

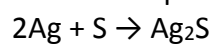
Answer to Question #50963, Chemistry, Physical Chemistry

How many moles of silver (I) sulfide, Ag_2S , are formed when a 269.7 g sample of silver tarnishes in the presence of sulfur?

Please explain how to solve this problem

Solution:

Chemical equation for this process is



It is obvious from the equation that

$$n(\text{Ag}_2\text{S}) = \frac{n(\text{Ag})}{2}$$
$$n(\text{Ag}) = \frac{m(\text{Ag})}{M_r(\text{Ag})} = \frac{269.7 \text{ g}}{107.8682 \text{ g/mol}} = 2.5 \text{ mol}$$

So

$$n(\text{Ag}_2\text{S}) = \frac{2.5 \text{ mol}}{2} = 1.25 \text{ mol}$$

Answer:

1.25 mol

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