

Product Information

Electronic Protection System

Polybutadiene Potting/Encapsulation Resin

Bectron[®] PB 3252

Hardener Bectron PH 4916

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 description

Bectron[®] PB 3252 with Hardener Bectron[®] PH 4916 is a 2 component system which will produce a flexible compound suitable for potting and casting. It is based on polybutadiene and provides good flexibility at low temperature and superior resistance properties. It is resistant to organic and inorganic solvents with good adhesion. It cures with low shrinkage and good adhesion to most substrates. It is solvent free and does not damage components on the board

Areas of application

Bectron[®] PB 3252 is suitable for many potting applications needing stability to thermal shock. It is ideal for casting whole PCB to give where good protection against humidity aggressive chemicals shock and vibration are required.

Properties of the cured material

The cured material has high elasticity with flexibility and strength at low temperatures.

Good electrical properties

Low glass transition temperature Tg (-55°C)

Satisfies the requirements of ROHS

Storage

Bectron[®] PB 3252 should be kept in closed containers at normal temperatures.

Hardener Bectron[®] PH 4916 is moisture sensitive and containers must be well sealed and stored below +40°C. Opened containers should be resealed as soon as possible. If stored in cool conditions some solidification may occur. This can be corrected by heating the sealed drum to +50 to 60°C for 48 hours.

Processing suggestions

Bectron[®] PB 3252/Hardener Bectron[®] PH 4916 is a moderate viscosity system which can be applied in a continuous process with conventional mixing and dispensing equipment.

For manual batch application thorough mixing of the 2 components is essential and care is needed to avoid air bubbles. Pot life is about 25 minutes.

Recommended curing should be above 20°C

- At Room Temperature 48 hours
- At 90°C 30 minutes with some days for full curing

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

Property	PB 3252	PH 4916	Units
Colour	White, Milky	Light yellow	
Viscosity, 23°C 7.3 s ⁻¹ , DIN 53019	3,500± 1,000	40 ± 30	mPa.s
Density, 20°C, DIN EN ISO 2811-1	0.93 ± 0.05	1.21 ±.005	g/cm ³
Shelf Life	6	3	months

Table 2 - Properties of mixture

Mixing Ratio	weight	3 : 1	Parts
Bectron [®] PB 3252 : Hardener Bectron [®] PH 4916			
Viscosity DIN 53019	25°C	2,000 ± 500	mPa.s
Process time	25°C	25	min

Table 3 – Thermal Properties of cured compound

Property	Condition	Value	Units
Operating Temperature range		-55 to +120	°C
Glass transition temperature		-55	°C
Coefficient of Thermal Expansion		20 X 10 ⁻⁵	K ⁻¹

Table 4 - Mechanical properties of cured compound

Property	Condition	Value	Units
Density DIN 16945	20°C	1.00 ± 0.05	g/cm ³
Hardness ISO 868	3h 90°C	65 ± 10	Shore A

Table 5 – Dielectric properties of cured compound

Property	Condition	Value	Units
Volume resistivity VDE 0303 Part 2	Initial Value	5.0 x 10 ¹⁴	Ω • cm
After 7 days water immersion	23 °C	3.0 x 10 ¹⁴	
Surface Resistivity VDE 0303 Part 3	Initial Value	8.0 x 10 ¹³	Ω
After 7 days water immersion	23°C	8.0 x 10 ¹³	
Dielectric Strength IEC 69455 Part 2		13	KV/mm
Dielectric loss factor, tan δ, IEC 60250	1 KHz, 23°C	0.026	
Relative Permittivity IEC 60250	1 KHz, 23°C	3.2	
Tracking Resistance IEC 60112		>600	CTI

Table 6 - Chemical properties of cured compound

Property	Condition	Value	Units
Water absorption ISO 62 Methods 1 & 2	4 days RT	0.3	%

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