

QSil 12 2 part encapsulation and potting silicone

Description

QSil 12 is a clear, transparent, low viscosity, two-component, liquid silicone material which cures at room temperature and is primarily intended for potting applications. This material is typically mixed at a ratio of 100:5. Once mixed, the material is self-leveling and will have a useful work-life of approximately two hours. The material will be fully cured after 24 – 48 hours at room temperature. This material can also be vulcanized at elevated temperatures (up to 70 °C) to increase the cure speed.

Key Features

- Low viscosity
- Variable cure speed with mild heat
- Transparency, room temperature cure
- Good adhesion with use of a primer

Application

Protects against shock/vibration. Good deep section cure

Use and Cure Information

MIXING

QSil 12 should be catalyzed by weight with the appropriate amount of curing agent. The most commonly used curing agent concentration is 5% of QSil Cat 12. This concentration will provide a gel time of approximately 2 hours and a cure time of approximately 24 hours. Material should be mixed in a clean, compatible metal or plastic container. The volume of the container should be 4 – 5 times the volume of the material to be catalyzed. Thoroughly mix using clean tools, scraping the bottom and the side of the container to produce a homogeneous mixture.

DE-AERATION

Air trapped during mixing should be removed to eliminate voids in the cured product. Vacuum de-airing may be necessary to completely remove all entrapped air bubbles. To ensure proper de-airing, subject the mixed material to 29 inches of mercury. When using QSil 12 for potting, a de-aeration step may be necessary after pouring to avoid capturing air in complex assemblies.

BONDING

QSil 12 silicone rubber compounds require the use of a primer to bond to a non-silicone surface. Thoroughly clean the substrate with a non-oily solvent such as naphtha or methyl ethyl ketone (MEK) and let dry. Then apply a uniform thin film of silicone primer and allow time to dry for one hour or more.

Property

Uncured Product

Color Base	Clear, slight haze
Color Catalyst	Clear, slight yellow
Cure Profile	72 hrs at room temperature
Cure Type	Condensation
Gel Time at 25°C/77°F	60 - 180 min
Mix Ratio By Weight	20:1
Pot Life mins at 23°C/73°F	60 - 180 mins
Rheology	Liquid
Specific Gravity Base	1.00
Specific Gravity Catalyst	0.85
Viscosity Base	1400
Viscosity Catalyst	15

Cured Product

Color		Clear, to slightly hazy yellow
Density	BS ISO 2781	1.00 g/cm ³
Elongation at Break	ISO 37	35 %
Hardness Shore A	ASTM D 2240-95	18
Linear Shrinkage (%)		1.00 %
Max Working Temp		204 °C / 399 °F
Min Working Temp		-55 °C / -67 °F
Tensile Strength	ISO 37	0.14 N/mm ² / 20 psi
Thermal Conductivity		0.18 W/mK

Electrical Properties

Dielectric Constant	ASTM D-150	3.00
Dielectric Strength (V/mil)		400 V/mil
Dielectric Strength kV/mm	ASTM D-149	12.4 kV/mm / 315 V/mil
Dissipation Factor	ASTM D-150	0.001
Volume Resistivity (Ohms cm)	ASTM D-257	1E+13 ohms cm

Storage

Max Storage Temperature	38 °C / 100 °F
Shelf Life	18 mths

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UNCATALYZED		
TEST	QSil 12	QSil Cat 12
Appearance	Clear, slight haze	Clear, slight yellow
Viscosity	1,400 cps	15 cps
Specific Gravity	1.00	0.85
Solvent	None	Mineral Spirits

CATALYZED	
MIX RATIO 100:5 by weight (Base:Catalyst)	
TEST	RESULT
Gel Time at 25 °C *	60 – 180 minutes
Specific Gravity	1.00
Durometer, Shore A, 24 hour	12
Durometer, Shore A, 72 hour	18
Useful Temperature Range	-55 °C – 204 °C

* Gel time is defined as the time required for the material to become a solid or a semi-solid.

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.

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