

CHEMTRONICS® Technical Data Sheet

TDS # CW3300

CircuitWorks® Overcoat Pen

PRODUCT DESCRIPTION

CircuitWorks® Overcoat Pen is ideal for protecting and insulating circuit board traces, components, and other delicate electronics. This highly effective acrylic conformal coating provides excellent protection against shorts, moisture, abrasion, fungus, and other environmental hazards. Allows for easy repair of solder mask in prototype, manufacture and repair of circuit boards.

- Simple to use, single component system
- Hard, durable coating
- High dielectric strength
- Helps prevent arcing and shorts
- Contains fluorescent indicator
- Protects against moisture damage
- Meets requirements of Mil-I-46058C and IPC-A-610C
- Helps prevent static discharge problems on sensitive components

TYPICAL APPLICATIONS

CircuitWorks® Overcoat Pen may be used for electronics applications in:

- Circuit Board Manufacturing
- Data Communications
- Aerospace
- Instrumentation
- Controls
- General Maintenance and Repair

TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

Composition

Material	Polymeric Conformal Coat
Color	Clear, Green, Blue
VOC Content	630 g/L

Cured Compound

Temperature Range	-67 to 255°F (-55 to 125°C)
Tack-Free Time	< 5 Minutes
Resistivity	>10 ¹² ohm-cm @ 50 VDC
Dielectric Breakdown	>500 volts/mil DC
Dielectric Constant	3 - 4
Dissipation Factor	< .001 @ 1 KHz
Thermal Shock Resistance @ -55 to 155°C	Pass, 10 Cycles
Flexibility	Excellent
Moisture Resistance	Excellent
Adhesion	Good to Excellent
Typical Thickness	2 - 3 mil

Shelflife

2 years

CHEMICAL RESISTANCE

CircuitWorks® Overcoat Pen has excellent resistance to water based cleaners and limited resistance to aggressive organic solvents such as acetone. The chemical resistance of CW3300 can be enhanced by heat curing.

COMPATIBILITY

The CircuitWorks[®] Overcoat Pen material is generally compatible with materials used in printed circuit board fabrication. As with any adhesive/sealant, compatibility with substrate should be determined on a non-critical area prior to use.

USAGE INSTRUCTIONS

Read MSDS carefully prior to use.

Cleaning: For best adhesion, clean the board with a Chemtronics[®] Electro-Wash[®] cleaner in order to remove any surface contamination which may prevent adequate material contact.

Application: The overcoat material is dispensed throughout the CircuitWorks[®] Overcoat Pen. Squeezing the pen body while pressing down on the surface will allow the material to flow.

Thinning: The overcoat material has been optimized for the CircuitWorks[®] Overcoat Pen and thinning is not normally necessary. However, propyl acetate may be added with thorough mixing to make slight adjustments for ease of application in the bulk form.

Drying: The overcoat material dries in 5 to 10 minutes at room temperature. A heat cure of 5 - 10 minutes at 200°F (93°C) is recommended for more demanding applications and for enhancing the chemical resistance.

Clean-Up/Removal: The overcoat material can be removed from surfaces using acetone.

AVAILABILITY

CW3300C	4.9g / 0.16 oz. Clear
CW3300G	4.9g / 0.16 oz. Green
CW3300B	4.9g / 0.16 oz. Blue

NOTE:

This information is believed to be accurate. It is intended for professional end users having the skills to evaluate and use the data properly. ITW CHEMTRONICS[®] does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.

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SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Information: 800-TECH-401

Product Identification**CIRCUITWORKS® OVERCOAT PEN**

Product Code: CW3300C, CW3300G, CW3300B

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Wt. % Range
Propylene Glycol Methyl Ether Acetate	108-65-6	20.0-40.0
n-propyl acetate	109-60-4	15.0-25.0
Methyl ethyl ketone	78-93-3	10.0-20.0
Acrylic Resin	mixture	25.0-35.0

SECTION 3: HAZARDOUS IDENTIFICATION

Emergency Overview: Clear, green, or blue colored paint with an aromatic hydrocarbon odor. This product is flammable. Liquid will irritate eyes and skin. Breathing high concentrations of product may produce dizziness, headache, nausea, vomiting and unconsciousness.

Potential Health Effects:

Eyes: Vapors of this product may irritate the eyes. Liquid is irritating and potentially damaging..

Skin: Contact may cause irritation and dry skin.

Ingestion: Harmful if swallowed. May cause nausea, vomiting, headache, weakness, and drowsiness.

Inhalation: Harmful if inhaled. High concentrations of vapor may cause headache, dizziness, nausea, vomiting and unconsciousness.

Pre-Existing Medical Conditions Aggravated by Exposure: Lung, eye, skin.

SECTION 4: FIRST AID MEASURES

Eyes: Immediately flush with large amounts of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined by a Physician if irritation develops or persists.

Skin: Remove contaminated clothing and wash skin with soap and water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse.

Ingestion: If swallowed, give two or more glasses of water immediately. **DO NOT** induce vomiting. Get medical attention.

Inhalation: In case of exposure to high concentrations of vapor or mist, remove to fresh air. If breathing is difficult, give oxygen and call a Physician. If breathing has stopped, apply artificial respiration and call a Physician.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: 30°F (-1C) **LEL/UEL:** 1.7 / 11.0 (% by volume in air)

Extinguishing Media: Use alcohol foam, water foam, carbon dioxide, dry chemical, or water spray. Water may not be effective in fighting the fire but can be used to cool overheated areas. Care must be taken to not spread the fire.

Fire Fighting Instructions: Remove all ignition sources. Use water spray to cool overheated containers. Take care not the spread fire with water. Solvent vapors are an explosion hazard. As in any fire, wear self-contained breathing apparatus (pressure demand, OSHA/NIOSH approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Large Spills: Remove all sources of ignition (sparks, open flames, etc.). Wear self-contained breathing apparatus and appropriate personal protective equipment. Ventilate area and contain and absorb spill with inert material. Collect spill by scooping up liquids and absorbent material and place in a chemical waste container for proper disposal. Do not flush to sewer. Prevent material from entering storm sewers, ditches that lead to waterways and ground.

Small Spills: Absorb spill with absorbent material, then place in a chemical waste container for proper disposal.

SECTION 7: HANDLING AND STORAGE

Avoid prolonged or repeated contact with skin, eyes or clothing. Wash hands before eating. Use with adequate ventilation. Avoid breathing product vapor. Do not reuse this container. Store in a cool dry place, away from heat, sparks or flames. Keep container tightly closed when not in use. Do not store in direct sunlight.

KEEP OUT OF REACH OF CHILDREN.**SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION****Exposure Guidelines:**

CHEMICAL NAME	ACGIH TLV	OSHA PEL	ACGIH STEL
Propylene Glycol Methyl Ether Acetate	NA	NA	NA
n-propyl acetate	200 ppm	200 ppm	250 ppm
Methyl ethyl ketone	200 ppm	200 ppm	300 ppm
Acrylic Resin	NA	NA	NA

Work/Hygienic Practices: Good general ventilation should be sufficient to control airborne levels. Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. If vapor concentration exceeds TLV, use NIOSH approved organic vapor cartridge respirator. Wear safety glasses with side shields or goggles and rubber or other chemically resistant gloves when handling this material.

NFPA and HMIS Codes:

	NFPA	HMIS
Health	1	1
Flammability	3	3
Reactivity	1	1
Personal Protection	-	B

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIESPhysical State: Clear, green or blue colored paintOdor: CharacteristicpH: NAVapor Pressure: 78 mmHg @ 20°CVapor Density: >1

(Air = 1)

Solubility in Water: AppreciableSpecific Gravity: 0.9Evaporation Rate: >1

(Butyl acetate=1)

Boiling Range: 175-284°F (79 – 140C)Percent Volatile: 70%**SECTION 10: STABILITY AND REACTIVITY**Stability: This product is stable. Conditions to Avoid: Avoid heat, sparks, open flame and strong oxidizing conditions.Incompatibility: Do not mix strong oxidizers, mineral and organic acids, bases, caustics, amines and alkali contamination.Products of Decomposition: Decomposition may release carbon monoxide, carbon dioxide, oxides of nitrogen monomers and smoke. Depending on conditions, some highly reactive peroxides may be formed.Hazardous Polymerization: Will not occur.Conditions to avoid: NA**SECTION 11: TOXICOLOGICAL INFORMATION**

Ingredients	LD50	LD50	LC50
	(rat) Oral	(rbt) Dermal	(rat) Inhalation
Propylene Glycol Methyl Ether Acetate	8532 mg/kg	>5000 mg/kg	>4300 ppm
n-propyl acetate	9300 mg/kg	5000 mg/24H MLD	NA
Methyl ethyl ketone	2700 mg/kg	5000 mg/24H MLD	5000 ppm/4H
Acrylic Resin	NA	NA	NA

Cancer Information: No ingredients listed as human carcinogens by NTP or IARC

Reproductive effects: none

Teratogenic effects: none

Mutagenic effects: none

SECTION 12: ECOLOGICAL INFORMATION**Environmental Impact Information**

Avoid runoff into storm sewers and ditches which lead to waterways. Water runoff can cause environmental damage.

REPORTINGUS regulations require reporting spills of this material that could reach any surface waters. The toll free number for the US Coast Guard National Response Center is: **1-800-424-8802****SECTION 13: DISPOSAL CONSIDERATIONS**

Dispose of in accordance with all federal, state and local regulations. Water runoff can cause environmental damage.

SECTION 14: TRANSPORTATION INFORMATION

Proper Shipping Name	UN Number	Class	Sub. Risk	Pkg. Group	Hazard Label	Pkg. Instr.	Max. Quantity
<u>Air:</u> Paint	UN1263	3	-	II	Flammable Liquid	305	1 L
<u>Ground:</u> Consumer Commodity ORM-D	-	ORM-D	-	-	ORM-D	1 73.150	5 L

SECTION 15: REGULATORY INFORMATION**SECTION 313 SUPPLIER NOTIFICATION**

This product contains no toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372).

This information should be included on all MSDSs copied and distributed for this material.

TOXIC SUBSTANCES CONTROL ACT (TSCA).

All ingredients of this product are listed on the TSCA Inventory.

WHMIS: Class B2: Class D2B

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16: OTHER INFORMATION **Note: This MSDS is applicable to date codes of 2196 and later.**

Normal ventilation for standard manufacturing practices is usually adequate. Local exhaust should be used when large amounts are released.

To the best of our knowledge, the information contained herein is accurate. However, all materials may present unknown hazards and should be used with caution. In particular, improper use of our products and their inappropriate combination with other products and substances may produce harmful results which cannot be anticipated. Final determination of the suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist.