

Oil refinery process



KS3 Product Design

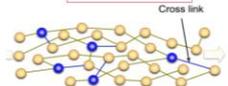
Polymers / Plastics



Categories

Thermosetting polymer

**Thermosetting (thermoset)**



- Polymer chains held together by **strong covalent cross-link bonding** that does not break on heating.
- **Remains hard when heated**

Non recyclable

Examples

Urea Formaldehyde



Electrical sockets  
Handles / Control knobs

Melamine Formaldehyde



Laminates for worktops  
Electrical insulation /  
Tableware

Phenol Formaldehyde



Others:

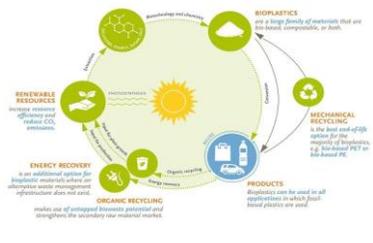
Epoxy Resin (adhesive i.e. Araldite)



All plastics have the Mobius Loop symbol that categorises them for the potential of recycling. Not all plastics can be recycled.



Bio plastics



Thermo Polymers

**Thermosoftening (thermoplastic)**



- Tangled polymer chains
- No cross-links between chains
- Weak forces of attraction between chains
- **Softens when heated**

Recyclable

Examples



Acrylic

H.I.P.S (High Impact Polystyrene)



L.D.P.E



Video QR LDPE



KS3 Product Design

Smart / Modern Materials

See also Design links on the Montsaye intranet



Categories

Smart

Respond to differences in the conditions of the environment they are in

Appear to 'think' or have 'memory'

Examples

SMA



Shape Memory Alloy



SMP

Shape Memory Polymer

Thermochromic



Changes colour react to heat

Photochromic



Self healing material  
Others:  
Precious metal clay  
Conductive polymers



BBC Bitesize



DesignKMG

DT Focus



Link found in the Montsaye Intranet

Changes colour reacts to light

For further information on flexibly  
<http://www.technologystudent.com>

Modern

Are those that are constantly being developed through the invention of new or improved processes

Examples



Polymorph

Teflon



Non-stick coatings

Lenticular Plastic Sheet



Smooth one side, small lenses the other

Others:  
Flexibly

