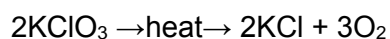


Question #61546, Economics, Other

4.90 g of  $\text{KClO}_3$  on heating shows a weight loss of 0.384 g. What percentage of the original  $\text{KClO}_3$  has decomposed.

**Answer:**



2mol  $\text{KClO}_3$  produce 3 mol  $\text{O}_2$

The 0.384 g mass loss was due to the oxygen generated.

The amount of moles of oxygen generated can be calculated as:

Molar mass  $\text{O}_2 = 32 \text{ g/mol}$

$0.384 \text{ g O}_2 = 0.384/32 = 0.012 \text{ mol O}_2$  generated

This came from the decomposition of  $0.012 \cdot 2/3 = 0.008 \text{ mol}$  of  $\text{KClO}_3$

Molar mass  $\text{KClO}_3 = 122.55 \text{ g/mol}$

$0.008 \text{ mol KClO}_3 = 0.008 \cdot 122.55 = 0.9804 \text{ g KClO}_3$  decomposed

% of original sample:  $0.9804/4.90 \cdot 100 = 20.0\%$