

Dow Corning[®] HS II Base And SILASTIC[®] 81 NW Curing Agents

FEATURES

- 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 (non-flowable) for vertical surface replication
- Choice of curing agents for special applications

High strength silicone moldmaking rubber

APPLICATIONS

- Dow Corning HS II 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. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Base and Curing Agent mixture (20:1 by weight)

Color Off-White
Relative density at 25°C (77°F) of cured rubber 1.21

Silastic [®] Curing agents	81 NW	81-F NW	81-VF NW	81-R NW
	Standard	Fast	Very fast	Resin resistant
Working time of catalysed mixture at 23°C (73.4°F), minutes, min.	90-120	30-45	8-10	90-120
Mixed viscosity, cps	20,000	22,100	36,400	20,000
Cured for 2 days at 23°C (73.4°F)				
Hardness, (Shore A)	24	23	25	19
Tensile strength, psi	682	667	595	667
Elongation at break, %	544	543	438	622
Tear strength, ppi	148	137	143	148
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

Dow Corning[®] HS II Moldmaking Rubber is a two-component material consisting of Dow Corning HS II Base which when mixed with a SILASTIC 81 NW Series 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 Dow Corning HS II Base before use, as filler separation may occur upon prolonged storage.

Weigh 20 parts of HS II Base and 1 part of SILASTIC 81 NW 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 HS II Base and a SILASTIC 81 NW 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.

Pouring the mixture and curing

Pour the mixed HS II Base and SILASTIC 81 NW 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 81-F NW or SILASTIC 81-VF NW 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 non-flowable by the addition of Dow Corning® HS II 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 HS II and add 0.5-1.0% by weight of HS II 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 81-F NW or SILASTIC 81-VF NW 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 mould.

Other curing agents

The standard curing agent for HS II Base is SILASTIC 81 NW Curing Agent. For special requirements Dow Corning offers a range of additional curing agents:

- SILASTIC 81-F NW Curing Agent for demolding after 6 hours.
- SILASTIC 81-VF NW Curing Agent for demolding after 2 hours.
- SILASTIC 81-R NW Curing Agent for improved mold life with polyester casting resins.

SILASTIC 81-F NW and SILASTIC 81-VF NW 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 Dow Corning distributor for further advice.

Resistance to casting materials

The chemical resistance of fully cured HS II 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:

HS II 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 32°C (89.6°F) in the original unopened containers, HS II Base and SILASTIC 81-R NW Curing Agent have a usable life of 9 months. SILASTIC 81 NW Curing Agent has a usable life of 12 months. SILASTIC 81-F NW and 81-VF NW Curing Agents have a usable life of 7 months from the date of production.

When stored below 20°C (68°F), HS II Thixo Additive may solidify. The product can be easily liquified by immersing the closed container in warm water.

PACKAGING INFORMATION

HS II Base is available in 4kg, 20.4kg and 199.5kg containers.

SILASTIC 81NW Series Curing Agents are available in 0.25kg, 1kg and 10kg containers.

HS II Thixo Additive is available in a 500ml container.

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 Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

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

LIMITED 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*[®] and XIAMETER[®] products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

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