

MATERIAL SAFETY DATA SHEET



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SECTION I CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: STABILIZER **Additional Names:**

General Use: Additive for etching copper plates

Company: UEI® Systems, A UEI Group Company

Address/Phone: 9090 Nieman Road
Overland Park, KS 66214
(800) 221-9059 or (913) 541-0503

Emergency Contact Number: CHEMTREC – Available 24 hrs/day, 7 days/week
Domestic North America: 800-424-9300
International: 703-527-3887

SECTION II HAZARDOUS INGREDIENTS / IDENTITIIY INFORMATION

<u>Hazardous Components</u>	<u>Cas No.</u>	<u>%</u>	<u>OSHA (PEL/TWA)</u>	<u>ACGIH TLV</u>	<u>MSHA (PET/TWA)</u>
Ethylenethiourea	96-45-7	Proprietary 0-100%	Not Available	Not Available	Not Available
Formamidine Disulfide Dihydrochloride	14807-75-1	Proprietary 0-100%	Not Available	Not Available	Not Available

SECTION III HAZARD IDENTIFICATION

Identification: White to off-white crystalline powder.
Irritating to eyes, respiratory system and skin.
Harmful if swallowed, inhaled, or absorbed through the skin.
This product is to be considered a **POISONOUS** material.

Routes of Entry: Inhalation, Ingestion, and Skin Absorption.

Health Hazards (Acute and Chronic): May cause cancer. Causes eye and skin irritation. Material is irritating to mucous membranes and upper respiratory tract. Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Carcinogenicity: Suspected carcinogen.

Sign and Symptoms of Exposure: Symptoms of Overexposure can include headache, shallow respiration, low blood pressure, weight loss, anemia, weakness and irritability may occur.

SECTION IV FIRST AID MEASURES

In all cases call a physician immediately.

Ingestion: Contact emergency personnel immediately.

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

Eye Contact: Flush eyes with large amounts of water for at least 15 minutes.

Skin Contact: Flush skin with soap and large amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.

SECTION V FIRE FIGHTING MEASURES

Flash Point: NA **Flammable Limits:** NA **Auto-ignition temperature:** 531° C

Extinguishing Media: Water Spray, Carbon Dioxide, Dry Chemical Powder or Appropriate Foam.

Special Fire Fighting Procedures: NA

Unusual Fire and Explosion Hazards: Emits toxic fumes under fire conditions.

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SECTION VI ACCIDENTAL RELEASE MEASURES

Do not sweep up a spill. Do not create airborne dust. Clean-up personnel should wear chemical resistant gloves, goggles, and apron. In case of large spill wear a self-contained breathing apparatus or respirator which will prevent the inhalation of the product dust or fumes. Gently moisten the spill with water and then pick up paste with paper towels or mop. Dispose of water, paste, towels, and mop by approved method. Ensure compliance with local, state, and federal regulations.

SECTION VII HANDLING AND STORAGE

Store in a cool, dry location. Keep packages sealed from exposure to air.

SECTION VIII EXPOSURE CONTROLS AND PERSONAL PROTECTION

Use only in a well-ventilated area. Wear chemical resistant rubber gloves and chemical safety goggles (contact lenses should not be worn). Eye wash stations should be located in the work area. Wash thoroughly after handling product. DO NOT BREATHE DUST.

SECTION IX PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	NA	Melting Point:	175 - 200° C
Freezing Point:	NA	Vapor Pressure:	NA
Vapor Density (Air=1):	NA	Solubility in Water:	NA
pH:	NA	Specific Gravity (Water=1):	Solid Material
Viscosity:	NA	Evaporation Rate (n-BuAc=1):	NA
Appearance and odor:	White to off-white color solid	Percent Volatile by Volume @ 25°C:	NA

SECTION X STABILITY AND REACTIVITY

Stability:	Stable	Conditions to avoid:	NA
Incompatibility:	Acids and Oxidizers		
Hazardous Decomposition/By-Products:	Thermal decomposition may produce carbon monoxide, carbon monoxide, nitrogen oxides, and sulfur oxides.		
Hazardous Polymerization:	Does NOT polymerize		

SECTION XI TOXICOLOGICAL INFORMATION

ETHYLENETHIOUREA

ACUTE TOXICITY:

<i>Inhalation:</i>	TCL0 (inhalation, rat) 3 h: 120 mg/m ³
<i>Ingestion:</i>	LD ₅₀ (oral, rat) 545-1832 mg/kg (BRMA)
<i>Skin Contact:</i>	LD ₅₀ (dermal, rat) >2250 mg/kg (practically not harmful)

LOCAL EFFECTS:

<i>Inhalation:</i>	Irritating to respiratory system.
<i>Skin Contact:</i>	In animals (rabbits): not irritating
<i>Eye Contact:</i>	In animals (rabbits): not irritating

SENSITIZATION:

<i>Skin Contact:</i>	In animals (guinea pig): slight sensitizer to skin. In humans: some cases of cutaneous sensitization reported.
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LONG TERM TOXICITY:

<i>Chronic Toxicity:</i>	Targets organs in high doses: liver, kidney, thyroid gland
<i>Experiment Effects On Animals:</i>	No effect concentration (rat/oral/3 months): 1.7 mg/kg/day No effect concentration (rat/inhalation/1 month): 10 mg/m ³

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SPECIFIC EFFECTS:

In vitro and in vivo: Not genotoxic
CIRC Classification: Category 3
Toxic effect for fetal development.

OSHA:

Air contaminants, 29 CFR 1910.1012
Carcinogens, manufacturing and handling, 29 CFR 1910.1003(a)
Highly hazardous chemical, 29 CFR 1910.119 Appendix A
Endocrine disrupter, High Throughput Screening Project candidate chemical, 22 CRR text 710

FORMAMIDINE DISULFIDE DIHYDROCHLORIDE

Oral-rat LD₅₀ n.a. SAX.'S DPIM (ed.S)
Intraperitoneal-mouse LD₅₀ 100 mg/kg RTECS (NTIS A0277-689)

SECTION XII ECOLOGICAL INFORMATION

ETHYLENETHIOUREA

RQ, Environmentally hazardous substance,

Hazardous waste identification and listing, 40 CFR 261
Community right-to-know, release reporting, 40 CFR 372.
Superfund, reportable quantity, 40 CFR 302.4 Table
Superfund, extremely hazardous and threshold planning quantity, 40 CFR 355 Appx. A & 40 CFR 355 Appx. B

Mobility:

Adsorption: Log Koc (calculated) = 0.8

Persistence / Degradability:

In water: Biodegradation: 0% after 14 days
Degradation in the atmosphere: t ½ life = 3 hours
In soils and sediments: Biodegradable in soils

Bioaccumulation:

Bioconcentration factor (FABC): <0.2 to 1.8 (fish: cyprinus carpio)

Aquatic Toxicity:

Acute Toxicity:
Fish: POECILIA RETICULATA LC₅₀, 96 h: 7500 mg/l (practically not harmful)
Daphnia: DAPHNIA MAGNA CE(l)50, 48 h: 26.4 mg/l (harmful)
Algae: Clorella Pyrenoidosa EC50, 96h: n 6600 mg/l (practically not harmful)
Bacteria: LOEC: 1 mg/l

Long Term Toxicity: Daphnia: Daphnia Magna LC₅₀, 21 days: 18 mg/l

FORMAMIDINE DISULFIDE DIHYDROCHLORIDE

Mobility Soluble in water: > 100 g/L
Degradability N.A.
Accumulation N.A.
Ecotoxicity N.A.
Other N.A.

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SECTION XIII

DISPOSAL INFORMATION

ETHYLENETHIOUREA

Product should be disposed of in an EPA approved incinerator in accordance with all local, state, and/or federal regulations.

RQ, Environmentally hazardous substance,

Hazardous waste identification and listing, 40 CFR 261

Community right-to-know, release reporting, 40 CFR 372.

Superfund, reportable quantity, 40 CFR 302.4 Table

Superfund, extremely hazardous and threshold planning quantity, 40 CFR 355 Appx. A & 40 CFR 355 Appx. B

Hazardous Substance Description (per 49 CFR 172.202):

RQ, Environmentally hazardous substance, solid, n.o.s. (Ethylenethiourea), 9, UN 3077, PG III, net ____ lbs.

FORMAMIDINE DISULFIDE DIHYDROCHLORIDE

Sweep up spilled material being careful not to create dust. Place sweepings in a chemical waste container.

Flush contaminated area with water. Dispose of waste in accordance with federal, state and local laws.

Dispose contaminated packing materials in accordance with federal, state and local laws.

SECTION XIV

TRANSPORT INFORMATION

ETHYLENETHIOUREA

US DOT and Canada TDG:

Hazardous Substance Description (per 49 CFR 172.202):

RQ, Environmentally hazardous substance, solid, n.o.s. (Ethylenethiourea), 9, UN 3077, PG III, net ____ lbs.

The reportable quantity (RQ) for this product is 10 lbs. Any package containing more than 10 lbs. must be labeled, marked, and shipped as a hazardous material. Single packages containing less than 10 lbs. are considered non-hazardous for shipment.

ADR/RID, IMDG, IATA:

Class 9 Environmentally hazardous substance, UN 3077

FORMAMIDINE DISULFIDE DIHYDROCHLORIDE

ADR/RID/GGVS/GGVE

NOT CLASSIFIED

IMGD/GGVSea

NOT CLASSIFIED

ICAO/IATA

NOT CLASSIFIED, NO RESTRICTIONS

ADNIADNR

NOT CLASSIFIED

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SECTION XV REGULATORY INFORMATION

ETHYLENETHIOUREA

CERCLA/RCRA: 10 lbs. U116
SARA Title III, Section 313: 01/01/87-0.1%
WHIMIS: 0.1%
NFPA: DOT 2, Health 2, Fire 2, Reactivity 1
NTP: Yes
IARC: Yes
Proposition 54 (California): 10/01/88-C
Clean Air: Yes
TSCA: All ingredients on the TSCA inventory list.
Canadian DSL: All ingredients listed.

FORMAMIDINE DISULFIDE DIHYDROCHLORIDE

NOT AVAILABLE

SECTION XVI OTHER INFORMATION

UEI™ Systems provides the information contained herein in good faith. The information is believed to be correct. However it is not all-inclusive and should be used only as a guide. Individuals receiving the information must exercise their independent judgement in determining its appropriateness for a particular purpose. UEI™ Systems shall not be held liable for any damage resulting from handling or from contact with the product listed herein.

Section 313 of SARA Title III (also known as the Emergency Planning and Community Right to Know Act, or EPCRA) require certain suppliers of mixtures or tradename products to notify their customers when such mixtures or tradename products contain chemicals listed in Section 313. This letter constitutes a supplier notification that the following product you ordered contains one or more chemicals on the Section 313 list (*) as noted below:

Product Name: STABILIZER
Chemical Name (*): Ethylene thiourea
CAS #: 96-45-7

In addition, an MSDS for this product is enclosed for your use.