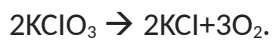


Answer on Question #62560 - Chemistry - Other

Task:

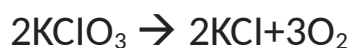
When heated, KClO_3 decomposes into KCl and O_2 :



If this reaction produced 34.6 of KCl , how much O_2 was produced in grams?

Solution:

$$n(\text{KCl}) = \frac{m(\text{KCl})}{M(\text{KCl})} = \frac{34.6 \text{ g}}{74.5 \text{ g/mol}} = 0.4644 \text{ mol};$$



$$\frac{n(\text{KCl})}{2} = \frac{n(\text{O}_2)}{3};$$

$$n(\text{O}_2) = \frac{n(\text{KCl}) \times 3}{2} = \frac{0.4644 \text{ mol} \times 3}{2} = 0.6966 \text{ mol } \text{O}_2;$$

$$m(\text{O}_2) = n(\text{O}_2) \times M(\text{O}_2) = 0.6966 \times 32 = 22.29 \text{ g} \approx 22.3 \text{ g}.$$

$$m(\text{O}_2) \approx 22.3 \text{ g}$$

Answer: $m(\text{O}_2) \approx 22.3 \text{ g}$