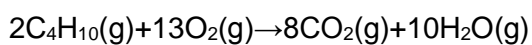


Answer on Question #55671 – Chemistry - General chemistry

Question:

The gaseous hydrocarbon butane, C_4H_{10} , burns according to the following equation:



How many grams of CO_2 are produced from the complete reaction of 55.6 g of C_4H_{10} ?

Express your answer with the appropriate units.

Solution:

$$v = \frac{m}{M} \quad m = Mv$$

$$v(CO_2) = \frac{8 \cdot v(C_4H_{10})}{2}$$

$$M(C_4H_{10}) = 58 \text{ g/mol}$$

$$M(CO_2) = 44.0 \text{ g/mol}$$

$$v(C_4H_{10}) = 55.6/58.1 = 0.96 \text{ mol}$$

$$v(CO_2) = 8 \cdot 0.96 / 2 = 3.84 \text{ mol}$$

$$m(CO_2) = 44 \cdot 3.84 = 168.96 \text{ g}$$

Answer:

$$m(CO_2) = \mathbf{168.96 \text{ g}}$$