TECHNICAL DATA SHEET

QM 113
2 part moldmaking material

Description

QM 113 is a two-component, room temperature, condensation cure, silicone material. The cured rubber is very soft, has excellent mechanical properties and good shelf-life stability. This material is an excellent choice for the molding of intricate patterns, skin molding or for applications where lower modulus and extremely tough rubber are required. A variety of catalysts are offered with this material.

Key Features

- High tear strength
- Low viscosity
- Fast de-mold time
- 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, polyester, PU and epoxy, technical articles and prototypes

Property	Test Method	Value
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	**1.25**
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	**15000 cP**
Viscosity Mixed	Brookfield	**12000 cP**
Cured Product		
Color		**Blue**
Density	BS ISO 2781	**1.23 g/cm3**
Elongation at Break	ISO 37	**500 %**
Hardness Shore A	ASTM D 2240-95	**14**
Linear Shrinkage (%)		**<0.3 %**
Tear Resistance (N/mm)	BS ISO 34-1	**19.1 N/mm / 109 ppi**
Tensile Strength	ISO 37	**2.8 N/mm2 / 406 psi**
Storage		
Max Storage Temperature		**38 °C / 100 °F**
Shelf Life		**12 mths**

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 113. 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. CHT recommends that the catalyzed material be tested on a small area of the mold prior to use. QM 113 should be thoroughly mixed with the chosen catalyst using a 10:1 (base:catalyst) ratio 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.

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UNCATALYZED				
TEST	**QM 113**	**QM CAT PURPLE**	**QM CAT BLUE**	**QM CAT RED 3**
Color	Beige	Purple	Blue	Red
Viscosity	15,000 cps	100 cps	100 cps	100 cps
Specific Gravity	1.25	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	12,000 cps	12,000 cps	12,000 cps
Specific Gravity	1.23	1.23	1.23
Work life at 25°C *	25 minutes	45 minutes	7 minutes
Durometer shore A, 24 hours	11	11	11
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	14
Tensile Strength	400 psi
Elongation	500%
Tear B	110 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 14 May 2024

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