Introduction to Metal

Introduction to Metals and their Properties

Metal is very strong and durable and therefore is used to make many things. These are used for making automobiles, satellites, cooking utensils, etc.

Most metals are hard but some are not. Sodium and potassium are such metals which can be cut by knife whereas mercury is a liquid metal at room temperature. Iron is solid in nature.

Physical properties of Metals:

All the metals are good conductors of heat and electricity. Cooking utensils and irons are made up of metals as they are good conductors of heat.

Ductility is the ability of the material to be stretched into wire. This ability allows metals to be drawn into wires and coupled with their durability, find applications as cable wires and for soldering purposes. Because Metals can be drawn into wires we can say that metals are ductile.

Malleability is the property of substances which allows them to be beaten into flat sheets. Aluminium sheets are used in the manufacturing of Aircrafts because of their light weight and strength. Other metals sheets are used in automobile industries, for making utensils, etc. Therefore, metals are malleable.

Metals are sonorous because it produces a deep or ringing sound when struck with another hard object.

Usually all the metals have shiny appearance but these metals can also be polished to have shiny appearance.

Chemical properties of Metals:

Reaction with water: Only highly reactive metals react with water and not all the metals. For example: Sodium reacts vigorously with water and oxygen and gives a large amount of heat in the process. This is why sodium is stored in kerosene so that it does not come in contact with moisture or oxygen.

Reaction with acids: Hydrogen gas is produced when metals reacts with acids. For example, when zinc reacts with hydrochloric acid it produces zinc chloride and hydrogen gas.

Reaction with bases: Not all the metals react with bases and when they do react, they produce metal salts and hydrogen gas. When zinc reacts with strong sodium hydroxide it gives sodium zincate and hydrogen gas.

Reaction with oxygen: Metal oxides are produced when metals burns in the presence of oxygen. These metal oxides are basic in nature. For example: When magnesium strip is burned in the presence of oxygen it forms magnesium oxide and when magnesium oxide dissolves in water it forms magnesium hydroxide.