Technical Data Sheet

# RTV Thixotropic Additive 3011
## Silicone Catalyst

## 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

- RTV Thixotropic Additive 3011 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 (100:10 by weight)** | |
|---|---|
| Color | Off-white |
| Relative density at 25°C (77°F) of cured rubber | 1.21 |

| | **34 Series Catalyst** | | |
|---|---|---|---|
| | Fast | Very Fast | Slow |
| Working time of catalyzed mixture at 23°C (73.4°F), minutes, min | 30–45 | 8–10 | 90–120 |
| Mixed viscosity, mPa.s | 22,100 | 36,400 | 20,000 |

## Typical Properties (Cont.)

| Base and Curing Agent mixture (100:10 by weight) | | | |
|---|---|---|---|
| | **Fast** | **Very Fast** | **Slow** |
| **Cured for 2 days at 23°C (73.4°F)** | | | |
| Hardness (Shore A) | 23 | 25 | 19 |
| Tensile strength, MPa | 4.6 | 4.1 | 4.6 |
| Elongation at break, % | 543 | 438 | 622 |
| Tear strength, kN/m | 24 | 25 | 26 |
| Linear shrinkage, % | 0.2–0.4 | 0.2–0.4 | 0.2–0.4 |
| Curing time, hours, max | 8 | 3 | 24 |

## Description

RTV Mold-Making Rubber is a two-part material consisting of RTV Silicone Rubber which, when mixed with an RTV Catalyst, 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 RTV Silicone before use, as filler separation may occur upon prolonged storage. Weigh 100 parts of RTV Silicone and 10 parts of RTV Catalyst 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 RTV Silicone and RTV Catalyst, 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.

## How to Use (Cont.)

**Pouring the Mixture and Curing**

Pour the mixed RTV SIlicone and RTV Catalyst 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 Fast RTV Catalyst is 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 RTV Thixotropic Additive 3011

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 RTV Silicone and add 3% by weight of RTV Thixotropic Additive 3011 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 Fast RTV Catalyst is 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.

**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.

## Additional Information (Cont.)

**Resistance to Casting Materials**

The chemical resistance of fully cured RTV Silicone 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: RTV Silicone 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 REQUEST OR ON OUR WEBSITE, www.cfsnet.co.uk

## 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.

## 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.

## Product Stewardship

CFS 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 CFS products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

## Customer Notice

We strongly encourage our customers to review both their manufacturing processes and their applications of our products from the standpoint of human health and environmental quality to ensure that our products are not used in ways for which they are not intended or tested. We are available to answer your questions and to provide reasonable technical support. Our product literature, including safety data sheets, should be consulted prior to use of our products. Current safety data sheets are available from our website or on request.

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