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Product Information

SILASTIC 3481 Base and RTC 10 Curing Agent

High strength silicone mouldmaking rubber

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.

APPLICATIONS

- Silastic 3481 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 on this product.

Base and Curing Agent mixture (100:10 by weight)

Mixed viscosity, mPa.s:	<20,000
Colour:	Red
Working time of catalysed mixture at 23ºC(73.4ºF), mins:	60 mins

Cured for 10 days at 23ºC (73.4ºF)

Hardness, (Shore A):	20
Tensile strength, mPa:	4.2
Elongation at break, %:	>500
Tear strength, kN/m:	21
Relative density at 25ºC (77ºF):	1.18
Linear shrinkage, %:	0.2-0.5
Curing time, hours:	8-10

PHYSICAL/ELECTRICAL PROPERTIES

Cured Elastomer – mix ratio 10:1

Dialectric strength	kV/mm:	35
Volume resistivity	ohm cm x 10^{15}	0.1
Thermal conductivity	W/mºK	0.2
Thermal expansion	cm/cmºCx 10^{-5}	7
Elongation %		>370
Linear shrinkage		0.2 – 0.5
Tear strength	kN/m	21
Tensile strength	Mpa	>4
Relative density @ 25ºC		1.15

DESCRIPTION

Silastic 3481 Mouldmaking Rubber is a two-component material consisting of Silastic 3481 Base which when mixed with RTC 10 Curing agent, cures at room temperature by a condensation reaction. A range of materials can be cast into the cured silicone mould: 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 Silastic 3481 Base before use, as filler separation may occur upon prolonged storage. Weigh 100 parts of Silastic 3481 Base and 10 parts RTC 10 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 do for an extended period of time or allow the temperature to exceed 35ºC (95ºF). 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 minimised by mixing a small quantity of Silastic 3481 Base and RTC 10 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 mould.

Pouring the mixture and curing

Pour the mixed Silastic 3481 Base and RTC 10 Curing Agent as soon as possible onto the original, avoiding air entrapment. The catalysed material will cure to a flexible rubber within 24 hours at room temperature (22-24ºC/71.6-75.2ºF) and the mould 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 catalysed mixture will be reduced. The final mechanical properties of the mould will be reached within 7 days.

ADDITIONAL INFORMATION

Reproduction of vertical surfaces
If a skin mould is required of a vertical object or surface and cannot be made by normal pouring techniques, the catalysed 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 catalysed 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 catalysed mixture of Silastic 3481 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 24 hours at room temperature.
5. Construct a support mould using polyester resin or plaster and allow it to set in contact with the silicone coating. Carefully remove the support mould. Peel the rubber off the original and place in the support mould.

Use at high temperatures
Some moulds produced from condensation cure silicone rubbers can degrade when exposed to temperatures above 150ºC (302ºF) 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.

Resistance to casting materials
The chemical resistance of fully cured Silastic 3481 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 moulds, changing physical properties, surface release and possible mould dimensions. Moulds should be checked periodically during long production runs.

Note:
Silastic 3481 is an industrial product and must not be used in food moulding, dental and human skin moulding 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 INFORMAION. THE SAFETY DATA SHEET IS AVAILABLE FROM THOMSON BROS (NEWCASTLE) LTD.

USABLE LIFE AND STORAGE
When stored at or below 32ºC (89.6ºF) in the original unopened contained, Silastic 3481 Base and RTC 10 Curing Agent have a usable life of 9 months.

When stored below 20ºC (68ºF), Silastic Thixo Additive may solidify. The product can be easily liquified by immersing the closed container in warm water.

LIMITATIONS
This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

WARRANTY INFORMATION
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 UEL RESINS AND FIBERGLASS's products are safe, effective, and fully satisfactory for the intended end use. UEL RESINS AND FIBERGLASS's sole warranty is that the product will meet the UEL RESINS AND FIBERGLASS sales specifications in effect at the time of shipment. Your exclusiveremedy for breach of such warranty is limited to refund of purchase price or replacement of any productshown to be other than as warranted. UEL RESINS AND FIBERGLASS specifically disclaims any other express or implied

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