ELANTAS
Electrical Insulation

**Product Information**

Electronic Protection System

**Polybutadiene Potting/Encapsulation Resin**

# Bectron® PB 3251

**Hardener Bectron PH 4918**

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## Product description

Bectron® PB 3251 with Hardener Bectron® PH 4918 is a 2 component system to produce a resilient compound suitable for potting and casting. It is based on polybutadiene with polyurethane & filled to provide strength with flexibility at low temperature and superior resistance properties. It is resistant to organic and inorganic solvents with good adhesion.
It is solvent free and does not damage components on the board

## Areas of application

Bectron® PB 3251 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.
Low glass transition temperature Tg

Satisfies requirements of ROHS

## Storage

Bectron® PB 3251 should be kept in closed containers at normal temperatures.
Hardener Bectron® PH 4918 is moisture sensitive and containers must be well sealed and stored below +40 °C. Opened containers should be resealed as soon as possible.

## Processing suggestions

Bectron® PB 3251/Hardener Bectron® PH 4918 is a viscous 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 20 minutes.
The viscosity of Bectron® PB 3251 can be reduced by heating to 60 °C but this will reduce the pot life.

Recommended curing is:

- At Room Temperature 48 hours
- AT 60 °C cured in 2 hours.

Final properties after (e.g. Hardness):

- 20 h at 80°C
- 6 weeks at Room Temperature

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 3251** | **PH 4918** | Units |
|---|---|---|---|
| Colour | Black | Transparent, colourless | |
| Viscosity, 23°C, D=3 $s^{-1}$, DIN 53019 | 10,000± 2,000 | 1,200 ± 300 | mPa.s |
| Density, 20°C, DIN EN ISO 2811-1 | 1.27 ±.005 | 1.16 ±.005 | $g/cm^3$ |
| Shelf Life | 6 | 6 | Months |

### Table 2 - Properties of mixture

| **Mixing Ratio**<br>Bectron® PB 3251 : Hardener Bectron® PH 4918 | weight | 100 : 33 | Parts |
|---|---|---|---|
| Viscosity DIN 53019 | 25°C | 15000 ± 3000 | mPa.s |
| Process time | 25°C | 20 | min |

### Table 3 – Thermal Properties of cured compound

| **Property** | Condition | Value | Units |
|---|---|---|---|
| Operating Temperature range | | -60 to +150 | °C |
| Glass transition temperature | | -63 | °C |

### Table 4 - Mechanical properties of cured compound

| **Property** | Condition | Value | Units |
|---|---|---|---|
| Density DIN 16945 | 20°C | 1.27 ± 0.05 | $g/cm^3$ |
| Hardness DIN 53505 | | 80 ± 10 | Shore A |
| Elongation to break DIN 53455 | | 200 | % |

### Table 5 – Dielectric properties of cured compound

| **Property** | Condition | Value | Units |
|---|---|---|---|
| Volume resistivity VDE 0303 Part 2<br>After 7 days water immersion | 23 °C | $1.9 \times 10^{14}$<br>$7.4 \times 10^{13}$ | Ω • cm |

### Table 6 - Chemical properties of cured compound

| **Property** | Condition | Value | Units |
|---|---|---|---|
| Water absorption DIN 53495 | 4 days RT | 0.3 | % |

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