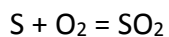


## Answer on the question #41910, Chemistry, Physical Chemistry

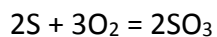
### Question:

When 4.0 g of sulfur are combined with 4.0g of oxygen 8.0 g of sulfur dioxide  $\text{SO}_2$  are formed what mass of oxygen would be required to convert 7.0 g of sulfur into sulfur trioxide  $\text{SO}_3$ ?

### Solution:



$$n(\text{S}) = n(\text{O}_2)$$



$$n(\text{S})/2 = n(\text{O}_2)/3$$

$$n(\text{S}) = m(\text{S})/M(\text{S}) = 7/32 = 0.219 \text{ mol}$$

$$n(\text{O}_2) = n(\text{S}) * 3/2 = 0.328 \text{ mol}$$

$$m(\text{O}_2) = n(\text{O}_2) * M(\text{O}_2) = 0.328 * 32 = 10.5 \text{ g}$$

Answer: 10.5 g  $\text{O}_2$  is required to convert 7.0 g of sulfur into sulfur trioxide.