

Blood Iron – Teacher's Instructions

For demonstration/class activity



Make Sure You Have...

Iron(III) chloride ($\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$)

Potassium thiocyanate (KSCN)

Water (H_2O)

3 small beakers

1 measuring cylinder

2 microspatulas

What to Do...

1. Scoop a small mound of iron(III) chloride with a **clean** microspatula and place in a **clean** beaker.
2. Scoop a small mound of potassium thiocyanate with a **clean** microspatula and place in a **clean** beaker.

The iron(II) chloride should be rusty brown and the potassium thiocyanate should be white

3. Measure 20 ml of water into the measuring cylinder and pour it into the beaker containing the iron(III) chloride.
4. Repeat (3) for the beaker containing the potassium thiocyanate and stir each solution with a **clean** spatula to dissolve the solids.

The iron(III) chloride solution should be orange/brown and the potassium thiocyanate solution should be clear

5. Pour the two beakers with solution into the empty beaker

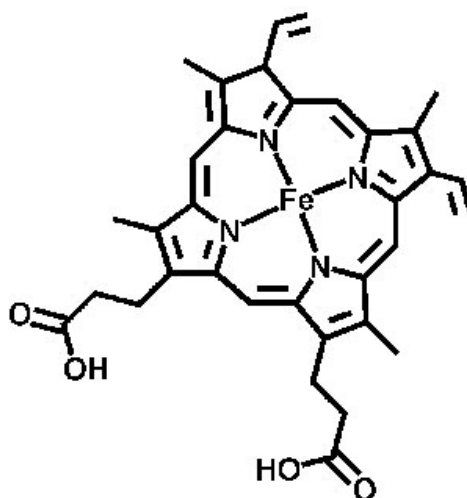


The resulting solution should be a blood red colour.

6. Wash everything up (solutions can go down the sink).

What's Happening?

What you have made is a chemical “imitation” of haemoglobin. The important part of the haemoglobin molecule is an iron(III) ion surrounded by 4 Nitrogen atoms in a square planar conformation.

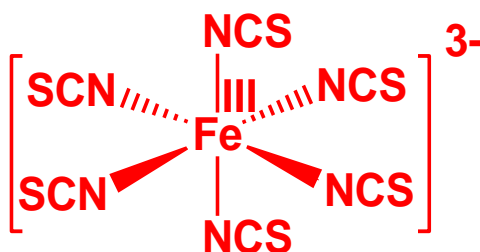


The Haeme Group in Haemoglobin

The compound you have made contains a similar structure.



The iron metal is what gives your blood its distinctive red colour. Some animals have other metals in their blood so it is therefore a different colour. For example, the blood of the Horseshoe Crab contains copper and is blue!



Iron (III) Thiocyanate