ELANTAS
Electrical Insulation

Product Information

Electronic Protection System

Thick Film Coating, moisture cure

Bectron® PT 4840

ELANTAS Europe GmbH
Grossmannstr. 105
20539 Hamburg
Germany
Tel +49 40 78946 0
Fax +49 40 78946 276
bectron.elantas.beck@altana.com
www.elantas.com

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Product description

Bectron® PT 4840 is an 1-component thixotropic polyurethane which cures rapidly by reaction with moisture in the atmosphere to form a flexible material suitable for sealing and protection of components and connections on the PCB.

Areas of application

Bectron® PT 4840 is used for chemical protection of PCBs against moisture and contamination and for securing large components on the board against mechanical shock and vibration. It has high viscosity thixotropic flow properties suitable to apply on individual components contacts or sealing open connections on the PCB. With the correct nozzle diameter a thin line of Bectron® PT 4840 can cover a row of connecting pins or other small components with no need for masking or covers
The applied material will remain in place during curing with no stress on delicate components protected.
The cured product is soft and flexible and will not damage sensitive components under thermal shock, including low temperatures.
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Properties of the cured material

Good electrical properties even after water immersion
Good adhesion on many substrates
Low shrinkage on curing
Withstands low temperature (-40°C)
Resistant to moisture and migration
Resistant to organic and inorganic solvents
Low solvent content
Satisfies ROHS Directive
Inspection of coated area is possible under UV light

Storage

Bectron® PT 4840 is supplied in sealed cartridges which can be stored for 16 weeks between 5 and 10 °C. Freezing at -18°C will give long shelf life without risk to the material.

Processing suggestions

Bectron® PT 4840 should be applied directly from the cartridge with a suitable nozzle. If the Bectron® PT 4840 is transferred to a second cartridge or applicator it must be used in a short time as exposure to moisture will start the curing reaction. Excessive exposure to moisture will cause increase in viscosity and prevent controlled application.
The cartridges should be allowed to reach Room Temperature for 4 hours before use to allow the viscosity to reach the specified level. At room temperature the thixotropic properties allow accurate application to small areas. Bectron® PT 4840 will then cure at room temperature without further action.

Curing at room temperature at ≥ 50 % relative humidity requires 5 to 6 hours to a stable material. Complete curing requires a minimum of 24 hours. Increased temperature and humidity can reduce the curing time.
Heating in a conventional oven with low humidity is not suitable for curing.

To ensure satisfactory adhesion on the PCB surface the following should be checked. Any residual moisture or alcohol under the Bectron® PT 4840 will cause bubbles and unreliable curing

- Use of residue-free flux
- ensure dry surfaces
- Check compatibility of the coating resin with the solder resist and solder paste.

PT 4840

Table 1 - Properties of materials as supplied

Property	Condition	Value	Unit
Colour		Clear transparent	
Viscosity DIN 53019	23°C, D=3 s^{-1}	125,000 ± 25,000	mPa.s
Specific gravity DIN EN ISO 2811-1	23°C	1.12 ± 0.05	g/cm^3
Shelf Life	5 -10 °C	16	weeks

Table 2 – Thermal Properties of cured compound

Property	Condition	Value	Unit
Temperature Range		-40 to +120	°C

Table 3 - Mechanical properties of cured compound

Property	Condition	Value	Unit
Specific Gravity DIN 16945	23°C	1.12 ± 0.05	g/cm^3
Hardness ISO 868	23°C	42 ± 10	Shore A
Elongation to fracture DIN 53455	23°C	270	%

Table 4 - Dielectric properties of cured compound

Property	Condition	Value	Unit
Volume resistivity ρD IEC 60464 Part 2	23°C	1.3 x 10^{13}	Ω • cm
After 7 days water immersion	23°C	3.5 x 10^{12}	Ω • cm
Surface Resistivity R_0 VDE 0303 Part 3	23°C	5 x10^{12}	Ω
After 7 days water immersion	23°C	1.0 x10^{12}	Ω
Relative Permittivity IEC 60250	23°C	3.5	
Dielectric loss factor tan δ IEC 60250	23°C	0.03	
Dielectric Strength IEC 60464 Part 2	23°C	20	KV/mm
Tracking resistance IEC 60112	23°C	>600	CTI

Table 5 – Chemical Properties of cured compound

Property	Condition	Value	Unit
Water Absorption ISO 62 Methode 1	24h 23°C	0.2	%

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