

Manganese by manganate(VII) assay

Teacher and technician worksheet

Equipment and materials

Each student or pair of students will require:

- burette
- 100 cm³ volumetric flask x 7 (or use one, thoroughly washing it between samples)
- colorimeter and suitable filter (green) - a solution of manganate(VII) ions displays maximum absorption at 530 nm
- potassium manganate(VII) solution containing 0.1 g dm⁻³ manganese as manganate(VII) ions (100 ppm) (34 cm³)
- solution of unknown manganese concentration (5 cm³)

Make sure students wear eye protection. Iron(III) chloride solution is an irritant.

Solution preparations

- Standard solution of potassium manganate(VII): Weigh out 0.288 g potassium manganate(VII), KMnO₄ and dissolve in deionised water in a beaker. Transfer to a 1 dm³ volumetric flask and make up to the mark with deionised water.

Determining manganese(II) in solution

Manganate(II) ions are oxidised by iodate(VII) ions to produce a coloured solution of manganate(VII) ions.

