



Craftsil-QR

High Performance Silicone Rubber for Flexible Quick Release Molds

Product Technical data sheet

PRODUCT DESCRIPTION

Craftsil-QR is a *premium* grade condensation curing type Silicone RTV, recommended for mold making applications needing **Quick Release**. This is a extremely low viscosity, flowable grade, having good 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. Craftsil-QR 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.

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

PRODUCT FEATURES

- This is a low viscosity, high flow grade of silicone rubber best suited for making intricate molds with deep undercuts.
- Good mechanical properties – gives long service life
- Highly elastic and excellent release properties – for easy de-molding. Well suited for casting unsaturated polyester resin with faster turn around cycles due to its Quick Release (QR) characteristics.
- Excellent chemical resistance – compatible with most molding materials and gives long service life.
- Vertical surface replication with the use of a thixotropic additive Thixopol-88.

APPLICATIONS

- ❑ Craftsil-QR offers a good combination of good flow, high mechanical properties and excellent detail reproduction with good service life in mold making applications.
- ❑ Craftsil-QR is compatible with several master materials such as wood, metal, plastics, rubber, clay...
- ❑ Molds made of Craftsil-QR can be used to cast a variety of reproduction materials such as polyester resins, polyurethanes low melt metal alloys, epoxies, wax, gypsum, clay, concrete



TECHNICAL OVERVIEW

UNCURED PROPERTIES

PROPERTY	STANDARD	UNITS	VALUE
Colour			White
Viscosity Component A		mPa.s	14000
Specific Gravity	ASTM D-1475		1.15
Mixed Viscosity	ASTM D-2393	mPa.s	9000
Pot-life			
With 5% CAT-16	ASTM D-2471	Min.	50
With 5% CAT-04	ASTM D-2471	Min.	15

CURED PROPERTIES* (With 5% CAT-16)

PROPERTY	STANDARD	UNITS	VALUE
Hardness	ASTM D-2240	Shore A	8-10
Tensile Strength	ASTM D-412	MPa	2.5
Elongation	ASTM D-412	%	400
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. Craftsil-QR 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
Cure time (h)	24	16	4

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 Craftsil-QR 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 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. However, the final mechanical properties of the mold will be attained in one week. The material will cure to a flexible rubber within 24 hours at room temperature and the mold can then be separated from the master.
- ❑ **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

Craftsil-QR contains constituents that have been found to be safe. Hence special handling 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 Craftsil-QR and the catalysts (CAT-24, CAT-16 and CAT-04) is 6 months from the date of manufacturing if stored below 27°C in original unopened containers.

PACKING

Craftsil-QR is available in following kit forms :

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

Craftsil-QR is manufactured in India by :
Performance Polymers
B-88, 3rd Cross 3rd Main,
Opp. ESI Sub-Regional Office
DDUTT, Industrial Suburb, 2nd Stage,
Yeshwantpur, Bangalore 560 022,
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Limited Warranty : The information mentioned in this data sheet is a description of the product to the best of our knowledge. Recommendations for use do not constitute a warranty of the fitness for a particular use. It is the user's responsibility to thoroughly test the product in a particular application to determine its performance and safety.