

## QSi12 (QSi12) Transparent Encapsulant

### Introduction

**QSi12** is a 2-component room temperature vulcanising silicone rubber system that is employed as an encapsulant for sensitive electrical and electronic assemblies.

It is cured by the addition of A and B parts to produce a moderately hard silicone rubber, which offers good protection against chemicals and environmental contamination, shock and vibration.

The component parts have relatively low viscosities and are readily mixed in a simple **20:1** ratio.

### Key Features

- **Optically Clear**
- **Self Bonding**
- **Low Viscosity**
- **Good deep section cure**

### Applications

**QSi12** is recommended for potting, embedding and encapsulating delicate electrical and electronic equipment; sealing and caulking.

### Use and Cure Information

#### Mixing

The A and B parts of the rubber must be mixed thoroughly with to produce a uniformly cured product. Mixing can be carried out mechanically or by hand, but care should be taken to avoid trapping air in the mixture since this can cause voids in the cured rubber.

#### De-aeration

For applications where such voids are undesirable the mixture should be de-aerated under reduced pressure before use.

The time and pressure required for de-aeration depends on the quantity of the liquid being used. As a guide, 150g of base liquid can be de-aerated in 5-10 minutes at a pressure of 5-10 mm of mercury. Containers should be only two-thirds full to prevent overflow during the initial stages of de-aeration.

#### Curing

The curing process begins, without exotherm, immediately the liquid and curing agent are mixed together.

Ambient temperature and humidity conditions are considered to be 15 to 30°C and 50 to 70% Relative Humidity.

It is recommended that no heat should be applied to accelerate cure as this can have adverse effects on the properties of the cured rubber.

**Cure Time @ 25°C**                      **16 hrs**

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Property	Test Method	Value
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#### Uncured Product

Colour A Part:		<b>Transparent</b>
Colour B Part:		<b>Transparent</b>
Appearance:		<b>Clear Liquid</b>
Viscosity A Part:	Brookfield	<b>1400 mPa.s</b>
Viscosity B Part:	Brookfield	<b>15 mPa.s</b>
Catalysed viscosity	Brookfield	<b>1100 mPa.s</b>
Pot Life:		<b>120 minutes *</b>

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

#### Cured Elastomer

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

Colour		<b>Transparent</b>
Tensile Strength:	BS903 Part A2	<b>MP</b>
Elongation at Break:	BS903 Part A2	<b>%</b>
Youngs Modulus:		<b>MPa</b>
Modulus at 100% Strain:	BS903 Part A2	<b>MPa</b>
Tear Strength:	BS903 Part A3	<b>kN/m</b>
Hardness:	ASTM D 2240-95	<b>19° Shore A</b>
Specific Gravity:	BS 903 Part A1	<b>0.99</b>
Linear Shrinkage:		<b>1 %</b>
Thermal Conductivity:		<b>0.18 W/m</b>
Coefficient of Thermal Expansion:		
Volumetric		<b>900 ppm / °C</b>
Linear		<b>300 ppm / °C</b>
Min. Service Temperature:		<b>-50°C</b>
Max. Service Temperature:	AFS 1540B	<b>220 °C</b>

#### Electrical Properties

##### Surface Resistivity

Volume Resistivity:	ASTM D-257	<b>1.0E+13 Ω.cm</b>
Surface Resistivity:	ASTM D-257	<b>Ω</b>
Dielectric Strength:	ASTM D-149	<b>&gt;17kV/mm</b>
Dielectric Constant at 1 kHz:	ASTM D-150	<b>3.00</b>
Dissipation Factor at 1MHz:	ASTM D-150	
Power Factor at 1MHz:	BS903 Part C3	

#### Flammability

**UL94 V-0 Rated**                      **No**

#### Adhesion

**Self Bonding**                              **No**

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

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

**Packages** – ACC Addition encapsulants are supplied in a range of pack sizes please contact the sales office for details

Arrangements can be made to supply in other pack sizes.

**Storage and Shelf Life** – Expected to be **6 months** in original, unopened containers below 30°C

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