

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.

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

Dispensing platforms include:

Nordson SL940

Applicator SC300 swirl coat 0.61mm low cavity.

60 – 100 mm/second and 25 psi.

Without dilution a coating thickness of 300 – 400 microns can be achieved which is touch dry in 4 minutes at 25°C and 55% humidity.

Using applicator SC300 swirl coat, 0.61mm low cavity, 200 – 300 mm/second, 30 – 55 psi

At the maximum recommended dilution of:

20 parts ACC17

80 parts ACC34 or ACC34UV

a coating thickness of 200 - 300 microns can be achieved which is touch dry in 5 minutes at 25°C and 55% humidity.

PVA Delta 6:

Applicator FCS300 ES

Without dilution a coating thickness of 140 – 180 microns can be achieved which is touch dry in 4 minutes at 25°C and 55% humidity.

At the maximum recommended dilution of:

20 parts ACC17

80 parts ACC34 or ACC34UV

a coating thickness of 50 – 80 microns can be achieved which is touch dry after 5 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 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		<500

Electrical Properties:

Volume Resistivity:	ASTM D-257	3.44E+14
(Ω.cm)		
Surface Resistivity:	ASTM D-257	3.01E+14
(Ω)		
Dielectric Strength:	ASTM D-149	18.5
(kV/mm)		
Dielectric Constant	ASTM D-150	2.66
@1kHz		

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

Revision Date: 24.06.2019

Disclaimer: -

The information and recommendations in this publication are to the best of our knowledge reliable. However, nothing herein is to be construed as a warranty or representation. Users should make their own tests to determine the applicability of such information or the suitability of any products for their own particular purposes. Statements concerning the use of the products described herein are not to be construed as recommending the infringement of any patent and no liability for infringement arising out of any such use is to be assumed. All values are typical and should not be accepted as a specification.