

SC103K

Silicone Cement SC103K is a protective coating designed specifically for encapsulating electronic components such as resistors and capacitors in order to protect them from high humidity. The cement is also extremely heat resistant and will withstand temperatures above 300°C. The cement is designed for application by dipping and several coats may be applied if the cement is allowed to air-dry between coats.

SC103K is normally available in green but other colours may be obtained to special order. The recommended Thinner is TS106

Application

- Dip coating
- Spraying and brushing

Key Properties

- Fast room temperature drying
- Contains UV trace and antifungal agents
- Resistant to most solvents, lubricants and cooling fluids
- Excellent adhesion under all climatic conditions including high altitude/decompression to BS.3G100, MIL-STD-810C, RTCA D0160A, ARINC 600
- Matt finish
- Non-corrosive to Cadmium and Zinc plate (contains no Phenol)

Description

- One-part system

Drying times and curing conditions

Temperature	Touch dry time (minutes)	Through cure time (minutes)	Initial Cure time (hours)	Post cure* (hours)
25°C	20	60	-	-
100°C	-	5	12	-
120°C	-	-	6	-
150°C	-	-	3	6
200°C	-	-	1	2

* For maximum performance and chemical resistance a post cure is recommended. In general the higher the post cure temperature the greater the chemical resistance. The above times will vary dependant on coating thickness, humidity and component density and are given as a guide only.

Typical Properties

Test	Result	Unit
Appearance	Matt Green	
Specific gravity	1.6	
Flash point	25	°C
Binder	Modified silicone resin	
Solids content	68	%
Particle size	<100	micron
Loss of weight	The weight loss of the dried film shall not exceed 2% when dried for 6hrs @ 275°C	
Loading thickness	180-220	micron

NB The uncured system contains flammable aromatic solvent and is immiscible with water. Extinguishers: CO₂, foam, dry powder.

Contact: **Technical Support on 01793 823741 or support@robnor.co.uk** for details.

Processing

SC103K can be dipped, sprayed 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 humidity in excess of 75% are unsuitable for the coating.

SC103K contains a UV trace that allows inspection of the PCB after coating to ensure complete and even coverage. The stronger the reflected light, the thicker the coating layer.

PCB Cleanliness

It is essential that the PCB is thoroughly cleaned and dry before coating to ensure maximum adhesion and coating performance. No clean flux residues must also be removed as they inhibit adhesion of the coating.

Dilution

SC103K is supplied ready use for dipping or brushing. During extended open times some solvent loss will be experienced and this will increase the viscosity and coating thickness. The solvent loss can be recovered by adding TS106 thinners. The TS106 thinners are normally added at increments of approximately 10% by volume until the desired viscosity is achieved. After blending with TS106 thinners the product should be allowed to stand for approximately 10 minutes or until all bubbles have been dispersed.

Viscosity Control

The viscosity should be checked using a viscosity meter or "flow cup". Another method of controlling the viscosity is by measuring the cured coating thickness on a glass slide.

Dip Coating

The board assemblies should be immersed in the dipping tank in the vertical position, or at an angle as close to vertical as possible. Connectors should not be immersed in the liquid unless they are very carefully masked. Leave the PCB submerged until the air bubbles have dispersed. The board or boards should then be withdrawn VERY SLOWLY 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 for 2 hours at room temperature prior to any heat curing.

Brushing

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. When the brushing operation is complete the boards should be placed in an air-circulating drying cabinet and left to dry for 30 minutes at room temperature prior to heat curing.

Spraying

Bulk material needs to be thinned with TS106 thinners 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. Allow bulk material to stand if it has been agitated, until air bubbles have dispersed. SC103K is suitable 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. The normal spray gun pressure required is $27.6 \times 10^6 \text{ kN/m}^2$ to $34.5 \times 10^6 \text{ kN/m}^2$ (40 –50lbs/sq. inch) To ensure penetration of the coating beneath the components and in confined spaces, spray the assembly from all directions to give an even coating.

Double Coating

Coatings by their nature do not give 100% protection and contamination, poor coating and surface tension on components may lead to microscopic 'pin holes' in the coating. In most cases two coats are not usually required if the board is clean and the coating operation is controlled adequately. Two coats will generally give a greater degree of protection as the second layer can mask 'pin holes' created in the first coating layer and thus give greater protection. However if two coats are required, the second coating should be applied within 30 minutes of the first to ensure that the two coats will bond satisfactorily.

Plastic Compatability

Please note the solvent system in SC103K may affect components containing polystyrene and polycarbonate.

Approvals

RoHS compliant	Yes
UL94-V0	No
REACH (SVHC concentration)	0%

Availability

Available through distribution www.resins-online.com and sales@robnor.co.uk

Part Numbers

SC103K/NC/1LT
SC103K/NC/5LT

Storage and Shelf Life

Material stored in the original unopened containers under cool dry condition between 10 and 25°C will have a shelf life of 18 months.

Once used the containers must be kept sealed to prevent effects from water, air or contaminants.

Health and Safety

The uncured materials must not be allowed to come into contact with foodstuffs or food utensils, and measures should be taken to prevent the uncured materials from coming into contact with the skin.

The use of barrier creams or impervious gloves is advised.

The skin should be thoroughly cleansed at the end of each working period either by washing with soap and water or by using a resin removing cream - use of solvents is to be avoided.

Disposable paper towels - not cloth towels - should be used to dry the skin.

Adequate ventilation of the working area is recommended.

It is essential that the specific hazards of the system being used be known before handling any material supplied by Robnor.

Users should familiarise themselves with the Health and Safety information SC103K provided by the Company

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The results and information above does not constitute a specification and is given in good faith and without warranty. The information is derived from test/or extrapolations believed to be reliable and is quoted for guidance only. The product is offered for evaluation on the understanding the customer satisfies himself that the product is suitable for his intended by proper evaluation and testing.

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