ELANTAS
Electrical Insulation

Product Information

Electronic Protection System

Thick Film Coating, moisture cure

Bectron® PT 4814 N VP

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Product description

Bectron® PT 4814 N VP is a 1-component polyurethane with low viscosity which cures by reaction with moisture in the atmosphere to form a flexible material suitable for sealing and protection of components and connections on the PCB. It offers excellent flexibility at very low temperature.

Areas of application

Bectron® PT 4814 N VP 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 viscosity suitable for thick film coating of large areas selectively on individual components contacts or sealing open connections on the PCB.
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 very low temperatures to -50°C.

Properties of the cured material

Good electrical properties even after water immersion.
Rapid curing
Good adhesion on many substrates
Low shrinkage on curing
Low temperature flexibility -50°C
Resistant to moisture and migration
Resistant to organic and inorganic solvents
Low solvent content

Storage

Bectron® PT 4814 N VP is supplied in sealed containers which should be stored for 4 months between 5 and 10 °C. Freezing at -18°C will give long shelf life without risk to the material.

Processing suggestions

Bectron® PT 4814 N VP should be applied directly from the cartridge with a suitable nozzle. The cartridges should be allowed to reach Room Temperature for 4 hours before use to allow the viscosity to reach the specified level. If the Bectron® PT 4814 N VP 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 viscosity is low for coating suited to dispensing or other application for thinner general coverage of a PCB or component.
Bectron® PT 4814 N VP will then cure at room temperature without further action

Curing at room temperature requires 5 to 6 hours
Increased temperature and humidity can reduce the curing time. Heating in a conventional oven at low humidity will have little effect on curing time.

To ensure satisfactory adhesion on the PCB surface the following should be checked:

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

Table 1 - Properties of materials as supplied

PT 4814 N VP

Property	Condition	Value	Unit
Colour		blue	
Viscosity D= 22,4 1/s DIN 53019	23°C	1,400 ± 500	mPa.s
Density DIN EN ISO 2811-1	23°C	0.95 ± 0.02	g/cm^3
Shelf Life	<10 °C	4	months

Table 2 – Thermal Properties of cured compound

Property	Condition	Value	Unit
Temperature Range		-50 to +100	°C

Table 3 - Mechanical properties of cured compound

Property	Condition	Value	Unit
Hardness ISO 868	23°C	45 ± 10	Shore A
Elongation to fracture DIN 53455	23°C		%

Table 4 - Dielectric properties of cured compound

Property	Condition	Value	Unit
Volume resistivity ρD IEC 60464 Part 2	23°C	6.0 x 10^{12}	Ω • cm
Surface Resistivity R_0 VDE 0303 Part 3	23°C	5.0 x 10^{12}	Ω
Relative Permittivity IEC 60250	23°C	3.5	
Dissipation Factor tan δ IEC 60250	23°C	0.03	
Dielectric Strength IEC 60464 Part 2	23°C	>20	kV/mm

Table 5 – Chemical Properties of cured compound

Property	Condition	Value	Unit
Water Absorption ISO 62 Method 1			%