

CHEMTRONICS[®]

Technical Data Sheet

TDS # CW3700

The Mighty Pen[®]

The powerful universal cleaning pen.

PRODUCT DESCRIPTION

The Mighty Pen[®] is ideal for precise removal of label adhesives, marker and ink stains, and conformal coating from printed circuit board. The unique marker tip dispenser provides controlled and exact application. The Mighty Pen[®] allows for quick, convenient and precise spot removal of ink, label adhesive, conformal coating and most stubborn to remove soils. The solvent evaporates quickly and provides low surface tension for superior wetting.

- Outstanding cleaning ability, removes soils quickly
- Simple to use, easy to carry
- Pen dispenser provides controlled application
- Mild Citrus Aroma
- Fast drying
- Low Toxicity
- Rapid removal of label adhesive and conformal coatings

TYPICAL APPLICATIONS

The Mighty Pen[®] can be used for all repair, maintenance, and manufacturing applications including:

- Removing adhesives, tape and label residues
- Cleaning ink marks
- Removing flux residues
- Crayon mark removal
- Removal of conformal coatings
- Removing chewing gum
- Refurbishing telephone equipment
- Repairing computer and rack systems
- Spot cleaning of money changing equipment
- All repair and maintenance spot cleaning

TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

Appearance	Clear, colorless liquid
Odor	Mild citrus
Solubility in Water	Negligible
Specific Gravity	0.85 @ 75° F
Evaporation Rate	<1 (Butyl Acetate = 1)
Flash Point (TCC)	6° F
Surface Tension	19.2 (dynes/cm @ 21.6° C)
Shelf life	5 years
Ozone Depletion Potential	0.0

RoHS/WEEE

Status



COMPATIBILITY

The Mighty Pen[®] is compatible with most materials used in printed circuit board fabrication. Materials such as polystyrene and ABS are not compatible with the cleaning material in The Mighty Pen[®]. As with any solvent, compatibility with substrate should be determined on a non-critical area prior to use.

<u>Material</u>	<u>Compatibility</u>
ABS	Poor
Buna-N	Good
EPDM	Not Recommended
Graphite	Excellent
HDPE	Excellent
PVDF	Excellent
LDPE	Good
Lexan™	Fair
Neoprene	Fair
Noryl®	Excellent
Nylon™ 66	Excellent
Polycarbonate	Fair
Polypropylene	Good
Polystyrene	Not Recommended
PVC	Poor
Silicone Rubber	Poor
Teflon™	Excellent
Viton™	Poor

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. CHEMTRONICS® does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.

USAGE INSTRUCTIONS

Read MSDS carefully prior to use.

1. Hold pen vertically and briefly depress tip to start liquid flow.
2. Allow liquid to sit on the substance being removed for 15 - 20 seconds, then rub area with pen tip until substance is removed. Wipe area clean with a Controlwipes™ Wipe.
3. Wipe tip on a Controlwipes™ Wipe to remove any buildup.

AVAILABILITY

CW3700 11g (0.39 oz.) Pen

SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Information: 800-TECH-401

Product Identification**CIRCUITWORKS® THE MIGHTY PEN®**

Product Code: CW3700

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Wt. % Range
d-Limonene	5989-27-5	60.0-90.0
tetrahydrofuran	109-99-9	10.0-40.0

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview: Clear, colorless liquid with a mild citrus odor. This product is flammable. Liquid will irritate eyes and skin under repeated or prolonged exposure. Breathing high concentrations of product may produce drowsiness and a headache.

Potential Health Effects:

Eyes: Liquid and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation.

Skin: Contact causes skin irritation. Symptoms may include redness and burning. May cause skin sensitization.

Ingestion: Harmful if swallowed. Large amounts may be irritating to the mouth, throat and stomach. May cause vomiting.

Inhalation: Harmful if inhaled. High concentrations in immediate area can displace oxygen and cause dizziness, unconsciousness and even death, with longer exposure.

Keep people away from such vapors without self-contained breathing apparatus.

Preexisting Medical Conditions Aggravated by exposure: skin, eyes, lungs, central nervous system

SECTION 4: FIRST AID MEASURES

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

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

Ingestion: If swallowed, do not induce vomiting. Give lukewarm water to victim (pint) if victim is conscious and alert. Keep head below knees to minimize chance of aspirating material into the lungs. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: 6 °F (-14C) TCC **LEL/UEL:** Not established (% by volume in air)

Extinguishing Media: Use alcohol foam, carbon dioxide or water spray when fighting fires involving this material.

Fire Fighting Instructions: 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: Not likely to occur.

Small Spills: Absorb spill with inert material (i.e. dry sand or earth), 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	OTHER*
d-limonene	NA	NA	NA	30 ppm
tetrahydrofuran	50 ppm	200 ppm	100 ppm	

*Supplier's Occupational Exposure Limit

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	2	2
Flammability	3	3
Reactivity	1	1
Personal Protection	-	B

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Clear, colorless liquid

Odor: Mild citrus

pH: NA

Vapor Pressure: 2 mmHg @ 20°C (approx.)

Vapor Density: >1 (Air = 1)

Boiling Point: 149°F (65C)

Solubility in Water: Negligible

Specific Gravity: 0.84 @75°F

Evaporation Rate: <1 (Butyl acetate=1)

Viscosity: >1 (Water =1)

Percent Volatile: 100 %

SECTION 10: STABILITY AND REACTIVITY

Stability: This product is stable.

Conditions to Avoid: Do not spray near open flames, red hot surfaces or other sources of ignition.

Incompatibility: Do not mix powdered alkali and alkaline earth metals or strong oxidizing agents.

Products of Decomposition: Thermal decomposition may release carbon monoxide, carbon dioxide and incompletely burned hydrocarbons.

Hazardous Polymerization: Will not occur.

Conditions to avoid: NA

SECTION 11: TOXICOLOGICAL INFORMATIONInhalation:

Tetrahydrofuran LC50 Rat 18,000ppm (4h)

Ingestion:

Tetrahydrofuran LD50 (rat) 3240 mg/kg

Skin:

d-limonene LD50 (rabbit)>5000 mg/kg Tetrahydrofuran
Tetrahydrofuran Severe irritation

Eye:

Moderate irritation

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.

REPORTING

US 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.

SECTION 14: TRANSPORTATION INFORMATION

Proper Shipping Name	UN Number	Hazard Class	Sub. Risk	Pkg. Group	Hazard Label	Pkg. Instr./Auth.	Max. Quantity
<u>Air:</u> Flammable liquids, n.o.s. (d-limonene solution)	UN 1993	3	NA	II	Flammable Liquid	305	5L
<u>Ground:</u> Consumer Commodity ORM-D	NA	NA	--	NA	ORM-D	173.150	

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 B3; 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

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.