

# Vacuum forming

## What is vacuum forming?

Vacuum forming involves a sheet of softened thermoplastic material being either sucked or pushed into a mould using a vacuum.

Neither high heat nor pressure is required so moulds can be made from cheap materials such as MDF (medium density fibreboard) or cast aluminium.

## How does the process work?

- A sheet of plastic material is heated to soften it.
- A mould is pushed up to the plastic sheet.
- The vacuum is created, sucking out all of the air beneath the sheet.
- The sheet takes the shape of the mould, filling the cavity.
- The product is released and finished.

## What plastics materials can be used?

Most sheet thermoplastic materials, for example cellulose nitrate, cellulose acetate, polystyrene, polypropylene, polyvinyl chloride, acrylonitrile butadiene styrene, and polycarbonate.

## What are the clues?



Possible thinning of the plastic sheet material in deeper cavities.

## When was the process first introduced?

1890 for use with cellulose nitrate.

## Advantages:

- Relatively low cost as the moulds can be made from a range of materials and the pressures involved are low.
- Suitable for low quantities or even one offs, but can be mechanised to speed up the process.

## Disadvantages:

- Additional processing required to trim excess material.
- Best suited to simple shapes.
- Deep cavities in the mould result in thinning of the plastics sheet material.

## Uses:

Shallow forms: baths and boat hulls, bowls, margarine and yogurt pots.