

Material Safety Data Sheet

MSDS0003 Page 1 of 5

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Revision Date: August 29, 2003

Product Name: Plating Solution, Electroclean
Product Number: 1oz: 115-3841
4oz: 115-3844

DISTRIBUTOR: Circuit Technology Center, Inc.
45 Research Drive, Haverhill, MA 01832-1293
Phone: 978-374-5000, FAX: 978-372-5700

Emergency Response 24-Hour Telephone: **CHEMTREC** United States: (800) 424-9300
International: (703) 527-3887 (collect)

Section 2. COMPOSITION, INFORMATION OR INGREDIENTS

| CHEMICAL | RTECS # | C.A.S. # | Weight % |
|------------------|-----------|-----------|----------|
| Sodium Hydroxide | WB4900000 | 1310-73-2 | 1-5 |
| Water | ZC0110000 | 7732-18-5 | 95-99 |

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200):

| | OSHA PEL | ACGIH TLV | ACGIH Ceiling | NIOSH REL | NIOSH IDLH |
|------------------|----------|-----------|---------------|-----------|------------|
| Sodium Hydroxide | 2mg/M3 | NA | 2mg/M3 | 2mg/M3 | 10mg/M3 |
| Water | NA | NA | NA | NA | NA |

Section 3. HAZARD IDENTIFICATION

Emergency Overview: Clear, odorless liquid. **Danger!** Corrosive to skin, eyes and respiratory system.
Environmental Hazard.
1996 North American Emergency Response Guidebook ID #1824, Guide #154

Potential Health Effects:

INHALATION: Irritating to the eyes, nose throat, and lungs. May cause sneezing, watering of eyes, nasal discharge and coughing.

EYES: Corrosive to the eyes and may cause severe eye damage.

SKIN: Causes skin irritation. May cause skin burns.

INGESTION: May cause severe and permanent damage to mouth, throat and stomach.

NOTE 1: Prolonged or repeated exposure may cause chronic dermatitis.

NOTE 2: Medical conditions generally aggravated by exposure include preexisting skin and eye conditions and respiratory system disorders.

NOTE 3: Substance does not absorb through skin.

Target Organs: Skin, eyes and respiratory system.

Routes of entry: Skin/eye contact, inhalation and ingestion.

None of the ingredients in this product are listed by IARC, NTP, ACGIH or OSHA as carcinogenic.

Section 4. FIRST AID MEASURES

INHALATION: Remove to fresh air. Lay victim down, legs raised. Loosen tight clothing, cover with a blanket. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

EYE CONTACT: Hold eyelids apart and flush with plenty of water for at least 15 minutes.

SKIN CONTACT: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Thoroughly decontaminate (or discard) clothing and shoes.

INGESTION: DO NOT induce vomiting, unless advised by EMS. Give victim large quantities of water or milk with 1-2 fresh eggs. Give a glass of 1/3 vinegar with 2/3 water. Never give anything by mouth to an unconscious person.

First aid providers must take proper precautions for their own safety before entering contaminated areas to assist chemical accident victims and handling their contaminated clothing and equipment. Another person should immediately call the Emergency Medical Service, 911-Operator, Hospital, Physician, Ophthalmologist or Poison Control Center, as applicable. Give the following information: Location of the accident, your phone number, description of the accident, name of the chemical agent and product, number and condition of casualties and what is being done for the victims. Stay on the phone until the other party hangs up! Remove victim from contaminated area to a clean, quiet, ventilated area. Calm and reassure him, keep him warm.

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Section 5. FIRE-FIGHTING MEASURES

Flash Point & Method: NA

Flammable Limits: LEL: None UEL: None

Autoignition Temperature: NA

GENERAL HAZARD: Containers can build up pressure and burst if exposed to heat (fire).
Water runoff can cause environmental damage. Dike area for later disposal.

FIRE FIGHTING INSTRUCTIONS: NIOSH/MSHA approved positive-pressure self-contained breathing apparatus. Structural fire fighters' protective clothing may not provide adequate protection.

HAZARDOUS COMBUSTION PROD.: NA

FLAMMABLE PROPERTIES: Material will not burn.

EXTINGUISHING MEDIA: All

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Section 6. ACCIDENTAL RELEASE MEASURES

LAND SPILL: Do not touch or walk through spilled material. Isolate hazard area and keep people away. Notify your facility emergency coordinator. Eliminate all sources of ignition. Provide maximum ventilation. Do not release into soil, sewers or natural bodies of water. Wear proper personal protective equipment (PPE). Carefully mop up or vacuum spill and triple rinse with water into suitable plastic container. Release of a reportable quantity (RQ) requires notification of proper authorities. Dispose of according to local, state, and federal regulations.

NEUTRALIZING AGENT: Dilute Hydrochloric Acid (6M)

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Section 7. HANDLING AND STORAGE

STORAGE TEMPERATURE: 60-90°F

STORAGE PRESSURE: Atmospheric

HANDLING: Use "buddy system" when working with chemicals. Do not get in eyes, on skin or on clothing. Do not breathe vapor, mist or gas. Use with adequate ventilation. Wash thoroughly after handling. Triple rinse container clean before discarding. Put nothing else in this container.

STORAGE: Keep container tightly closed in upright position. Store at 60-90°F away from incompatible materials and physical hazards. Do not remove or deface container labels.

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Section 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls:

(X) Local Exhaust ventilation is required.

() Mechanical ventilation recommended.

() Use explosion proof ventilation equipment.

() Do not use in confined spaces without mechanical ventilation equipment.

See section 2 for component exposure guidelines.

Personal Protection:

RESPIRATOR: If engineering controls are not feasible, the respiratory protection program must comply with OSHA's 29 CFR 1910.134, 30 CFR 11 and ANSI Z88.2 requirements.

HAND PROTECTION: (X) Protective Gloves Recommended (use one of the following)
(X) Nitrile (X) Neoprene (X) Vinyl (X) Latex

EYE PROTECTION: (Use one of the following)
(X) Face Shield and Safety Glasses w/Side Shields
(X) Chemical Goggles (splash-proof)

Note 1: DO NOT WEAR CONTACT LENSES

OTHER RECOMMEND.: (Use all of the following)
(X) Eye Bath (X) Safety Shower (X) Washing Station nearby
(X) Impervious Boots (X) Apron (X) Appropriate Protective Clothing

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|-------------------------------|------------------|---|--------|
| Density..... | 1.044-1.054 g/ml | pH..... | 12-14 |
| Boiling Point..... | >100°C, >212°F | % Volatile By Volume..... | NA |
| Freezing Point..... | <0°C, <32°F | % Solids..... | NA |
| Vapor Density (Air = 1)..... | NA | Evaporation Rate (Ethyl Ether = 1)..... | <1 |
| Solubility in Water..... | Complete | Viscosity..... | NA |
| Molecular Weight..... | NA | Physical State..... | Liquid |
| Non-Exempt VOC (g/L)..... | NA | Odor..... | None |
| Appearance: Colorless liquid. | | Vapor Pressure..... | NA |

Section 10. STABILITY AND REACTIVITY

GENERAL: Stable under normal ambient conditions.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Avoid contact with amphoteric metals, strong acids, anhydrides and aldehydes.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Na₂O (Sodium oxide).

HAZARDOUS POLYMERIZATION: Will not occur.

Section 11. TOXICOLOGICAL INFORMATION

RESULTS OF COMPONENT TOXICITY TEST PERFORMED: Information not available.

HUMAN EXPERIENCE: Information not available.

Section 12. ECOLOGICAL INFORMATION

FURTHER INFORMATION: Information not available.

Section 13. DISPOSAL CONSIDERATIONS

RCRA 40 CFR 261 Classification:

Federal, State, and Local laws governing disposal of materials can differ. Ensure proper disposal compliance with proper authorities before disposal.

EPA Waste I.D. Number: D002

WASTE DISPOSAL METHOD: Follow the applicable regulations for disposal of empty containers and rinsate. The disposal information applies to the materials as manufactured. Contamination may affect the disposal requirements. The responsibility for proper waste disposal is with the generator of the waste.

Section 14. TRANSPORT INFORMATIONDOT, IATA, ICAO, and IMO Description:

Basic Description: Electrocleaning Plating Solution
Proper Shipping Name: Sodium Hydroxide Solution
Hazard Class: 8
Packaging Group: II
UN Number: UN 1824
Label Requirements: 8 - Corrosive
Max. Shippable Qty.: 1 liter by Air, (No ground limitations)
Packaging: Meets Performance Oriented Packaging Requirements
Reportable Quantity (RQ): NA
1996 NAERG Guide#: 154
Limitations: NA

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Section 15. REGULATORY INFORMATION**UNITED STATES FEDERAL REGULATIONS:**

MSDS complies with OSHA's Hazard Communication Rule, 29 CFR 1910.1200.

CERCLA/SUPERFUND, 40 CFR 117, 302:

--- None of the chemicals are Superfund hazards ---

SARA SUPERFUND AND REAUTHORIZATION ACT OF 1986 TITLE III Sections 302, 311, 312 and 313:

Section 302 - Extremely hazardous substances (40 CFR 355)

--- None of the chemicals are Section 302 hazards ---

Section 311/312 - Material Safety Data Sheet Requirements (40 CFR 370)

() By our hazard evaluation, this product is non-hazardous

(X) By our hazard evaluation, this product is hazardous. It should be reported under the following

EPA hazard:

(X) Immediate (acute) health hazard

(X) Delayed (chronic) chronic health hazard

() Sudden release of pressure hazard

() Reactive Hazard

Section 313 - List of Toxic Chemicals (40 CFC 372)

This product contains the following chemicals (at levels of 1% or greater) which are found on the 313 list of Toxic Chemicals

| CHEMICAL | C.A.S. Number | Weight % |
|----------|---------------|----------|
|----------|---------------|----------|

TOXIC SUBSTANCE CONTROL ACT (TSCA): All substances are TSCA Listed.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA 40 CFR 261) Subpart C&D:

Refer to Section 11. for RCRA classification.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15
(FORMERLY SECTION 307), 40 CFR 116 (FORMERLY SECTION 311)

This product contains the following chemicals which are listed:

| CHEMICAL | C.A.S. Number | Weight % |
|----------|---------------|----------|
|----------|---------------|----------|

CLEAN AIR ACT: --- No Information ---

CERCLA and EPCRA:

Threshold Planning Quantity: NA
(Release) Reportable Quantity: >18,000 liters
Extremely Hazardous Substance: None

EPCRA Hazard Categories:

| | |
|-----------------------------|-----|
| Immediate (Acute) Health: | YES |
| Delayed (Chronic) Health: | YES |
| Fire: | NO |
| Sudden Release of Pressure: | NO |
| Reactivity: | NO |

ODS Certification:

This product does not contain and is not manufactured with Ozone Depleting Substances (ODS).

VOC Certification:

This product does not contain any Volatile Organic Compounds (VOC).

PCB Certification:

This product does not contain any polychlorinated biphenyls (PCB).

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:

This product contains the following ingredients which appear on the California proposition 65 list: CHEMI-

| CAL | C.A.S. Number | Weight % |
|-----|---------------|----------|
|-----|---------------|----------|

INTERNATIONAL REGULATIONS:

CANADA WHIMS: Class D2B, Class E

EUROPE EINECS NUMBERS: NA

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Section 16. OTHER INFORMATION

LABEL INFORMATION:

European risk and Safety Phrases: NA

European Symbols Needed: NA

Canadian WHIMS Symbols: NA

NFPA HAZARD RATING:

(0) Flammability

(3) Health

(0) Reactivity

REVISION DATES, SECTIONS, REVISED BY:

08-OCTOBER-98, J. FORBES

ABBREVIATIONS USED IN THIS DOCUMENT:

NE - Not Established, NA - Not Applicable/Not Available, NIF - No Information Found

REFERENCES:

Code of Federal Regulations (CFR)

The Sigma-Aldrich Library of Regulatory and Safety Data

Chemical Guide and OSHA Hazard Communication Standard

Various Federal, State & Local Regulations

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