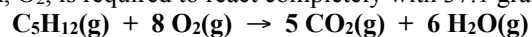


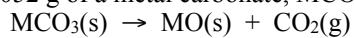
Be sure to show all work, use the correct number of significant figures, circle final answers and use correct units in all problems.

1. What mass of oxygen, O_2 , is required to react completely with 37.1 grams of pentane, C_5H_{12} ? (6 points)



2. The reaction of 20.0 g H_2 with 30.0 g O_2 yields 12.4 g H_2O . What is the limiting reactant? What is the theoretical yield in grams? What is the percent yield of this reaction? (8 points) $2 \text{H}_{2(\text{g})} + \text{O}_{2(\text{g})} \rightarrow 2 \text{H}_2\text{O}(\text{g})$

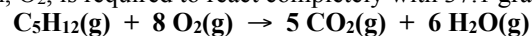
3. A mass of 2.052 g of a metal carbonate, MCO_3 , is heated to give the metal oxide and 0.4576 g CO_2 .



What is the identity of the metal? (6 points)

Answers

1. What mass of oxygen, O_2 , is required to react completely with 37.1 grams of pentane, C_5H_{12} ? (6 points)



132 g O_2

2. The reaction of 20.0 g H_2 with 30.0 g O_2 yields 12.4 g H_2O . What is the limiting reactant? What is the theoretical yield in grams? What is the percent yield of this reaction? (8 points) $2 H_{2(g)} + O_{2(g)} \rightarrow 2 H_2O_{(g)}$

LR = O_2

TY = 33.8 g

% yield = 36.7%

3. A mass of 2.052 g of a metal carbonate, MCO_3 , is heated to give the metal oxide and 0.4576 g CO_2 .



What is the identity of the metal? (6 points)

M = Barium