Technical Data Sheet

SILASTIC™ T-1 Base and Curing Agent

Translucent high strength silicone moldmaking rubber

Features & Benefits

- Translucent appearance allows split lines to be cut accurately in block molds
- Medium hardness
- Very low shrinkage and good dimensional stability
- Can be used for high temperature casting applications
- If required, the product cure can be heat accelerated

Applications

- SILASTIC™ T-1 Base and Curing Agent is suited for prototype design and production tooling, especially for rapid prototyping.

Typical Properties

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

Property	Unit	Result
Base and curing agent mixture (100:10 by weight)		
Viscosity	mPa.s	60,000
Color		Translucent
Working time at 23°C	minutes	90–120
Cured for 24 hours at 23°C (73.4°F)		
Hardness (Shore A)		40
Tensile strength	MPa	6.4
Elongation at break	%	430
Tear strength	kN/m	20
Relative density at 23°C (73.4°F)		1.12
Linear shrinkage	%	< 0.1

Description

SILASTIC™ T-1 Base and Curing Agent is a two-part material consisting of SILASTIC™ T-1 Base, which when mixed with SILASTIC™ T-1 Curing Agent, cures at room temperature by an addition reaction. A range of materials can be cast into the cured silicone mold: polyurethane and other reactive resins are the materials typically used.

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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 PTFE.

Mixing

Weigh 100 parts of SILASTIC™ T-1 Base and 10 parts of SILASTIC™ T-1 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 if free of air bubbles, can then be used. A volume increase of 3–5 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 1–2 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.

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 18–24 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. As a guide, a 5 mm section of SILASTIC™ T-1 Base and Curing Agent will heat cure in 30 minutes at 65°C (149°F) or in 12 minutes at 100°C (212°F) once the material has reached this temperature.

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 organotin salts used in condensation cure silicone elastomers. 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™ T-1 Base and Curing Agent 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.

Additional Information (Cont.)

Resistance to Casting Materials

The chemical resistance of fully cured SILASTIC™ T-1 Base and Curing Agent 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™ T-1 Base and Curing Agent 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

When stored at or below 32°C (89.6°F) in the original unopened containers, SILASTIC™ T-1 Base and SILASTIC™ T-1 Curing Agent have a usable life of 12 months from the date of production.

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.

Customer Notice

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

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