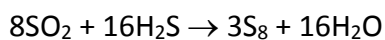


## Answer on Question #81787 – Chemistry – Inorganic Chemistry

What is the maximum mass of S<sub>8</sub> that can be produced by combining 87.0 g of each reactant?

### Solution:



Find the limiting reactant

mass of reactant / molar mass of reactant  $\times$  mole ratio  $\times$  molar mass of product

$$82.0 \text{ g SO}_2 / 48 \text{ g/mol} \times (3 \text{ mol S}_8 / 8 \text{ mol SO}_2) \times 256 \text{ g/mol S}_8 = 164 \text{ g S}_8$$

$$82.0 \text{ g H}_2\text{S} / 34 \text{ g/mol} \times (3 \text{ mol S}_8 / 16 \text{ mol H}_2\text{S}) \times 256 \text{ g/mol S}_8 = 116 \text{ g S}_8$$

H<sub>2</sub>S is the limiting reactant, so you cannot make more than this reactant will produce

$$m(\text{S}_8) = 116 \text{ g}$$

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