

INORGANIC VOLUMETRIC ANALYSIS

REDOX TITRATIONS

Experiment No:-

Date:-----

Aim:- You are provided with two solutions as follows.

Container A: ----- N Solution of Hydrated Mohr's Salt.

Container B: - KMnO₄ Solution.

Titration of these solutions determine the

1. Normality of the solution in container B.
2. Strength of less /more concentrated solution in container B/C in terms of gms/_____ ml.

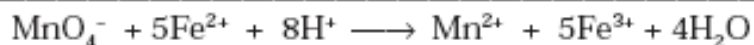
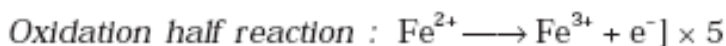
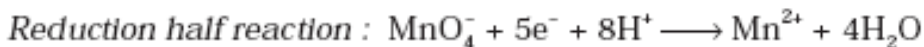
Apparatus & Chemicals Required:-

Burette, Pipette conical flask Burette stand white tile, KMnO₄ Solution , Hydrated Mohr's Salt and Dil. sulphuric acid

Theory:-

This is a Redox titration where Neutralization point is due to Reduction and Oxidation reaction occurring simultaneously. In this titration - KMnO₄ undergoes reduction with change in oxidation number of manganese ion from +7 to +2 and Mohr's Salt undergoes oxidation with change in oxidation number of iron+2(Ferrous) to +3(Ferric) Thus acts as a - KMnO₄ Oxidizing agent and Mohr's Salt acts as reducing agent and at the end point colour change is from colourless to light pink

(b) Ionic equation



Procedure:

1. Rinse the pipette with the given _____ N Mohr's Salt solution and pipette out 10 ml of it in a washed titration flask.
2. Rinse and fill the burette with the given KMnO_4 solution.
3. Add one test-tube (15 ml) or One and half (if test tube size is small) test tube of dilute sulphuric acid (2 N) to the solution in the titration flask.
4. Note the initial reading of the burette.
5. Add KMnO_4 solution from the burette till a permanent light pink colour is imparted to the solution in the titration flask on addition of the last single drop of KMnO_4 solution.
6. Note the final reading of the burette.
7. Repeat the above steps to get three concordant readings.

Result:

Solution	Normality	Grams/-----ml
<u>KMnO_4</u>		
Mohr's Salt		

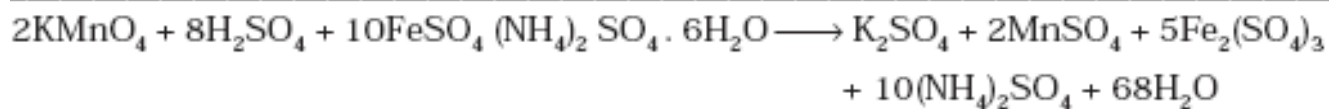
_____ Solution is Less/More Concentrated in terms of Normality/ gms per -----ml

1. Given:-
2. To find:

Observations:

1. Solution in Burette : KMnO_4 solution.
2. Pipette Solution: Mohr's Salt Solution
3. Solution in Flask: 10 ml of ----- N /M Mohr's Salt+ 1 test tube dil. H_2SO_4 ,
4. Indicator: KMnO_4 acts as self indicator.
5. End point: Colourless to light pink.

Chemical equations:



Observation Table:

Pilot Reading _____ ml To _____ ml.

Burette Reading	I	II	III	Constant Burette Reading (C.B.R.)
Final	... mL mL mL mL
Initial	OmL	OmL	OmL	
Difference mL mL mL	

Calculations:

1. To calculate Normality of : KMnO_4 solution = $N_1 V_1 = N_2 V_2$
2. To calculate Grams per -----ml = $N \times \text{Eq. Wt} \times \text{-----} / 1000$