

QSiI222 Optically clear 2-Part Encapsulant

Introduction

QSiI222 is a 2-component, heat curing, silicone elastomer system specially designed for electronic and optical potting applications. It offers good protection against impact damage and can be employed in areas where optical clarity, temperature resistance and adhesion are prerequisite. The cured product is a hard, medium to high modulus elastomer that can be repaired. The component parts have relatively low viscosities and are readily mixed in a simple **10:1** ratio.

Key Features

- **Primerless adhesion to most substrates**
- **Non yellowing catalysts system**
- **Hydrolytic stability and reversion resistance**
- **Contains no solvents**

Use and Cure Information

How to Use

IMPORTANT: **QSiI222** contains the platinum catalyst, great care should be taken when using automatic dispensing equipment. Please ensure that it is not contaminated by residual hydride containing rubber in the dispensing equipment, as curing will result. If in doubt, it's advised to thoroughly purge the equipment with a suitable hydrocarbon solvent or silicone fluid.

Mix both the A and B parts gently to ensure homogeneity. Place the required amount of A and B parts by weight at the ration of **10:1** (A to B) in a clean plastic or metal container of approximately 3 times their volume, and mix until the colour of the mixture is uniform. Degas by intermittent evacuation, the larger volume of the mixing vessel helps prevent overflow during this operation. In case of automatic dispensing with static mixing head, the two components should be degassed before processing. Recommended vacuum conditions are 500 - 900 mbar intermittently over 5-10 minutes. Cast the mixture either by gravity or pressure injection.

Curing Conditions

The following table offers a guide to the rate of cure of **QSiI222** at various temperatures, mixing of the components between 15 and 25°C is recommended with degassing. The product will retain a working pot life for >24 hours at 25°C, this can be extended to 1 week by storing the mixed components at 1 to 10°C.

Temperature, °C	Max Cure Time
100	2 hours
150	1 hour

Inhibition of Cure

Great care must be taken when handling and mixing all addition cured silicone elastomer systems, that all the mixing tools (vessels and spatulas) are clean and constructed in materials which do not interfere with the curing mechanism. The cure of the rubber can be inhibited by the presence of compounds of nitrogen, sulphur, phosphorus and arsenic; organotin catalysts and PVC stabilizers; epoxy resin catalysts and even contact with materials containing certain of these substances e.g. moulding clays, sulphur vulcanised rubbers, condensation cure silicone rubbers, onion and garlic.

Property

Uncured Product

Property	Test Method	Value
Colour A Part:		Transparent
Colour B Part:		Transparent
Appearance:		Clear Liquid
Viscosity A Part:	Brookfield	2390 mPa.s
Viscosity B Part:	Brookfield	282 mPa.s
Catalysed viscosity	Brookfield	2200 mPa.s
Pot Life:		>1440 minutes *
SG 'A'Part		1.02
SG 'B'Part		1.00

* measured at 23+/-2°C and 65% relative humidity

Cured Elastomer

(after 7 days cure at 23+/-2°C and 65% relative humidity)

Property	Test Method	Value
Colour		Transparent
Tensile Strength:	BS903 Part A2	2.30 MP
Elongation at Break:	BS903 Part A2	128 %
Youngs Modulus	BS903 Part A2	1.69 MPa
Modulus at 100% Strain	BS903 Part A2	1.56 MPa
Hardness:	ASTM D 2240-95	40 Shore A
Specific Gravity:	BS 903 Part A1	1.02
Linear Shrinkage:		0.10 %
Thermal Conductivity:		0.18 W/m
Coefficient of Thermal Expansion:		825 ppm / °C
Volumetric Linear		275 ppm / °C
Min. Service Temperature:		-60°C
Max. Service Temperature:	AFS 1540B	200 °C

Electrical Properties

Surface Resistivity

Volume Resistivity:	ASTM D-257	1.7E+15 Ω.cm
Dielectric Strength:	ASTM D-149	19.7kV/mm
Dielectric Constant at 1 kHz:	ASTM D-150	2.69
Dissipation Factor at 1MHz:	ASTM D-150	6E-4

Flammability

UL94 V-0 Rated **No**

Adhesion

Self Bonding **Yes**

All values are typical and should not be accepted as a specification.

Health and Safety - Material Safety Data Sheets available on request.

Packages – **QSiI222** is available commercially in kit pack sizes of 1.1 kg, 5.5 kg and 22 kg. Please contact your regional sales manager for sample requests.

Storage and Shelf Life – Expected to be **12** months in original, unopened containers below 25°C

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