

Black mat version, acrylic removable coating

### **PRODUCT DESCRIPTION**

AVR80 BA Black Mat conformal coating is a non toxic, flexible black mat acrylic coating for the protection of electronic circuitry formulated to meet the highest resistance requirements. AVR80 BA BM is designed to be removed with ABchimie SND .

### **FEATURES**

- Excellent adhesion under all climatic conditions.
- Fluoresces under UV light as an aid to inspection.
- Wide temperature range -65°C to +150°C.
- Can be soldered through without fear of highly toxic gases being produced (contains no isocyanates).
- Resistant to mould growth.
- Can be totally removed with ABchimie SND.
- Compatible with other high specification acrylic coatings.
- Excellent Dielectric properties.

### **APPLICATION**

AVR80 BA BM can be sprayed, dipped or brushed. The thickness of the coating depends on the method of application, but a dip coater normally deposits a film thickness of about 25 microns (single coat). Workshop temperatures of less than 16°C or relative humidities in excess of 75% are unsuitable for the application of AVR80 BA BM.

AVR80 BA BM contains a UV trace which allows inspection of the PCB after coating to ensure complete and even coverage. The stronger the reflected light, the thicker the coating layer is.

Before coating Pcb's must be clean, dry and without moisture. The CI being humidity sensor, it is important to remove it before coating. A passage in oven for 1 to 2 hours at 60 ° C is generally sufficient.

### **Cleaning**

Boards should be thoroughly cleaned before coating. This is required to ensure that satisfactory adhesion to the substrate is possible. Also all flux residues must be removed as they become corrosive is left on the PCB. ABchimie manufacture a range of 100% Ozone Friendly cleaning products in both the hydrocarbon solvent and aqueous fields. All products produce results within the Military specification (<1.54mg NaCL/cm<sup>2</sup>). Please contact ABchimie for further information.

## **Dip Coating**

Ensure that the coating material in the container has been agitated thoroughly and has been allowed to stand for at least 2 hours for all the air bubbles to disperse.

Acrylic Thinners (DVA BA) should be used to keep the AVR80 BA BM coating at a suitable viscosity for dipping. DVA BA is added periodically as the solvent evaporates. The viscosity should be checked using a viscosity meter or "flow cup" (Zahn 2).

The board assemblies should be immersed in the AVR80 BA dipping tank in the vertical position, or at an angle as close to the vertical as possible. Connectors should not be immersed in the liquid unless they are very carefully masked. ABchimie Peelable Coating Mask (LDM) is ideal for this application.

Leave submerged for about 1 minute until the air bubbles have dispersed. The board or boards should then be withdrawn VERY SLOWLY (5 to 20 cm/mn) so that an even film covers the surface. After withdrawing, the boards should be left to drain over the tank until the majority of residual coating has left the surface.

After the draining operation is complete, the boards should be placed in an air-circulating drying cabinet and left to dry.

## **Spraying**

Bulk AVR80 BA needs to be thinned with DVA BA R before spraying. The optimum viscosity to give coating quality and thickness depends on the spray equipment and conditions but a starting point could be 1 parts coating to 1 part thinners. If bulk coating material has been agitated, allow to stand until air bubbles have dispersed.

AVR80 BA is suitable both for use in manual spray guns and computer controlled airless spray equipment that only coats the required areas of the PCB, eliminating the need for masking.

The nozzle of the spray gun requires to be selected to give an even spray to suit the prevailing viscosity of the coating material.

To ensure penetration of the coating beneath the components and in confined spaces, spray the assembly from all directions to give an even coating.

After spraying, the boards should be placed in an air-circulating drying cabinet and left to dry.

## **Brushing**

Ensure that the coating material has been agitated thoroughly and has been allowed to settle for at least 2 hours. The coating should be kept at ambient temperature. Gently apply the coating with a good quality brush (silk) so as not to leave brush marks and so that the components and wiring are not disturbed.

When the brushing operation is complete the boards should be placed in an air-circulating drying cabinet and left to dry.

## **Drying Times and Curing Conditions**

AVR80 BA will be touch dry after 15 - 20 minutes at room temperature and does not require a thermal cure. The full properties of AVR80 BA will be obtained after a 24 hours at room temperature. This can be accelerated by the use of a thermal cure of 2 hours at 60°C. Heat operation will increase adhesion.

## **Double Coating**

Two coats of AVR80 BA BM are not usually required. However if two coats are required, the second coating should be applied after the first coating is dry. This will ensure that the two coats will bond satisfactorily.

## **TYPICAL PROPERTIES**

### **Liquid AVR80 BA BM**

Colour: Black mat  
Non-volatile content: 29-30% (Bulk)  
Viscosity @ 21°C: 260-280 cSt (Bulk)  
Specific Gravity @ 20°C: 0.91  
Flash Point: 24°C  
Drying Time: <15 min. touch dry  
24 hours optimum properties

### **Cured AVR80 BA BM Coating**

Colour:	Black mat
Dielectric Strength:	50 kV/mm
Electrical Resistivity:	1 x 10 <sup>14</sup> Ohms/cm
Temperature Range:	-65°C to +150°C
Flammability:	Self-extinguishing UL94VO
Dissipation Factor @ 1MHz @ 25°C:	0.01
Résistance d'isolement ( $\Omega$ )	10 <sup>12</sup> (MIL-I-46058C)
VRT	-55°C +125°C, 20 cycles, pente 10°C/mn
Thermal chock	-55°C +125°C, 100 cycles, 25mn/25mn (IPC CC 830)
Dielectric withstanding voltage	> 1500V (MIL-I-46058C)
SIR test15H	20°C-80°C, 90%RH, sous tension
Moisture resistance (déi water)	10-80°C, 95%RH +-4%, 90 days
Glass Transition Temperature (Tg)	29°C
Thermal expansion coefficient	130ppm/°C (if T°C>Tg) 280ppm/°C (if T°C<Tg)

## **PACKAGING**

### ***AVR80 BA BM Conformal Coating***

5 Litre Bulk AVR80 BA BM 05L

### ***Acrylic Thinners***

5 Litres DVA BA 05L  
5 Litres DVA BA R 05L

### ***Removal Solvent***

SND (100% Ozone Friendly, Flammable)  
400ml Aerosol SND400B  
5 Litre Bulk SND05L  
25 Litre Bulk SND25L

The conformal coating AVR80 BA BM is compliance with REACH and RoHS refulations. If you want a certificate, please contact us ([info@abchimie.com](mailto:info@abchimie.com)).

### **Storage:**

Storage temperature: 5 to 30°C  
A temporary lower temperature during few days (transport) doesn't distort varnish properties.

**Date by use:** 18 months after the date of manufacturing

*All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification. ABchimie cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product..*