

Stoichiometry 2

Name: _____

Directions: Write the balanced equation for each reaction and show all steps in your solution. Remember to include units in your work.

1. Tin (II) fluoride and hydrogen can be produced by the reaction of metallic tin with hydrogen fluoride gas.

Equation:

a) How many grams of tin (II) fluoride can be produced by the reaction of 128 g of hydrogen fluoride with an excess amount of tin?

b) How many grams of hydrogen gas would be produced by the reaction?

2) Limestone (CaCO_3) can be decomposed into carbon dioxide and calcium oxide.

Equation:

a) How many liters of carbon dioxide can be produced, at STP, from 300 g of limestone?

b) If 78.3 L of carbon dioxide is produced from a sample of limestone, how much calcium oxide was produced?

3) The mixture of sodium bicarbonate and sulfuric acid (H_2SO_4) yields sodium sulfate, water and carbon dioxide.

Equation:

a) How many molecules of sodium bicarbonate are needed to react with 3.56 g of sulfuric acid?

b) What volume of carbon dioxide gas is produced by 3.02×10^{26} molecules of sulfuric acid?

4. a) How many grams of oxygen are required to completely burn 9.88 grams of pentane (C_5H_{12})?

Equation:

b) How many liters of carbon dioxide are produced by this combustion?

Answers:

1a) 502.4 g tin (II) fluoride

2b) 196 g calcium oxide

3a) 4.37×10^{22} molecules sodium bicarbonate

4b) 15.3 L carbon dioxide