

EN

Technical Data Sheet

Bectron®**PT 4606**

Electronic Protection System

Modified Polyurethane - One Component - UV + Moisture Cure
Thick Film Conformal Coating - Elastic

ELANTAS Europe Sales offices:

Collecchio (PR) 43044 - Italy
Strada Antolini n° 1 loc. Lemignano
Tel +39 0521 304777 Fax +39 0521 804410

Hamburg 20539 - Germany
Großmannstrasse. 105
Tel +49 40 78946 0 Fax +49 40 78946 349

Quattordio (AL) 15028 - Italy
Via San Martino, 6
Tel +39 0131 773870 Fax +39 0131 773875

bectron.elantas.europe@altana.com
www.elantas.com/europe



Description

Bectron® PT 4606 is solvent free, one-component, polyurethane based and transparent. It is prepared as thick film coating, cured by UV irradiation and by moisture (in shadow areas). Its high viscosity and thixotropic properties allow accurate application to selected areas on the PCB (e.g. suitable for sealing and protection of components or connections on the PCB or like a dam for dam and fill applications).

The cured product is elastic with flexibility to low temperature (-40°C) and good adhesion to most substrates. Bectron® PT 4606 provides excellent insulation properties after several wet storage conditions.

- Satisfies the requirements of ROHS.

Areas of application

Bectron® PT 4606 is versatile VOC-free conformal coating with excellent electrical performance, particularly suitable for electronics such as surface mount devices and hybrids. It provides good protection against moisture, corrosion and migration as well as vibration. Bectron® PT 4606 has flow properties to allow small locations to be coated without flow to other areas.

Properties of cured product

Bectron® PT 4606 has following properties in cured conditions:

- Thermal cycling over -40°C to +120°C
- Temperature resistance -40 to +120°C
- Good flexibility to -40°C
- Good Adhesion
- Solvent free
- Good dielectric properties

Storage and stability

In closed original containers storage for 6 months at 5°C to 10°C. Storage at this temperature range is recommended to prevent an increase of viscosity. For longer storage Bectron® PT 4606 should be stored at -15°C to -25°C. After longer storage a viscosity check is recommended. Containers should be sealed as the product is moisture sensitive.

Preparation

The components to be coated should be clean dry and free from grease and compatibility between the resin and all materials on a PCB should be checked prior to use. Residual water from washing the PCB can cause bubbles so low solids flux or alcohol based cleaning materials are recommended.

Processing methods

Bectron® PT 4606 can be applied usually by dispensing. An opened container should be used within 3 days. Thinner Bectron® 300 can be used to remove liquid Bectron® PT 4606 and clean the equipment.

Curing/Post-curing

Curing in UV light requires 5 – 30 seconds (according to UV-Intensity). The colour change from blue to greenish indicates the degree of UV-curing.

Post-curing by moisture in shadow areas takes 2 to 3 days. Full polymerisation of the last <5 % will happen in 2 weeks time achieving full properties of the material.

Caution!

The UV reactivity is high, so sunlight or UV inspection lamps will start pre-curing, preventing the full development of the properties of the coating

Handling precautions

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

Sales specifications

Properties	Conditions	Test Method	Value	M/U
Viscosity	23 °C - Z3	DIN 53019 (Internal Test V18/b/c)	35000 ÷ 45000	mPa·s
Shelf Life	5÷10 °C - cartridges and bladder bag	Intern	6	months
	-10÷25 °C - steel container		6	months

Curing conditions

Properties	Conditions	Test Method	Value	M/U
UV-curing	2000 - 4000 mJ / cm ² (UVA)	Intern	3 ÷ 7	s

Typical mechanical properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Hardness Shore A/1	23 °C	ISO 868 (Internal Test M30b)	70 ÷ 80	Shore A

Typical thermal properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Temperature range		Internal Test	- 40 ÷ 120	°C
Glass transition temperature (Tg)		IEC 61006	-15 ÷ -20	°C
Linear expansions coefficient	above Tg	TMA (Internal Test M56)	170 ÷ 190	ppm/K

Typical dielectric properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Tracking Index		IEC 60112	> 600	CTI
Dielectric constant at 1000 Hz	23 °C	IEC 60250 (Internal Test M03b)	4,0 ÷ 4,5	
Volume resistivity	Initial Value 20 °C	IEC 60464 -2 (Internal Test M5)	> 10 ¹¹	Ω·cm
	After 7 days water storage, 20 °C		> 10 ¹⁰	Ω·cm
Surface Isolation Resistance (SIR)		according IPC TM 650 2.6.3.7	> 10 ¹¹	Ω
Dielectric Strength	23 °C	IEC 60464-2 (Internal Test M6)	18 ÷ 22	kV/mm
Dielectric Dissipation	1000 Hz, 23 °C	IEC 60250 (Internal Test M03B)	0,06 ÷ 0,09	

Typical chemical properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Water Absorption		DIN EN ISO 62 (Internal Test M09a/b)	1,0 ÷ 1,5	%

Product of ELANTAS Europe. Our advice given verbally or in writing is based on the present state of our technical knowledge, but is intended as information given without obligation, also with respect to any protective rights held by third parties. It does not relieve your own responsibility to check the products for their suitability to the purposes and processes intended and in accordance with the technical sheets of the products. The application usage and processing of the product are beyond our control and will completely fall into the scope of responsibility of buyers and users. Should there nevertheless be a case of liability from our side, this will be limited to any damage equivalent 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 condition. Product conformity is guaranteed by properties defined in sales specification. Typical properties do not constitute part of the agreed product property or sales specification. Deviation from typical properties does not constitute non-conformity of the product. Typical properties are provided for general information purpose and as a guideline for the choice of the product; they are subject to variation related to i.e. curing cycles, specimen preparation, batch to batch variability, etc. unless specifically agreed with customers.