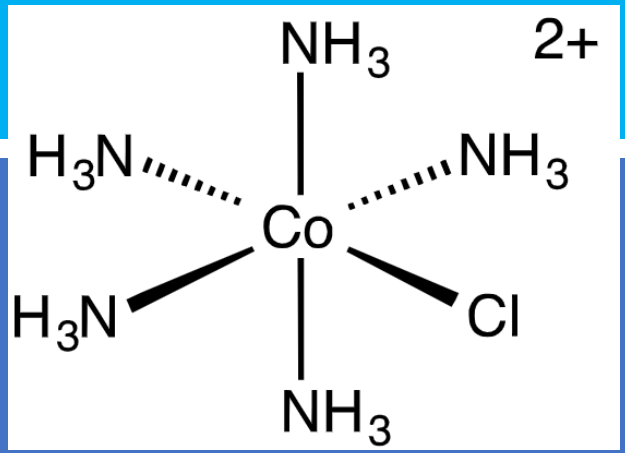
Coordination Compound



What Are Coordination Compounds?

Coordination compounds are chemical compounds that consist of an array of anions or neutral molecules that are bound to a central atom via coordinate covalent bonds.

Important Terms

- **Coordination Entity**
- **A chemical compound in which the central ion or atom (or the coordination centre) is bound to a set number of atoms, molecules, or ions is called a coordination entity.**

Central Atoms and Central Ions

- The atoms and ions to which a set number of atoms, molecules, or ions are bound are referred to as the central atoms and the central ions.

Ligands

- The atoms, molecules, or ions that are bound to the coordination centre or the central atom/ion are referred to as **ligands**.

Coordination Number

- The **coordination number** of the central atom in the coordination compound refers to the total number of sigma bonds through which the ligands are bound to the coordination centre.

Coordination Sphere

- The coordination sphere is the non-ionizable part of a complex compound, which consists of a central transition metal ion surrounded by neighbouring atoms or groups enclosed in a square bracket.

Oxidation Number

- The oxidation number of the central atom can be calculated by finding the charge associated with it when all the electron pairs that are donated by the ligands are removed from it.

Double Salts vs Coordination Complex

- **Double Salts**
- Double salts are completely ionizable in aqueous solutions, and each ion in the solution gives the corresponding confirmatory test.
- For example, potash alum is double sulphate. It is $K2SO4.Al2(SO4)_3.24H2O$ on ionization, and it gives K^{+}, SO_2^{-4} and Al^{+3} ions, which respond to the corresponding tests.

Coordination Complex

- Coordinate complexes are incompletely ionizable in the aqueous solutions. They give a complexion which does not show complete ionization.

Thank You