

Titration of Iron(II) with Potassium Permanganate

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www.chemistry.jamesmungall.co.uk

Find the concentration of an iron(II) sulphate solution, given that 25.0cm³ of the solution, when acidified, required 19.8cm³ of 0.0200mol dm⁻³ potassium manganate(VII) for oxidation.

19.8cm³ 0.02M KMnO₄(aq)
= 19.8 x 0.02 / 1000
= 3.96 x 10⁻⁴ moles

Equation	MnO ₄ ⁻ + 5 Fe ²⁺ + 8 H ⁺ → Mn ²⁺ + 5 Fe ³⁺ + 4 H ₂ O
Ratio	1 : 5
Moles	3.96 x 10 ⁻⁴ : 5 x 3.96 x 10 ⁻⁴ = 1.98 x 10 ⁻³

25cm³ Fe(II)SO₄ (aq)
unknown concentration
1.98 x 10⁻³ moles in 25cm³

concentration = moles / volume
= $\frac{1.98 \times 10^{-3}}{(25/1000)}$
= $7.92 \times 10^{-2} \text{ mol dm}^{-3}$