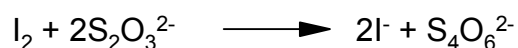
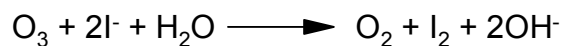


Titration involving Ozone and Iodide

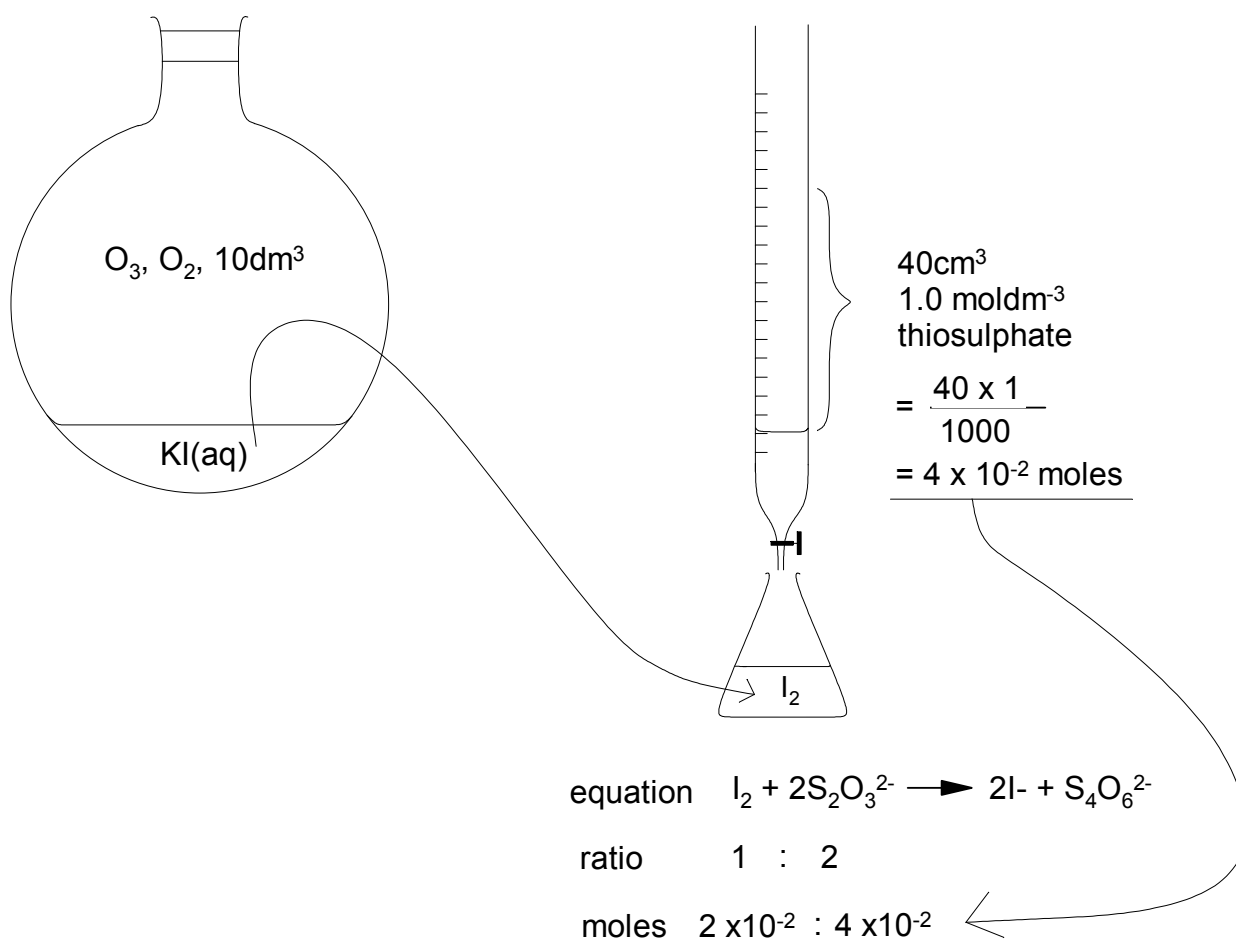
The amount of ozone in ozonised oxygen can be determined by using the ozone to oxidise iodide ions and titrating the liberated iodine in excess potassium iodide with standard sodium thiosulphate solution:



10 dm³ of ozonised oxygen was shaken repeatedly with a solution of potassium iodide. The liberated iodine required 40.0 cm³ of 1.00 mol dm⁻³ sodium thiosulphate solution for reduction.

What was the percentage by volume of ozone in the ozonised oxygen?

[The molar volume of ozone at the temperature and pressure of the experiment is 24 dm³].



moles O₃ is the same as the number of moles of I₂

$$\begin{aligned} \text{vol O}_3 &= \text{moles} \times 24 \text{ dm}^3 \\ &= 2 \times 10^{-2} \times 24 \\ &= 0.48 \text{ dm}^3 \end{aligned}$$

$$\begin{aligned} \% \text{O}_3 &= \frac{0.48}{10} \times 100 \\ &= \underline{\underline{4.8 \%}} \end{aligned}$$