Moldsil-10

High Performance Silicone Rubber for flexible Mold making

Product Technical data sheet

PRODUCT DESCRIPTION

Moldsil-10 is a *premium* grade condensation curing type Silicone RTV, recommended for mold making applications. This is a flowable grade, having high mechanical strength and cures with various catalyst options (depending on the application requirements) at room temperature to a flexible elastomer, well suited for detailed and exact reproduction of artifacts, figures, architectural items and similar objects. Moldsil-10 will reproduce the finest detail of the master and is suitable for a variety of art related and industrial applications such as mold making for reproducing prototypes, furniture, architectural items and sculptures.

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Moldsil-10 can also be thickened with Thixopol 88 additive for *brush-on* type applications for reproducing vertical surfaces.

PRODUCT FEATURES

- Recommended for Long Life Flexible Silicone Molds
- Flowable type high strength silicone rubber curing at room temperature – Excellent detail reproduction.
- Good mechanical properties - leading to long service Life.
- Highly elastic and excellent release properties – for easy de-molding.
- Excellent chemical resistance – compatible with most molding materials with long service life.
- Vertical surface replication with the use of a thixotropic additive Thixopol-88.

APPLICATIONS

- Moldsil-10 offers a good combination of good flow, high mechanical properties and excellent detail reproduction with good service life in mold making applications.
- Moldsil-10 is compatible with several master materials such as wood, metal, plastics, rubber, clay...
- Molds made of Moldsil-10 can be used to cast a variety of reproduction materials such as polyester resins, polyurethanes low melt metal alloys, epoxies, wax, gypsum, clay, concrete …..
- Moldsil-10 is well suited for *pad printing* applications used in printing curved surfaces.

TECHNICAL OVERVIEW

UNCURED PROPERTIES

PROPERTY	STANDARD	UNITS	VALUE
Colour			White
Viscosity Component A		mPa.s	22000
Specific Gravity	ASTM D-1475		1.07
Mixed Viscosity	ASTM D-2393	mPa.s	17000
Pot-life			
With 5% CAT-24	ASTM D-2471	Min.	120
With 5% CAT-16	ASTM D-2471	Min.	60
With 5% CAT-04	ASTM D-2471	Min.	20

CURED PROPERTIES* (With 5% CAT-16)

PROPERTY	STANDARD	UNITS	VALUE
Hardness	ASTM D-2240	Shore A	10
Tensile Strength	ASTM D-412	MPa	3.4
Elongation	ASTM D- 412	%	350
Tear Strength	ASTM D-624	N/mm	12
Linear Shrinkage		%	<0.5

*Typical Properties, should not be used as specification

CATALYST OPTIONS

The choice of catalyst depends on the application method and the speed of cure needed. Moldsil-10 can be cured in to elastomeric products using the following cure options:

- **CAT-24 : Slow catalyst:** Catalyst with long work life for slow demolding (useful in pouring application). Takes about 24 hours at room temperature for complete curing.

- **CAT-16 : Medium speed Catalyst :** Catalyst with moderate work life for fast demolding. Takes about 16 hours at room temperature for complete curing.

- **CAT-04 : Rapid Catalyst** : demolding catalyst with short work life for high speed mold making.(useful for brushing). The use of this catalyst results in durometers 5-10 points higher than CAT-16. Takes about 4 hours at room temperature for complete curing.

CATALYST PROPERTIES

PROPERTY	CAT-24	CAT-16	CAT-04
Colour	Transparent	Transparent	Transparent
Density (g/cc)	0.95-0.97	0.95-0.97	0.97-0.99
Viscosity (mPa.s)	25	25	25
Mix Ratio (A:B)	100:5	100:5	100:5

METHOD OF USE

- **Surface Preparation**: The master surface should be clean, free of loose materials and dust particles. With porous substrates use a suitable release agent such as petroleum jelly or soap solution.

- **Mixing of Components:** Thoroughly stir Moldsil-10 before addition of catalyst, as filler separation might have occurred during prolonged storage. *This is an important step to get the desired performance.* Select a container for mixing which is 4-5 times larger than the total material to be mixed. Weigh the A and B components in the desired ratio (ex: 100:5). Stir vigorously for several minutes scraping the sides and the bottom of the container to produce a homogeneous mix. Hand or mechanical (power) mixing can be used but do not mix for an extended period of time to avoid entrapping large amounts of air or causing over heating resulting in shorter work life.

- **De-aeration :** It is recommended that entrapped air be removed under vacuum to eliminate voids in the final product. This process will make the mixture to expand and then collapse. A volume increase of about 4-5 times will occur during the de-aeration process. Therefore, a large container should be used to accommodate this volume change. It should be also noted that prolonged application of vacuum will remove the volatiles from the mixture that can result in poor cure.

- This system is sensitive to temperature and humidity and therefore can influence the cure speed. The material will cure to a flexible rubber within 24 hours at room temperature and the mold can then be separated from the master. However, the final mechanical properties of the mold will be attained in one week.

- **Pouring the Mix and Curing:** The mix should be poured *as soon as possible* on to the original master to avoid air entrapment. The material will cure at a speed depending on the selection and the amount of the catalyst.

HANDLING PRECAUTIONS AND SAFETY

Moldsil-10 contains constituents that have been found to be safe. Hence special handing precautions except general industrial hygiene need to be followed. Catalysts (CAT-24, CAT-16 and CAT-04) contain organo-tin compounds and are flammable and might cause irritation upon contact with eyes and skin. Adequate protective measures are recommended. Refer to Material Safety Data Sheet (MSDS) for safe use of the product

USABLE LIFE AND STORAGE

The shelf life of Moldsil-10 and the catalysts (CAT-24, CAT-16 and CAT-04) is 6 months from the date of manufacturing if stored below 27^{o}C in original unopened containers.

PACKING

Moldsil-10 is available in following kit forms :

1. Kit of 1.050 kg (1 kg Moldsil-10 - Part-A + 50 grams of CAT-24 or CAT-16 or CAT-04)
2. Kit of 5.25 kg (5 kg Moldsil-10 - Part-A + 250 grams ofCAT-24 or CAT-16 or CAT-04)
3. Kit of 21 kg (20 kg Moldsil-10 – Part-A +1 kg of CAT-24 or CAT-16 or CAT-04)

LIMITATIONS

This product is neither tested nor claimed as suitable for food contact, medical or pharmaceutical applications.

Moldsil-10 is manufactured in India by :
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