ENTHONE

MATERIAL SAFETY DATA SHEET

Health	3
Flammability	0
Reactivity	1
Personal Protection	

In Case of Emergency CHEMTREC Number (800) 424-9300

Section 1. Chemical Product and Company Identification

Product Name **MICROFAB® CU-300 ADDITIVE**

Product Code Number(s) 250816

250817-001

Material Uses Specialty chemicals for the electronics and surface finishing industries.

Manufacturer
ENTHONE
350 Frontage Road
West Haven, CT 06516
(203) 799-4917
(203) 799-8179 (fax)
www.cooksonelectronics.com

Supersedes Date NEW **Revision No.** 1

Print Date 2/11/2003. **Validation Date** **2/11/2003.**

Prepared by **Anton Mayer - Regulatory Specialist**

Section 2. Composition, Information on Ingredients

Name	CAS #	% by Weight
SULFURIC ACID	7664-93-9	5-10
NON-HAZARDOUS ORGANIC ACID SALT	Proprietary	<1
FORMALDEHYDE	50-00-0	<0.1
WATER	7732-18-5	90-100

All ingredients comply with applicable rules or orders under TSCA

Section 3. Hazards Identification

Physical State and Appearance Liquid. **Odor** Acidic. **Color** Colorless.

Emergency Overview DANGER!

May be fatal if swallowed. May cause burns to mouth, throat and stomach.

Routes of Entry Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects

Eyes Very hazardous in case of eye contact (corrosive). Inflammation of the eye is characterized by redness, watering, and itching.

Skin Very hazardous in case of skin contact (corrosive). Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Inhalation Very hazardous in case of inhalation (lung corrosive). Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath.

Ingestion May be fatal if swallowed. May cause burns to mouth, throat and stomach.

Medical Conditions Caused or Aggravated by Overexposure Prolonged contact with skin, eyes, or respiratory tract may result in burns or tissue damage due to corrosive effects. Repeated or prolonged skin contact can cause drying and cracking of the skin (dermatitis).

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Section 4. First Aid Measures

Eye Contact Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately.

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Section 5. Fire Fighting Measures

Flammability of the Product Non-flammable.

Flash Points Not applicable.

Products of Combustion This material is not combustible, however in a fire it may give off sulfur oxides (SO2, SO3...)

Fire Fighting Media and Instructions Use DRY chemicals, CO2, water spray or foam.

Protective Equipment (Fire) Wear NIOSH approved self-contained breathing apparatus or equivalent and full protective gear.

Unusual Firefighting Hazards May react with amphoteric metals (such as aluminum, zinc, tin) generating hydrogen gas which will burn or explode if ignited.

Section 6. Accidental Release Measures

Small Spill and Leak Absorb with an inert material and place in an appropriate waste disposal container. If necessary: **Neutralize the residue with a dilute solution of sodium carbonate.**

Large Spill and Leak Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. **Neutralize the residue with a dilute solution of sodium carbonate.**

Section 7. Handling and Storage

Handling Do not ingest. Do not breathe vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Storage Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls, Personal Protection

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

Eyes Face shield. Splash goggles.

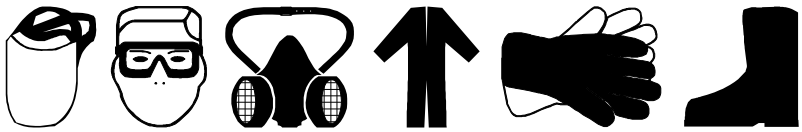
Body Chemical resistant protective suit.

Respiratory Be sure to use a MSHA/NIOSH approved respirator or equivalent. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product, and the safe working limits of the selected respirator.

Hands Butyl rubber gloves. Neoprene gloves.

Feet Boots.

Protective Equipment (Pictograms)



Personal Protection in Case of a Large Spill Face shield. Splash goggles. Full suit. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Ingredient Name	**Exposure Limits**

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SULFURIC ACID	**ACGIH (United States).** TWA: 0.25 ppm 8 hour(s). **OSHA (United States).** TWA: 0.25 ppm 8 hour(s). **ACGIH (United States).** STEL: 0.75 ppm 15 minute(s). **OSHA (United States).** STEL: 0.75 ppm 15 minute(s). **ACGIH TLV (United States, 2000).** STEL: 3 mg/m^3 15 minute(s). TWA: 1 mg/m^3 8 hour(s). **NIOSH REL (United States, 2000).** TWA: 1 mg/m^3 10 hour(s). **OSHA PEL 1989 (United States, 1989).** TWA: 1 mg/m^3 8 hour(s).

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical State and Appearance Liquid. **Odor** Acidic. **Color** Colorless.

pH <1 [Acidic.]

Boiling Point 100 °C

Melting/Freezing Point 0 °C

Specific Gravity 1.054 (Water = 1)

VOC Not applicable.

Solubility Soluble in cold water, hot water.

Section 10. Stability and Reactivity

Stability and Reactivity Stable under recommended storage and handling conditions (see section 7).

Incompatible Substances Reactive with oxidizing agents, alkalis. Cyanides. Hydrogen, a highly flammable and explosive gas, may be generated by the action of acids on many metals.

Hazardous Decomposition Products In a fire: toxic sulfur oxides.

Hazardous Polymerization Will not occur.

Section 11. Toxicological Information

Toxicity Data

Ingredient Name	Test	Result	Route	Species
SULFURIC ACID	LD50	2140 mg/kg	Oral	Rat
	LC50	347 ppm (1 hours)	INHALATION	Rat

Chronic Effects on Humans **CARCINOGENIC EFFECTS**: Classified A2 (Suspected for human.) by ACGIH [SULFURIC ACID].
MUTAGENIC EFFECTS: None identified.
TERATOGENIC EFFECTS: None identified.

Special Remarks on Toxicity Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. This product contains less than 0.1% formaldehyde. Formaldehyde may cause sensitization and reduced vision. Lifetime study of rats exposed to formaldehyde gas indicated development of nasal cancers.

Any component listed in this section that is not listed in Section 2 is present in the product in concentrations below legal disclosure limits (1% for hazardous components and 0.1% for carcinogens)

Section 12. Ecological Information

Enthone has not conducted specific studies on the ecotoxicity or enviromental fate of this product.

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Section 13. Disposal Considerations

Waste Information Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14. Transport Information

DOT Classification 8

UN number UN2796

Proper shipping name SULFURIC ACID, SOLUTION

Packing Group II

This Transport Information applies only to the Product Code Number(s) listed in Section 1. Other container sizes may require different Transport Information. If assistance is required, contact Regulatory Affairs at 203-799-4936.

Section 15. Regulatory Information

U.S. Federal Regulations SARA 313 toxic chemical notification and release reporting: SULFURIC ACID

All ingredients comply with applicable rules or orders under TSCA

State Regulations

California prop. 65: None identified.

Any component listed in this section that is not listed in Section 2 is present in the product in concentrations below legal disclosure limits (1% for hazardous components and 0.1% for carcinogens).

Section 16. Other Information

Definition of Terms

ACGIH	American Conference of Governmental Industrial Hygienists
Ceiling	Maximum exposure limit defined by OSHA
CAS	Chemical Abstract Service
IARC	International Agency for Research on Cancer
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
REL	Recommended Exposure Limit
RTK	Right to Know
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TLV	ACGIH Threshold Limit Value
TLV-C	ACGIH Threshold Limit Value, Ceiling
TRADE SECRET	Claimed as allowed under 29CFR§1910.1200
TSCA	Toxic Substances Control Act

Disclaimer

This Material Safety Data Sheet may be used to comply with OSHA's Hazard Communication Standard, 29CFR§1910.1200. Enthone furnishes the data contained herein in good faith at customer's request without liability or legal responsibility for same whatsoever, and no warranty or guarantee, express or implied, is made with respect to such data; nor does Enthone grant permission, recommendation, or inducement to infringe any patent whether owned by Enthone or others. The data is offered solely for your information and consideration. Since conditions of use are beyond Enthone's control, user assumes all responsibility and risk.