

Metals

Metallic Properties

- **Physical properties:** Shiny, good conductors of heat/electricity, high density, malleable, ductile, sonorous.
- **Chemical properties:**
 - React with acids to produce hydrogen gas and a salt.
 - React with oxygen to form metal oxides.
 - React with cold water (reactive metals) or steam (less reactive metals) to form hydroxides or oxides.

Alloys

- **Mixtures of metals or metals with non-metals.**
- **Improved properties:** Harder, more resistant to corrosion.
- **Examples:** Brass, mild steel, stainless steel.

Reactivity Series

- **Orders metals based on their reactivity.**
- **More reactive metals:** Higher tendency to form cations.
- **Reactivity trends:**
 - React more vigorously with steam, dilute acid, and can displace less reactive metals from their compounds.

Extraction of Metals

- **Extraction methods:** Depend on the reactivity of the metal.
- **Reactive metals:** Extracted by electrolysis of molten compounds (e.g., sodium, calcium, aluminium).
- **Less reactive metals:** Extracted by reduction with carbon (e.g., zinc, iron).

Uses of Metals

- **Aluminium:** Aircraft manufacture, food containers.
- **Zinc:** Galvanizing, brass making.
- **Copper:** Electrical wiring, utensils.
- **Steel:** Car bodies, machinery.
- **Stainless steel:** Corrosion-resistant, used in cutlery, appliances, and construction.

Remember:

- The reactivity series determines the order of reactivity of metals.
- Metals can be extracted from their ores using various methods.
- Alloys are mixtures of metals with improved properties.
- Metals have a wide range of applications based on their properties.