Synthetic Fibres and Plastics
Materials & Classification of Materials

INTRODUCTION

The clothes which we wear are made up of fabrics. Fabrics are made from fibres. A fibre is a thread or filament like material which is so strong & flexible that can be converted into clothes, ropes and nets etc.

They are of two kinds: -

(1) Natural fibres

(2) Synthetic fibres

(1) Natural fibres : - These are long thin threads which are obtained from natural polymers obtained from animals or plants eg.

(i) Cotton & Jute – From cell wall of plant cells (Cellulose, is natural polymer)

(ii) Wool – From the fleece of sheeps & goats

(iii) Linen – From stalk of a plant (Flax)

(iv) Silk – From cocoons of silk worm.

(2) Synthetic fibres :- Those fibres which are synthetically man made, and are polymer of small units are called synthetic fibre.

- The word polymer is made up of two Greek words poly which means many and mer means unit.

- All the synthetic fibres are prepared from raw materials of petroleum origin called petrochemical. eg. Nylon, Polyester etc.

PLASTICS

Material that can be shaped by applying heat and pressure. Plastic means easy to mould. Plastic is a polymeric substance that can be moulded when soft and then hardened to produce a durable article. It is made soft by applying heat and pressure before moulding.

Types of Plastics :- On the basis of their reaction to heat, all types of plastic can be classified into two groups.

(i) Thermoplastics
(ii) Thermosetting plastics

(i) Thermoplastics :- Those plastics which can be melted by heating and moulded into desired shapes and sizes, repeatedly are called thermoplastics. On heating these softens and on cooling they becomes hard. This cyclic process of heating, moulding & cooling is adopted to get desired shaped article. e.g Polythene, PVC, Nylon, Terylene and Polystyrene etc.

(ii) Thermosetting Plastics :- These are harder and stronger than thermoplastics and can retain their shape and size even at high temperature. These polymers once set in a given shape on heating, can not be resoftened or remelted on being reheated. eg. Bakelite, Melamine.

General Properties :-

(i) Plastic can be recyled, reused, coloured, melted, rolled into sheets or made into wires.
(ii) (ii) Plastic is non-reactive with moisture & air and insoluble in water. It is not corroded easily.
(iii) (iii) Plastic is light in weight, strong & durable and moulded into different shapes and sizes.
(iv) (iv) Plastics are poor conductor of heat and electricity, that's why electrical wire coverings, handles of screw drivers and frying pans are made of plastics.