

# Material Safety Data Sheet

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|--|------------------------------------|--|
| <b>Revision Date</b><br>November 9, 2010                       | <b>Prepared by</b><br>Patti Rogers | <b>Technical Information</b><br>1-800-201-8822 or <a href="mailto:support@mgchemicals.com">support@mgchemicals.com</a> |
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## Section 1: Product Identification

**MSDS Code: 41670**      **Name: Copper Electroplating Solution**

**Related Part Numbers: 41670-1L, 41670-4L**

Use: For use in the MG Chemicals Copper Electroplating process

## Section 2: Hazardous Ingredients

| CAS#       | Chemical Name               | Percentage by weight | ACGIH TWA | Osha Pel | Osha Stel |
|------------|-----------------------------|----------------------|-----------|----------|-----------|
| 7758-98-7  | Copper sulfate Pentahydrate | 4.9-5.3              | N/E       | N/E      | N/E       |
| 7664-93-9  | Sulfuric acid               | 5.0-5.5              | 0.2 mg/m3 | N/E      | N/E       |
| 25322-68-3 | Polyethylene Glycol         | 1.0-1.2              | N/E       | N/E      | N/E       |

## Section 3: Hazards Identification

|                    |   |
|--------------------|---|
| <b>Eyes:</b>       | Corrosive. Contact of liquid will cause severe eye burns, and corneal damage.                                   |
| <b>Skin:</b>       | Corrosive. May cause severe skin irritation with possible burns.  |
| <b>Inhalation:</b> | May cause irritation mucous membranes and respiratory tract.  |
| <b>Ingestion:</b>  | Corrosive to the gastrointestinal tract. May cause chemical burns in the mouth, throat, esophagus, and stomach. |
| <b>Chronic:</b>    | Prolonged exposure may cause dermatitis.  |

## Section 4: First Aid Measure

|                    |   |
|--------------------|---|
| <b>Eyes:</b>       | Remove contact lenses. Flush with plenty of water. Get medical aid.               |
| <b>Skin:</b>       | Wash skin with soap and water. Get medical aid if symptoms persist.               |
| <b>Inhalation:</b> | Immediately remove from exposure to fresh air.                                    |
| <b>Ingestion:</b>  | Do not induce vomiting. If conscious, give 1-2 glasses of water. Get medical aid. |

## Section 5: Fire Fighting Measures

|                                  |  |                     |     |                   |     |
|----------------------------------|--|---------------------|-----|-------------------|-----|
| <b>Autoignition Temperature:</b> | N/A  | <b>Flash Point:</b> | N/A | <b>LEL / UEL:</b> | N/A |
| <b>Extinguishing Media:</b>      | Water spray, Foam, Halon, CO2, Dry chemical, Any "ABC" class.                                      |                     |     |                   |     |
| <b>General Information:</b>      | When involved in a fire this material may decompose and produce irritating vapors and toxic gases. |                     |     |                   |     |

## Section 6: Accidental Release Measures

|                         |   |
|-------------------------|---|
| <b>Spill Procedure:</b> | Prevent spill from entering sewers or waterways. Provide adequate ventilation. Wear appropriate personal protection. Sprinkle absorbent material onto spill, then sweep into a plastic container for later disposal. Wipe further residue with paper towel and place in container. Wash area with soap and water. |
|-------------------------|---|

## Section 7: Handling and Storage

**Handling:** Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Do not ingest or inhale.  
**Storage:** Keep away from sources of ignition. Store in a cool, dry, well-ventilated area, away from incompatible substances. Keep from freezing.

## Section 8: Exposure Controls

**Routes of entry:** Eyes, ingestion, inhalation, and skin.  
**Ventilation:** Use adequate general or local exhaust ventilation to keep airborne concentrations below exposure limits.  
**Personal Protection:** Wear appropriate protective eyeglasses or chemical safety goggles. Wear appropriate protective clothing to prevent skin contact. Wear Neoprene, butyl or natural rubber gloves. Use a NIOSH approved respirator when necessary.

## Section 9: Physical and Chemical Properties

|                        |        |                          |             |                             |      |                          |                  |
|------------------------|--------|--------------------------|-------------|-----------------------------|------|--------------------------|------------------|
| <b>Physical State:</b> | Liquid | <b>Odor:</b>             | Mild Acidic | <b>Solubility In water:</b> | 100% | <b>Evaporation Rate:</b> | Similar to water |
| <b>Boiling Point:</b>  | 90°C   | <b>Specific Gravity:</b> | 1.13 @25°C  | <b>Vapor Pressure:</b>      | N/E  | <b>Vapor Density:</b>    | Similar to water |
|                        |        |                          |             |                             |      | <b>pH:</b>               | <1.0             |

## Section 10: Stability and Reactivity

**Stability:** Stable at normal conditions and temperatures.  
**Conditions to avoid:** Contact with incompatible materials. High Temperatures, Moisture and direct sunlight. Strong oxidizing agents. Sulfides, Cyanides and strong Alkalis  
**Incompatibilities:** Sulfides, Cyanides, strong Alkalis, Strong oxidizing agents, and Strong reducing agents.  
**Polymerization:** Will not occur.  
**Decomposition:** **Sulfur dioxide and sulfur trioxide could be evolved in a hot fire.** May form corrosive vapors, sulfur oxides, toxic fumes.

## Section 11: Toxicological Information

|  |   |                                     |                     |                                    |
|--|---|-------------------------------------|---------------------|------------------------------------|
| <b>Sensitization:</b> (effects of repeated exposure)             | Not known to  |                                     |                     |                                    |
| <b>Carcinogenicity:</b> (risk of cancer)                         | The IARC has classified "strong inorganic acid mists containing sulfuric acid" as known human carcinogens (class 1). This classification applies only to mists and not to sulfuric acid or sulfuric acid solutions. |                                     |                     |                                    |
| <b>Teratogenicity:</b> (risk of malformation in an unborn fetus) | Not known to  |                                     |                     |                                    |
| <b>Reproductive Toxicity:</b> (risk of sterility)                | Not known to  |                                     |                     |                                    |
| <b>Mutagenicity:</b> (risk of heritable genetic effects)         | Not known to  |                                     |                     |                                    |
| <b>Lethal Exposure Concentrations:</b>                           | <b>Ingestion (LD50):</b>  | <b>Inhalation (LC50):</b>           | <b>Skin (LD50):</b> | <b>Inhalation (TCLo):</b>          |
| Copper sulfate Pentahydrate                                      | 369 mg/kg Mouse   | N/A                                 | N/A                 | N/A                                |
| Sulfuric acid  | 350 mg/kg rat   | 18 mg/m <sup>3</sup> /8H guinea Pig | N/E                 | 8 mg/m <sup>3</sup> /5D guinea Pig |
| Polyethylene Glycol  | N/A   | N/A                                 | N/A                 | 567 mg/m <sup>3</sup> /6H/2W Rat   |

## Section 12: Ecological Information

**General Information:** Contains copper, very toxic to aquatic organisms, can cause long term damage to the environment.  
 Volatile Organic Compounds, % by weight: 0  
 Volatile Organic Compounds, grams per litre: 0

## Section 13: Disposal Information

**General Information:** Stored used material and call a local waste management company for pickup. Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.

## Section 14: Transportation Information

**Ground Canada:** (all sizes 1L or smaller)

Classified as **Limited Quantity**. We recommend an **MSDS accompany each carton**.

**We recommend that the shipper is trained and certified. Refer to TDG regulations** (Canadian Transportation of Dangerous Goods regulations) and **USA CFR 49 Regulations**.

Meets **Commodity/ORM-D** label requirements and dual marking is permissible.

**Ground Canada:** (4L or larger)

**Shipper must be trained and certified. Refer Refer to TDG regulations** (Canadian Transportation of Dangerous Goods regulations) and **USA CFR 49 Regulations**.

Shipping Name: **SULPHURIC ACID with not more than 51 per cent acid**, UN number: **2796**, Class: **8**, Packing Group: **II**.

**Air:** (all sizes 1L or smaller)

**WE DO NOT RECOMMEND TRANSPORTION OF THIS PRODUCT BY AIR.** If you must move this product by air, DG repackaging and documentation should be contracted through a certified Dangerous Goods Agent.

**Shipper must be trained and certified. Refer to IATA Dangerous Goods Regulations.**

Shipping Name: **SULPHURIC ACID with not more than 51 per cent acid**, UN number: **2796**, Class: **8**, Packing Group: **II**.

**Sea:** (all sizes 1L or smaller)

**Shipper must be trained and certified. Refer to IMDG regulations.**

Shipping Name: **SULPHURIC ACID with not more than 51 per cent acid**, UN number: **2796**, Class: **8**, Packing Group: **II**.

## Section 15: Regulatory Information

### CANADA

#### Industry and Science Canada

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

#### WHMIS

This product belongs to the following categories: **D1A, E**

### USA

#### CAA (Clean Air Act, USA)

This product does not contain any class 1-ozone depletors.

This product does not contain any class 2-ozone depletors.

This product does not contain any chemicals listed as hazardous air pollutants.

#### SARA (Superfund Amendments and Reauthorization Act of 1986, USA, 40 CFR 372.4)

This product does not contain toxic chemicals subject to the reporting requirements of section 313 of Title III of the superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372

#### EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product does not contain chemicals subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

#### TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

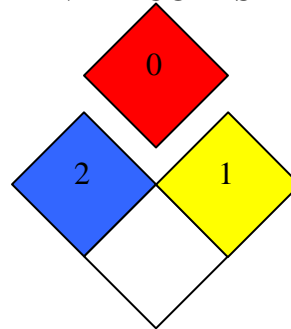
#### California Proposition 65 (Chemicals know to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)

This product does not contain any chemicals listed.

### HMIS RATING

|                             |   |
|-----------------------------|---|
| <b>HEALTH:</b>              | 2 |
| <b>FLAMMABILITY:</b>        | 0 |
| <b>PHYSICAL HAZARD:</b>     | 1 |
| <b>PERSONAL PROTECTION:</b> |   |

### NFPA CODES



### EUROPE

#### RoHS

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, and complies with European RoHS regulations.

#### WEEE

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

### Section 16: Other Information

**Definitions:** N/A = not applicable, N/E = not established

**Disclaimer:** This material safety data sheet is provided as an information resource only. M.G. Chemicals believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, and local regulations.