

4 Structure and Bonding II

Simple molecular substances

1. A covalent bond is formed when a pair of electrons is shared between two atoms
2. Atoms held together by covalent bonds make molecules.
3. Covalent, simple molecular compounds have low melting points and boiling points, as they have weak intermolecular forces so not much energy is needed to separate molecules
4. Covalent, simple molecular compounds are poor conductors of electricity as they have no free electrons.

Metallic Bonding

5. A metal has a giant structure of positive ions surrounded by a sea of delocalised electrons.
6. Layers of metal ions can slide over each other so metals are malleable [can be hammered into shape]
7. The delocalised electrons in metals can move through the structure so metals conduct electricity.
8. Most metals are shiny solids which have high melting points, high density and are good conductors of electricity