

Chemical Bonding

Chapter 2: Chemical Bonding · Topic 1

Key Concept

Ionic bonding occurs through the complete transfer of electrons between a metal and a non-metal, forming oppositely charged ions that attract each other.

Covalent bonding occurs through the sharing of electron pairs between non-metal atoms, forming molecules with stable electron configurations.

Ionic compounds typically have high melting points and conduct electricity when molten or dissolved, while covalent compounds have lower melting points.

Understanding chemical bonding helps explain the physical and chemical properties of different substances, from table salt to water.

Quick Revision Notes

- Ionic bonding: complete electron transfer, metal + non-metal.
- It forms oppositely charged ions.
- Covalent bonding: sharing of electron pairs.
- It occurs between non-metal atoms.
- Ionic compounds: high melting points, conduct when molten.
- Covalent compounds: lower melting points generally.
- Bonding explains substance properties.
- Examples: table salt (ionic), water (covalent).

Practice Questions

- 1 Draw the ionic bonding formation of NaCl.
- 2 Draw the covalent bonding formation of H₂O.
- 3 Compare properties of ionic and covalent compounds.
- 4 Discuss why ionic compounds conduct electricity when molten.
- 5 Research examples of ionic and covalent compounds.
- 6 Explain chemical bonding in your own words.