

Metallic bond & Hydrogen bond



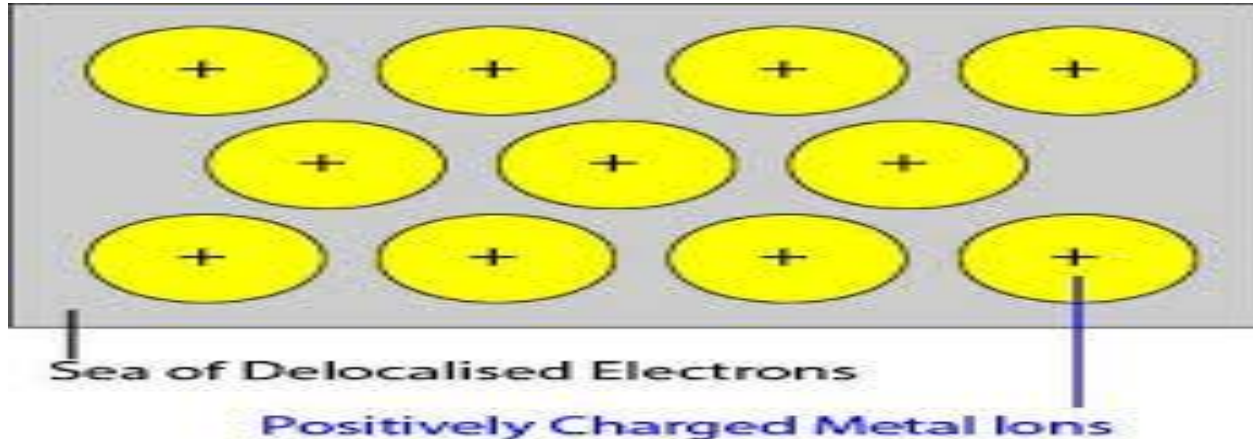
Content

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Definition of metallic bond

Metallic bonding is a type of chemical bonding that arises from the electrostatic attractive force between conduction electrons and positively charged metal ions.

the outermost electron moving freely around the positive ions forms sea of electrons.



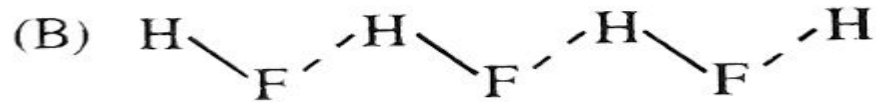
These interactions are called metallic bonds. Metallic bonding accounts for many **physical properties** of metals, such as **strength**, **malleability**, **ductility**, thermal and **electrical conductivity**, **opacity**, and **luster**. Metallic Bonding Loosely bound and mobile electrons surround the positive nuclei of metal atoms.

factors that affect the **strength** of a **metallic bond** are: the number of protons (the more protons the more stronger the **bond**); number of delocalised electrons per atom (the more the stronger the **bond**)

Definition of Hydrogen bond

A weak bond between the hydrogen atom of one molecule and highly electronegative atom (such as N, O, F) of the same or another molecule”

for example: several H –F molecules are associated by hydrogen bond as:



hydrogen bond is represented by dotted line (...) while the covalent bond is represented by solid line (—)

Types of Hydrogen bond

There are two types of Hydrogen bond

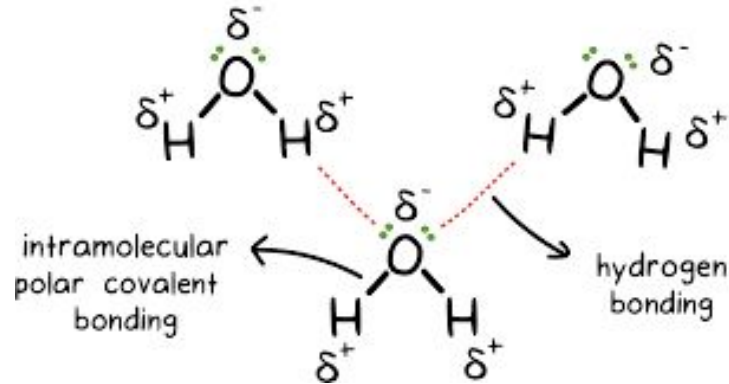
1. Intermolecular Hydrogen bond

2. Intra-molecular Hydrogen bond

Intermolecular Hydrogen bond

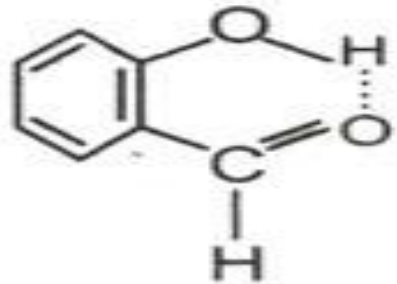
When hydrogen atom of one molecule is connected with the electronegative element of the other molecule

Eg:

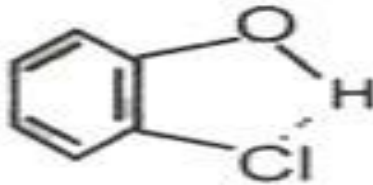


Intramolecular hydrogen bond

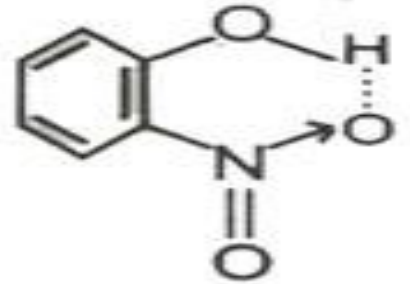
When in the same molecule hydrogen atom is connecting with strong electronegative element



Salicylaldehyde



o-chloro phenol



o-Nitrophenol

Questions

1. Inter molecular and intra molecular bonds exist in which type of bonding
- 2 Sea of electron exist in _____
3. Define metallic bond
- 4 Define hydrogen bond
5. Define types of bond with examples.