

Primary Valency

Ionisable and equal to the oxidation state of the metal in the coordination compound

It is satisfied by negative ions

Secondary Valency

Directional and non- ionisable and equal to the coordination number

It is satisfied by neutral or negative ligands

Double Salt

Dissociate into simple ions completely when dissolved in water

E.g. Carnallite - $\text{KCl} \cdot \text{MgCl}_2 \cdot 6\text{H}_2\text{O}$, Mohr's salt - $\text{FeSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$, Potash alum - $\text{KAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$

Unidentate Ligand

It binds to the metal ion through a single donor atom

E.g. Cl^- , H_2O or NH_3

Bidentate Ligand

It binds to the central atom through two donor atoms

E.g. ethane-1,2-diamine, oxalate

Polydentate Ligand

A single ligand with many donor atoms

E.g. EDTA is a hexadentate ligand

Ambidentate Ligand

The ligand, which has two different donor atoms and can bind to the central atom through either of the two donors

E.g. NO_2^- and SCN^- ions

Coordination Number

It is the number of ligand donor atoms to which the central metal is directly bonded in a complex

E.g. In $[\text{PtCl}_6]^{2-}$, the coordination number of Pt is 6

In $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$, the coordination number of Fe is 6 because oxalate is a bidentate ligand.

Homoleptic Complexes

It is a complex in which a metal is bound to only one kind of donor groups

E.g. $[\text{Co}(\text{NH}_3)_6]^{3+}$, $[\text{Ni}(\text{CO})_4]$, $[\text{PtCl}_6]^{2-}$

Heteroleptic Complexes

It is a complex in which a metal is bound to more than one kind of donor groups

E.g. $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$

