

## QSiil 40 2 part encapsulation and potting silicone

### Description

QSiil 40 is a general purpose two-part, room temperature, condensation cure siloxane elastomer. The two applicable catalysts are 0.5% DBT by weight and 10% Deep Section Catalyst by weight. Cure speed can be accelerated by adding DBT catalyst in increments of 0.1%. This will not alter the physical properties of the material. QSiil 40 exhibits excellent release properties. However, strong adhesion can be achieved through the use of a primer.

### Key Features

- Good adhesion with use of a primer
- Self-levelling
- Variable cure speed
- UL recognized in file No. E205830

### Use and Cure Information

#### MIXING

If using QSiil Deep Section Catalyst as the curing agent, it should be thoroughly mixed prior to use. QSiil 40 should be catalyzed by weight with the appropriate amount of curing agent. A concentration of 0.5% DBT catalyst or 10% Deep Section Catalyst will provide a cure time of 24 hours. Cure speed can be accelerated by adding DBT catalyst in increments of 0.1%. 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 QSiil 40 for potting, a de-aeration step may be necessary after pouring to avoid capturing air in complex assemblies.

#### DEEP SECTION CURE

Cured QSiil 40 should be properly conditioned prior to service if it is to be used in deep sections at temperatures over 150 °C (32 °F). Following room temperature cure of 1 – 3 days, a typical program would be eight hours at 50°C intervals from 100 °C (212 °F) to the service temperature. Longer times at each temperature will be required for larger parts of very deep sections.

#### BONDING

QSiil 40 rubber compounds require a primer to bond to non-silicone surfaces. Thoroughly clean the substrate with a non-oily solvent such as naphtha or methyl ethyl ketone (MEK) and let the surface dry. Then apply a uniform thin film of a suitable silicone primer to air dry for one hour or more.

### Property

#### Uncured Product

|  |             |                                   |
|--|-------------|-----------------------------------|
| Cure Profile                                 |             | <b>24 hrs at room temperature</b> |
| Cure Type                                    |             | <b>Condensation</b>               |
| Density A                                    | BS ISO 2781 | <b>1.2</b>                        |
| Density B                                    | BS ISO 2781 | <b>1.04</b>                       |
| Gel Time at 25°C/77°F                        |             | <b>100 min</b>                    |
| Rheology                                     |             | <b>Liquid</b>                     |
| Tack Free Time / Skin Formation at 23°C/73°F |             | <b>4 hr</b>                       |
| Viscosity A                                  | Brookfield  | <b>11000 cP</b>                   |
| Viscosity Mixed                              | Brookfield  | <b>11000 cP</b>                   |

#### Cured Product

|                        |                |  |
|------------------------|----------------|--|
| Color                  |                | <b>White</b>                           |
| Elongation at Break    | ISO 37         | <b>200 %</b>                           |
| Hardness Shore A       | ASTM D 2240-95 | <b>40</b>                              |
| Max Working Temp       |                | <b>204 °C / 399 °F</b>                 |
| Min Working Temp       |                | <b>-55 °C / -67 °F</b>                 |
| Tear Resistance (N/mm) | BS ISO 34-1    | <b>3.47 N/mm / 20 ppi</b>              |
| Tensile Strength       | ISO 37         | <b>1.38 N/mm<sup>2</sup> / 200 psi</b> |
| UL File No.            |                | <b>E205830</b>                         |

#### Storage

|                         |                       |
|-------------------------|-----------------------|
| Max Storage Temperature | <b>4.4 °C / 40 °F</b> |
| Shelf Life              | <b>12 mths</b>        |

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| UNCATALYZED      |            |                    |                       |
|------------------|------------|--------------------|-----------------------|
| TEST             | QSil 40    | DBT Catalyst       | Deep Section Catalyst |
| Appearance       | White      | Clear/light yellow | Beige                 |
| Viscosity        | 11,000 cps | N/A                | 6,500 cps             |
| Specific Gravity | 1.20       | 1.04               | 1.47                  |

| CATALYZED           |   |   |
|---------------------|---|---|
|                     | DBT Catalyst<br>MIX RATIO 100:0.5 by weight | Deep Section Catalyst<br>MIX RATIO 10:1 by weight |
| PROPERTY            | RESULT                                      | RESULT  |
| Gel Time at 25 °C * | 100 minutes                                 | 45 minutes  |
| Tack Free Time      | 4 hours                                     | 2 hours   |

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

| 24 HOUR Room Temperature Cure with Deep Section Catalyst |                 |
|--|-----------------|
| PROPERTY   | RESULT          |
| Durometer, Shore A                                       | 40              |
| Tensile  | 200 psi         |
| Elongation   | 200%            |
| Tear B   | 20 ppi          |
| Useful Temperature Range                                 | -55 °C – 204 °C |

## 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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