Answer on Question#40463-Chemistry-Other

Question

When heated, $KClO_3$ decomposes into KCl and O_2.

$2KClO_3 \rightarrow 2KCl + 3O_2$

If this reaction produced 74.6 g of KCl, how much O_2 was produced (in grams)?

Solution

Based on the chemical equation and molar mass values (M_{KCl} = 74,6 g/mol, M_{O2} = 32.0 g/mol) we may write the proportion:

2 mol · 74.6 g/mol (KCl) – 3 mol · 32.0 g/mol (O_2)

74.6 g (KCl) – X g (O_2)

$X = 3 \cdot 32.0 \cdot 74.6 / 2 \cdot 74.6 = 48.0$ g

Answer: 48.0 g of O_2 was produced.