

Cambridge IGCSE Chemistry

Topic 10: Metals

Properties of metals

Notes



List the general physical properties of metals

- Metals have giant structures of atoms with strong metallic bonding.
 - Therefore, most metals have high melting and boiling points.
 - They can conduct heat and electricity because of the delocalised electrons in their structures.
 - The layers of atoms in metals are able to slide over each other, so metals can be bent and shaped. (malleable)

Describe the general chemical properties of metals e.g. reaction with dilute acids and reaction with oxygen

- to react, metals will lose electrons to form + ions
- Metals + oxygen → metal oxides
- Known as oxidation reactions because the metals gain oxygen
 - Reduction would be opposite i.e. metals lose oxygen
- Acid + Metal → Salt + Hydrogen

Explain in terms of their properties why alloys are used instead of pure metals

- Pure metals have a regular arrangement of rows of equally sized positive metal ions surrounded by a sea of delocalised electrons. Because the ions are arranged regularly and are equal in size, the layers are able to slide over each other easily, leaving metals being soft and malleable
- Alloys are made from 2 or more different types of metals. The different sized atoms distort the layers in the structure, making it harder for them to slide over each other. So alloys are harder than pure metals.

Identify representations of alloys from diagrams of structure

