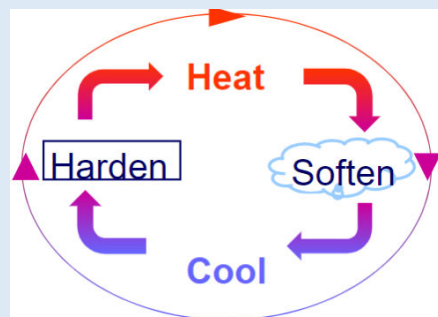


## Thermoplastic plastics

- The majority of common plastics are thermoplastics.
- Thermoplastics can be heated and reshaped because of the ways in which the molecules are joined together.
- This can be repeated many times (as long as no damage is caused by overheating).



### Thermoplastic Advantages:

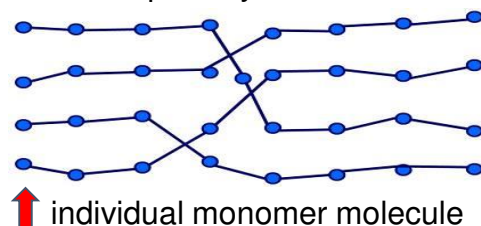
- Highly recyclable
- High-Impact resistance
- Reshaping capabilities
- Chemical resistant
- Aesthetically superior finishes
- Hard crystalline or rubbery surface options

### Thermoplastic Disadvantages:

- Expensive
- Can melt if heated

Polymers can be made from both natural and synthetic resources. Synthetic polymers are derived from petroleum oil

Thermoplastic plastics are made of long chains of polymers which don't cross over very often. When heated, the molecules slip easily over one another.



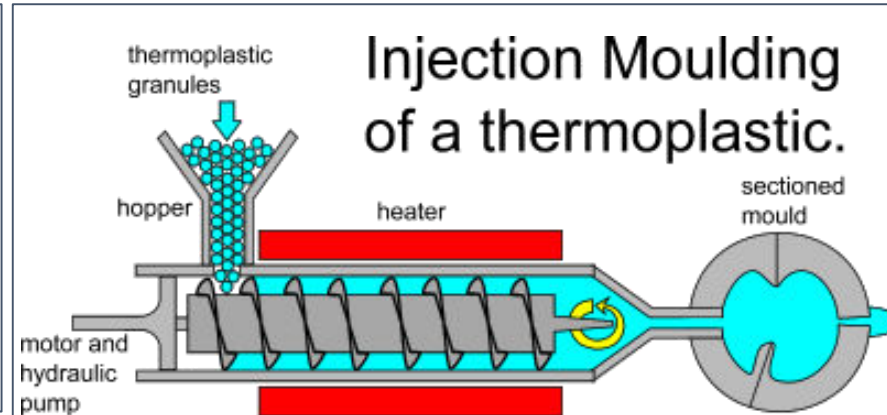
### Polythene

One of the plastics you are most likely to come into physical contact with on a daily basis, depending on how it is made PET can be completely rigid or flexible, and because of its molecular construction it is impact, chemical and weather resistant and a terrific water and gas barrier. Uses- Soft drink, water, cooking oil bottles, packaging trays, frozen ready-meal trays, First-aid blankets, polar fleece. You can get

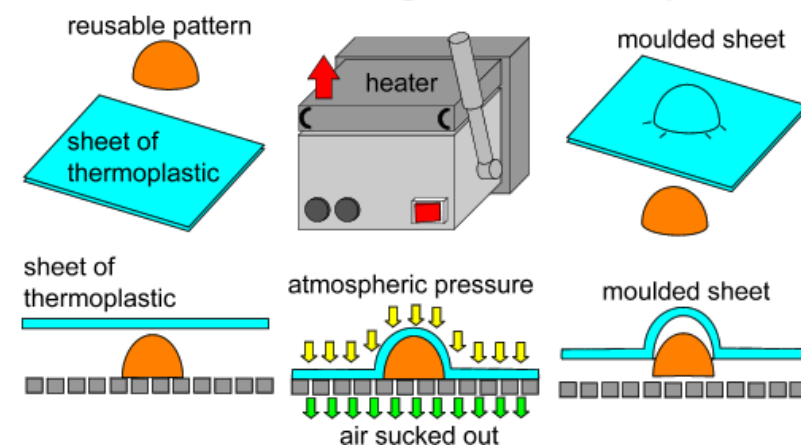


### Polypropylene

Semi-rigid, translucent, good chemical resistance, tough, good fatigue resistance, integral hinge property, good heat resistance.



## Vacuum Forming of thermoplastic



### PVC

Polyvinyl Chloride is very dense compared to most plastics, is readily available and cheap, it is very hard, has extremely good tensile strength.

### Polystyrene

Amorphous, colorless, and transparent. It is rigid, brittle, relatively hard and has excellent gamma radiation resistance, good electrical properties but has poor chemical and UV resistance.



### Properties of Polymers

- weight
- hardness
- elasticity
- conductivity/
- Insulation
- toughness
- strength.

- Polythene
- Polypropylene
- PVC
- Polystyrene
- Synthetic
- Natural
- Polymerisation



**Polythene** also known as **Polyethylene** is the most popular plastic in the world. Most plastic bags are made from polythene, which is made from petroleum, a nonrenewable resource. These plastic bags we use in our everyday life take 10-1000 years to decompose.

# Design and Technology

# Polymers- Thermoforming plastic