

## ACC17 (ESP648) Silicone Conformal Coating

### **INTRODUCTION**

ACC17 is a fast curing, low viscosity, low volatile, 1-component, condensation curing silicone coating. The uncured product can be applied by pouring or spraying and is readily cured to a tough, transparent rubber. It can be used to coat printed circuit boards to prevent ingress of water and environmental contaminants. This coating conforms to the VOC legislation and contains 100% solids on a silicone elastomer basis.

### **Key Features**

- Fast Room temperature cure
- Low volatile content
- Low viscosity
- 100% solids
- Fluorescent UV aid for Production QA checks
- Excellent adhesion to many substrates
- Low odour
- RoHS compliant

### **APPLICATION**

The bulk product may be sprayed or brushed onto the circuit. Spraying or brushing will give a film thickness of 100 to 1000 microns. The product contains an UV trace to allow inspection of the board after coating to ensure complete and even coverage.

Boards should be thoroughly cleaned before coating for best adhesion / performance. Coating over no clean fluxes is possible so long as other surface contaminants are not present.

### **CLEANING**

The boards should be thoroughly cleaned before coating. This is required to ensure that satisfactory adhesion to the substrate is possible. Some flux residues must be removed, as they become corrosive if left on the PCB. ACC manufacture a range of 100% Ozone Friendly cleaning products - both solvent and water based, all clean to military standards (please contact ACC for further information).

### **DIP COATING**

This is not recommended for large scale production, small baths of < 5 litres are suitable but the ACC17 must not be exposed to the atmosphere for > 4 minutes during any coating campaign and must be returned to the original

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container and sealed. Please note that continual use of ACC17 by this method will reduce the life of the product and may result in poor coating quality.

### **SPRAYING**

Using a Nordson SC-300 swirl coat at 600 mm/second and 80 psi pressure, the maximum recommended dilution ratio is:

80 parts ACC17  
20 parts ACC34 or ACC34UV

A coating thickness of 300 microns can be achieved which is touch dry in 5 minutes and fully cured in 16 minutes at 25°C and 55% humidity.

Using a Nordson SC-280 film coater at 600 mm/second and 80 psi pressure, the maximum recommended dilution ratio is:

80 parts ACC17  
20 parts ACC34 or ACC34UV

A coating thickness of 80 microns can be achieved which is touch dry in 5 minutes and fully cured in 16 minutes at 25°C and 55% humidity.

### **Evaporation of ACC34 in coatings of 80 to 350 microns:**

<u>Temperature, °C</u>	<u>Time</u>
16	48 hours
45	24 hours
60	1.5 hours
125	0.5 hours

### **BRUSHING**

The coating should be used at room temperature (above 16°C) using a good quality brush apply the product gently such as to achieve a good coating and not to disturb wiring. The board should be left to cure at 16 to 45°C with a relative humidity of >40%.

### **CURING TIMES / CONDITIONS**

For brushing and manual spraying the film will be touch dry after 4 minutes at 25°C / 55% humidity) and the full properties of the coating will be obtained after 16 minutes at room temperature.

### **DOUBLE COATING**

Whilst this should not be normally be required, a second coating may be applied after the first coating is cured to ensure the two coats bond together.

Property	Test Method	Value
<b>Uncured Product</b> (Tested at 25°C / 55 +/- 5% Humidity)		
Colour:		<b>Pale yellow Liquid 400</b>
Appearance		
Viscosity	Brookfield	
<b>mPa.s</b>		
Tack free time	AMB 001	<b>4 mins</b>
Cure to 300 microns		<b>16 mins</b>

Thickness, microns	Time, minutes
120	6
200	9
230	12
300	16

### **Cured Elastomer**

After 7 days at 23°C / 55 +/- 5% Humidity on a 3 mm thick test sheet.

Hardness, Shore A	ASTM D 2240-95	<b>25</b>
Density (25°C, g/ml)	ASTM D70	<b>1.01</b>
Flash Point	ASTM D93	<b>&gt;150°C</b>
Pensky Martin (closed cup)		
Solids Content		<b>100%</b>
Min Service Temp		<b>-50°C</b>
Max Service Temp		<b>200°C</b>
Coefficient of thermal expansion:		
Volumetric, ppm/°C		<b>930</b>
Linear, ppm/°C		<b>310</b>
Volatile content, ppm		<b>&lt;300</b>

### **Electrical Properties:**

Volume Resistivity: (Ω.cm)	ASTM D-257	3.44E+14
Surface Resistivity: (Ω)	ASTM D-257	3.01E+14
Dielectric Strength: (kV/mm)	ASTM D-149	18.5

### **STORAGE / SHELF LIFE**

When stored in original containers at 5 to 40°C the shelf life is expected to be 12 months. Once opened, refrigerated storage at <10°C is recommended.

### **HEALTH AND SAFETY**

Material Safety Data Sheets are available at [www.acc-silicones.com](http://www.acc-silicones.com) or upon request through the ACC Silicones sales office

### **PACKAGING**

ACC17 is available in 1, 5 and 20 kg non-returnable packages

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