

# Polymerisation

## Making Perspex

### Safety

- Wear goggles and gloves when adding the methyl 2-methylpropenoate

### Procedure

1. Half fill a 250ml beaker with water.
2. Heat it on a tripod and gauze with a Bunsen burner until the water is boiling vigorously.
3. Turn off the Bunsen burner
4. Di(dodecanoyl) peroxide (0.1g) has been added to test tubes which are in the fume cupboard.
5. In the fume cupboard add a pipette full (~2.5ml) of methyl 2-methylpropenoate to the test tube containing di(dodecanoyl) peroxide.
6. Put a wooden splint into the test tube and then insert a cotton wool bung into the top of the tube.
7. Take the tube back to the bench and stand it in the hot water in the beaker.
8. Every few minutes stir the mixture or tip the tube slightly to look at the flow of the liquid. It should become thicker as polymerisation takes place. Make sure the cotton wool bung stays in place as you do this.

# Polymerisation

## Making Perspex

Test tubes containing 0.1g dilauryl peroxide preweighed and put in the fume cupboard

2 small bottles methyl 2-methylpropenoate in the fume cupboard with pipettes

Wooden splints

Cotton wool to bung test tubes

250ml beakers

Kettles

Goggles



Gloves

Labels

# Experiment Hazard Assessment

**Experiment: Polymerisation. Making perspex**

**Reference: GCSE-9-8**

Chemical hazards			
<p><b>Di(dodecanoyl peroxide)</b> (dilauroyl peroxide)</p>  <p>DANGER</p>	<p>Heating may cause fire</p>	<p>To be weighed out by technician or teacher.</p> <p>Wear eye protection</p>	<p>CLEAPSS Hazcard 29</p>
<p><b>Methyl 2-methylpropenoate</b> (methyl methacrylate)</p>  <p>DANGER</p>	<p>Highly flammable liquid and vapour.</p> <p>Causes skin irritation.</p> <p>May cause allergic skin reaction.</p> <p>May cause respiratory irritation.</p> <p>The vapour is lachrymatory; it irritates and causes eyes to water</p>	<p>Wear splash proof goggles.</p> <p>Wear gloves.</p> <p>Use a fume cupboard.</p> <p>Ensure no naked flames or other sources of ignition.</p> <p>Add a cotton wool bung to test tubes before they are removed from fume cupboard.</p> <p>Ensure lab is well ventilated.</p>	<p>CLEAPSS Hazcard 43B</p>
<p><b>Poly(methyl 2-methylpropenoate)</b> (perspex)</p>	<p>Low hazard</p>		

## Other hazards

Warn students to be careful not to knock the tripods and not to touch hot equipment. The beaker should not be removed from the tripod until it has cooled sufficiently or beaker tongs could be used.

## Disposal W8