TECHNICAL DATA SHEET

QM 140
2 part moldmaking material

Description

QM 140 is a two-component, room temperature, condensation cure, silicone material. The cured rubber has excellent mechanical properties and good shelf-life stability. This material is an excellent choice for the molding of intricate patterns, skin molding and applications where high durometer, dimensional stability and extremely tough rubber are required.

Key Features

- High tear strength
- Low viscosity
- Fast de-mold time
- Excellent dimensional stability

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

Technical articles, prototypes, furniture, picture frames, PU, epoxy and polyester casting resins

Use and Cure Information

CURE CHARACTERISTICS

The standard catalyst for QM 140 is QM Cat 140 catalyzed at a 10:1 (base:catalyst) ratio by weight. In order to achieve optimum physical properties and hardness from QM 140 the use of QM Cat 140 is highly recommended. Faster cure can be obtained using DBT or a higher level of QM Cat 140. However, rapid cure of QM 140 can often result 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.

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		**4 - 6 hrs**
Density A	BS ISO 2781	**1.16**
Density B	BS ISO 2781	**1.01**
Mix Ratio By Weight		**10:1**
Rheology		**Liquid**
Tack Free Time / Skin Formation at 23°C/73°F		**4 - 6 hr**
Viscosity A	Brookfield	**50000 cP**
Viscosity Mixed	Brookfield	**37000 cP**
Cured Product		
Color		**Purple**
Density	BS ISO 2781	**1.14 g/cm3**
Elongation at Break	ISO 37	**300 %**
Hardness Shore A	ASTM D 2240-95	**40**
Linear Shrinkage (%)		**<0.3 %**
Tear Resistance (N/mm)	BS ISO 34-1	**27.8 N/mm / 159 ppi**
Tensile Strength	ISO 37	**4.48 N/mm2 / 650 psi**
Storage		
Max Storage Temperature		**38 °C / 100 °F**
Shelf Life		**12 mths**

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 140 should be thoroughly mixed with QM Cat 140 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. This will occur when the material takes on a uniform color with no visible striations.

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.

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.

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UNCATALYZED			
TEST	**QM 140**	**QM Cat 140**	**QM Cat Clear FG**
Color	Beige	Purple	Translucent
Viscosity	50,000 cps	250 cps	300 cps
Specific Gravity	1.16	1.01	1.01

CATALYZED		
MIX RATIO 10:1 by weight		
PROPERTY	**RESULT w/ QM Cat 140**	**RESULTS w/ QM Cat Clear FG**
Color	Light Purple	Beige
Viscosity	37,000 cps	37,000 cps
Specific Gravity	1.14	1.14
Work life at 25°C *	45 minutes	45 minutes
Tack-free time	4 - 6 hours	4 - 6 hours
Demold time	12 - 16 hours	12 - 16 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		
PROPERTY	**RESULT w/ QM Cat 140**	**RESULTS w/ QM Cat Clear FG**
Durometer, Shore A	40	30
Tensile Strength	650 psi	650 psi
Elongation	300%	530%
Tear B	160 ppi	160 ppi
Linear Shrinkage	< 0.3%	< 0.3%

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

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