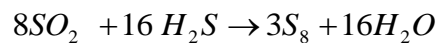


Answer on #63214, Chemistry / General Chemistry

What is the maximum mass of S₈ that can be produced by combining 76.0 g of each reactant?
8SO₂ + 16H₂S → 3S₈ + 16H₂O?

Calculation:



$$v(SO_2) = \frac{m}{8 \cdot Mr(SO_2)} = \frac{76g}{8 \cdot 64} = 0.148 \text{ mol} - \text{excess}$$

$$v(H_2S) = \frac{m}{16 \cdot Mr(H_2S)} = \frac{76g}{16 \cdot 34} = 0.140 \text{ mol} - \text{deficiency}$$

by the use of the deficiency, we calculated the mass of S₈

$$\text{so } m(S_8) = \frac{m(H_2S) \cdot (3 \cdot Mr(S_8))}{16 \cdot Mr(H_2S)} = \frac{76 \cdot 768}{544} = 107.29g$$

Answer: 107.29 g S₈ is produced

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