

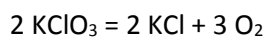
Question #47825 – Chemistry – Other

Question:

If this reaction produced 51.5 g of KCl, how much O₂ was produced (in grams)?

Answer:

The reaction equation is:



The amount of moles of KCl is:

$$n(\text{KCl}) = \frac{m(\text{KCl})}{M(\text{KCl})} = \frac{51.5 \text{ g}}{74.5 \text{ g/mol}} = 0.69 \text{ moles}$$

The amount of moles O₂ produced is:

$$n(\text{O}_2) = \frac{n(\text{KCl}) \times 3}{2} = \frac{0.69 \times 3}{2} = 1.035 \text{ moles}$$

Then the mass of O₂ is:

$$m(\text{O}_2) = n(\text{O}_2) \times M(\text{O}_2) = 1.035 \text{ moles} \times 32 \text{ g/mol} = 33.12 \text{ g}$$