

Oil refinery process



KS3 Product Design

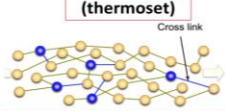
Polymers / Plastics



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:



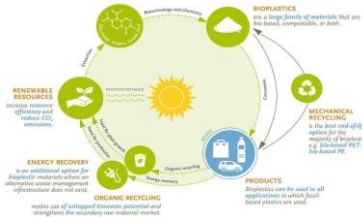
Epoxy Resin (adhesive i.e. Araldite)



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)



Others:

PP Polypropylen
HDPE / MDPE

L.D.P.E
Low Density Polyethylene



Video QR LDPE



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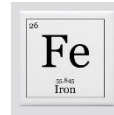
Metals

Categories

Ferrous



E.G. Iron Ore



Contains Iron

Magnetic



Examples

Iron (Fe 26)



Mild Steel

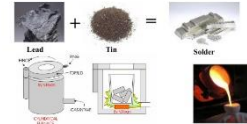


Others:
Wrought Iron / Low carbon steel



Alloys

How are Metal Alloys made.



The metals forming the alloy are melted in a furnace. They are then poured into blocks called ingots and allowed to solidify. When a molten metal is mixed with another molten metal and allowed to solidify an alloy is formed. The new solid metal will have gone through 'Phase' changes to become an alloy.

Mixture of metals

Brass



Pewter



Bronze

Stainless Steel

Precious Metals

Gold (Au 79)



Silver (Ag 47)



Metals – How metals are mined
Video – steel from start to finish

Non-Ferrous

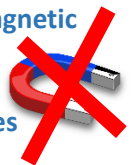


E.G. Bauxite (Aluminium)



Does NOT contain Iron

NON magnetic



Examples

Aluminium (Al 13)



Lead (Pb 82)

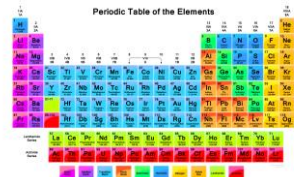


Copper (Cu 29)

Others:

Tin / Titanium / Nickel

Metals appear on the Periodic table - SCIENCE



Technology
Student video
on youtube for
metals

