ELANTAS
Electrical Insulation

Product Information

Electronic Protection System

Silicone Potting/Encapsulation Resin

Bectron® SK 7571

Cross-linker Bectron SH 7970

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Product description

Bectron® SK 7571 is a very soft silicone potting compound with low processing viscosity, with low shrinkage and excellent resistance to temperature cycling over a wide range. Hardening takes place by addition cross-linking with Bectron® SH 7970 at room temperature.
The systems meet ROHS requirements

Areas of application

The properties of the Bectron® SK 7571 make it ideal for potting and moulding of very sensitive electronic circuits and components operating in very high temperature environments. It has very low volume shrinkage during hardening and has good thermal cycle stability from -40°C and 200°C. The cross linking reaction can be accelerated by heat for serial production lines.

Properties

Very Soft silicone potting or moulding material

Moderate processing viscosity

Room temperature cured

Accelerated heat cure

Thermal conductivity

Low shrinkage during cross linking

Good thermal cycling stability -40 to +200°C

Addition cross-linking

UL 94 V0

ROHS compliant

Processing

Pretreatment: The components to be moulded should be clean, dry and free from grease. Compatibility between the resin and all materials on a PCB should be checked prior to use.

All vessels pipes and equipment used must be thoroughly cleaned because the catalyst in the SK 7571 may be poisoned by traces of sulphur compounds, amines or tin salts and other silicone cross linkers. Contamination would seriously inhibit the cross-linking reaction.

Mixing: Bectron® SK 7571 and Cross-linker Bectron® SH 7970 should be mixed in the ratio specified and stirred thoroughly immediately prior to processing. During stirring as little air as possible should be introduced.
After mixing leave the composition at rest to allow any bubbles to escape. Evacuation under vacuum is needed to produce a bubble free material.

Application: The processing time is approximately 60 minutes at 23°C. Within this period, the viscosity will increase; therefore the prepared volume for batch production should be just enough to permit potting in this time.
The cross-linking reaction mechanism of Bectron® SK 7571 is by addition and no by-products are formed removing risk of the curing reaction being reversed. Volume shrinkage is about 0.2%

Curing: Recommended curing conditions are:

- At Room Temperature 24 hours

The cross-linking reaction can be accelerated by further heating. A 10°C increase in temperature will halve the curing time.
Since no by-products are produced the curing reaction is not reversible.

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Table 1 - Properties of materials as supplied

Property	SK 7571	SH 7970	Units
Colour	Beige	Beige	
Viscosity, 25°C, DIN 53019	3000 ± 1000	1000 ± 400	mPa.s
Density 20°C DIN EN ISO 2811-1	1.57 ± 0.05	1.51 ± 0.05	g/cm^3
Shelf Life	6	6	months

Table 2 - Properties of mixture

Measurement	Condition	Value	Units
Mixing Ratio - SK 7571: SH 7970	By weight	1 : 1	Parts
Viscosity of mixture, DIN 53019	25°C	2000 ± 700	mPa.s
Processing Time	20°C	60	Min

Table 3 – Thermal Properties cured compound

Property	Condition	Value	Units
Thermal Conductivity		0.45 ± 0.03	W/m.K
Glass Transition Temperature tg			°C
Linear coefficient of thermal expansion		2.5 x 10^{-4}	K^{-1}
Temperature Range		-40 to + 200	°C
Flammability		UL 94 V0	

Table 4 –Mechanical properties of cured compound

Property	Condition	Value	Units
Specific Gravity @ 20°C		1.53 ± 0.05	g/cm^3
Hardness		40 ± 10	Shore A

Table 5 - Dielectric properties of cured compound

Property	Condition	Value	Units
Volume Resistivity IEC 60464 Part 2	23°C 2 days water	1 x 10^{15} 1 x 10^{14}	Ω.cm
Dielectric Strength, DIN 53481		> 15	KV/mm
Dielectric loss factor tan δ	25°C, 100 Hz 25°C, 1 kHz	< 0.01 < 0.01	
Dielectric constant ε_r	20°C, 50 Hz	< 3.5	
Tracking resistance IEC 60112		CTI > 600	

Table 6 - Chemical properties of cured compound

Measurement	Condition	Value	Units
Water absorption DIN 53495	7 days		%

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