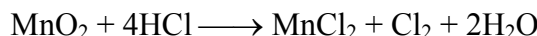
Starting with 500.4 g of glucose, what is the theoretical yield of ethanol?

7. When $CuSO_4 \cdot 5H_2O$ (which is blue) is heated, it loses its water molecules and becomes white:



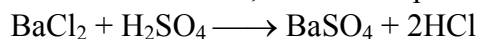
If 9.60 g of $CuSO_4$ are left after heating 15.01 g of the blue compound, calculate the number of moles of water originally present in the compound.

8. Consider the reaction

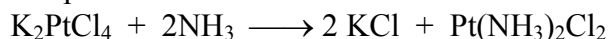


If 0.86 mole of MnO_2 and 48.2 g of HCl react, which reagent will be used up first? How many g of Cl_2 will be produced?

9. How many grams of each product would you expect from the following reaction, and how many grams of which reactant is left over if we start with 2.65 g of barium chloride and 6.78 g of H_2SO_4 . If 1.25 g of $BaSO_4$ is obtained, what is the percent yield?



10. Cisplatin [$Pt(NH_3)_2Cl_2$], a compound used in cancer treatment, is prepared by reaction of ammonia with potassium tetrachloroplatinate:



How many g of cisplatin are formed from 55.8 g of K_2PtCl_4 and 35.6 g of NH_3 if the reaction takes place in 95% yield.