

Focused Practical Task: Plastic Memory Pendant

Objectives

Students will develop their D&T capability by extending their knowledge of plastics, in particular, that some plastics have a plastic memory.

By the end of this focused practical task, students will know that:

- thermoplastics soften and may be deformed when heated
- thermoplastics remain deformed after cooling
- some thermoplastics, including acrylics exhibit "plastic memory", i.e. a deformed thermoplastic with plastic memory will return to its original shape when reheated, (as long as it is not overheated prior to bending/deforming or during reheating).

Success criteria

Each student:

- knows that thermoplastics soften and can be bent when heated and become rigid again when cooled
- knows that some thermoplastics, including acrylics exhibit "plastic memory"
- has made an acrylic pendant/key fob that has a relief design created using "plastic memory"
- has used tools safely and has strived to achieve quality in marking out, cutting, shaping and finishing their chosen materials
- shows evidence of having evaluated his/her work.

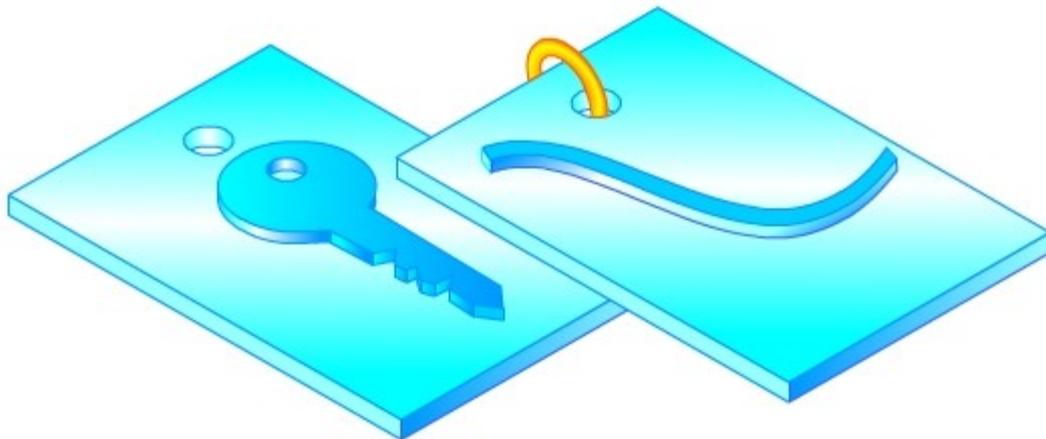
CLEAPSS

Please refer to CLEAPSS, Model Risk Assessments for Design and Technology in Secondary Schools and Colleges, Part 1.053 COSHH Regulations.

Focused Practical Task: Plastic Memory Pendant

Brief

Make an acrylic pendant or key fob that has a raised design (relief).



Specification

The pendant/key fob must:

- be made from 6mm thick acrylic sheet
- have a raised design (relief) created using plastic memory.

Resources required

- A pendant/key fob sized piece of 6 mm thick acrylic.
- An oven to heat the acrylic.
- A selection of wires, e.g. brazing rod, welding rod.
- A jig to hold the acrylic while it is being abraded.
- An abrading tool, e.g. a sander and whole sheets of glass paper or wet and dry paper for finishing the machine abraded acrylic face.
- Wire for jump rings.

What you must do

1. Heat your pendant/key fob sized piece of acrylic until it is soft and floppy.
2. Make an interesting shape in steel or brass wire, or choose a flat product e.g. a key.
3. Place the wire shape on the heated and softened acrylic and sandwich it between two MDF pads.
4. Squeeze the pads together in a vice or in a press so that the wire shape is forced into the acrylic.
5. Hold the pads tightly until the acrylic is cold.
6. Remove the wire.
7. Remove the surface layer of the acrylic to the depth of the groove formed by the wire.
8. Reheat the acrylic.
9. File the edges of the pendant until they are smooth, drill a hole for a jump ring.
10. Evaluate the final product, e.g.:
 1. how good the design looks
 2. how well the design works
 3. discover what others think about your product.
11. Work safely and complete the assignment on time.