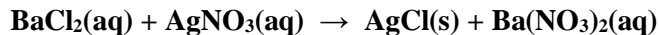


ANSWERS TO "TRY YOURSELF" PROBLEMS FROM STUDY SECTIONS 4.1 TO 4.3

Try Yourself 4.1

Consider the following unbalanced equation.



1. Write the balanced equation
2. What mass of AgNO_3 , in grams, is required for complete reaction with 0.156 g of BaCl_2 ?
3. What mass of AgCl in grams, is produced?

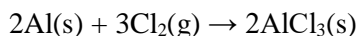
Try Yourself 4.2 a

TiCl_4 is an important industrial chemical that can be prepared from TiO_2 during a reaction with carbon and chlorine gas. In the preparation of TiCl_4 equal amounts of chlorine gas and carbon (125 g each) and an excess of TiO_2 was used.

1. Identify the limiting reagent.
2. What is the mass TiCl_4 that can be formed?

Try Yourself 4.2 b

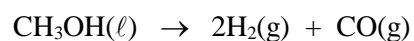
Aluminium chloride, AlCl_3 , is an inexpensive reagent used in many industrial processes. It is made by treating scrap aluminium with chlorine according to the following balanced equation:



- a) Which reactant is limiting if 2.70 g of Al and 4.05 g of Cl_2 are mixed?
- b) What mass of AlCl_3 can be produced?
- c) What mass of the excess reagent remains when the reaction is completed?

Try Yourself 4.3a

Methanol can decompose to hydrogen gas that can be used as a fuel.



- (a) If 125 g methanol decomposes, what is the theoretical yield of hydrogen?
- (b) If only 13.6 g hydrogen is obtained, what is the percentage yield of the gas?

Try Yourself 4.3b

If 454 g of NH_4NO_3 decomposes, theoretically 204 g of H_2O should be formed. Determine the theoretical yield of N_2O . Calculate the percent yield of N_2O if 131 g is the actual yield.