# **TECHNICAL DATA SHEET**



## 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 of 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	Test Method	Value
	Color A Color B		Clear slight haze Clear, slight yellow
	Cure Profile		72 hrs at room temperature
	Cure Type Density A Density B Gel Time at 25°C/77°F Mix Ratio By Weight Pot Life mins at 23°C/73°F Rheology Viscosity A Viscosity B	BS ISO 2781 BS ISO 2781 Brookfield Brookfield	Condensation 1.00 0.85 60 - 180 min 20:1 60 - 180 mins Liquid 1400 cP 15 cP
	Cured Product		
	Color		Clear, to slightly hazy vellow
	Density Elongation at Break	BS ISO 2781 ISO 37	1.00 g/cm3 35 %
r	Hardness Shore A	ASTM D 2240-95	18
١	Linear Shrinkage (%) Max Working Temp Min Working Temp Tensile Strength Thermal Conductivity	ISO 37	1.00 % 204 °C / 399 °F -55 °C / -67 °F 0.14 N/mm2 / 20 psi 0.18 W/mK
	Electrical Properties Dielectric Constant Dielectric Strength (V/mil)	ASTM D-150	3.00 400 V/mil
	Dielectric Strength kV/mm Dissipation Factor	ASTM D-149 ASTM D-150	12.4 kV/mm / 315 V/mil 0.001
	Volume Resistivity (Ohms cm)	ASTM D-257	1E+13 ohms cm
	Storage Max Storage Temperature Shelf Life		38 °C / 100 °F 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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