

Polymers

Thermoplastics:

Acrylic:

Advantages	Disadvantages
<ul style="list-style-type: none">• Stiff• Hard• Durable• Good electrical insulator	<ul style="list-style-type: none">• Very brittle• Scratches easily• Splinters easily

Uses: CD cases, Car lights, Baths

Polyethylene (PE):

Advantages	Disadvantages
<ul style="list-style-type: none">• Good electrical insulator• Chemical resistant• Flexible	<ul style="list-style-type: none">• Colour fades over time/ damaged by UV light• Can break under stress• Takes a long time to bio-degrade

Uses: Buckets/bowls, Cable insulation, Bottles

Polyethylene terephthalate (PET):

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none">• Good alcohol and oil barrier• Chemical resistant• High impact resistance• High tensile strength	<ul style="list-style-type: none">• Can discolour from UV light• Needs to be treated when used for food containers• Susceptible to heat degradation

Uses: Fizzy drinks bottles, washing up bottles, Fibres for clothing

Polyvinyl Chloride (PVC):

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none">• Good chemical resistance• Weather resistant• Stiff/tough/hard• Range of colours	<ul style="list-style-type: none">• Can discolour from UV light• Brittle• Easily scratched• Difficult to recycle

Uses: Pipes, Guttering, Electrical insulation, Floor covering

Polypropylene (PP):

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none">• Light• Hard• Impact resistant• Chemical resistant	<ul style="list-style-type: none">• UV light causes degradation• Oxidation causes problems• Not heat resistant• Difficult to paint

Uses: Medical syringes, Carpets, Kitchenware

Acrylonitrile Butadiene Styrene (ABS):

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none">• Chemical resistant• Hard• Tough/durable• Heat resistant• Naturally good finish	<ul style="list-style-type: none">• UV light causes degradation• Poor solvent resistance

Uses: Mobile phones, Safety helmets, Pipes

Thermosetting Plastics:

Epoxy resin:

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none">• Corrosion resistant• Electrical resistant• Good bond qualities	<ul style="list-style-type: none">• Causes allergic reactions• Causes health problems• Brittle

Uses: Adhesives, Paints and Coatings, Electronics

Urea formaldehyde:

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none">• Strong• Hard• Heat resistant• Good electrical insulator	<ul style="list-style-type: none">• Can emit toxic vapours during manufacture• Brittle

Uses: Electrical fittings, Handles, Control knobs, Domestic appliance components

Polyester resin:

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none">• Good electrical insulator• Heat resistant• Hard• Cost effective	<ul style="list-style-type: none">• Short shelf life• Emissions are harmful• Brittle unless treated

Uses: Glass reinforced boats and cars, Garden furniture, Castings

Elastomers:

Rubber:

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none">• Waterproof• Its elasticity• Good electrical insulator• Shock absorbent	<ul style="list-style-type: none">• Can be disfigured• Expensive• Slow and time consuming to produce

Uses: Car tires, Matting/Flooring, Medical gloves