ELANTAS
Electrical Insulation

Product Information

Electronic Protection System

Thick Film Coating, moisture cure

Bectron® PT 4842

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

A member of ALTANA

Product description

Bectron® PT 4842 is an 1-component low viscosity 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 4842 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 cured product is soft and flexible and will not damage sensitive components under thermal shock, including low temperatures.

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 areas possible with UV light

Storage

Bectron® PT 4842 is supplied in sealed cartridges which can be stored for 16 weeks between 5 and 10 °C. Freezing at -17°C will give long shelf life without risk to the material.

Processing suggestions

Bectron® PT 4842 should be applied directly from the cartridge with a suitable nozzle. If the Bectron® PT 4842 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 ambient temperature for 4 hours before use to allow the viscosity to reach the specified level. At ambient temperature the thixotropic properties allow accurate application to small areas. Bectron® PT 4842 cures at ambient temperature without further action.

Curing at ambient temperature with ≥ 50 % relative humidity require 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, but it is possible for reduction of solvent content.

To ensure satisfactory adhesion on the PCB surface the following should be checked. Any residual moisture or alcohol under the PT 4842 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 4842

Table 1 - Properties of materials as supplied

Property	Condition	Value	Unit
Colour		Clear transparent	
Viscosity DIN 53019	23°C, D=22,4 s^{-1}	3700 ± 900	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	45 ± 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	1.3×10^{13}	Ω • cm
After 7 days water immersion	23°C	3.5×10^{12}	Ω • cm
Surface Resistivity R_0 VDE 0303 Part 3	23°C	5×10^{12}	Ω
After 7 days water immersion	23°C	1.0×10^{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		600	CTI

Table 5 – Chemical Properties of cured compound

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

The Our advice in application technology given verbally, in writing and by testing corresponds to the best of our knowledge and belief, but is intended as information given without obligo, also with respect to any protective rights held by third parties. It does not relieve you from your own responsibility to check the products for their suitability to the purposes and processes intended. The application, usage and processing of the products are beyond our reasonable control and will completely fall into your scope of responsibility. Should there nevertheless be a case of liability from our side, this will be limited to any damage to the value of the merchandise delivered by us. Naturally, we assume responsibility for the unobjectionable quality of our products, as defined in our General Terms and Conditions