

QSiI 960 Condensation cure for potting applications

Description

This is a red, high temperature, self-leveling, two-component, condensation cure, silicone material primarily intended for potting applications.

The two applicable catalysts are 0.5% DBT by weight and 10% QSiI Deep Section Catalyst by weight which gives a self leveling material with a work life of approximately 60 minutes. The material will be fully cured after 24 – 36 hours at room temperature. The 0.5% catalyst level can be increased or decreased to obtain desired cure speed.

Key Features

- Self-levelling
- Variable cure speed
- Excellent thermal stability
- Retention of elastomeric properties within the temperature range of -115°C - 260°C

Application

Potting, aerospace, fixation of heat shield tiles for space vehicles

Use and Cure Information

CATALYSTS		
TEST	DBT Catalyst	QSiI Deep Section Catalyst
Appearance	Clear/light yellow	Beige
Viscosity	N/A	6,500 cps
Specific Gravity	1.04	1.47

MIXING

If using QSiI Deep Section Catalyst as the curing agent, it should be thoroughly mixed prior to use.

The base should be catalyzed by weight with the appropriate amount of curing agent. A concentration of 0.5% DBT catalyst or 10% QSiI Deep Section Catalyst will provide a gel time approximately 60 minutes and a cure time of 24 hours. Cure may be accelerated by using 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 this material for potting, a deaeration step may be necessary after pouring to avoid capturing air in complex assemblies.

DEEP SECTION CURE

Cured material 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

These 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.

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Property

Uncured Product

Cure Profile		24 hrs at 25°C
Cure Type		Condensation
Gel Time at 25°C/77°F		60 minutes
Mix Ratio By Weight		100:0.5 or 10:1
Rheology		Liquid
Specific Gravity		1.42
Viscosity	Brookfield	24,000 cP

Cured Product

24 hours at 25°C		
Color		Red
Elongation at Break	ISO 37	130 %
Hardness Shore A	ASTM D 2240-95	50
Max Working Temp		260 °C / 500 °F
Min Working Temp		-115 °C / -175 °F
Tear Resistance (N/mm)	BS ISO 34-1	3.47 N/mm / 20 ppi
Tensile Strength	ISO 37	3.45 N/mm ² / 500 psi

Electrical Properties

Dielectric Constant	ASTM D-150	3.9
Dielectric Strength (V/mil)		550 V/mil
Dielectric Strength kV/mm	ASTM D-149	21.7 kV/mm / 551 V/mil
Dissipation Factor	ASTM D-150	0.02
Volume Resistivity (Ohms cm)	ASTM D-257	2E+14 ohms cm

Storage

Max Storage Temperature	4.4 °C / 40 °F
Shelf Life	12 mths

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CHT Germany GmbH: Postfach 12 80, 72002 Tübingen, Bismarckstraße 102, 72072 Tübingen, Germany
Telephone: 07071/154-0, Fax: 07071/154-290, Email: info@cht.com, Homepage: www.cht.com / www.cht-silicones.com