EN

Preliminary Technical Data Sheet

Bectron®

SDC 76V1-18

UL 94 V-0 listed

Electronic Silicon - Room Temperature Curing
Conformal Coating

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Description

Bectron® SDC 76V1-18 is a transparent, slightly solvented, conformal coating based on silicone chemistry and designed for dip coating as well as spray application. The product meets the latest requirements of electronics, low pin corrosion, excellent edge coverage and fast curing at room temperature. The varnish provides superior performance in dielectric properties and moisture protection under environmental stress. Bectron® SDC 76V1-18 result in a Silicone based material curing by moisture, diluted by solvent to adjust the viscosity and to decelerate the curing speed in case of production interruption.

Key Properties:

- Outstanding thermo-shock resistance
- Outstanding surface insulation resistance
- Controllable curing by solvent evaporation
- High volume resistivity including also in high moisture conditions
- Good dielectric properties
- Resistant to moisture and dust contamination
- Withstands weak acids & alkalis
- Good adhesion under thermal cycling
- good Temperature resistance
- Contains UV trace pigment for inspection

Re-work:
The cured material of Bectron® SDC 76V1-18 can be removed by mechanical methods. Bectron® CA 74V1-01 can be used to remove uncured material and for cleaning. It is strongly recommended to take up any spilled material prior cure has progressed.

Areas of application

The intended use is for automated or manual dip coating process of electronic boards such used as PCB's in transportation, hybrids, SMD devices, other discrete components and consumer electronics. Alternatively the material can be used in automated spray process. The aromatic-free, silicone-free, non-polar aliphatic solvent Bectron® CA 74V1-01 can be supplied as a cleaner (e.g. in machines). Bectron® ST 74V1-04 is suitable to prevent Bectron® SDC 76V1-18 from undesired curing during shift break.

Processing methods

In order to achieve satisfactory wetting and fault-free adhesion of the coating varnish it is important to ensure compatibility with the solder resist, paste and flux. The material cure starts irreversibly by any exposure to moisture. Hence, when not in use, any introduction of moisture to Bectron® SDC 76V1-18 must be avoided. Moisture will age the material and increase the viscosity. Once the viscosity of the material is increased to an inacceptable level the bath has to be discarded and cannot be refreshed by use of a thinner. Liquid dripped off from coated boards should be discarded if exposed to ambient air. Aged dripped off material will accelerate the aging and reduce the quality of the bath. In automated dip coating machines dry nitrogen is the recommended protective atmosphere. Bectron® ST 74V1-04 can be used as an alternative barrier against moisture in the dipping bath. In this case during a break Bectron® ST 74V1-04 is overlayed carefully over Bectron® SDC 76 V1-18 in such an amount that reflects the evaporation conditions at place. Bectron® ST 74V1-04 is partly miscible with Bectron® SDC 76V1-18. Hence there is no need to remove Bectron® ST 74V1-04 once work is re-started after the break. Bectron® SDC 76V1-18 can absorb 5% volume of Bectron® ST 74V1-04 without significant change of the final cured material.
However, Cleaner Bectron® CA 74V1-01 does not fulfil the requirements of a thinner for Bectron® SDC 76V1-18. The cure is best assisted by a gentle heat treatment to evaporate the solvent and activate cure. Temperature and availability of moisture / humidity will determine the cure speed.

Curing/Post-curing

Cure is recommended at gentle temperature and significant humidity. Skin formation at room temperature and 50% relative humidity takes place in about 30 min. Within 72 h and in humid air final cure is obtained.

Practiced curing conditions are:

15 min @ 40°C, 50% relative humidity

10 min @ 50°C, 50% relative humidity

7 min @ 60°C, 50% relative humidity

Full bond strength and physical properties will be achieved in 3-5 days. Full cure time depends on the thickness of coating applied and shape of the surface exposed to the atmosphere.

Storage and stability

Product should be stored in its original sealed container to avoid any potential contamination at a temperature below 35°C. Store accordingly to any specific instruction listed on the product label. Product should be used prior to the expiring date marked on the label.

Handling precautions

Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal.

System specification

Properties	Conditions	Test Method	Value	M/U
Viscosity	23 °C	DIN 53019	150 ÷ 350	mPa·s

Typical product characteristics

Properties	Conditions	Test Method	Value	M/U
Colour		--	Transparent	
Shelf life		--	12	months
Specific Gravity	23 °C	DIN 53217	0.94	g/ml
Cure Time	1 mm - 23 °C - 50 r.H. %	--	72	hrs
Tack Free Time	23 °C - 50 %	Internal Test H22	30	min

Typical mechanical properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Hardness	23 °C	DIN 53505	20	Shore A/1
Mandrel Bend Test	film thickness 0.2 mm - Mandrel 3 mm	IEC 60464-2 (Internal Test M4)	180	°
Glass transition temperature (Tg)		IEC 61006	< -50	°C
Linear expansion coefficient above Tg [K^-1]		IEC (internal Test M56)	3.2×10^{-4}	

Typical thermal properties of the cured product

Properties	Conditions	Test Method	Value	M/U
UL 94 classification		File No. E211569	V0	

Typical dielectric properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Tracking Index		IEC 60112	600 M	CTI
Volume resistivity	23 °C	IEC 60464-2 (Internal Test M5)	7.4×10^{13}	Ω·cm
Dielectric Strength	23 °C	IEC 60464-2 (Internal Test M6)	92	kV/mm
Dielectric constant at 10.000 Hz	23 °C	IEC 60250 (Internal Test M3b)	2.7	
Dielectric dissipation at 10.000 Hz	23 °C	IEC 60250 (Internal Test M3b)	<0.01	