Inorganic prepartions Experiment No. 11

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Aim: To prepare a pure sample of Ferrous Ammonium Sulphate (Mohr's salt).

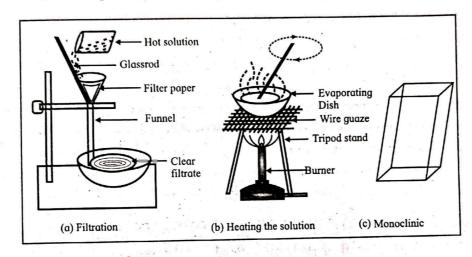
Theory: Mohr's salt is one of the important laboratory reagent and used as a reducing agent. Chemically Mohr's salt is Ferrous Ammonium Sulphate (F.A.S.), an example of 'double salt'. It is prepared by dissolving an equimolar mixture of hydrated ferrous sulphate (FeSO₄.7H₂O) and ammonium sulphate $[(NH_4)_2SO_4]$ in acidified water. Mohr's salt [FeSO₄.(NH₄)₂SO₄.6H₂O] crystallize as faint green coloured solid.

Chemical Equation:
$$FeSO_4.7H_2O + (NH_4)_2SO_4 \longrightarrow FeSO_4.(NH_4)_2SO_4.6H_2O + H_2O$$
(278) (132) (392)

Apparatus: China dish, beakers, funnel, glass rod, tripod stand, wire gauze, pair of tongs etc.

Chemicals: Ammonium sulphate, ferrous sulphate, dilute sulphuric acid, etc.

Diagram:



Procedure:

- 1. Weigh accurately 3.5 g ferrous sulphate and 1.5 g ammonium sulphate and transfer into 100 mL beaker. Add about 2-3 mL of dilute sulphuric acid to prevent hydrolysis of ferrous sulphate.
- 2. In another 100 mL beaker boil about 20 mL of distilled water. Now add the boiling water to the contents of first beaker. Stir with a glass rod until the salts are completely dissolved.
- 3. Filter the hot solution to remove undissolved impurities and transfer the solution (filtrate) to a china dish. Heat the solution to concentrate up to the point of crystallization and cool it naturally to get good yield.
- 4. Filter the crystals to separate the mother liquor.
- 5. Wash the crystals with alcohol and dry it. The shape of Mohr's salt crystals is monoclinic.

Observations and Result:

- 1. Yield of ferrous ammonium sulphate crystals =g
- 2. Colour of ferrous ammonium sulphate crystal is = light. green
- 3. Shape of ferrous ammonium sulphate crystals = octahedral

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	tuon alternatives	an question.
, iat	e answer from given alternatives of each saration of Mohr's salt is	
Select [] the most appropriate	aration of Mohr's salt is b. conc. HCl d. conc. H ₂ SO ₄	
. The wineral acid used in prep	aration of the	
a. dil. HCl	d. conc. H ₂ SO ₄	
11 11 50	(i. co. 2	d. 3.5 g
2. Molar mass of Mohr's salt is b.	7	- J.5 g
		d. cubic
a. 392 g/mol	um sulphate crystal is c. hexagonal	t the process
3. The shape of ferrors	octahedral	i, the process
1. Concentration of filtrate leads	c. hexagonal octahedral c. hexagonal to formation of pure crystals of Mohr's sal	
involved is known as	b. fractional crystallization	
***	d. evaporation	
e purification	d. evaporation blution of F.A.S. is always done slowly b. to get shining crystals	
5. The cooling of concentrated so	olution of F.A.S. is division of F.A.S. is d	
a. to get good colour	b. to get siming orystals	
c. to get good yield	d. to get minimum crystals	
c. to get good y	Short answer questions	
	Short diswer quesa	
	on should not be heated for a long time?	الممدومة
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