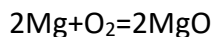


### Answer on the Question #67018, Chemistry / General chemistry



If 10.0 grams of magnesium are allowed to react with 10.0 grams of oxygen. How many grams of product. Magnesium oxide can be produced?

**Solution:**

$$n(\text{Mg}) = \frac{m(\text{Mg})}{M(\text{Mg})} = \frac{10 \text{ g}}{24 \frac{\text{g}}{\text{mol}}} = 0.42 \text{ mole}$$

$$n(\text{O}_2) = \frac{m(\text{O}_2)}{M(\text{O}_2)} = \frac{10 \text{ g}}{16 \frac{\text{g}}{\text{mol}}} = 0.63 \text{ mole}$$

$$n(\text{Mg}) < n(\text{O}_2)$$

The  $\text{O}_2$  is excess component. Calculation of magnesium oxide mass will occur by the mole number of magnesium.

$$n(\text{Mg}) = n(\text{MgO}) = 0.42 \text{ mole}$$

$$m(\text{MgO}) = n(\text{MgO}) \cdot M(\text{MgO}) = 0.42 \text{ mole} \cdot (23 + 16) \frac{\text{g}}{\text{mole}} = 16.4 \text{ g}$$

Magnesium is an alkaline-earth metal and have enough activity to react with oxygen to produce magnesium oxide.

**Answer:** mass of magnesium oxide is 16.4 g