



# SILASTIC® S

## Base and Curing Agent

### FEATURES

- Outstanding release properties
- If required the product cure can be heat accelerated
- Fast thick section cure at room temperature
- Medium hardness
- High tear resistance
- Very high elasticity, for easy removal of complex replica parts
- Very low shrinkage and good dimensional stability
- Can be used for high temperature casting applications
- Can be made thixotropic (non-flowable) for vertical surface replication

### High strength silicone moldmaking rubber

### APPLICATIONS

- SILASTIC S is suited for detailed reproduction of surfaces and objects for prototype design, production tooling, artistic and renovation applications.

### TYPICAL PROPERTIES

Specification writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales representative prior to writing specifications on this product.

| Property  | Unit    | Value     |
|---|---------|-----------|
| <b>Base</b>   |         |           |
| Viscosity   | mPa.s   | 26,000    |
| Color   |         | Off white |
| <b>Curing Agent</b>                                     |         |           |
| Viscosity   | mPa.s   | 140       |
| Color   |         | Green     |
| <b>Base and Curing Agent mixture (100:10 by weight)</b> |         |           |
| Mixed viscosity   | mPa.s   | 13,500    |
| Working time  | minutes | 40-60     |
| Curing time   | hours   | 7         |
| <b>Cured for 24 hours at 23°C (73.4°F)</b>              |         |           |
| Hardness (Shore A)                                      |         | 25        |
| Tensile strength  | MPa     | 7.0       |
| Elongation at break                                     | %       | 850       |
| Tear strength   | kN/m    | 23        |
| Relative density at 23°C (73.4°F)                       |         | 1.12      |
| Linear shrinkage  | %       | <0.1      |

### DESCRIPTION

SILASTIC S is a two-component material consisting of SILASTIC S Base, which when mixed with the SILASTIC S Curing Agent cures at room temperature by an addition reaction. A range of materials can be cast into the cured silicone mold: plaster, polyurethane, polyester and other reactive 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.

In all cases, it is advisable to check before casting that no discoloration or adhesion occurs between the product and the original or mold frame.

## Mixing

SILASTIC S Base contains a pigment which acts as an indicator for proper measuring and mixing. Thoroughly shake/stir the curing agent before use so that any sedimented pigment is redispersed.

Weigh 100 parts of SILASTIC S Base and 10 parts of SILASTIC S Curing Agent (see handling precautions) in a clean container, then 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 sufficiently 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 2-3 times will occur on vacuum de-airing the mixture, so a suitably large container should be chosen.

Note: If no vacuum de-airing equipment is available, air entrapment can be minimized by mixing a small quantity of base and curing agent, then using a brush, painting the original with a 1-2mm 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.

The base/curing agent ratio MUST be between 100:9.5 and 100:10.5

## Pouring the mixture and curing

Pour the mixed base and curing agent as soon as possible onto the original, avoiding air entrapment. The catalyzed material will cure to a flexible rubber within 6-8 hours at room temperature (22-24°C/71.6-75.2°F) and the mold can then be removed. If the working temperature is significantly lower, the cure time will be longer. Heat accelerating the

cure is possible, but this will produce some apparent shrinkage of the mold due to differences in volume contraction on cooling between the silicone rubber and the original. The higher the curing temperature, the greater the likely differences in dimensions.

**Table 1: Pot life and cure time**

| Temp. °C (°F) | Working time minutes | Time to cure |
|---------------|----------------------|--------------|
| 5 (41)        | >360                 | >24 hours    |
| 10 (50)       | 280                  | 20 hours     |
| 15 (59)       | 165                  | 12 hours     |
| 20 (68)       | 105                  | 10 hours     |
| 25 (77)       | 45                   | 7 hours      |
| 30 (86)       | 30                   | 4 hours      |
| 40 (104)      | -                    | 40 minutes   |
| 50 (122)      | -                    | 20 minutes   |

## ADDITIONAL INFORMATION

### Inhibition of cure

All addition-cured silicone elastomers are susceptible to cure inhibition when in contact with certain materials and chemicals. Inhibition has occurred if the elastomer is only partially cured after 24 hours, or has a sticky surface in contact with another material. Amines and sulphur containing materials are strong inhibitors, as are organo tin salts used in condensation cure silicone elastomers. Wet or moist surfaces can cause gas bubbles to be formed during cure in the silicone adjacent to the substrate surface. It is strongly recommended that mixing containers, mold construction materials, originals and release agents be checked for any inhibition effect before use.

### Use at high temperatures

Molds produced from SILASTIC S have a long life at elevated temperatures. However, continuous use above 200°C (392°F) will result in loss of elasticity over a period of time. Use above 250°C (482°F) is not recommended.

When heated, a mold made of SILASTIC S Base will expand producing a small change in copy dimensions.

## 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 non-flowable by the addition of SILASTIC® 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 >2mm. Leave to cure at room temperature until the material is tacky.
3. Prepare a new catalyzed mixture of SILASTIC S and add 3% by weight of SILASTIC 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 8 hours 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.

## Resistance to casting materials

The chemical resistance of fully cured SILASTIC S is excellent, and similar to all addition-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 S 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. 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 FROM YOUR LOCAL DOW CORNING SALES REPRESENTATIVE.

## **USABLE LIFE AND STORAGE**

When stored at or below 25°C (77°F) in the original unopened containers, SILASTIC S Base and SILASTIC S Curing Agent have a usable life of 12 months from the date of production.

SILASTIC S Curing Agent can be sensitive to moisture and contamination. Keep in original vented container and ensure it is well closed after use.

## **PACKAGING**

SILASTIC S Base and SILASTIC S Curing Agent are available in 1.1kg, 5.5kg, 22kg and 220kg kits.

## **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 Corning has an extensive Product Stewardship organization and a team of Health, Environment and Regulatory Affairs specialists available in each area.

For further information, please consult your local Dow Corning representative.

## **WARRANTY INFORMATION - PLEASE READ CAREFULLY**

The information contained herein is offered in good faith and is believed

to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that Dow Corning's products are safe, effective, and fully satisfactory for the intended end use. Dow Corning's sole warranty is that the product will meet the Dow Corning sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. Dow Corning specifically disclaims any other express or implied warranty of fitness for a particular purpose or merchantability. Unless Dow Corning provides you with a specific, duly signed endorsement of fitness for use, Dow Corning disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.

