

298-300

Technical Data Sheet



PRODUCT DESCRIPTION:	Red SCC3 Conformal Coating	DATE:	03/97
PRODUCT CODE:	DCR	PAGES:	3

PRODUCT DESCRIPTION

A red flexible, modified silicone resin conformal coating especially formulated for the protection and camouflage of defence and aerospace electronic assemblies. SCC3 provides protection from the environments and so offers an easy but effective way of increasing the lifetime of vital equipment whilst disguising printed circuit board design.

DCR is available in both aerosol and bulk form, and is 100% Ozone Friendly. It is suitable for dip coating, spraying and brushing. DCR cures quickly at room temperature and may be heat cured if solvent resistance is required.

PRODUCT USE

To protect electronic assemblies from hazardous environments. Resists humidity, mould growth and offers unparalleled electrical characteristics. Hides electronic circuit design and component markings.

FEATURES

- Excellent adhesion, even for high altitude applications
- Excellent salt spray and moisture resistance
- Wide temperature range
- Good dielectric properties at all frequencies
- Resistant to most solvents when fully cured
- May be safely soldered through
- Non corrosive to cadmium and zinc plate
- Lower temperature / faster curing than SCC3 clear version

TYPICAL PROPERTIES

Uncured Material

Colour	Red
Non-Volatile Content	50% (Bulk material)
Viscosity (20°C)	Brookfield 410-800 cPs
Specific Gravity (20°C)	1.08
Flash Point	0°C aerosol; 27°C bulk
Temperature Range (Storage)	0°C to +30°C
Coverage (200 ml aerosol)	8000 cm ² @ 25 micron thickness

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DCR

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Cured Material

Dielectric Strength		90 kV/mm
Electrical Resistivity		10^{15} Ohms/cm
Hardness	Perzos	265 sec.
	Sward	60 sec.
Flammability		Self extinguishing
Temperature Range		-70°C to +250°C

USAGE

SCC3 red may be sprayed, dipped or brushed. Relative humidities in excess of 75% and temperatures outside the range of 15°C to 25°C will not produce best possible results with any conformal coating. The coating's viscosity should be checked regularly with a flow cup, and adjusted with SCC3 Thinners (DCT) as appropriate. Printed circuit boards should be dried prior to coating to ensure adhesion and high temperature properties.

Cleaning

PCBs should be thoroughly cleaned prior to coating. This ensures that adhesion is good, and that corrosive flux residues are not trapped under the coating. Electrolube manufacture a range of suitable cleaning solvents in both the hydrocarbon solvent and aqueous chemistries. All of these products clean to the Military standards. Please ask Electrolube for more information.

Dipping

Red SCC3 contains pigments which may drop to the bottom of the container during storage and these should be mixed in before use. Allow to stand until all of the bubbles have dispersed.

Any areas of the boards that do not require coating (connectors etc.) should be masked using Electrolube Peelable Coating Mask (PCM). Alternatively the Electrolube Dip Coating Machine (DCM) can be set to stop at a specific height to ensure that connectors are not coated.

The board assemblies should be dipped as near as is possible to the vertical axis and left in the coating for approximately 1 minute until all bubbles have dispersed.

The board should be withdrawn very slowly to ensure that the thickness of the coating is very low. After withdrawing, the board should be allowed to drain any excess back into the tank.

Spraying

As for dipping above, ensure that the coating has been thoroughly stirred. The nozzle of the gun needs to be selected to give an even spray pattern. As a guide 40 to 50 lbs/inch² (27.6 to 34.5×10^8 kN/m²) is an acceptable pressure.

DCR 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.

The boards should be sprayed horizontally at 90° angles to ensure penetration of the coating under components and to minimise shadowing.

Brushing

Stir the coating as for dipping and allow to stand for two hours. Gently apply the coating with a good quality brush without leaving brush strokes. Avoid placing an excess of coating onto the board.

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DCR**-3-****Drying and Curing**

The properties gained from red SCC3 are dependant on the curing schedule employed. It is essential that the coating is allowed a minimum of two hours drying time at ambient temperature prior to any heat curing. This is to allow the solvent system to evaporate.

24 hours at ambient cure

This will give a hard non-scratchable film but does not offer good solvent resistance.

2 hours at ambient and 2 hours at 90°C

This will give a hard film with resistance to some solvents such as IPA.

2 hours at ambient and 2 hours at 100°C or 2 hours at ambient and 24 hours at 90°C

This will give a hard non-scratchable film, resistant to most solvents such as IPA or xylene.

Double Coating

Two coats of red SCC3 are not usually required. However if two coats are required, the second coat should be applied within 15 minutes of the first, or the first coat applied and fully cured as above before applying the second coat. This will ensure that the two coats will bond together satisfactorily.

SCC3 Remover Gel (DRG)

Red SCC3 is designed to be solvent resistant after curing. However small areas of coating may be removed using this gel, or the coating may simply be soldered through. A separate data sheet on this product is available on request.

Plastics Compatibility

Red SCC3 contains xylene that may affect certain plastics. It is advisable to check a small area before general usage.

PACKAGING**ORDER CODE****Red SCC3**

200ml Aerosol (100% Ozone Friendly)
1 Litre Bulk
5 Litre Bulk

DCR200H
DCR01L
DCR05L

Thinners

5 Litre Bulk

DCT05L

Remover Gel

1 Litre Bulk

DRG01L

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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. Electrolube 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.

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SAFETY DATA SHEET

PRINT DATE: 28/10/1997

REF: DCR200H

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product name:

SCC3 CONFORMAL COATING

Product code:

DCR200H

Supplier:

ELECTROLUBE

H.K. Wentworth Ltd.,

Wentworth House, Blakes Road,

Wargrave, Berkshire, RG10 8AW, United Kingdom.

Emergency telephone number:

0118 9404031

Fax No: 0118 9403084

2. COMPOSITION/INFORMATION ON INGREDIENTS**Identification of the preparation**

Chemical Name	CAS-No	EC-No	Class	Weight %
DIMETHYL ETHER	115-10-8	204-065-8	F+; R12	35
XYLENE, MIXTURE OF ISOMERS	1330-20-7	215-535-7	R10 Xn; R20/21 Xi; R38	20
Proprietary hydrocarbon solvent	92062-15-2	203-539-1	R11, R51/53	15
METHOXY PROPANOL	107-98-2	203-539-1	R10	7
ETHYLENE GLYCOL MONOBUTYL ETHER	111-76-2	203-905-0	Xn; R20/21/22 Xi; R37	<1

NON HAZARDOUS CONSTITUENTS

<15

3. HAZARDS IDENTIFICATION

Most important hazards:

Extremely flammable. Harmful.

Specific hazards

Harmful by inhalation. Irritating to eyes, respiratory system and skin. Excessive exposures may affect human health, as follows:
Liver and kidney injuries may occur; Blood disorder may occur after ingestion

4. FIRST AID MEASURES

General advice:

Remove from exposure, lie down.

Inhalation:

Move to fresh air in case of accidental inhalation of vapours. Consult a physician after significant exposure.

Skin contact:

Wash off with soap and water. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and badly.

Eye contact:

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Ingestion:

Immediately give large quantities of water to drink. Call a physician immediately.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Extinguish with carbon dioxide, dry chemical, foam or waterspray.

Extinguishing media which must not be used for safety reasons: high volume water jet

Specific hazards:

Burning produces irritant fumes: Carbon monoxide, carbon dioxide (CO2).

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Special protective equipment for firefighters: Wear self contained breathing apparatus for fire fighting if necessary.

Specific methods: Water mist may be used to cool closed containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid contact with skin, eyes and clothing.

Environmental precautions: Do not flush into surface water or sanitary sewer system.

Methods for cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Shovel into suitable container for disposal.

7. HANDLING AND STORAGE

Handling: Avoid contact with the skin and the eyes. When using, do not eat, drink or smoke. Do not breath vapours or spray mist.

Storage: Store in original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Name:	National occupational exposure limits:
DIMETHYL ETHER	Long term (8 hrs) = 400ppm/750mgm ⁻³
	Short term (15 min) = 500ppm/940mgm ⁻³
XYLENE, MIXTURE OF ISOMERS	Long term (8 hrs) = 100ppm / 435mgm ⁻³
	Short term (15 min) = 150ppm / 650mgm ⁻³
Proprietary hydrocarbon solvent	Long term (8 hrs) = 1000ppm
METHOXY PROPANOL	Long term (8 hrs) = 100ppm
	Short term (15 min) = 300ppm
ETHYLENE GLYCOL MONOBUTYL ETHER	Long term (8 hrs) = 25ppm / 120mgm ⁻³
NON HAZARDOUS CONSTITUENTS	

Engineering measures: Ensure adequate ventilation, especially in confined areas.

Personal protection equipment:

- Respiratory protection: not required under normal use.
- Hand protection: solvent-resistant gloves (butylrubber)
- Eye protection: safety glasses with side-shields / goggles
- Skin and body protection: Lab coat / lightweight protective clothing.

Hygiene measures: Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	liquid	* as xylene
Colour:	red	
Odour:	Benzene	
Boiling point/range:		* 137-143 °C
Melting point/range:		* -24 °C
Flash point:		<23 °C
Autoignition temperature:		* 480 °C
Explosion limits:	- lower	0.6 vol. %
	- upper	8.3 vol. %
Vapour pressure:	(30 °C)	10 hPa
Relative density:	(20 °C)	>= 0.78
Solubility:		
Water solubility		immiscible (g/l)

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Product name: **SCC3 CONFORMAL COATING****10. STABILITY AND REACTIVITY**

Stability: Stable.
Conditions to avoid: Keep away from heat and sources of ignition
Materials to avoid: strong oxidizing agents.
Hazardous decomposition products: No decomposition if stored and applied as directed. Thermal decomposition can lead to release of irritating gases and vapours: aldehydes, acids, carbon oxides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: DME: LC50/inhalation/4h/rat = 16.4% in air
Xylene: LD50/oral/rat = 4.3g/kg
Local effects: May cause eye or skin irritation with susceptible persons
Sensitization: May cause sensitization by skin contact
Long term toxicity: In higher concentrations, xylene is irritating to eyes and the respiratory tract, causes drowsiness and may cause central-nervous effects (headache etc.)
Chronic toxicity: Effects of excessive exposures may include liver toxicity

12. ECOLOGICAL INFORMATION

Mobility: Immiscible with water.
Persistence and degradability: Not readily biodegradable.
Bioaccumulation: not significant
Ecotoxicity effects: not significant

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products: Contact waste disposal services.
Contaminated packaging: In accordance with local and national regulations.

14. TRANSPORT INFORMATION

UN-No:	1950	Marine pollutant:	No
ADR/RID			
Class:	2	Item:	5° F
Proper shipping name:	Aerosol dispensers		
IMO			
Class:	2.1	IMDG Page:	2102
EmS:	2-13	MFAG:	620
Proper shipping name:	Aerosol dispensers		
ICAO			
Class:	2.1	UN/ID No:	1950
Proper shipping name	Aerosols, flammable, n.o.s		

15. REGULATORY INFORMATION

Classification according to European directive on classification of hazardous preparations 90/492/EEC

- Contains: XYLENE
- Symbol(s):

