

# PLASTICS

- **DEFINITION**

A material is said to be plastic if it can be moulded or formed into different shapes. They are made of polymers.



- **SOURCE OF PLASTICS**

The main source of these plastics is crude oil.

- **PROPERTIES OF PLASTICS WITH THEIR LINKED USES**

1. **INSOLUBLE IN WATER** -They are waterproof and insoluble in water and so are used to make raincoats, water bottles, buckets etc.
2. **LOW THERMAL CONDUCTIVITY**-They are poor conductors of heat and that is why they are used to make handles of cooking utensils and as insulating wool in refrigerators.
3. **POOR CONDUCTOR OF ELECTRICITY**-They are poor conductors of electricity and so electric wires, cords of electrical appliances and cables have a plastic coating.
4. **NON-REACTIVE**-They have no reaction with water and air. They do not corrode easily. They are therefore used to store chemicals such as acids.
5. **INFLAMMABLE**  
They are inflammable i.e. burns easily and so can be melted, moulded and recycled into different products.

- **TYPES OF PLASTICS**

Plastics can be categorized into two different groups depending on their reaction to heat. They are:

1. Thermoplastics
2. Thermosetting plastics

- **DIFFERENCE BETWEEN THERMOPLASTICS AND THERMOSETTING PLASTICS**

THERMOPLASTICS	THERMOSETTING PLASTICS
In these plastics, the process of softening by heating and hardening on cooling can be repeated again and again to soften the plastic to get different shapes.	These plastics can be softened by heating only once. Once they are put into a mould and allowed to harden on cooling, they cannot be softened again on heating.
They cannot maintain their shape and size at very high temperature. Ex. - Polythene	They can maintain their shape and size even at very high temperature. Ex. - Bakelite

- SOME COMMON PLASTICS AND THEIR USES**

MAN-MADE PLASTIC	TYPE OF PLASTIC	PROPERTY	USES
Polythene(or polyethylene)	Thermoplastic	Strong but flexible, can be rolled into sheets or moulded into any shape, water resistant	Sheets of polythene are used to pack liquids such as milk, polythene pipes are used to transport liquids such as oil or water, polythene containers are used to store liquids
Polyvinyl chloride(PVC)	Thermoplastic	Tougher than polythene, insulator	Used as covering for electric wires, used to make shoes, handbags, furniture, upholstery, floor coverings, raincoats and bottles
Polystyrene	Thermoplastic	Easily moulded	Used as a packaging material for delicate objects like electronic items and to make thermocol, used to insulate the hollow walls of refrigerators
Perspex	Thermoplastic	Transparent like glass, but much stronger	Used as a substitute for glass, for making windows in aeroplanes and windscreens of cars
Teflon or PTFE(polytetrafluoroethene)	Thermoplastic	Slippery, not affected by heat and does not react chemically with other substances	Used as a non-stick coating on pans and other cooking utensils
Bakelite	Thermosetting	Harder than other plastics and a good electrical insulator	Used for making buttons, plugs, switches and other electrical fittings
Formica and Melamine	Thermosetting	Hard and smooth surface	Used as table-tops, and for making crockery

- PROBLEMS WITH PLASTICS**

Though plastics are very useful, there is a concern today about their increasing use because of the following reasons:

1. They are non-biodegradable, i.e. they cannot be decomposed by the microorganisms in the soil.
2. Careless disposal of them chokes drains, chokes the soil and hinderS the absorption of water by the soil.
3. If eaten by animals, they may be killed.
4. Plastic bags can also contaminate foodstuffs because of poisonous dyes getting absorbed into food.
5. If burnt, they release poisonous fumes and pollute the air.



- SAVING ENVIRONMENT BY REDUCING PLASTIC POLLUTION**

To reduce the problem of plastic pollution we need to do the following -

1. Always remember and follow the 4R principle - Reduce, Reuse, Recycle, Recover
2. Buy products with less plastic packaging.
3. Practice and promote proper disposal of plastics in your home.
4. Use your own cloth or paper bags for shopping.
5. Support recycling schemes and promote support for one in your local area.

