

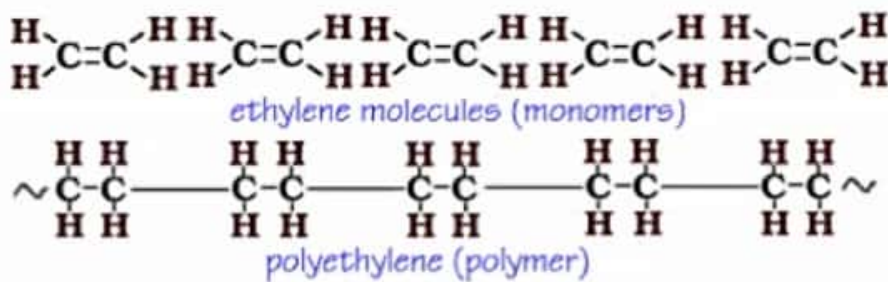
Plastic



Plastic

❖ What is Plastic?

- ❖ Plastic is an **organic substance** consisting of natural or synthetic binders or resins
- ❖ In general, plastics are compounds of carbon with other elements such as hydrogen, nitrogen and oxygen.

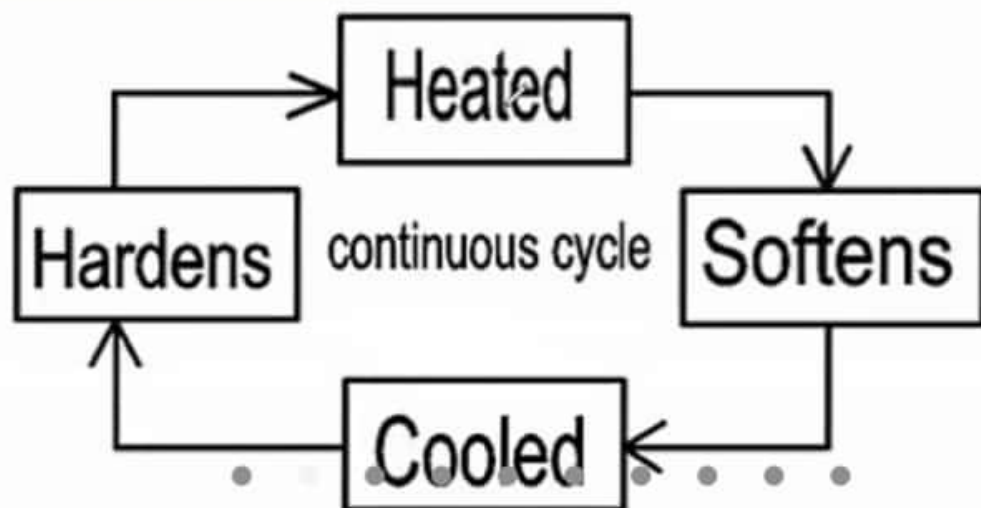


Plastic

❖ Classification of Plastic

- ❖ Thermo-Plastic
- ❖ Thermo-setting

❖ Thermo Plastic



Plastic

❖ Analogy of Thermoplastic

Processing:

Heat → liquify

Cool → solidify

Analogies:



Chocolate



Ice



Metal

Plastic

❖ Application of Thermoplastic

- ❖ Polycarbonate lenses
- ❖ Plastic Bottles
- ❖ Chairs



Plastic

❖ Thermo-setting

Thermosetting plastics



Can only be heated & moulded once!
... not normally recyclable!

Plastic

❖ Analogy of Thermo-setting plastic

THERMOSET

Processing:

$$A + B = C$$

Mix two (2) components → cure

Analogies:



Egg



Cement



Cake

Plastic

❖ Application of Thermo-setting plastic

- ❖ Formica
- ❖ Bakelite
- ❖ Gear
- ❖ Cables
- ❖ Telephone



Plastic

❖ Application of Thermo-setting plastic



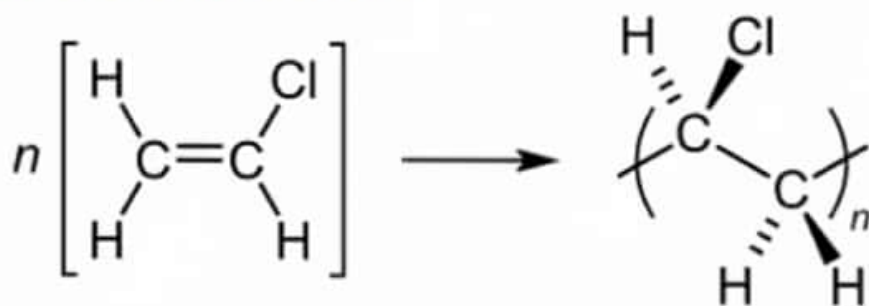
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- ❖ Plastic offers great resistance to moisture, chemicals and solvent.
 - ❖ The plastic is quite **durable**.
 - ❖ The plastic lacks **ductility**.
 - ❖ It possesses excellent electric **insulation** property.
 - ❖ It is **combustible**.
 - ❖ It has **low melting point** (about 50°C).
 - ❖ The **thermal conductivity** of plastics is low



Plastic

❖ PVC

- ❖ PVC (**polyvinyl chloride**) is a common, strong but lightweight plastic used in construction.
- ❖ Polyvinyl chloride is produced by polymerization of the **vinyl chloride monomer** as follows.



- ❖ PVC is a polymer with good insulation properties.
- ❖ It is used for sewerage pipes, electric cables, furniture, flooring materials etc.

- ❖ uPVC actually stands for **unplasticised** polyvinyl chloride.
- ❖ uPVC is also commonly known as rigid PVC

