Technical Data Sheet

# SILASTIC™ RTV-3481 Mold-Making Base
# SILASTIC™ RTV-3081 Mold-Making Curing Agent
# SILASTIC™ RTV-3081-F Mold-Making Curing Agent
# SILASTIC™ RTV-3081-VF Mold-Making Curing Agent
# SILASTIC™ RTV-3081-R Mold-Making Curing Agent

High strength silicone moldmaking rubber

## Features & Benefits

- Outstanding release properties
- High flowability and long working time
- Medium hardness
- High tear resistance
- High elasticity, for easy removal of, complex replica parts
- Can be made thixotropic (nonflowable) for vertical surface replication
- Choice of curing agents for special applications

## Applications

- SILASTIC™ RTV-3481 Mold-Making Base is suited for the detailed reproduction of figures, art objects and similar items.

## Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

| **Base and Curing Agent mixture (100:5 by weight)** | | | | |
|---|---|---|---|---|
| Color | Off-white | | | |
| Relative density at 25°C (77°F) of cured rubber | 1.21 | | | |
| | **SILASTIC™ Mold-Making Curing Agent** | | | |
| | **SILASTIC™ RTV-3081 Mold-Making Curing Agent** | **SILASTIC™ RTV-3081-F Mold-Making Curing Agent** | **SILASTIC™ RTV-3081-VF Mold-Making Curing Agent** | **SILASTIC™ RTV-3081-R Mold-Making Curing Agent** |
| | Standard | Fast | Very Fast | Resin Resistant |
| Working time of catalyzed mixture at 23°C (73.4°F), minutes, min | 90–120 | 30–45 | 8–10 | 90–120 |
| Mixed viscosity, mPa.s | 20,000 | 22,100 | 36,400 | 20,000 |

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## Typical Properties (Cont.)

| Base and Curing Agent mixture (100:5 by weight) | | | | |
|---|---|---|---|---|
| | SILASTIC™ Mold-Making Curing Agent | | | |
| | SILASTIC™ RTV-3081 Mold-Making Curing Agent | SILASTIC™ RTV-3081-F Mold-Making Curing Agent | SILASTIC™ RTV-3081-VF Mold-Making Curing Agent | SILASTIC™ RTV-3081-R Mold-Making Curing Agent |
| **Cured for 2 days at 23°C (73.4°F)** | | | | |
| Hardness (Shore A) | 24 | 23 | 25 | 19 |
| Tensile strength, MPa | 4.7 | 4.6 | 4.1 | 4.6 |
| Elongation at break, % | 544 | 543 | 438 | 622 |
| Tear strength, kN/m | 26 | 24 | 25 | 26 |
| Linear shrinkage, % | 0.2–0.4 | 0.2–0.4 | 0.2–0.4 | 0.2–0.4 |
| Curing time, hours, max | 24 | 6 | 2 | 24 |

## Description

SILASTIC™ RTV-3481 Mold-Making Rubber is a two-part material consisting of SILASTIC™ RTV-3481 Base which when mixed with a SILASTIC™ RTV-3081 Mold-Making Curing Agent, cures at room temperature by a condensation reaction. A range of materials can be cast into the cured silicone mold: plaster, polyurethane and polyester resins are materials typically used.

## How to Use

### Substrate Preparation

The surface of the original should be clean and free of loose material. If necessary, and in particular with porous substrates, use a suitable release agent such as petroleum jelly or soap solution.

### Mixing

Thoroughly stir SILASTIC™ RTV-3481 Base before use, as filler separation may occur upon prolonged storage. Weigh 100 parts of SILASTIC™ RTV-3481 Base and 5 parts of SILASTIC™ RTV-3081 Curing Agent in a clean container. Mix together until the curing agent is completely dispersed in the base. Hand or mechanical mixing can be used, but do not mix for an extended period of time or allow the temperature to exceed 35°C (95°F). Mix suitably small quantities to ensure thorough mixing of base and curing agent. It is strongly recommended that entrapped air be removed in a vacuum chamber, allowing the mix to completely expand and then collapse. After a further 1–2 minutes under vacuum, the mix should be inspected and can be used if free of air bubbles. A volume increase of 3–5 times will occur on vacuum de-airing the mixture, so a suitably large container should be chosen.

Caution: prolonged vacuum will remove volatile components from the mix and may result in poor thick section cure and non-typical properties.

Note: If no vacuum de-airing equipment is available, air entrapment can be minimized by mixing a small quantity of SILASTIC™ RTV-3481 Base and SILASTIC™ RTV-3081 Curing Agent, then using a brush, painting the original with a 1–2 mm layer. Leave at room temperature until the surface is bubble free and the layer has begun to cure. Mix a further quantity of base and curing agent and proceed as follows to produce a final mold.

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## How to Use (Cont.)

**Pouring the Mixture and Curing**

Pour the mixed SILASTIC™ RTV-3481 Base and SILASTIC™ RTV-3081 Curing Agent as soon as possible onto the original, avoiding air entrapment. The catalyzed material will cure to a flexible rubber within 24 hours (or faster when SILASTIC™ RTV-3081 Curing Agent or SILASTIC™ RTV-3081-VF Mold-Making Curing Agent are used) at room temperature (22–24°C/ 71.6–75.2°F) and the mold can then be separated from the material. If the working temperature is significantly lower, the cure time will be longer. If the room temperature or humidity is very high, the working time of the catalyzed mixture will be reduced. The final mechanical properties of the mold will be reached within 7 days.

## Additional Information

Reproduction of vertical surfaces if a skin mold is required of a vertical object or surface and cannot be made by normal pouring techniques, the catalyzed mixture can be made nonflowable by the addition of XIAMETER™ RTV-3011 Thixo Additive.

1. Prepare the original as described earlier.
2. Brush the original with a thin layer of catalyzed mixture. Repeat the operation when the first layer has started to cure, to achieve a coating thickness of > 2 mm. Leave to cure at room temperature until the material is tacky.
3. Prepare a new catalyzed mixture of SILASTIC™ RTV-3481 Base and add 3% by weight of XIAMETER™ RTV-3011 Thixo Additive and mix thoroughly until a paste consistency is reached. De-airing of the mixture is not required.
4. Using a spatula, cover the coated original with the thixotropic coating until all undercuts are filled; leave to cure for 24 hours, or less if SILASTIC™ RTV-3081 Curing Agent or SILASTIC™ RTV-3081-VF Curing Agent are used, at room temperature.
5. Construct a support mold using polyester resin or plaster and allow to set in contact with the silicone coating. Carefully remove the support mold. Peel the rubber off the original and place in the support mold.

**Other Curing Agents**

The standard curing agent for SILASTIC™ RTV-3481 Base is SILASTIC™ RTV-3081 Curing Agent. For special requirements we offer a range of additional curing agents:

- SILASTIC™ RTV-3081 Curing Agent for demolding after 6 hours.
- SILASTIC™ RTV-3081-VF Curing Agent for demolding after 2 hours.
- SILASTIC™ RTV-3081-R Mold-Making Curing Agent for improved mold life with polyester casting resins.
- SILASTIC™ RTV-3081-F Mold-Making Curing Agent and SILASTIC™ RTV-3081-VF Curing Agent are fast curing agents and give a shorter working time.

**Use at High Temperatures**

Some molds produced from condensation cure silicone rubbers can degrade when exposed to temperatures above 150°C (302°F) over a period of time or when totally confined in storage at high ambient temperatures. This can result in softening and loss of elastic properties.

Please contact a distributor for further advice.

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## Additional Information (Cont.)

**Resistance to Casting Materials**

The chemical resistance of fully cured SILASTIC™ RTV-3481 Base is excellent, and similar to all condensation cure silicone elastomers. It should be noted however that ultimately, resins and other aggressive casting materials will attack silicone molds, changing physical properties, surface release and possibly mold dimensions. Molds should be checked periodically during long production runs.

Note: SILASTIC™ RTV-3481 Base is an industrial product and must not be used in food molding, dental and human skin molding applications.

## Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

## Usable Life and Storage

Product should be stored at or below 32°C (89.6°F) in original, unopened containers.

## Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

## Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

## Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

## Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

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