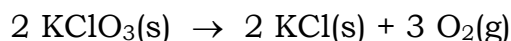
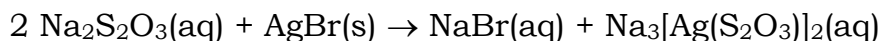


STOICHIOMETRY

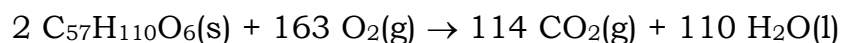
1. Oxygen is prepared by heating KClO_3 :



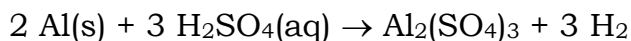
- a) How many grams of O_2 are obtained from 3.00 g KClO_3 ?
- b) How many grams of KCl are obtained if 6.00 g of O_2 are formed?
- c) How many grams of KClO_3 are needed to prepare 16.0 g O_2 ?
2. Sodium thiosulfate, photographer's hypo, reacts with unexposed silver bromide in the emulsion to form sodium bromide and a soluble compound of formula $\text{Na}_3[\text{Ag}(\text{S}_2\text{O}_3)_2]$.



- a) How many grams of $\text{Na}_2\text{S}_2\text{O}_3$ are needed to dissolve 1.0 mg of AgBr ?
- b) Calculate the mass of AgBr that will produce 1.00 g of $\text{Na}_3[(\text{S}_2\text{O}_3)_2]$?
3. The camel stores the fat tristearin, $\text{C}_{57}\text{H}_{110}\text{O}_6$, in its hump. As well as being a source of energy, the fat is also a source of water because, when its used, the following reaction takes place.

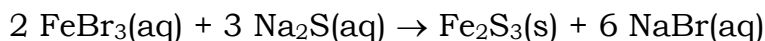


- a) What mass of water is available from 2.5 kg of this fat?
- b) What mass of O_2 is needed to react with 2.5 g of this fat?
4. Commercial sulfuric acid has, a density of 1.45 g/mL and is 55.1% H_2SO_4 by mass, is used for the production of H_2 by the reaction:

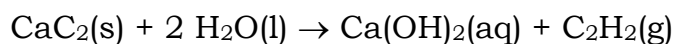


What mass and volume of this commercial acid are needed for the production of 50.0 g of H_2 ?

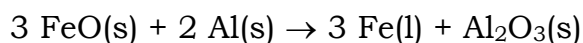
5. If 3.50 g of FeBr_3 and 6.4 g of Na_2S are combined in a solution, how many grams of Fe_2S_3 can be made by the following reaction?



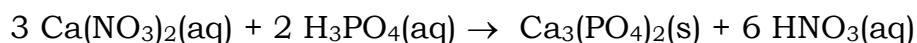
6. Calcium carbide, CaC_2 , reacts with water to form calcium hydroxide and flammable gas acetylene, C_2H_2 . The reaction is:



- a) Which is the limiting reactant when 100.0 g of water reacts with 100.0 g of calcium carbide?
- b) What mass of acetylene can be produced?
- c) What mass of reactant remains after reaction is complete?
7. A mixture of 7.45 g of iron(II) oxide and 3.00 g of Al are heated and the reaction takes place:



- a) Which is the limiting reactant?
- b) Calculate the maximum amount of iron that can be produced.
- c) Calculate the mass of excess reactant remaining.
8. When aqueous solution of $\text{Ca}(\text{NO}_3)_2$ and H_3PO_4 are mixed the reaction is



How many grams of the solid can be formed from 206 g of calcium nitrate and 150 g of phosphoric acid?