

Chemical Bonds

A chemical bond is a lasting attraction between atoms, ions, or molecules that enables the formation of chemical compounds.

Types of chemical bonds:

1. **Ionic bond:** Ionic bonds are formed by the transfer of electrons from one atom to another. An atom loses an electron which is in turn gained by another atom. When such an electron transfer takes place, one of the atoms develops a negative charge and is now called anion. The other atom developed a positive charge is called the cation.
2. **Covalent bond:** A covalent bond indicates the sharing of electrons between atoms. A covalent bond is formed when both the reacting atoms need electrons to achieve the inert gas electron arrangement.

Covalent bonds are of three types:

- (i) **Single covalent bond:** A single covalent bond consists of one pair of shared electrons.
 - (ii) **Double covalent bond:** A double covalent bond consists of two pairs of shared electrons.
 - (iii) **Triple covalent bond:** A triple covalent bond consists of three pairs of shared electrons.
3. **Polar Covalent Bond:** Covalent bonds can be either polar or Non-polar nature. In polar covalent

chemical bonding, electrons are shared unequally since the more electronegative atom pulls the electron pair closer to itself and away from the less electronegative atoms.

4. **Hydrogen Bond:** Hydrogen bonding is a special type of dipole-dipole attraction between molecules, not a covalent bond to a hydrogen bond. Hydrogen bonds may form between atoms within molecules or between two separate molecules.

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