

POLYMERS

Polymers (Plastics)

Polymers (Plastics) are derived from natural, organic materials such as cellulose, coal, natural gas, salt and, of course, crude oil.

Polymers are of three types: **naturally occurring, synthetic or man made or Plant Based Starches.**

Polymers (Plastics) are categorised in two categories:

Thermoforming and Thermosetting Plastics.

PRIMARY PROCESSING

diagram

THERMOFORMING
POLYMERS

THERMOSETTING
POLYMERS

FINISHES - aesthetic & functional

STOCK FORMS




What do these symbols tell us?





- **Thermoforming plastics** pellets soften when heated and become more fluid as more heat is applied.
- Polymer chains are _____ with few cross links.
- The curing process is _____ as no chemical bonding takes place.
- This characteristic allows thermoplastics to be _____ and recycled without negatively affecting the material's physical properties.
- Examples of thermoplastic polymers include _____.

Name	Picture	Properties	Used for
 Polyethylene terephthalate			
 High density polythene (HDPE)			
 Polyvinyl chloride			
 Low Density Polyethylene			
 Polypropylene			
 High Impact Polystyrene Sheet HIPS			

- **Thermosetting plastics** pellets soften when heated but are more rigid.
- Polymer chains have more _____ which stop the plastic moving.
- The curing process is not reversible so it makes them ideal for electrical items and appliances.
- Difficult to **Recycle as they _____ melt.**
- Common **examples of thermoset plastics and polymers** include

Name	Picture	Properties	Used for
Epoxy resin ER, Araldite			
Melamine Formaldehyde			
Urea Formaldehyde			

Name	Picture	Properties	Used for
Polyester Resin (PR)			
Phenol formaldehyde (PF)			

ALTERNATIVES TO PLASTICS:

Made from renewable resources such as wheat, maize and lactic acid.

Biodegradable/compostable

