Compression moulding

What is compression moulding?

Compression moulding involves compressing (flattening, squeezing, pressing, squashing) the raw plastics material using moulds, heat and pressure.

The raw material is often in the form of powder or granules which are placed into a two-part mould. As the two parts come together, pressure is applied, forcing the plastics material to spread out to fill all of the space in the mould.

Compression moulding usually produces objects that have smooth surfaces and they are often polished to remove any moulding marks. The process is ideal for creating solid parts with thick walls.

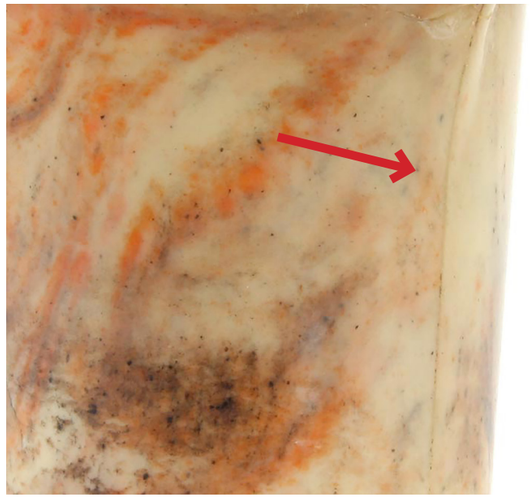
How does the process work?

- A measured amount of, usually powered, material is added to a two-part heated mould.
- The two parts, the inner and the outer, come together and pressure is applied which, along with the heat, forces the plastics material to soften and fill the cavity.
- The material hardens and partially cools in the mould.
- The object is removed and finished.

What plastics materials can be used?

Usually thermosets, especially urea-formaldehyde, melamine formaldehyde and phenol formaldehyde with filler.

What are the clues?



Mould lines may be visible but these can be polished off by hand.

Surfaces tend to be smooth.

When was the process first introduced?

Before 1900.

Advantages:

- Medium set up and mould costs so the process is cheaper than other methods.
- There is little material wasteage as it is all consumed in making the product.
- The process gives repeatable precision forming.
- Metal inserts and threads can be moulded-in.

Disadvantages:

- Use is restricted to thermoset polymers.
- Better suited to the production of larger, simpler objects.
- Relatively slow process.
- Labour intensive.

Uses:

Radio and telephone housings; plugs and sockets; tableware; ashtrays; bowls and boxes.

Find objects with compression moulded elements in the MoDiP collection. View the animation to see how the process works.

Museum of Design in Plastics