

Chemistry Practical Class 12 Preparation of Double Salt of Ferrous Ammonium Sulphate or Potash Alum Viva Questions with Answers

Q1: What is the experiment's aim?

Answer:

Mohr's salt is made by combining ferrous sulphate with ammonium sulphate in the presence of acid to form ferrous ammonium sulphate.

Q2: What is double salt? Give an example.

Answer:

The term "double salt" refers to a mixture of many compounds that primarily comprise two salts in equimolar concentration. A good example of double salt is potash alum.

Q3: What is the oxidation state of Fe in Mohr's salt?

Answer:

Iron has a +2 oxidation state in Mohr's salt.

Q4: What is the difference between double salt and complex salt?

Answer:

Double salt is a simple salt that dissociates in aqueous solutions. A complex salt may or may not be simple in an aqueous solution, but it does not dissociate.

Q5: What will happen when concentrated sulphuric acid is added instead of dilute sulphuric acid?

Answer:

Concentrated sulphuric acid will oxidise Fe^{2+} to Fe^{3+} .

Q6: Give the applications of Mohr's Salt.

Answer:

- Ferrous Ammonium Sulfate is used to make iron blue and in the metal industry as a component of brass colouring baths and iron plating solutions, and as a ferrous sulphate alternative in a variety of applications.
- Iron deficiency can be remedied by spraying iron sulphate, chelated iron, ferrous ammonium sulphate with pesticides or using iron-containing complete analysis fertilisers.
- The most common and usually least priced is ferrous ammonium sulphate, containing 21% iron. The quickest-acting substance is ferrous sulphate; it improves lawn colour in days, but the effect is short-lived.

Q7: What are the precautions to be taken during the experiment?

Answer:

- To get good crystals, cool the solution slowly.
- While the solution is cooling, do not disturb it.
- If you heat the solution too long, ferrous ions will oxidise and become ferric ions.

Q8: Why is ferrous ammonium sulfate a double salt?

Answer:

It is classed as a double salt of ferrous sulphate and ammonium sulphate because it contains two different cations, Fe^{2+} and NH_4^+ . It's a popular laboratory reagent since it crystallises easily and resists air oxidation.

Q9: What is Potash Alum?

Answer:

Potash alum, also known as potassium aluminium sulphate, is a chemical compound most commonly found in the dodecahydrate form. It's a two-salt compound that's commonly utilised in medicine and water purification. Alum potash is a simple salt. $\text{K}_2\text{SO}_4 \cdot \text{Al}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$ is the chemical formula for potash alum.

Q10: What is the shape of crystals of potash alum formed?

Answer:

The crystals of potash alum produced are octahedral in shape.

Q11: What is the action of heat on potash alum?

Answer:

When modestly heated, it dissolves in its water of crystallisation. Sulphuric acid is released when more strongly heated water molecules evaporate, and when exposed to extremely high temperatures, the leftover combination contains alumina and potash sulphate.

Q12: Why is sulphuric acid added during the preparation of potash alum?

Answer:

Potash alum is made with diluted sulfuric acid to prevent the salt from hydrolysing (aluminium sulphate). It aids in the dissolution of aluminium sulphate in warm water.

Q13: Why is ferrous sulphate not used instead of ferrous ammonium sulphate?

Answer:

Iron in Mohr's salt has an oxidation value of +2. During the reaction, iron is oxidised, and its oxidation number changes from +2 to +3. The heating of the ferrous ammonium sulphate solution is not needed for this titration because of reaction rate is very high, even at room temperature.

Q14: What is the chemical name of potash alum?

Answer:

Aluminium sulfate, also known as potassium alum or potash alum, has a molecular formula of $K_2(SO_4) \cdot Al_2(SO_4)_3 \cdot 24H_2O$ or $KAl(SO_4)_2 \cdot 12H_2O$.

Q15: What are the uses of potash alum?

Answer:

It is used to purify contaminated water. It's also used in the dyeing business to stop bleeding from a wound.

Q16: How does potash alum help in the purification of water?

Answer:

When potash alum is added to contaminated water, it causes colloidal contaminants in the water to coagulate. Filtration or decantation might be used to remove the contaminants that have accumulated.

Q17: Why is Mohr's salt preferred?

Answer:

Because of its long shelf life and resistance to oxidation, Mohr's salt is the favoured source of ferrous ions in analytical chemistry. Sulfuric acid is frequently added to ferrous ammonium sulphate solutions to prevent ferric iron from oxidising.

