

## SILICONE REMOVABLE COATING

SVR99 is a silicone conformal coating designed to protect printed circuit boards exposed to high humidity environments. The coating is specially formulated to be easily removed with SND from ABchimie which is ideal.

SVR99 in bulk may be applied by spraying, dipping or brushing. Thinners (DVS) are available to maintain the viscosity of the coating. A UV trace is included within the coating to allow easy and reliable post-coating inspection. The stronger the reflected light, the thicker the coating layer.

### CHARACTERISTICS

- \* Good adhesion under high humidity conditions.
- \* Low oxygen permittivity and excellent surface resistivity.
- \* Excellent resistance to mould growth, tropical conditions and ultraviolet light.
- \* Good operating temperature range.
- \* Good dielectric properties, coating thickness typically being 25 microns.
- \* Repairability - easily soldered through without fear of highly toxic gases being produced or totally removed with Ultrasolve.
- \* Homologation UL QMJU2 (File E308861)

### APPLICATION

SVR99 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 SVR99. All PCBs, being composite materials, absorb moisture. If this is not removed, the conformal coating may not protect to the required extent. Pre-drying or vacuum desiccation, will remove the moisture.

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 may become corrosive if left on the PCB. ABchimie manufacture a range of 100% Ozone Friendly cleaning products. All products produce results within the Military specification. Please contact ABchimie for further information.

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.

SVR99 Thinners (DVS) should be used to keep the SVR99 coating at a suitable viscosity for dipping. DVS is added periodically as the solvent evaporates. The viscosity should be

checked using a viscosity meter or "flow cup". The board assemblies should be immersed in the SVR99 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 (PCM) 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 centimetres/mn) 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.

## **Spraying**

Aerosol application must be made between 15 and 25°C.

Bulk SVR99 needs to be thinned with SVR99 Thinners (DVS) before spraying. The optimum viscosity to give coating quality and thickness depends on the spray equipment and conditions but a starting point could be 2 parts coating to 1 part thinners. If bulk coating material has been agitated, allow to stand until air bubbles have dispersed. The nozzle of the spray gun requires to be selected to give an even spray to suit the viscosity of the coating material.

SVR99 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.

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 for 2 hours at room temperature prior to any heat curing.

## **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 so as not to leave brush marks and so that the components and wiring are not disturbed.

## **Drying Times and Curing Conditions**

SVR99 will dry in air within 4 to 12 hours at room temperature. This cure time can be reduced by the use of moderate heat. The coating should be tack free within 20 minutes. Any heat cure must be started after the coating has become tack free.

## **TYPICAL PROPERTIES**

### **Liquid SVR99 (varnish)**

Colour:	Clear Translucent Fluid
Non-volatile Content:	30% approx.
Viscosity at 25°C :	100 - 200 cSt
Flash Point:	25°C
Drying Time:	<15 min. touch dry 24 hours optimum properties

## **Cured SVR99 (coating)**

Colour:	Transparent (blue reflection)
Electrical Resistivity:	$1 \times 10^{14}$ Ohms/cm
Temperature Range:	-50°C to +125°C
Dielectric Strength:	90 kV/mm
Résistance d'isolement ( $\Omega$ )	$10^{12}$ (MIL-I-46058C)
VRT	-25°C +25°C, 100 cycles, palier 15min, 5°C/min
Thermal chocking	-25°C +50°C, 50 cycles, 15min/15min
Dielectric withstanding voltage	> 1500V (MIL-I-46058C)
SIR test 15H	20°C-80°C, 90%RH, sous tension
Moisture resistance (déli water)	10-80°C, 95%RH +-4%, 90 days
Flammability:	Self-extinguishing UL94VO
Dissipation Factor (at 1MHz, 25°C)	0.01

The conformal coating SVR99 is compliance with REACH and RoHS regulations. If you want a certificate, please contact us ([info@abchimie.com](mailto:info@abchimie.com)).

## **PACKAGING**

### ***SVR99 Conformal Coating***

400ml Aerosol (100% Ozone Friendly)	SVR99 400
5 Litres Bulk	SVR99 05L

### ***Thinner***

5 Litres	DVS 05L
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### ***Removal Solvent : SND (100% Ozone Friendly, Flammable)***

400ml Aerosol	SND400B
5 Litres Bulk	SND05L

### **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.*