CHEMISTRY MATTERS
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Unit 6E Practice Problems VII
Percent Yield Calculations

Name:

Date:

1. Titanium (IV) oxide, TiO_2, is used in paints. It is formed according to the following BALANCED reaction.

$$TiCl_4 \ (s) + O_2 \ (g) \rightarrow TiO_2 \ (s) + 2 \ Cl_2 \ (g)$$

    a. How many grams of oxygen are needed to react with 4.6 grams of titanium(IV) chloride?

    b. What is the percent yield of titanium (IV) oxide, if 9.6 g are formed when 25.7 g of titanium (IV) chloride react?

2. Phosphoric acid, H_3PO_4, is produced by reacting P_4O_{10} with water according to the following BALANCED equation.

$$P_4O_{10} \ (g) + 6 \ H_2O \ (l) \rightarrow 4 \ H_3PO_4 \ (aq)$$
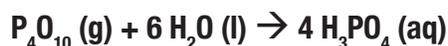
    a. What mass of phosphoric acid will be produced if 12 grams of water react?

    b. What is the percent yield of phosphoric acid if the theoretical yield is 50.0g and the actual yield is 47.6 g?