Chemical change-

A change leading to the production of a new substance is known as a chemical change. These changes are irreversible. Some of the chemical changes occurring in our day to day life include rusting of iron, silver jewellery getting tarnished or copper articles getting covered by green layer.

- **In case of rusting of iron, the iron reacts with the oxygen present in air and moisture and develops rust (hydrated iron (III) oxide).**

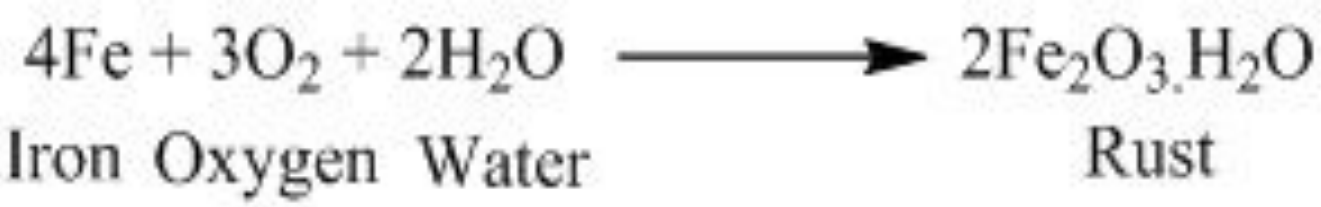

Fig. Iron chain left in moist air got rusted

Corrosion causes damage to car bodies, bridges, iron railings, ships and to all objects made of metals, specially those of iron.

- **In case of corrosion of copper, the metallic copper reacts with oxygen, carbon-dioxide and atmospheric moisture and develops a green coloured coating of copper hydroxide and copper carbonate.**

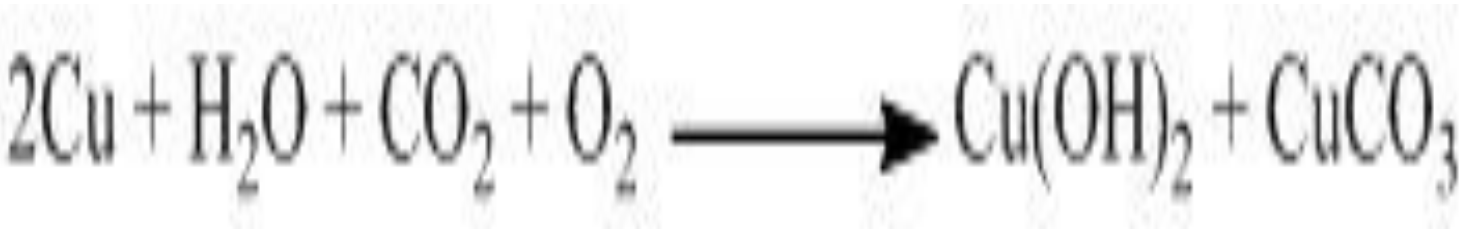

Fig. Copper developing green coloured rust on exposure to moist air

- **In case of tarnishing of silver articles, the metallic silver reacts with hydrogen sulphide or sulphur present in air and gets tarnished.**

$$4Ag + 2H_2S + O_2 \longrightarrow 2Ag_2S + 2H_2O$$

Fig. Tarnished silver Vs polished silver

- **Burning of magnesium is another chemical change. When a ribbon of magnesium is brought near flame it starts burning with a brilliant white light leaving behind a powdery ash on complete burning. Magnesium burns in air to form magnesium oxide.**

$$2Mg + O_2 \text{ ----> } 2MgO$$

On dissolving the ash in water it forms a new substance.

$$MgO + H_2O \text{ - -> } Mg(OH)_2$$

- Rotten fruit

PLENARY -

Q. What kind of change is shown by tearing of paper?

A. Tearing of paper is a physical change although, it cannot be reversed.

Q. Classify the following processes into physical or chemical changes.

(a) Beating of aluminium metal to make aluminium foil

(b) Digestion of food

(c) Cutting of a log of wood into pieces

(d) Burning of crackers

A. Physical changes are beating of aluminium metal to make aluminium foil and cutting of a log of wood into pieces.

Chemical changes are digestion of food and burning of crackers.

ASSESSMENT/EVALUATION -

Q. Melting of wax is a change where a solid changes to liquid state. Give one more such change which you observe in your surroundings.

A. (i) Melting of ice is also a change where solid changes into liquid state.

(ii) The evaporation of rain/water.

Q. Write the differences between physical and chemical changes.

Physical change	Chemical change
No new substance is formed.	New substance is formed.
It is a temporary change.	It is a permanent change.

Physical change is easily reversible.	Chemical change is irreversible.
Very little energy (heat, etc) is absorbed or given out in a physical change.	A lot of energy (in the form of heat, light, sound etc) is absorbed or given out in a chemical change.