Chemtronics

Product Information

Chemtronics UR-101 UV Conformal Coating

Introduction

Chemtronics UR-101 is urethane-acrylic based composite which fully cured by ultraviolet (UV) light and moisture. A secondary moisture cure mechanism will cure unexposed areas of the coating within 2-3 days at ambient conditions. Meet the stringent requirements of the industrial control electronics industry. After solidification, it forms a dense protective and dense protective film layer which is insulated, moisture-proof, dust-proof, anti-pollution, anti-corrosive gas. For moisture, acid, alkali, detergents and chemical solvents, all have excellent resistance. It's suitable for high-reliability hybrid integrated circuits, military aviation, maritime circuits, industrial electrical equipment, industrial instrumentation, telecommunications equipment, appliance controllers and other electronic gas facilities protection.

Features / Benefits:

- UV curable
- Moisture cure
- Excellent adhesion
- Fast curing
- Non-ozone depleting
- Meets requirements IPC-CC-830
- UL certification, the number is E76307

Typical Properties of Chemtronics UR-101

Density	1.12±0.05g/cm3
Solids Content	100 %
Viscosity	110±20 cps
Recommended Coating Thickness	40-125 microns
Recommended Cure	See curing section
Shelf Life at Room Temperature	6 months
Recommended Stripper	Techspray 61211
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Glass Transition Temperature - DSC	57°C
Flammability, per UL-94	V-0
Dielectric Withstand Voltage, per MIL-I-46058C	2200 V/mm
Dielectric Constant, at 1MHz and 25°C per ASTM D150-98	2.82
Dielectric Constant, at 10GHz and 22°C per ASTM D2520	4.2
Dissipation Factor, at 1MHz and 25°C per ASTM D150-98	0.01
Insulation Resistance, per MIL-I-46058C	$3.14x10^{15}$ ohms
Moisture Insulation Resistance, per MIL-I-46058C	6.2×10^{11} ohms
Fungus Resistance, per ASTM G21	Pass
Resistance to Chemicals	Excellent

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Application of Chemtronics® UR-101

Brushing

High-quality brush is used for brushing operation. This will not cause the bristles and brushmarks to remain on the circuit board. It avoids damage to the circuit board and componentsfrom the surface. At the same time, attention must be paid to keeping the plastic producttank closed. Pour out the proper amount of gum and wait outside.

Spraying

Spraying is primarily for computer controlled (atomized or curtain) selective sprayingequipment. This selective spray equipment can be selectively coated only on the areawhere the PCB needs coating. The operation needs to select the nozzles suitable forthe current viscosity and the spray pressure according to the instructions of thedifferent equipment's (usually suitable for medium-viscosity coating glues for the bestcoating effect), in order to ensure that the coating penetrates into the bottom of thecomponents. And the edge position of any coupling position, spraying should besprayed smoothly from all angles.

Curing

UV cure

Chemtronics® UR-101 is a highly cross linked coating. In order to achieve maximum cross linking density, the product must be exposed to the correct spectral output. Chemtronics has modelled the performance of Chemtronics® UR-101 using Fusion UV curing equipment. The table below outlines the required dosage and irradiance values necessary to reach UR-101 tack free. Minimum figures should provide a tack free surface. The maximum recommendation represents highest tested values by Chemtronics. The cure recommendations may change as curing technology develops.

	Dose J/cm^2			Irradiance W/cm^2		
	UVA	UVB	UVC	UVA	UVB	UVC
Min	1.5	1.5	0.3	0.6	0.6	0.1
Max	3	2.9	0.7	1	0.9	0.3

Moisture cure

Moisture is used as a secondary cure mechanism for shadowed areas that can't be cured with light. While moisture cure time is typicaly 2-3days at 25℃,50% RH, actully moisture cure time is application specific and may vary. Cure time depends on humidity level, amount of coating in shadowed areas, and proximity of shadowed coating to humidity. Coating entrapped under large components may have a prolonged cure time. Exposure to heat (typically 65-80℃) and higher relative humidity will accelerate cure.

Clean Up

To flush equipment and clean uncured Chemtronics® UR-101, non-alcohol based solvents should be used. Techspray® 61211 is recommended.

Storage

Chemtronics® UR-101 is photosensitive. The product should not be exposed to direct sunlight or full spectrum fluorescent lighting. Chemtronics® UR-101 should be stored away from excessive heat, in tightly closed opaque containers at 0 to 25°C to ensure maximum shelf life is achieved. Prior to use, allow the product to equilibrate for 24 hours at room temperature. Chemtronics® UR-101 is a moisture curing material and care should be taken to protect process vessels and partial containers from moisture. Partial containers must be purged with a dry, inert gas such as dry air, nitrogen or argon before closure, otherwise premature polymerization by atmospheric moisture will occur.

Caution

Application of Chemtronics® Conformal Coatings should be carried out in accordance with local and National Health and Safety regulations.

Packaging and Availability

UR-101	1L
UR-101	5L

Environmental Policy

Chemtronics® is committed to developing products to ensure a safer and cleaner environment. We will continue to meet and sustain the regulations of all federal, state and local government agencies.

Resources

Chemtronics® products are supported by a global sales, technical and customer services resources.

For additional technical information on this product call the technical sales department at 86 512- 82060808-508, email：chinasales@itwsms.com

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