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STUDY MATERIAL SCIENCE

CLASS-VIII

Date : 13-06-2021

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▸ Coal & Petroleum Exercise

Combustible Substances:

The substances which burn in the presence of air are called combustible. Oxygen in the air is essential for combustion.

Non Combustible Substances : The substances which does not burn in the presence of air are called combustible substances.

Combustion: A chemical process in which a substance reacts with oxygen to give off heat is called combustion. During the process of combustion, heat and light are given out. The process of combustion cannot take place till the two necessary criteria are met-a sufficiently high temperature and an adequate supply of air or oxygen. Each material has a specific temperature at which it can catch fire. The lowest temperature for every combustible material that needs to be reached before the material can be ignited is called its ignition temperature. Unless this temperature is reached, a combustible substance will not ignite or catch fire.

Inflammable substances have very low ignition temperature. Water contained in a paper cup can be safely heated over a flame without any damage to the cup because the ignition temperature of paper is about 230°C . As long as there is water in the cup, the heat supplied to the paper cup is transferred to water by conduction and the temperature does not rise above 100°C , which is much below the ignition temperature of paper.

Hence, the paper cup does not burn. However, if the heating is continued and the water is heated to its boiling temperature, the paper cup will catch fire as soon as see the water boils off.

Inflammable Substances:

The substances which have very low ignition temperatures and can fire easily with a spark or a flame are known as inflammable substances. e.g, Spirit or alcohol, petrol, cooking gas, ether, nail polish remover (that contains acetone), etc

These are stored and handled with care, otherwise an inflammable substance can become a fire hazard.

Small pieces of or particles of a combustible material will ignite faster than the larger block. e.g, coal dust catches fire faster than large chunks of coal. Tinder : A material for starting a fire. Wood shavings can be used as tinder to ignite a large piece of wood.

A block of wood soaked in kerosene can be set on fire easily without tinder because the burning vapours of kerosene generate sufficient heat to ignite the piece of wood. During forest fires, the dry leaves lying on the forest floor act as tinder to set the trees on fire.

Importance of oxygen in combustion : Once a fire is ignited, a constant supply of air or oxygen is required to carry on the combustion, or else the fire dies out.

Hence one of the most common methods of extinguishing a fire is to throw sand over it, which cuts off the supply of oxygen.