DOW CORNING

SILASTIC® T-4 Base and SILASTIC® T-4/T-4 O Curing Agent

Translucent high strength silicone moldmaking rubber

FEATURES

- Outstanding release properties
- If required the product cure can be heat accelerated
- Translucent appearance allows split lines to be cut accurately in block molds
- Very low shrinkage and good dimensional stability
- High hardness, but flexible and very tough
- Can be used for high temperature casting applications
- Two SILASTIC Curing Agents: T-4 (standard) and T-4 O (oil bleeding)
- Easy to de-air

APPLICATIONS

- SILASTIC T-4 is a high strength moldmaking rubber developed for prototype design and production tooling, especially for rapid prototyping.

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
Base		
Viscosity	mPa.s	70,000
Specific gravity		1.1
SILASTIC Curing Agents T-4 or T-4 O		
Viscosity	mPa.s	300
Specific gravity		0.96
Base and Curing Agent mixture (100:10 by weight)		
Mixed viscosity	mPa.s	35,000
Color		Translucent
Working time at 23°C (73.4°F)	minutes	90
Curing time	hours	12
Linear shrinkage	%	<0.1
Cured for 24 hours at 23°C (73.4°F) with SILASTIC T-4 Curing Agent		
Hardness (Shore A)		40
Tensile strength	MPa	6.7
Elongation at break	%	400
Tear strength[1]	N/mm	27
Cured for 24 hours at 23°C (73.4°F) with SILASTIC T-4 O Curing Agent		
Hardness (Shore A)		40
Tensile strength	MPa	6.5
Elongation at break	%	375
Tear strength[1]	N/mm	32

1. ISO 34 Cutter (equivalent JIS K 6252, DIN 53515/angle nick 1.0mm)

DESCRIPTION

SILASTIC T-4 is a two-component material consisting of SILASTIC T-4 Base, which when mixed with SILASTIC T-4 or SILASTIC T-4 O 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.

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-4 Base and 10 parts of SILASTIC T-4 or SILASTIC T-4 O 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 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 1-2mm 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 base and curing agent as soon as possible onto the original, avoiding air entrapment. The catalyzed material will cure to a flexible rubber within 12 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.

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 12 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. 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-4 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.

Resistance to casting materials

The chemical resistance of fully cured SILASTIC T-4 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-4 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 30°C (86°F) in the original unopened containers SILASTIC T-4 Base, SILASTIC T-4 Curing and SILASTIC T-4 O Agent have a usable life of 12 months from the date of production.

PACKAGING

SILASTIC T-4 Base is available in 20kg and 200kg containers. SILASTIC T-4 and SILASTIC T-4 O Curing Agents are available in 0.5kg, 2kg and 20kg 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 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.