

Resin Transfer Moulding

Introduction

Resin transfer moulding is a moulding process used to make thermoset plastic products in a heated mould. Products may be made with fibre reinforcement or they may be made without.

The resin transfer moulding process without reinforcing material

The resin transfer moulding process involves pumping a measured amount of resin and catalyst into a mixing chamber, where the two components are mixed, then pumping the mixture into a heated mould. Heat from the mould initially reduces the viscosity of the resin so it flows into all parts of the mould cavity, but at the same time, it begins to cure the polymer. The mould stays closed until the polymer has cured, then the product is ejected.

The resin transfer moulding process using fibre reinforcement

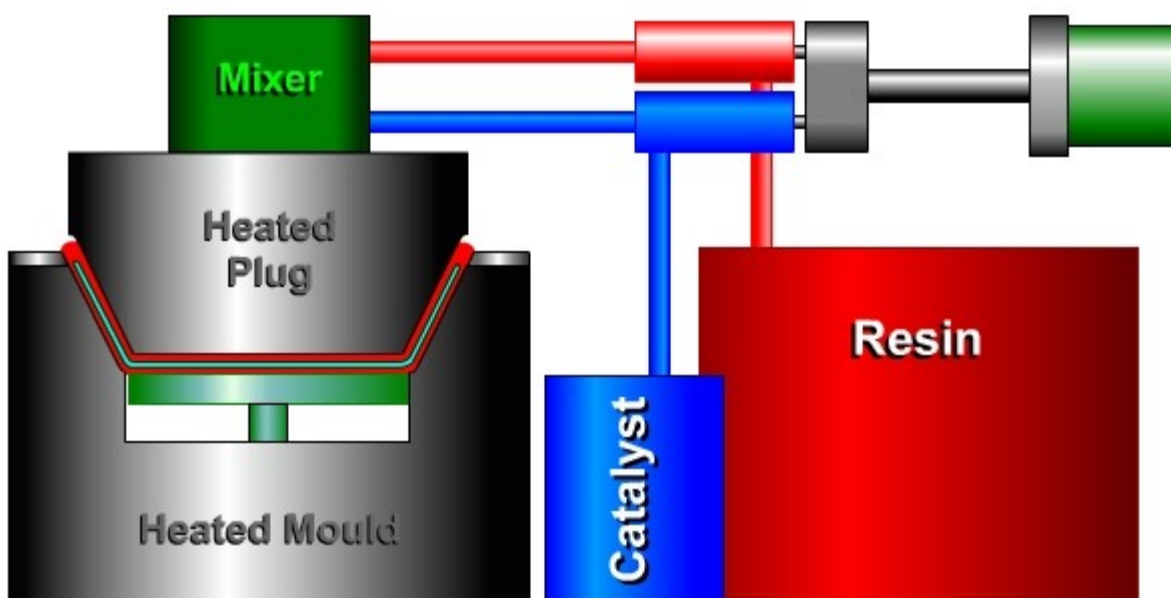
Resin transfer moulding usually involves using glass fibre reinforcing material in the resin mixture. This forms a composite material called glass reinforced plastic (GRP).

The process of making GRP products by resin transfer moulding is the same process as making products by resin transfer moulding without glass fibre reinforcement, except that a sheet of glass fibre mat is placed in the heated mould before the resin/ catalyst mixture is pumped into it.

The process generally involves the following stages:

- glass fibre reinforcing material is placed into the heated mould
- the mould is closed
- measured amounts of resin and catalyst are pumped into a mixing chamber where they are mixed
- a measured amount of resin/catalyst mixture is pumped into the heated mould
- the resin mixture flows through the reinforcing material and encapsulates it
- heat from the mould cures the composite material
- the product is ejected from the mould when the composite has hardened sufficiently.

Making a moulded glass reinforced plastic (GRP) product



The illustration shows the reinforcement material (drawn in blue) partially encapsulated in resin