

EXPERIMENT NUMBER : 3.

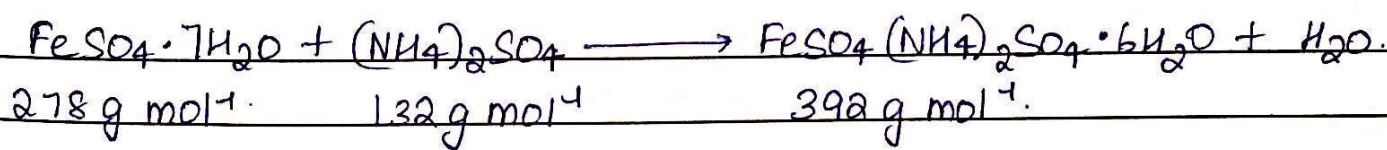
PREPARATION OF FERROUS AMMONIUM SULPHATE HEXAHYDRATE
(MOHR'S SALT).

→ AIM:

To prepare crystals of ferrous ammonium sulphate hexahydrate (Mohr's salt).

→ BASIC PRINCIPAL:

Mohr's salt is prepared by dissolving equimolar amounts of hydrated ferrous sulphate and ammonium sulphate in minimum quantity of water containing little dilute sulphuric acid. The resultant solution is filtered to remove impurities and evaporated till crystallization point is reached. Cooling of this hot saturated solution yields light bluish green crystals which are separated from the mother liquor and dried using filter paper.



→ APPARATUS REQUIRED:

Two 250 ml beakers, china dish, glass rod, funnel, filter papers, funnel stand, wash bottle, wire gauze or sand bath, tripod stand, Bunsen burner.

→ CHEMICALS REQUIRED:

14g Ferrous sulphate, 6.5g ammonium sulphate, 5ml dilute sulphuric acid, 50ml distilled water.

→ PROCEDURE:

1. Take 14 g of ferrous sulphate and 6.5 g of ammonium sulphate in a beaker.
2. Take 50 mL of distilled water in another beaker and warm it gently.
3. Add 5 mL of dilute sulphuric acid slowly to the first beaker containing the salts. Mix contents with a glass rod so that the salts are wetted properly (this is to prevent hydrolysis of ferrous sulphate).
4. Add warm water to the above mixture. Stir the contents to dissolve fully.
5. Filter the solution, taking all necessary precautions. The filtrate obtained must be clear, transparent, and light green. Yellow colour indicates oxidation of ferrous salt to ferric salt.
6. Check the hot solution for crystallization point.
7. Once crystallization point has been reached, remove the china dish from flame and keep it on cold water in a beaker for cooling, cover with filter paper.
8. To get better quality of crystal growth, seeding may be done.
9. Decant the mother liquor and transfer the crystals to a filter paper sheet. Press it.
10. Observe the colour and shape. Weigh the crystals and report yield.

Result: Colour of the crystals: Light green.

Shape of the crystals: Monoclinic.

→ PRECAUTIONS:

1. Use only the green coloured ferrous sulphate. The sample of ferrous sulphate gets oxidised to yellowish ferric sulphate on exposure to air.
2. Remember to add dil. sulphuric acid before adding water to prevent hydrolysis.
3. Use boiled water for dissolving the salts to minimize oxidation of ferrous ions.
4. Prolonged heating should be avoided, as a fused mass will be obtained.
5. Cooling should be done gradually to get good quality crystals of proper size.

20/10/14