

Synthesis of iron(III) EDTA complex, $\text{Na}[\text{Fe}(\text{EDTA})\cdot 3\text{H}_2\text{O}]$

Teacher and technician sheet

Equipment and materials

Each student or pair of students will require:

- Electronic balance
- 100 cm³ beaker
- 25 cm³ measuring cylinder
- Bunsen burner, tripod and gauze
- Heat resistant mat
- Boiling tube
- Suction filtration apparatus
- Deionised water wash bottle
- Ice bath or a refrigerator
- Watch glass
- Filter funnel
- $\text{Na}_2\text{H}_2\text{EDTA}\cdot 2\text{H}_2\text{O}$ (EDTA may also be used)
- 1 mol dm⁻³ sulfuric acid
- Iron(III) chloride-6-water
- Ethanol

Make sure that students wear eye goggles. Ethanol is flammable. 1 mol dm⁻³ sulfuric acid is an irritant. Iron(III) chloride-6-water is harmful, corrosive and there is a risk of serious damage to eyes. Avoid raising dust from $\text{Na}_2\text{H}_2\text{EDTA}\cdot 2\text{H}_2\text{O}$ as it is a category 4 respiratory toxin and harmful if inhaled..

Further suggestions

Students could

- study the chemical reactions of the complex (See *Comparing chelated and non-chelated micronutrients* student worksheet);
- investigate the effectiveness of the complex as a fertiliser.