

QM 122 2 part moldmaking material

Description

QM 122 is a two-component, room temperature, condensation cure, silicone material. The cured rubber is flexible with excellent mechanical and physical properties in addition to good shelf-life stability. This material is an excellent choice for the molding of intricate patterns which involve deep undercuts and where dimensional stability becomes important while maintaining fairly low modulus. A variety of catalysts are offered with this material.

Key Features

- Low viscosity
- Excellent tear resistance
- Fast de-mold time
- Moderately high durometer with a moderately low modulus

Key Applications

- Complies with FDA indirect food contact regulation CFR 177.2600, when used with QM Cat Clear FG. Refer to QM Cat Clear FG data sheet for typical properties.

Application

Molds of statues, monument restoration, picture frames, architectural molds, prototypes, polyester, PU and epoxy

Use and Cure Information

CURE CHARACTERISTICS

The standard catalyst for the QM 100* series is QM Cat Purple catalyzed 10:1 (base:catalyst) by weight. QM Cat Blue is recommended for those needing a longer working time or those hand mixing larger quantities of QM 122. Faster cure can be obtained using DBT, a higher level of QM Cat Purple, or QM Cat Red 3. However, rapid cure of condensation cure moldmaking rubber often results in a small sacrifice of physical properties or an increase in hardness. The curing process begins as soon as the catalyst is mixed with the base. The material will cure as described in the data above under normal temperature (25 °C) and humidity conditions (50% RH). Because this system is sensitive to heat and humidity, a change in cure speed may be observed if one or both of these variables are altered. A large difference in temperature (+/- 5 °C) or humidity (> 60% – 70%) may alter the cure profile of the material. In addition, if the product is to be used with aggressive resins such as high styrene polyester resins, it is recommended that the rubber be allowed to cure for 48 hours. *QM 100, QM 135 and QM 140 each require their own specific catalyst. Please see individual data sheets for details.

MIXING

All condensation cure catalysts should be thoroughly mixed prior to catalyzation. QSi recommends that the catalyzed material be tested on a small area of the mold prior to use. QM 122 should be thoroughly mixed with the chosen catalyst using a 10:1 ratio (base:catalyst) by weight. Shake the catalyst well before use. Material should be mixed in a clean, compatible metal or plastic container. The volume of the container should be 3 - 4 times the volume of the material to be mixed. This allows for expansion of the siloxane material during de-aeration. Mix thoroughly by hand or with mixing equipment while minimizing air entrapment until a homogeneous mixture is obtained.

DE-AERATION

Air trapped during mixing should be removed by vacuum at 29 inches of mercury. During the process, the material will expand, and intermittent evacuation may be required. Typically, after releasing the vacuum 2 - 3 times, the mass will collapse on itself at which time the vacuum should be left on for an additional 2 - 4 minutes.

Property

Uncured Product

Cure Profile		3 days, 25°C, 50% humidity
Cure Type		Condensation
De-mould Time / Full Cure at 23°C/73°F		16 - 24 hrs
Density A	BS ISO 2781	1.28
Density B	BS ISO 2781	1.00
Mix Ratio By Weight		10:1
Rheology		Liquid
Tack Free Time / Skin Formation at 23°C/73°F		6 - 8 hr
Viscosity A	Brookfield	25000 cP
Viscosity B	Brookfield	100 cP
Viscosity Mixed	Brookfield	15000 cP

Cured Product

Color		Blue
Density	BS ISO 2781	1.25 g/cm3
Elongation at Break	ISO 37	300 %
Hardness Shore A	ASTM D 2240-95	21
Linear Shrinkage (%)		<0.3 %
Tear Resistance (N/mm)	BS ISO 34-1	20 N/mm / 114 ppi
Tensile Strength	ISO 37	2.76 N/mm2 / 400 psi

Storage

Max Storage Temperature	38 °C / 100 °F
Shelf Life	12 mths

UNCATALYZED				
TEST	QM 122	QM CAT PURPLE	QM CAT BLUE	QM CAT RED 3
Color	Beige	Purple	Blue	Red
Viscosity	25,000 cps	100 cps	100 cps	100 cps
Specific Gravity	1.28	1.00	1.00	1.00

CATALYZED			
MIX RATIO 10:1 by weight			
PROPERTY	QM CAT PURPLE	QM CAT BLUE	QM CAT RED 3
Color	Light Purple	Light Blue	Light Red
Viscosity	15,000 cps	15,000 cps	15,000 cps
Specific Gravity	1.25	1.25	1.25
Work Life at 25°C *	35 minutes	45 minutes	7 minutes
Durometer Shore A, 24 hours	21	21	21
Tack-Free Time	4 – 6 hours	6 – 8 hours	45 – 60 minutes
Demold Time	12 – 16 hours	16 – 24 hours	4 – 6 hours

* Work life is defined as the amount of time required for the material to double in catalyzed viscosity.

CURED PROPERTIES	
3 DAYS @ 25°C	
Durometer, Shore A	22
Tensile Strength	400 psi
Elongation	300%
Tear B	115 ppi
Linear Shrinkage	< 0.3%

Thixotropic and styrene resistant specialty catalysts are also available. Please see individual catalyst data sheets for more information.

Storage

See product label and/or CoA for specific "Use By Date". Product should be stored in its original, unopened container. Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case, the properties required for the intended use should be checked for quality assurance reasons.

Revision Date 29 Apr 2021

Revision No 1

Download Date 29 Apr 2024

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CHT Germany GmbH: Postfach 12 80, 72002 Tübingen, Bismarckstraße 102, 72072 Tübingen, Germany
Telephone: 07071/154-0, Fax: 07071/154-290, Email: info@cht.com, Homepage: www.cht.com / www.cht-silicones.com