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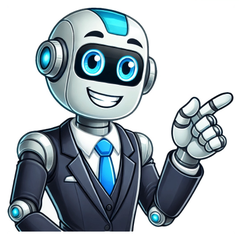

The titration of potassium permanganate (KMnO4) against Mohr's salt (FeSO4.(NH4)2SO4.6H2O) is an example of redox titration. The aim of this experiment is to determine the strength of a given potassium permanganate solution against a standard ferrous ammonium sulfate solution. The theory behind the reaction involves potassium permanganate acting as an oxidizing agent and Mohr's salt acting as a reducing agent in acidic conditions with sulfuric acid present. The chemical reaction between the two results in a redox reaction, where the ferrous ion from Mohr's salt gets oxidized and the manganese ions in potassium permanganate get reduced. To perform this titration, a burette is used to measure the volume of potassium permanganate solution added during the reaction. The experiment involves dissolving 10ml of Mohr's salt with sulfuric acid in a conical flask, and then adding a known volume of potassium permanganate solution from the burette until a specific color change occurs (colourless to permanent pale pink). The procedure requires careful measurement and addition of reagents, as well as accurate weighing and transfer of chemicals. The experiment also involves using a self-indicator (KMnO4) that changes color upon oxidation. Overall, this experiment aims to demonstrate the principle of redox titrations and the use of potassium permanganate as an oxidizing agent in acidic conditions. Point a burette and pipette with distilled water, ensuring that Mohr's salt is fully dissolved. This solution is a 0.05N standard solution of Mohr's salt. (b) Titration of potassium permanganate solution against standard ferrous ammonium sulfate (Mohr's salt) solution: Rinse the burette and pipette with distilled water, then fill them with the corresponding solutions to be measured. Fill the burette with potassium permanganate solution and fix it in a burette stand. Place a white tile below the burette to accurately determine the endpoint. Rinse the pipette and conical flask with standard ferrous sulfate solution. Pipette out 10ml of 0.05N standard Mohr's salt solution into the conical flask. Add sulfuric acid to prevent oxidation of manganese to form manganese dioxide. Record the initial burette reading before starting the titration. Titrate against potassium permanganate solution, swirling the solution in the flask gently. Initially, the purple color of KMnO4 is discharged with ferrous ammonium sulfate. The appearance of a permanent pink color reveals the endpoint. Repeat the titration until concordant values are obtained and record the upper meniscus on the burette readings. Observations: S. No. Volume of ferrous ammonium sulfate (Mohr's salt) used Burette Reading Volume(V) of KMnO4 used V = (y-x)ml Initial(x) Final(y) Calculations: Mohr's salt is identified as (NH4)2Fe(SO4)2•6H2O. A standard solution refers to a mixture where the concentration is precisely known, along with its normality and molarity. There are various types of titration methods: iodometric, permanganate, complexometric, precipitation, acid-base, and redox. Recommended videos on BYJU'S can help students learn more about Class 12 CBSE chemistry practicals. To gauge understanding, a quiz is available to test knowledge by answering multiple-choice questions. Start the quiz to begin!

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