ELANTAS
Electrical Insulation

Product Information

Adhesive System
Constructional
Moisture cure

Bectron® AR 4820 N

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

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Product description

Bectron® AR 4820 N is a 1-component resin based on polyurethane with moderate viscosity 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.

Bectron® AR 4820 N satisfies the requirements of ROHS.

Areas of application

Bectron® AR 4820 N 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 is an effective adhesive on most surfaces of PCBs and electronic components. It has viscosity suitable for thick film coating of large areas selectively on individual components contacts or sealing open connections on the PCB.

The applied material will remain in place during curing with no stress on delicate components protected.

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 (-45°C)
Resistant to moisture and migration
Resistant to organic and inorganic solvents

Storage

Bectron® AR 4820 N is supplied in sealed cartridges which can be stored for 12 weeks between 5 and 10 °C. Freezing at -18°C will give long shelf life without risk to the material.

Processing suggestions

Bectron® AR 4820 N should be applied directly from the cartridge with a suitable nozzle. If the AR 4820 N 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 a temperature and application temperature, 35 to 30 °C before use to allow the viscosity to reach the specified level.

Curing at room temperature and ≥ 50 % relative humidity requires less than 3 hours to a stable material (layer thickness 1000 my). Complete curing may require up t o 2 weeks depending on the conditions.
Increased temperature and humidity can reduce the curing time.

For optimal adhesion, curing of 24 hours @ RT, afterwards 24 hours @ 90°C.

Heating in a conventional oven with low humidity is not suitable for 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

AR 4820 N

Property	Condition	Value	Unit
Colour		Colourless	
Viscosity DIN 53019	23°C, D=3 s^{-1}	7,000 ± 2,000	mPa.s
Specific gravity DIN EN ISO 2811-1	23°C	0.99 ± 0.05	g/cm^3
Shelf Life	5 -10 °C	12	weeks

Table 2 – Thermal Properties of cured compound

Property	Condition	Value	Unit
Temperature Range		-45 to +120	°C

Table 3 - Mechanical properties of cured compound

Property	Condition	Value	Unit
Specific Gravity DIN 16945	23°C	0.99 ± 0.05	g/cm^3
Hardness DIN 53505	23°C		Shore A
Elongation to fracture DIN 53455	23°C		%

Table 4 - Dielectric properties of cured compound

Property	Condition	Value	Unit
Volume resistivity ρD VDE 0303 Part 2	23°C	1.0×10^{13}	Ω • cm
After 7 days water immersion	23°C	1.0×10^{12}	Ω • cm
Surface Resistivity R_0 VDE 0303 Part 3	23°C		Ω
After 7 days water immersion	23°C		Ω

Table 5 – Chemical Properties of cured compound

Property	Condition	Value	Unit
Water Absorption DIN 53495	7 days		%

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