

# Material Safety Data Sheet

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## Section 1: Product Identification

**MSDS Code: 41608**                      **Name: Plating Solution, Part B**

**Related Part Numbers: 41608-250ML**

Use: For use in Tank # 5 in the MG Electroless Copper-Plating System.

## Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
7758-98-7	Copper sulfate	8.0 - 8.5	N/E	N/E	N/E
50-00-0	Formaldehyde	4.2 - 4.7	N/E	N/E	0.3 ppm
67-56-1	Methanol	1.0 - 1.1	200 ppm	N/E	250 ppm

## Section 3: Hazards Identification

- Eyes:** Contact with eyes will cause burning, pain and possible corneal injury.
- Skin:** May cause skin irritation with pain and stinging. Repeated contact will cause dermatitis. Formaldehyde and Copper sulfate (components of this product) can cause allergic reactions.
- Inhalation:** If mists, sprays, or vapors of this product are inhaled, this product may cause pulmonary irritation, coughing, difficult breathing, dizziness, headache, and burning eyes. Additional inhalation data regarding formaldehyde (a component of this product) follow:  
2-3 ppm: Tingling in the nose and back of throat  
10-20 ppm: Difficulty breathing, severe burning sensation in nose, throat, and windpipe  
50-100 ppm: Serious injury.  
>100 ppm: Fluid in lungs, inflammation of the lungs, and death (the symptoms of fluid in the lungs can be delayed until hours after exposure.)
- Ingestion:** Harmful if swallowed. May cause burning sensation in throat, gastric distress, and nausea, vomiting of blood, adverse kidney effects, coma and dizziness. Methanol (a component of this product) can cause visual impairment. Ingestion of 27 grams of Copper Sulfate (a component of the product) has been fatal.
- Chronic:** Formaldehyde (a component of this product) is known to cause cancer in test animals. This compound is considered to be possible cancer-causing agent in humans. Repeated over exposure may cause dermatitis at the point of contact. Methanol (a component of this product) can cause visual impairment. Allergic reactions to Formaldehyde and copper sulfate (component of this product) may occur after repeated or prolonged exposure. Repeated inhalation of Copper sulfate mists may induce a condition known as "vineyard sprayer's lung". Symptoms include weakness, loss of appetite and weight, cough, and greenish-brown sputum. Symptoms of chronic ingestion of Copper sulfate include liver, brain, muscle, and kidney dysfunction.

## Section 4: First Aid Measure

- Eyes:** If this product's liquid or vapors enter the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Do not interrupt flushing.
- Skin:** If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Do not interrupt flushing. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention.
- Inhalation:** If vapors, mist, or sprays of this product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.
- Ingestion:** If this product is swallowed, Call PHYSICIAN or POISON CONTROL center for most current information. If professional advice is not available, do not induce vomiting. Rinse mouth with water immediately. Victim should drink large quantities of water. If milk is available, victim should drink it after drinking water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow.

## Section 5: Fire Fighting Measures

- Autoignition Temperature:** N/A                      **Flash Point:** N/A                      **LEL / UEL:** N/A
- Extinguishing Media:** Water spray, foam, halon, carbon dioxide, dry chemical
- General Information:** If this product is involved in fire, fire run-off water should be contained to prevent possible environmental damage.

## Section 6: Accidental Release Measures

- Spill Procedure:** In Case of spill, clear the affected area, protect people, and respond with trained personnel. Wear appropriate personal protection. Absorb spilled liquid with polypads or other suitable absorbent materials. Neutralize material with sodium bicarbonate or other neutralizing agent suitable for acids. Place all spill residues in an appropriate container and seal.

## Section 7: Handling and Storage

- Handling:** As with all chemicals, avoid getting this product on you or in you. Wash hands after handling this product. Do not eat or drink while handling this product. Monitoring of the work area, using a passive monitor or other appropriate instrumentations recommended. The work place must be maintained below the OSHA action level (0.625 mg/m<sup>3</sup>) for formaldehyde. All employees who handle this material should be trained to handle it safely. Avoid breathing vapors or mists generated by this product. Use in a well ventilated location. Open containers slowly on a stable surface.
- Storage:** Store in a cool, dry location, away from direct sunlight, sources of heat, or where freezing is possible. Keep containers tightly closed when not in use. Use corrosion-resistant structural materials, lighting and ventilation systems in a storage area. Post warning signs in the storage and use areas. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain corrosive liquid or vapors; therefore, empty containers must be handled with care.

## 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. Use a NIOSH approved respirator when adequate ventilation or local exhaust ventilation to keep airborne concentrations below exposure limits cannot be achieved. Wear impervious gloves, neoprene rubber. Use triple gloves for spill response.

## Section 9: Physical and Chemical Properties

<b>Physical State:</b>	Liquid	<b>Odor:</b>	Mild Formaldehyde	<b>Solubility in water:</b>	100%	<b>Evaporation Rate:</b>	Similar to water
<b>Boiling Point:</b>	93°C	<b>Specific Gravity:</b>	1.05@25°C	<b>Vapor Pressure:</b>	18 mm Hg@ 20	<b>Vapor Density:</b>	Equal to water
							<b>pH:</b> 2.0-3.0

## Section 10: Stability and Reactivity

<b>Stability:</b>	Stable at normal conditions and temperatures.
<b>Conditions to avoid:</b>	Contact with incompatible materials.
<b>Incompatibilities:</b>	Strong oxidizers, strong caustic chemicals, reducing agents, phenols, acetylene, hydroxylamine and urea.
<b>Polymerization:</b>	Will not occur.
<b>Decomposition:</b>	Oxides and salts of copper, carbon dioxide, carbon monoxide and oxides or sulfur.

## Section 11: Toxicological Information

<b>Sensitization:</b> (effects of repeated exposure)	Repeated skin contact may cause defatting of the skin resulting in dermatitis.
<b>Carcinogenicity:</b> (risk of cancer)	Formaldehyde IARC 2B: Probably Carcinogenic to humans.
<b>Teratogenicity:</b> (risk of malformation in an unborn fetus)	No
<b>Reproductive Toxicity:</b> (risk of sterility)	No
<b>Mutagenicity:</b> (risk of heritable genetic effects)	No

<b>Lethal Exposure Concentrations:</b>	<b>Ingestion (LD50):</b>	<b>Inhalation (LC50):</b>	<b>Skin (LD50):</b>	<b>Inhalation (TCLo):</b>
Copper sulfate	300 mg/kg Rat	N/A	N/A	7.5 mg/kg Rat
Formaldehyde	42 mg/kg Rat	400 mg/m <sup>3</sup> 2H Rat	270 mg/kg Rabbit	0.05 mg/m <sup>3</sup> /4H Rat
Methanol	7300 mg/kg Mouse	64000 ppm/4H Rat	200000 mg/kg Rabbit	10000 ppm/7H Rat

## Section 12: Ecological Information

<b>General Information:</b>	Avoid runoff into storms and sewers, which lead into waterways. Water runoff can cause environmental damage
Volatile Organic Compounds, % by weight:	0%
Volatile Organic Compounds, grams per litre:	0 g/L

## Section 13: Disposal Information

<b>General Information:</b>	Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.
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## Section 14: Transportation Information

**Ground Canada:** (5 Liter and smaller)

Classified as **Limited Quantity**. **MSDS must accompany each carton.**  
**Refer to TDG regulations** (Canadian Transportation of Dangerous Goods regulations).  
**Recommend Shipper be trained and certified.**

**Ground USA:** (5 Liter and smaller)

Classified as **Limited Quantity**. Refer to USA CFR 49 Regulations. **MSDS must accompany each carton.**  
 Meets **ORM-D** label requirements and dual marking is permissible.  
**Recommend Shipper be trained and certified.**

**Ground Canada and USA:** (sizes over 5 L)



**Shipper must be trained and certified. Refer to CFR 49 (USA), and TDG regulations (Canada).**

Shipping Name: **Corrosive liquid, n.o.s. (Copper Sulfate, Formaldehyde)**, UN number: **1760**, Class: **8**, Packing Group: **III**.

Recommend using original MG Chemicals UN Certified outer cartons. Tape all seams on the carton. Hazard Label required – CORROSIVE. A double arrow orientation label is required and is already printed on the original outer carton.

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

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

Shipping Name: **Corrosive liquid, nods. (Copper Sulfate, Formaldehyde)**, UN number: **1760**, Class: **8**, Packing Group: **III**.

Recommend: **DO NOT SHIP BY AIR.**

**Sea:**

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

Shipping Name: **Corrosive liquid, nods. (Copper Sulfate, Formaldehyde)**, UN number: **1760**, Class: **8**, Packing Group: **III**.

## Section 15: Regulatory Information

### **CANADA**

**This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.**

#### **DSL**

All ingredients in this product are listed on the Domestic Substances List

#### **Health Canada**

Products produced by MG Chemicals intended for retail display conform to the Canadian Consumer Labeling regulations.

#### **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: **D2A, 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 contains Copper sulfate (8.5%), Formaldehyde (4.7%), and Methanol (1.1%) 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

**Section 15: Regulatory Information Cont.**

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

This product contains the following chemicals subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372: Copper sulfate (8.5%), Formaldehyde (4.7%), and Methanol (1.1%)

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

All substances are TSCA listed.

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

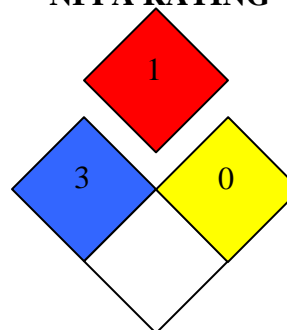
This product does contain Formaldehyde known to the state to cause cancer.

**HMIS RATING**

<b>HEALTH:</b>	3
<b>FLAMMABILITY:</b>	1
<b>PHYSICAL HAZARD:</b>	0
<b>PERSONAL PROTECTION (PPE):</b>	H

Protection=H (Splash goggles, gloves, protective apron  
 And vapor respirator.)

**NFPA RATING**



**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.