

Product Information

Electrical Isolation System

Coating Varnish

Bectron[®] PL 4122 E BLF

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

Product

Bectron® PL 4122 E BLF is a transparent coating varnish based on modified alkyd chemistry. The development of Bectron® PL 4122 E BLF meets the latest requirements of electronics, low pin corrosion and fast curing at low temperature. Bectron® PL 4122 E BLF is leadfree and has no aromatic compounds in the solvent. The varnish features superior performance in thermal and dielectric properties even under environmental stress.

The coating varnish is available in the following grades:

- 3 solids/viscosity levels for every application system:
 - ../37 E BLF..
 - ../40 E BLF..
 - ../45 E BLF..
- Colour addition for quality control:
 - ..E BLF (colourless)
 - ..E BLF orange (transparent)
 - ..E BLF FLZ (fluorescent)

Application

Coating of electronics:

- PCB's used in automotive and marine navigation
- hybrids
- SMD devices
- discrete components

Features Temperature stability

Very high temperature index of 134°C.

Combustion behaviour

Bectron® PL 4122 E BLF is listed by UL (Underwriters Laboratories) under the File-No. E 211569

Dielectric properties

High volume resistivity including humid conditions.

Film thickness

Very good dielectric properties maintained in very thin films.

Environmental influences

Components varnished with Bectron® PL 4122 E BLF provide maximum protection against mechanical stress, contaminants, moisture, dust and corrosive gases.

Chemical resistance

Excellent resistance to moisture, weak acids and alkalis, fuels and oils in the automotive and shipping industry.

Curing

Air curing at 23°C for 16h,
Accelerated curing 80°C/0,5h.

Adhesion

Excellent adhesion to printed circuit boards, even after several temperature cycles -40°C/+130°C.

Processing

The coating varnish Bectron® PL 4122 E BLF can be applied by dipping, brushing or spraying. The recommended viscosity for spraying correlates to 60 seconds in 4-mm-cup. (DIN/EN/ISO 2431)
For dipping, thinner 239 can be added to obtain the recommended viscosity. A single coating ensures good dielectric insulation and complete protection against humidity.

The surface of the dip tank should be as small as possible. If the tank is not in use it should be kept closed to prevent oxidation of the varnish surface. 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.

Should an exchange of components in the assembled printed circuits boards be necessary the use of Cleaning Agent AC 93 is recommended. This product is especially suited for the partial removal of coating varnishes as well as the cleaning of equipment parts.

Typical properties of coating varnish Bectron® PL 4122 E BLF

Test	Value	Unit	Conditions
Non volatile content			IEC 3251
Bectron PL 4122-37 E BLF	37 ± 1	%	1,5 g, 2 h, 130°C
Bectron PL 4122-40 E BLF	40 ± 2	%	
Bectron PL 4122-45 E BLF	45 ± 1	%	
Viscosity - Flow Time			DIN/EN/ISO 2431
Bectron PL 4122-37 E BLF	40 ± 3	s	4 mm-Cup, 23 °C
Bectron PL 4122-40 E BLF	65 ± 5	s	4 mm-Cup, 23 °C
Bectron PL 4122-45 E BLF	40 ± 3	s	6 mm-Cup, 23 °C
Density			DIN 51757
Bectron PL 4122-37 E BLF	0,86 ± 0,01	g/cm ³	23 °C
Bectron PL 4122-40 E BLF	0,87 ± 0,01	g/cm ³	
Bectron PL 4122-45 E BLF	0,88 ± 0,01	g/cm ³	
Minimum shelf life	6	months	23 °C
Curing	0,25	h	23 °C, dust dry
	1,00	h	23 °C, touch dry
	16,00	h	23 °C, cured

Typical features of coating varnish Bectron® PL 4122 E BLF after curing

Test	Value	Unit	Conditions
Mandrel bend test	>180	° (angle)	IEC 464-2, mandrel 3 mm 0,06 mm film thickness
Cross-cut test	GT 0 - 1	-	DIN 53151
Dielectric dissipation factor	0,023	-	Beck Test 3b, based on IEC 60250 23 °C, 10 kHz
Permittivity	3,5	-	Beck Test 3b, based on IEC 60250 23 °C, 10 kHz
Volume resistivity	1·10 ¹⁵	Ωcm	Beck Test 5, based on IEC 60464 part 2
- after 7 d water immersion	1·10 ¹⁵	Ωcm	23 °C
Dielectric strength	112	kV/mm	Beck Test 6a/6b based on IEC 60464, part 2
- after 23h water immersion	108	kV/mm	23 °C
Water absorption			Beck Test 9a/9b
- acc. method 1	1,5	%	23 °C
- acc. method 2	2,5	%	
Temperature index	134	°C	IEC 216 30 % loss of mass
Tracking	CTI>600M	-	EN 50019, (DIN IEC 112-6/84, solution B)
Flammability			UL 94
- vertical	FV 0	-	IEC 1086-2 8(based on IEC 707)

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