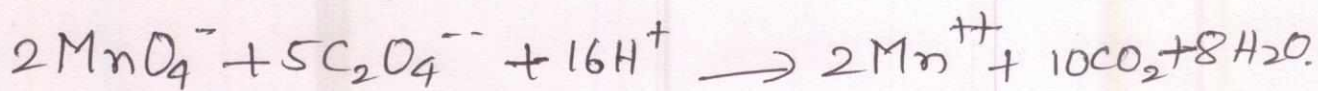
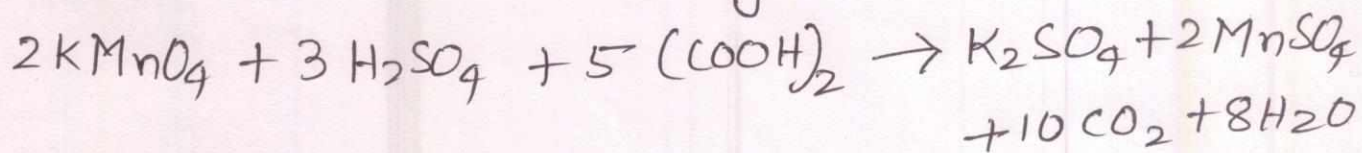


Aim — Determination of molarity of given KMnO_4 solution with the help of $\frac{M}{20}$ oxalic acid solution.

Theory — Potassium permanganate oxidises oxalic acid into carbon dioxide in acidic medium at a temperature 60°C . and itself gets reduced to colourless manganous ions.



Indicator — KMnO_4 is self indicator.

End point — Colourless to pink.

Apparatus Required! —

- 1) Burette
- 2) Burette stand
- 3) Pipette
- 4) Beaker
- 5) Conical flask
- 6) Gas burner.

Chemicals Required :-

- 1) Given KMnO_4 solution
- 2) $\frac{M}{20}$ oxalic acid solution
- 3) Dilute H_2SO_4 solution.

Procedure :-

- 1) Rinse and filled the burette with given KMnO_4 solution upto zero mark
- 2) Rinse the pipette and pipette out 25 ml $\frac{M}{20}$ oxalic acid solution.
- 3) Heated the solution upto 60°C
- 4) Noted the initial reading of burette and allowed the permanganate solution to run into the flask dropwise with constant shaking till a permanent light pink colour was obtained.
- 5) Repeated the titration until three concurrent readings was obtained.

Observation Table

S.No.	Volume of $\frac{M}{20}$ oxalic acid solution	Burette Reading			Concentration reading
		Initial	Final	Diff	
1.	25 ml	0.0			
2.	25 ml				
3.	25 ml				
4.	25 ml				

Calculation: - From the equation it is clear that 2 mols of $KMnO_4$ reacts with 5 mols of oxalic acid

i.e. 5 mols of oxalic acid \equiv 2 mols of $KMnO_4$
 1 mol of oxalic acid $\equiv \frac{2}{5}$ mols of $KMnO_4$

$$\frac{M_{KMnO_4} \times V_{KMnO_4}}{M_{oxalic} \times V_{oxalic\ acid}} = \frac{2}{5}$$