

ELASTOSIL® M 4441

RTV-2 Silicone Rubber / Mold Making

Characteristics

Pourable, condensation-curing, two-component silicone rubber that vulcanizes at room temperature.

Special characteristics

- Excellent flowability and good self-deaeration
- Medium Shore A hardness (approx. 45)
- Outstanding resistance to casting resins, particularly polyurethanes

Application

ELASTOSIL® M 4441 is perfectly suitable as

- A material for making flexible molds for reproducing models with no or only minor undercuts in all common reproduction materials
- A flexible release coat for rigid molds for the casting or foaming of polyurethane resins

Processing

A) Making flexible molds

ELASTOSIL® M 4441 is cured by adding Catalyst T.

Catalyst	Pot life, approx. [min]	Curing time (tack-free), approx. [h]
2 % T	90	7-8
4 % T	30	3-4

The pot life figures indicate the time at 23 °C / 50 % rel. humidity required for the mass to attain a viscosity of 60,000 mPa s and still be readily pourable.

Comprehensive instructions are given in our leaflet "WACKER RTV-2 Silicone Rubber - Processing."

Detailed information on other mold-making compounds in the ELASTOSIL® M range is contained in our brochure "ELASTOSIL® M. Mold-Making Compounds For Maximum Precision".

Product data (uncured)

Property	Test method	Unit	Value
Color			Pale gray
Density at 23 °C		[g/cm ³]	1.23
Viscosity at 23 °C, after stirring	ISO 3219	[mPa s]	12,000

Product data (catalyzed with 4 wt % Catalyst T)

Property	Test method	Unit	Value
Viscosity at 23 °C	ISO 3219	[mPa s]	7,000

Product data (cured)

Property	Test method	Unit	Value
Density at 23 °C in Water	ISO 2781	[g/cm ³]	1.22
Hardness, Shore A	ISO 868		45
Tensile strength	ISO 867	[N/mm ²]	2.0
Elongation at break	ISO 867	[%]	130
Tear strength	ASTM D 624 B	[N/mm]	> 3
Linear shrinkage with 2 % T		[%]	0.3
4 % T			0.7

Cured, with 2 wt % of Catalyst T, after 4 days at 23 °C / 50 % rel. humidity

*These figures are intended as a guide and should not be used in preparing specifications.

B) Coating rigid molds

Flexible release layers on rigid molds are generally produced by spraying ELASTOSIL® M 4441 as a solvent-containing dispersion.

In order to achieve adequate bonding of the rubber layer to the substrate, an adhesion promoter (Primer G 718 or, in the case of a rough or absorbent substrate, Primer FD Colorless) must first be applied to the surface of the rigid mold.

The ready-to-use spray is made according to the following guideline formulation:

	Parts by weight
ELASTOSIL® M 4441	100
White spirit 80/110	100
Catalyst T 47	7.5-8.0
Glacial acetic acid	0.5-1.0

This dispersion can readily be applied with airless equipment to produce the optimum coating thickness of 2 mm. We recommend using a spray nozzle with a diameter of 0.45 mm, equipment pressure of 200 bar and spraying pressure of 100 bar.

Important

The solvent contained in the rubber dispersion will form explosive mixture with air. Please observe the pertinent safety precautions!

The pot lives and curing times vary according to the amount of glacial acetic acid incorporated:

Amount of glacial acetic acid (wt %) in terms of the rubber	Pot life	Curing time	
		Skin formation	Full cure
0.5	2 h	45 min	60 min
1.0	10 h	60 min	90 min

The values for curing time pertain to the freshly catalyzed dispersion; the decrease to ca. 15 minutes towards the end of the pot life.

Vulcanization should be followed by storing the mold for at least 12 hours at room temperature prior to first use.

It is generally possible to make 40-60 moldings before the rubber begins to lose the release properties and the polyurethane resin starts to adhere to the surface. At this stage, it is sufficient to spray on a thin film of a new rubber coating. Once about ten rubber coatings have been applied, it becomes necessary to remove the entire rubber layer before applying a new one. This is easily accomplished by mechanical means after it has been swelled with a suitable solvent such as white spirit or toluene.

Storage

ELASTOSIL® M 4441 has a shelf life of at least 12 months when stored between 5 °C and 30 °C in the tightly closed original container. The 'Best use before end' date of each batch appears on the product label.

Catalyst T has a shelf life of at least 9 months if stored in the sealed original bottles between 5 °C and 25 °C, and Catalyst T 47 has a shelf life of at least 12 months under the same conditions.

Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

Safety information

Being a condensation-curing silicone rubber, ELASTOSIL® M 4441 contains only constituents that over many years have proved to be neither toxic nor aggressive. Special handling precautions are therefore not required, i.e., only the general industrial hygiene regulations apply.

Catalysts T and T 47 contain a tetraorganotin compound, are flammable (flash points 38 °C and 34 °C, respectively) and may cause irritation in contact with the eyes and skin. Adequate protective measures are required.

Detailed safety information is contained in each Material Safety Data Sheet, which can be obtained from our sales offices.

Additional information

Please contact your nearest WACKER subsidiary.

The data presented in this leaflet are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this leaflet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The recommendations do not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the products for a particular purpose.

The management system has been certified according to DIN EN ISO 9001 and DIN EN ISO 14001. The Business Unit Elastomers of the Division Silicones is QS-9000 certified.

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