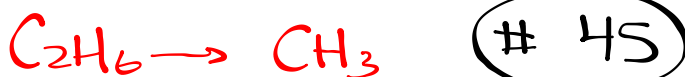


Warm Up

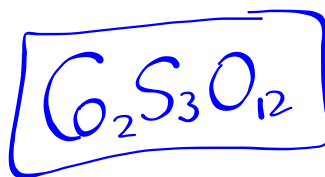
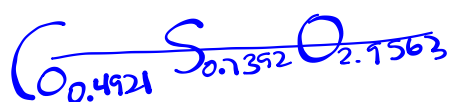


A compound is composed of 29.0% Co, 23.7% S and 47.3% O. The molecular molar mass of the compound is 406.04 g/mol. Determine the empirical and molecular formula.

$$29.0 \text{ g Co} \times \frac{1 \text{ mol Co}}{58.93 \text{ g Co}} = \frac{0.4921 \text{ mol Co}}{0.4921 \text{ mol}} = 1 \times 2 = 2$$

$$23.7 \text{ g S} \times \frac{1 \text{ mol S}}{32.06 \text{ g S}} = \frac{0.7392 \text{ mol S}}{0.4921 \text{ mol}} = 1.5 \times 2 = 3$$

$$47.3 \text{ g O} \times \frac{1 \text{ mol O}}{16.00 \text{ g O}} = \frac{2.9563 \text{ mol O}}{0.4921 \text{ mol}} = 6 \times 2 = 12$$

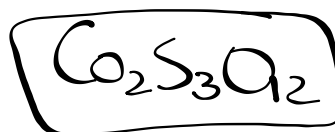


EMPIRICAL



406.04 g/mol

MOLECULAR



406.04 g/mol



$$\hookrightarrow (2 \times 58.93) + (3 \times 32.06) + (12 \times 16.00) = 406.04 \text{ g/mol}$$

Homework

Worksheet