

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 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:

20 parts ACC17
80 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:

20 parts ACC17
80 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 16C) 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.

Properties of Uncured Product

(Tested at 25°C / 55 +/- 5% Humidity)

Property	Test Method	Value
Colour:		Pale yellow
Appearance		Liquid
Viscosity	Brookfield	400 mPa.s
Tack free time	AMB 001	4 mins
Cure time to 300 microns		16 mins

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

Properties of Cured Elastomer

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

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

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 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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Disclaimer: -

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