

Material Safety Data Sheet

SECTION I PRODUCT/SUPPLIER INFORMATION

Material/Trade Name: Midas Replenishing Brightener for Electroforming Copper

Synonyms: Mixture

DATE PREPARED: 02/29/96
Based on Manufacturer's MSDS: Not Applicable

FLAMMABILITY: 0 **HEALTH:** 4 **REACTIVITY:** 0

SECTION II INGREDIENT/EXPOSURE LIMIT INFORMATION

| Chemical Component | % | CAS No. | TLV | PEL | REL |
|--------------------|---|------------|--|---------------------|--------------------------|
| Sulfuric Acid | | 7664-93-9 | 1 mg/m ³ 3 mg/m ³ (a) | 1 mg/m ³ | 1 mg/m ³ (hr) |
| Benzidine Compound | | 92-87-5 | (C.C., Sk) | (C.C.) | (L.F.C) |
| Alkyl Compound | | UNKNOWN | N.E. | N.E. | N.E. |
| Polyglycols | | 25322-68-3 | N.E. | N.E. | N.E. |
| Polyamine | | 68822-50-4 | N.E. | N.E. | N.E. |

The manufacturer of this product claims specific ingredients as trade secret as defined by 29 CFR 1910.1200.

hr=10h TWA, a=Short Term Exposure Limit (STEL), C.C.=Confirmed Carcinogen, Sk=Skin Designation, L.F.C.=Lowest Feasible Concentration, N.E.=None Established (Exposure Limit)

SECTION III PHYSICAL PROPERTIES

| | | | |
|---------------------------------|---------------------|--------------------------|---------------|
| Vapor Pressure (mm Hg): | Not Available | Specific Gravity: | 1.01-1.1 |
| Vapor Density (Air = 1): | Not Available | Boiling Point: | Not Available |
| Solubility in Water: | Complete | Evaporation Rate: | Not Available |
| Appearance: | Blue/Black solution | Volatility (%): | Not Available |
| Odor: | Characteristic odor | pH: | 0.5 |
| Melting Point: | Not Available | | |

SECTION IV FIRE AND EXPLOSION DATA

| | | |
|---|--------------------------|---------------------|
| Flash Point: Non-flammable | Flammable Limits: | LEL: Unknown |
| Auto Ignition Temperature: Not Available | | UEL: Unknown |

EXTINGUISHING MEDIA: Use dry chemical or carbon dioxide. DO NOT USE WATER!

Special Fire Fighting Procedures: Firefighters should wear full turnout gear and SCBA.

Unusual Fire and Explosion Hazards: Water added to mixture will cause violent exothermic reactions if enough product is present.

SECTION V REACTIVITY DATA

Stable? Yes **Conditions to Avoid:** Material reacts exothermically with water.

Incompatibility (Materials to Avoid): Bases, metals, and water.

Hazardous Decomposition Products: Oxides of nitrogen, oxides of sulfur, hydrogen gas

Hazardous polymerization may occur? No **Conditions to Avoid:** None Known

SECTION VI HEALTH HAZARD DATA

Primary Routes of Exposure: Inhalation, ingestion, eye and skin contact, and skin absorption

SECTION VI HEALTH HAZARD DATA (continued)

Acute signs and Symptoms of Overexposure: Can be rapidly damaging to human tissue. Ingestion may cause severe injury or death. Eye contact causes severe or permanent eye damage. Inhalation can damage both upper respiratory tract and lungs.

Chronic Signs and Symptoms of Overexposure: Benzidine is a human carcinogen which produces bladder tumors and blood in the urine. Benzidine can be absorbed through the skin.

| | | | | | |
|-----------------------------|------------|-------------|--------------|-------------|---------------|
| Carcinogenicity? Yes | NTP | IARC | ACGIH | OSHA | PROP65 |
| Benzidine Compound | HC | HC1 | A1 | Yes | C |

HC=Human Carcinogen, HC1=Human Carcinogen (Group 1), A1=Confirmed Human Carcinogen, C=Known in the state of California to be a Carcinogen

Conditions That May Increase Overexposure Potential: Workers should be properly equipped to eliminate to the fullest extent possible all exposure to Benzidine Compound. See 29 CFR 1910.1010 for further regulatory information.

Medical Conditions Generally Aggravated by Exposure: Pre-existing respiratory conditions and damaged skin.

FIRST AID PROCEDURES:

Eye Contact: Flush contaminated eye(s) with plenty of water for at least 15 minutes while holding eyelids open. SEEK MEDICAL ATTENTION IMMEDIATELY.

Skin Contact: WARNING! BENZIDINE IS ABSORBED THROUGH THE SKIN. Remove contaminated clothing and wash affected area with soap and water. Seek medical attention if exposure is severe.

Inhalation: Remove victim to fresh air. Restore breathing if necessary. Seek medical attention immediately.

Ingestion: Dilute with large amounts of milk or water, then give milk of magnesia to neutralize. Never give anything by mouth if unconscious. DO NOT INDUCE VOMITING. Seek medical attention immediately.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Actions to Take for Spills: Clean-up personnel need protection against inhalation and contact. Keep up wind. Contain spill with inert absorbent, or cover contaminated area with sand, ashes or gravel and neutralize cautiously with soda ash or lime.

Waste Disposal: Dispose of as hazardous waste. See EPA 40 CFR 261.

Precautions to be Taken in Handling and Storage: Store in clean, dry, well ventilated area, away from direct sunlight.

Community Right-to-Know Requirements: SARA 302: Benzidine, RQ=1 lb; Sulfuric Acid, RQ=1000 lbs, TPQ=1000 lbs (EPA Extremely Hazardous Substance) (see 40 CFR 355). SARA 313: Annual release reporting requirements for Benzidine and Sulfuric Acid (see 40 CFR 372.65).

SECTION VIII EMPLOYEE PROTECTION MEASURES

Ventilation: Local ventilation is preferred to meet TLV requirements. General ventilation is acceptable, if exposure is maintained below TLV.

Respiratory Protection: If any potential for exposure exists, a NIOSH approved half face organic vapor/acid gas/HEPA respirator is required. If there is potential for exposure above the TLV for sulfuric acid, a self-contained breathing apparatus is recommended. See OSHA respirator requirements in 29 CFR 1910.134.

Eye Protection: Chemical safety goggles

Protective Gloves: Rubber gloves required

Other Protective Equipment: Rubber apron and boots

Work/Hygiene Practices: Eyewash station and safety shower should be available in areas of use. Wash thoroughly after handling product.

The information herein is given in good faith, but no warranty, express or implied, is made.