

TECHNICAL DATA SHEET



AVR80 XY


Oct. 2023

ACRYLIC REMOVABLE COATING

PRODUCT DESCRIPTION

AVR80 XY conformal coating is a flexible transparent acrylic coating for the protection of electronic circuitry formulated to meet the highest resistance requirements. AVR80 XY is designed to be removed with ABchimie SND (100% Ozone Friendly).

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 or DNS,
- Compatible with other high specification acrylic coatings,
- Excellent Dielectric properties,
- **UL QMJU2 approval. (File E308681),** 
- **NF EN 61086-2 Approval,**
- **NF EN 45545, NF EN 16101, NF EN 16102 Approvals,**
- **Meets IPC-CC-830,**
- **Non toxic version available (AVR80 BA),**
- **Halogen free.**

APPLICATION

AVR80 XY 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 XY.

All PCBs, being composite materials, absorb moisture. If this is not removed, the conformal coating may not protect to its fullest extent. Pre-drying, or better still, vacuum desiccation, will remove most of the moisture.

AVR80 XY 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.

Cleaning

AVR80 XY can be applied on uncleaned PCBs. A cross cut test may be done to check the good adhesion on the PCB.

Cleaning will increase adhesion on the substrate. ABchimie manufactures a range of

100% Ozone Friendly cleaning products in both the hydrocarbon solvent and aqueous fields. All products produce results within the Military specification (<1.56mg NaCL/cm²). 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 XY) should be used to keep the AVR80 XY coating at a suitable viscosity for dipping. DVA XY 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 XY 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 XY needs to be thinned with DVA XY 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 XY 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 XY will be touch dry after 5 - 15 minutes at room temperature and does not require a thermal cure. The full properties of AVR80 XY 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 90°C or 4 hours at 60°C.

Double Coating

Two coats of AVR80 XY 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 XY

| | |
|-----------------------|---|
| Colour: | Pale coloured liquid |
| Non-volatile content: | 30% (Bulk) |
| Viscosity @ 25°C | 400 - 600 cSt |
| Flash Point: | 25°C |
| Drying Time: | 15-20 min. touch dry 24 hours optimum properties |

Cured AVR80 XY Coating

| | |
|------------------------------------|--|
| Colour: | Transparent (blue reflection) |
| Dielectric Strength: | 50 kV/mm |
| Insulation resistance (Ω) | $10^{12} \Omega$ (MIL-I-46058C) |
| Dielectric withstanding voltage | > 1500V (MIL-I-46058C) |
| Temperature Range: | -65°C to +150°C |
| Flammability: | Self-extinguishing (UL94V0) |
| Dissipation Factor (1MHz, 25°C): | 0.01 |
| Glass Transition Temperature (Tg) | 29°C |
| Thermal expansion coefficient | 130ppm/°C (if T < Tg) 280ppm/°C (if T > Tg) |
| CTI | >600 (DIN EN 60112 on FR4) |
| SIR test | 20°C-65°C, 95%RH, 7days (IPC CC 830) |
| Damp heat test | 85°C, 85%RH, 1000h (IEC 600068-2-67) |
| Salt Mist Test | 35°C, 5% salt, 48h (IEC 60068-2-11) |
| VRT | -55°C +125°C, 20 cycles, pente 10°C/mn |
| Thermal chock | -65°C +125°C, 100 cycles, (IPC CC 830) -40°C +105°C, 1500 cycles (IEC 60068-2-14) |
| Flowing mix gas | OK (IEC 60068-2-60) |

(4 gas test/ 21d, 75% RH; 25°C; C12: 10ppm; No2: 200; H2S 10ppm; SO2 : 200 ppm)

The conformal coating AVR80 XY is compliance with REACH and RoHS refulations. If you want a certificate, please contact us (info@abchimie.com).

PACKAGING

AVR80 XY Conformal Coating

5 Litre Bulk AVR80 XY 05L

Acrylic Thinners

5 Litre DVA XY 05L
5 Litre DVA XY R 05L

Removal Solvent SND (100% Ozone Friendly, Flammable)

| | |
|---------------|----------|
| 400ml Aerosol | SND 400B |
| 5 Litre Bulk | SND 05L |
| 30 Litre Bulk | SND 30L |

No toxic Removal Solvent DNS

| | |
|---------------|---------|
| 5 Litre Bulk | DNS 5L |
| 30 Litre Bulk | DNS 30L |

STORAGE AND SHELF-LIFE

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..