

Chapter 4: Chemicals and Chemical changes

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Types of changes

Physical Change

- Appearance or form changes
- Subst. remains same
- Physical Characteristics:
 - Lustre
 - Texture
 - Hardness
 - Odour
 - Sounds
 - Temp.
 - Mass
 - Volume
 - Density
 - Color
 - Malleable
 - Ductile
- E.g.:
 - Ice → Water @ Melting
 - Water → Ice @ Cooling

Chemical Change

- New subst. forms
- Irreversible
- Chemical Properties:
 - flammable
 - corrosive
 - pH
 - explosive
- E.g.:
 - Wood → carbon @ Burning
 - Iron → rusted @ Rusting
 - Burning of matchstick @ Combustion

Metals & Non-metals

Metals

Good conductors

Ductile

Sonorous

High tensile strength

High density

High melting & boiling

Combine with oxygen and form basic oxides

Non-metals

Bad conductors

Non-ductile

Non-sonorous

Low tensile strength

Low density

Low melting & boiling

Combine with oxygen and form acidic oxides

Atoms, compounds, molecules, elements

Atoms

- $\text{Matter} = n \times \text{atoms}$

Molecules

- Atoms combine to form molecules
- Classified as Elements & Compounds
- 1 O molecule = 2 O atoms
- 1 H₂O molecule = 2H + O
- 1 Carbon molecule = 2 C
- 1 Carbon Dioxide = 1 C + 2 O

Elements

- Molecules made up of same atoms

Compounds

- Molecules made up of more than 1 type of atoms

Metallic oxides

- Oxygen compounds with metals
- Iron + H₂O → Rust