Material Safety Data Sheet

Revision Date	**Prepared by**	**Technical Information**
November 9, 2010	Patti Rogers	1-800-201-8822 or support@mgchemicals.com
Head Office		**Emergency**
9347 - 193 Street, Surrey, B.C., V4N 4E7		Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

Section 1: Product Identification

MSDS Code: 41601 **Name: Alkaline Cleaner**

Related Part Numbers: 41601-250ML

Use: For use in tank # 1 in the MG Electroless Copper-Plating System.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
102-71-6	Triethanolamine	12-13%	N/E	N/E	N/E

Section 3: Hazards Identification

Eyes: May cause irritation, pain and reddening.

Skin: May cause reddening, discomfort, and irritation.

Inhalation: May irritate the nose, throat and lungs

Ingestion: Harmful if swallowed and can cause irritation of the mouth, throat and esophagus.

Chronic: Persistent irritation, allergic dermatitis and eczema may result from repeated exposures to this product.

Section 4: First Aid Measure

Eyes: Remove contact lenses. Flush with plenty of water. Get medical aid.

Skin: Wash skin with soap and water. Get medical aid.

Inhalation: Immediately remove from exposure to fresh air.

Ingestion: Do not induce vomiting. If conscious, give 1-2 glasses of water. Get medical aid.

Section 5: Fire Fighting Measures

Autoignition Temperature: N/A **Flash Point:** N/A **LEL / UEL:** N/A

Extinguishing Media: Water spray, Foam, Halon, CO2, Dry chemical, any “ABC”class.

General Information: When involved in a fire this material may decompose and produce irritating vapors and toxic gases.

Section 6: Accidental Release Measures

Spill Procedure: Provide adequate ventilation. Wear appropriate personal protection. Sprinkle absorbent compound onto spill, then sweep into a plastic or metal container. Wipe up further residue with paper towel and place in container. Wash spill 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 direct sunlight, sources of heat and freezing temperatures.

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

Physical State:	Clear Liquid	**Odor:**	Ammonia	**Solubility in water:**	Completely	**Evaporation Rate:**	Similar to water	
Boiling Point:	95°C	**Specific Gravity:**	(Water=1) 1.02 @25°C	**Vapor Pressure:**	N/E	**Vapor Density:**	N/E	**pH:** 9-10

Section 10: Stability and Reactivity

Stability: Stable in normal conditions & temperatures.

Conditions to avoid: Contact with incompatible materials.

Incompatibilities: Strong Acids, strong oxidizers.

Polymerization: Will not occur.

Decomposition: Ammonia, Carbon monoxide, Carbon dioxide, Nitrogen oxides.

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure) Not known to

Carcinogenicity: (risk of cancer) Not known to

Teratogenicity: (risk of malformation in an unborn fetus) Not known to

Reproductive Toxicity: (risk of sterility) Not known to

Mutangenicity: (risk of heritable genetic effects) Not known to

Lethal Exposure Concentrations:	**Ingestion (LD50):**	**Inhalation (LC50):**	**Skin (LD50):**	**Inhalation (TCLo):**
Trithanolamine	2200 mg/kg Rabbit	N/A	16 mL/kg Rat	N/A

Section 12: Ecological Information

General Information: 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: 0g/L

Section 13: Disposal Information

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.

Section 14: Transportation Information

Ground: (all sizes 1 liter or less)

Non Regulated

Air:

Non Regulated

Sea:

Non Regulated

Section 15: Regulatory Information Cont..

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 is in compliance.

WHMIS

This product belongs to the following categories: **D2B**

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)

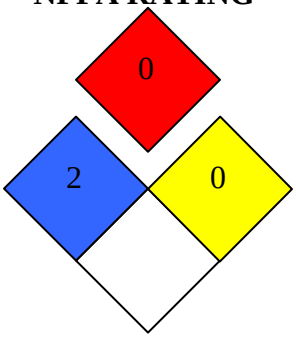
This product does not contain any chemicals listed.

HMIS RATING

HEALTH:	2
FLAMMABILITY:	0
PHYSICAL HAZARD:	0
PERSONAL PROTECTION (PPE):	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.

Material Safety Data Sheet

Revision Date	**Prepared by**	**Technical Information**
April 6, 2011	Howard Clark	1-800-201-8822 or support@mgchemicals.com
Head Office		**Emergency**
9347 - 193 Street, Surrey, B.C., V4N 4E7		Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

Section 1: Product Identification

MSDS Code: 41602 **Name: Micro Etch Part A**

Related Part Numbers: 41602-250ML

Use: In tank # 2 in the MG Electroless Copper-Plating System.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
7664-93-9	Sulfuric Acid	17-20%	0.2 mg/m^3	N/E	N/E

Section 3: Hazards Identification

Eyes: Contact of liquid will cause severe eye burns, corneal damage, which may result in permanent blindness.

Skin: May cause severe skin irritation with possible burns.

Inhalation: Causes respiratory irritation and at high concentrations may cause severe injury.

Ingestion: May be corrosive to the gastrointestinal tract. May cause chemical burns in the mouth, throat, esophagus, and stomach.

Chronic: Repeated exposure may cause chronic bronchitis with cough, shortness of breath, emphysema, dermatitis, tearing of the eyes, nosebleeds, and upset stomachs.

Section 4: First Aid Measure

Eyes: Remove contact lenses. Flush with plenty of water. Get medical aid.

Skin: Wash skin with soap and water. Get medical aid if symptoms persist.

Inhalation: Immediately remove from exposure to fresh air.

Ingestion: Do not induce vomiting. If conscious, give 1-2 glasses of water. Get medical aid.

Section 5: Fire Fighting Measures

Autoignition Temperature: N/A **Flash Point:** N/A **LEL / UEL:** N/A

Extinguishing Media: Water spray, foam, carbon dioxide, dry chemical

General Information: Wear NOSH/MSHA approved self-contained breathing apparatus and full protective clothing if vapors or mists are present. For fighting fires in close proximity to spill or vapors use acid-resistant personal protective equipment. Evacuate residents who are downwind of fire. Prevent unauthorized entry to fire area. Neutralize runoff with lime, soda ash or other suitable neutralizing agents.

Section 6: Accidental Release Measures

Spill Procedure: Cover spill with dry earth, sand or other non-combustible material. Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.

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

Physical State:	Liquid	**Odor:**	odorless	**Solubility in water:**	100% soluble	**Evaporation Rate:**	Similar to water		
Boiling Point:	100°C	**Specific Gravity:**	1.17@25°C	**Vapor Pressure:**	N/A	**Vapor Density:**	N/A	**PH:**	<1.0

Section 10: Stability and Reactivity

Stability: Stable at normal conditions and temperatures.

Conditions to avoid: Contact with incompatible materials.

Incompatibilities: Strong oxidizers, strong caustic chemicals, reducing agents, phenols, acetylene, hydroxylamine and urea.

Polymerization: Will not occur.

Decomposition: Oxides and salts of copper, carbon dioxide, carbon monoxide and oxides or sulfur.

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure) None Known

Carcinogenicity: (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.

Teratogenicity: (risk of malformation in an unborn fetus) None Known

Reproductive Toxicity: (risk of sterility) None Known

Mutangenicity: (risk of heritable genetic effects) None Known

Lethal Exposure Concentrations:	**Ingestion (LD50):**	**Inhalation (LC50):**	**Skin (LD50):**	**Inhalation (TCLo):**
Sulfuric Acid	350 mg/kg Rat	18 mg/m3/8H Guinea pig	N/E	8 mg/m3/5D Guinea pig

Section 12: Ecological Information

General Information: 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

Section 13: Disposal Information

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage

Section 14: Transportation Information

Ground Canada: (1 Liter and smaller)

Classified as **LTD. QTY**
Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations). **Recommend Shipper be trained and certified.**

Ground USA: (1 Liter and smaller)

Classified as **LTD. QTY**. Refer to USA CFR 49 Regulations.
Recommend Shipper be trained and certified.

Air: (all sizes 1L or smaller)

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

Sea:

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

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.

CANADA

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: **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 a toxic chemical subject to the reporting requirements of section 313 Title III of the SARA 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 a toxic chemical 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)

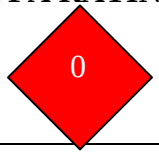
All substances are TSCA listed.

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

This product does not contain any chemicals listed.

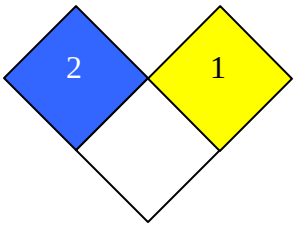
HMIS RATING

NFPA RATING



HEALTH:	2
FLAMMABILITY:	0
PHYSICAL HAZARD:	1
PERSONAL PROTECTION: (PPE)	H

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



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.

Material Safety Data Sheet

Revision Date	**Prepared by**	**Technical Information**
November 9, 2010	Patti Rogers	1-800-201-8822 or support@mgchemicals.com
Head Office		**Emergency**
9347 - 193 Street, Surrey, B.C., V4N 4E7		Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

Section 1: Product Identification

MSDS Code: 41603 **Name: Micro Etch Part B**

Related Part Numbers: 41603-250G

Use: For use in Tank # 2 in the MG Electroless Copper-Plating System.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
7775-27-1	Sodium persulphate	>99%	N/E	N/E	N/E

Section 3: Hazards Identification

Eyes: Causes eye irritation.

Skin: May cause skin irritation.

Inhalation: Causes respiratory tract irritation.

Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea.

Chronic: No information found.

Section 4: First Aid Measure

Eyes: Remove contact lenses. Flush with water. Get medical aid if irritation occurs or persist.

Skin: Wash skin with soap and water. Get medical aid if symptoms persist.

Inhalation: Immediately remove from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Ingestion: Do not induce vomiting. Rinse mouth with water. If conscious, give 1-2 glasses of water. Get doctor immediately. Never give anything by mouth to an unconscious person.

Section 5: Fire Fighting Measures

Autoignition Temperature: N/E **Flash Point:** N/A **LEL / UEL:** N/A

Extinguishing Media: Deluge with water.

General Information: Oxidizer. Greatly increases the burning rate of combustible materials. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.

Section 6: Accidental Release Measures

Spill Procedure: Sweep dry material into a plastic container. Provide adequate ventilation. For diluted material, sprinkle absorbent compound onto spill, then sweep into a plastic container. Wipe up further residue with paper towel and place into container. Wash spill area with soap and water.

Section 7: Handling and Storage

Handling: Use eye, skin and clothing protection. Do not ingest or inhale. Do not expose container to heat. Diluted product must be stored in a vented container as it will gas off and create pressure in a sealed container.

Storage: Store in a cool, dry, well-ventilated area, away from incompatible substances.

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 rubber or neoprene protective clothing to prevent skin contact. Use a NIOSH approved respirator when necessary.

Section 9: Physical and Chemical Properties

Physical State:	White crystals	**Odor:**	None	**Solubility in water:**	73% @25°C	**Evaporation Rate:**	N/A		
Boiling Point:	N/a	**Specific Gravity:**	2.4	**Vapor Pressure:**	N/a	**Vapor Density:**	N/A	**pH:**	5-7 @25°C

Section 10: Stability and Reactivity

Stability: Stable (becomes unstable in presence of heat, moisture and/or contamination.

Conditions to avoid: Heat, moisture and contamination.

Incompatibilities: Acids, alkalis, halides (fluorides, chlorides, bromides and iodides), combustible materials, most metals and heavy metals, oxidizable materials and other oxidizers, reducing agents, cleaners, and organic or carbon containing compounds. Contact with incompatible materials can result in a material decomposition or other uncontrolled reactions.

Polymerization: Will not occur.

Decomposition: Oxygen that supports combustion and oxides of sulfur.

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure) May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

Carcinogenicity: (risk of cancer) No

Teratogenicity: (risk of malformation in an unborn fetus) No

Reproductive Toxicity: (risk of sterility) No

Mutangenicity: (risk of heritable genetic effects) No

Lethal Exposure Concentrations:	**Ingestion (LD50):**	**Inhalation (LC50):**	**Skin (LD50):**	**Inhalation (TCLo):**
Sodium persulphate	N/A	N/A	N/A	N/A

Volatile Organic Compounds, grams per litre: 0g/L

Section 13: Ecological Information

General Information: Avoid runoff into storms and sewers, which lead into waterways. Water runoff can cause environmental damage

Volatile Organic Compounds, % by weight: 0%

Section 13: Disposal Information

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.

Section 14: Transportation Information

Ground Canada: (1 KG 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: (1 KG 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 USA: (sizes over 1 KG)

Shipper must be trained and certified. Refer to CFR 49 (USA), and TDG Regulations (Canada).
Shipping Name: **Sodium Persulphate**, UN number: **1505**, Class: **5.1**, Packing Group: **III**.
Hazard label required – Oxidizer.

Air: (1 KG size)

Shipper must be trained and certified. Refer to IATA Dangerous Goods Regulations.
Quantity limitations on air transport.
Shipping Name: **Sodium Persulphate**, UN number: **1505**, Class: **5.1**, Packing Group: **III**.
Refer to Packing Instruction: **Y516** for gross weight quantity limits.

Air: (25 KG size)

Prohibited for transport by air.

Sea:

Shipper must be trained and certified. Refer to IMDG regulations.
Shipping Name: **Sodium Persulphate**, UN number: **1505**, Class: **5.1,** 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 is in compliance.

WHMIS

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

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.

Section 15: Regulatory Information

USA

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.

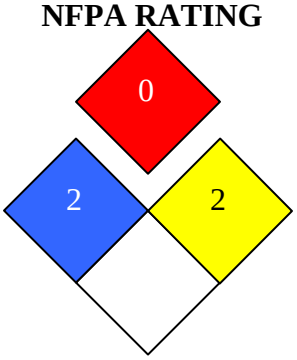
California Proposition 65 (Chemicals know to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)
This product does not contain chemicals known to the state to cause reproductive toxicity or cancer.

HMIS RATING

HEALTH:	2
FLAMMABILITY:	0
PHYSICAL HAZARD:	2
PERSONAL PROTECTION (PPE):	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.

Material Safety Data Sheet

Revision Date	**Prepared by**	**Technical Information**
November 9, 2010	Patti Rogers	1-800-201-8822 or support@mgchemicals.com
Head Office		**Emergency**
9347 - 193 Street, Surrey, B.C., V4N 4E7		Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

Section 1: Product Identification

MSDS Code: 41604 **Name: Catalyst, Part A**

Related Part Numbers: 41604-1L

Use: For use in Tank #3 in the MG Electroless Copper-Plating System.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
7647-01-0	Hydrochloric acid	6.0-6.5%	N/E	N/E	N/E

Section 3: Hazards Identification

Eyes: Liquid may cause severe eye burns and permanent eye damage.

Skin: Liquid can cause redness, pain, and severe burns.

Inhalation: Vapors may cause coughing, choking and difficulty breathing and pulmonary edema.

Ingestion: May cause severe burns of the mouth, throat, and stomach. Nausea, vomiting and diarrhea.

Chronic: Persistant irritation and dermatitis may result from repeated skin over exposure.

Section 4: First Aid Measure

Eyes: Remove contact lenses. Flush with plenty of water. Get medical aid.

Skin: Wash skin with soap and water for. Get medical aid .

Inhalation: Immediately remove from exposure to fresh air. Obtain medical attention immediately.

Ingestion: Do not induce vomiting. If conscious, give 1-2 glasses of water. Get medical aid immediately.

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 product is involved in fire, fire run-off should be contained to prevent environmental damage.

Section 6: Accidental Release Measures

Spill Procedure: Provide adequate ventilation. Wear appropriate personal protection. Sprinkle absorbent compound onto spill, then sweep into a plastic or metal container. Wipe up further residue with paper towel and place in container. Wash spill 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. 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 clothing to prevent skin contact. Wear protective eyeglasses or chemical safety googles. Use NIOSH approved respirato when necessary.

Section 9: Physical and Chemical Properties

Physical State:	Liquid	**Odor:**	Odorless	**Solubility in water:**	100% Soluble	**Evaporation Rate:**	Silimlar to water		
Boiling Point:	101°C	**Specific Gravity:**	1.20@25°C	**Vapor Pressure:**	N/E	**Vapor Density:**	N/E	**pH:**	<1.0

Section 10: Stability and Reactivity

Stability:	Stable at normal conditions and temperatures.
Conditions to avoid:	Extreme heat and contact with incompatible chemicals.
Incompatibilities:	Burning lithium, boron trifluoroide, alkali and alkaline earth, alkali metals, amines, carbonates, cyanides, metallic oxides, organic metals, strong alkalis, strong bases, strong oxidizing agents, sulfides
Polymerization:	Will not occur.
Decomposition:	Oxides of sodium or of the trace minerals present in this product, may form acid vapors, chlorine, hydrogen, toxic fumes.

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure)	None Known
Carcinogenicity: (risk of cancer)	None Known
Teratogenicity: (risk of malformation in an unborn fetus)	None Known
Reproductive Toxicity: (risk of sterility)	None Known
Mutangenicity: (risk of heritable genetic effects)	None Known

Lethal Exposure Concentrations:	**Ingestion (LD50):**	**Inhalation (LC50):**	**Skin (LD50):**	**Inhalation (TCLo):**
Hydrochloric acid	900 mg/kg Rabbit	3124 ppm 1H Rat	N/A	149 mg/m3/6H/5D Rabbit

Section 13: Ecological Information

General Information:	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:	0g/L

Section 13: Disposal Information

General Information:	Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.

Section 14: Transportation Information

Ground Canada: (1 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: (1 Liter and smaller)

Classified as **Limited Quantity**. Refer to USA CFR 49 Regulations. **MSDS must accompany each carton.**
Recommend Shipper be trained and certified.

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: **HYDROCHLORIC ACID**, UN number: **1789**, Class: **8**, Packing Group: **II**.

Sea:

Shipper must be trained and certified. Refer to IMDG regulations.
Shipping Name: **HYDROCHLORIC ACID**, UN number: **1789**, Class: **8**, Packing Group: **II**.

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 is 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.

Section 15: Regulatory Information cont.

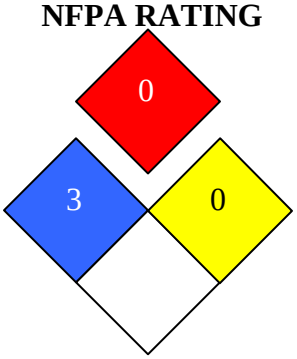
California Proposition 65 (Chemicals know to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)
This product does not contain chemicals known to the state to cause reproductive toxicity or cancer

HMIS RATING

HEALTH:	3
FLAMMABILITY:	0
PHYSICAL HAZARD:	1
PERSONAL PROTECTION (PPE):	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.

Material Safety Data Sheet

Revision Date	**Prepared by**	**Technical Information**
November 9, 2010	Patti Rogers	1-800-201-8822 or support@mgchemicals.com
Head Office		**Emergency**
9347 - 193 Street, Surrey, B.C., V4N 4E7		Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

Section 1: Product Identification

MSDS Code: 41605 **Name: Catalyst, Part B**

Related Part Numbers: 41605-250ML

Use: For use in Tank # 3 in the MG Electroless Copper-Plating System.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
7647-01-0	Hydrochloric acid	4.0-4.5	5 ppm	5 ppm	N/E
7772-99-8	Stannous Chloride	9.5-10.0	N/E	N/E	N/E

Section 3: Hazards Identification

Eyes: Liquid may cause severe eye burns and permanent eye damage.

Skin: Liquid can cause redness, pain, and severe burns.

Inhalation: Vapors may cause coughing, choking and difficulty breathing and pulmonary edema.

Ingestion: May cause severe burns of the mouth, throat, and stomach. Nausea, vomiting and diarrhea.

Chronic: Persistant irritation and dermatitis may result from repeated skin over exposure.

Section 4: First Aid Measure

Eyes: Remove contact lenses. Flush with plenty of water. Get medical aid.

Skin: Wash skin with plenty of soap and water. Get medical aid if symptoms persist.

Inhalation: Immediately remove from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get Medical aid.

Ingestion: Do not induce vomiting. If conscious, give 1-2 glasses of water. Get medical aid.

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: Provide adequate ventilation. Wear appropriate personal protection. Sprinkle absorbent compound onto spill then sweep into a plastic container. Wipe up further residue with paper towel and place in container. Wash spill 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. Use in a well ventilated area. Do not eat or drink while handling this product.

Storage: Keep away from sources of heat. 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. Use a NIOSH approved respirator when necessary.

Section 9: Physical and Chemical Properties

Physical State:	Liquid	**Odor:**	Pungent odor	**Solubility in water:**	100% soluble	**Evaporation Rate:**	Similar to water		
Boiling Point:	95°C	**Specific Gravity:**	1.12@25°C	**Vapor Pressure:**	18 mmHg@20°C	**Vapor Density:**	Equal to water	**pH:**	<2.0

Section 10: Stability and Reactivity

Stability: Stable at normal conditions and temperatures.

Conditions to avoid: Extreme heat and contact with incompatible chemicals.

Incompatibilities: HCL is not compatible with bases, amines, alkali metals, copper, copper alloys and aluminum. Stannous chloride has a potentially explosive reaction with metal nitrates and is also incompatible with strong oxidizers and alkali metals. This product is not compatible with water reactive materials.

Polymerization: Will not occur.

Decomposition: Extreme heat may cause product to decompose, producing toxic fumes (i.e. chloride compounds, tin oxides)

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure) None Known

Carcinogenicity: (risk of cancer) None Known

Teratogenicity: (risk of malformation in an unborn fetus) None Known

Reproductive Toxicity: (risk of sterility) None Known

Mutangenicity: (risk of heritable genetic effects) None Known

Lethal Exposure Concentrations:	Ingestion (LD50):	Inhalation: (LC50)	Skin (LD50):	Inhalation (TCLo):
Hydrochloric acid	900 mg/kg Rabbit	1108 ppm/1H Mouse	N/A	685 ug/m3/24H/84D Rabbit
Stannous Chloride	250 mg/kg Mouse	N/A	N/A	3 mg/m3/24H/5W Rat

Section 12: Ecological Information

General Information: 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: 0g/L

Section 13: Disposal Information

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations. Water

runoff can cause environmental damage.

Section 14: Transportation Information

Ground Canada: (1 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: (1 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.

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: **Corrosive liquid**, **acidic, inorganic n.o.s.(Hydrochloric Acid, Stannous Chloride)**,
UN number: **3264**, Class: **8**, Packing Group: **II**.

Sea:

Shipper must be trained and certified. Refer to IMDG regulations.
Shipping Name: **Corrosive liquid**, **acidic, inorganic n.o.s.(Hydrochloric Acid, Stannous Chloride)**,
UN number: **3264**, Class: **8**, Packing Group: **II**.

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

WHMIS

This product belongs to the following categories**: D1B, E**

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.

Health Canada

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

Section 15: Regulatory Information

USA

CAA (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

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)

None of the chemicals in this product have a reportable quantity.

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

This product does not contain any 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.

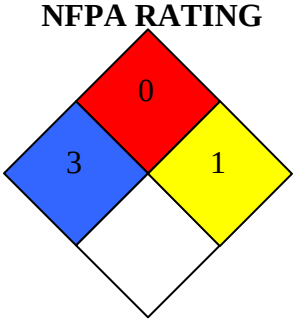
California Proposition 65 (Chemicals know to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)
This product does not contain any chemicals listed.

HMIS RATING

HEALTH:	3
FLAMMABILITY:	0
PHYSICAL HAZARD:	1
PERSONAL PROTECTION (PPE):	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.

Material Safety Data Sheet

Revision Date	**Prepared by**	**Technical Information**
November 9, 2010	Patti Rogers	1-800-201-8822 or support@mgchemicals.com
Head Office		**Emergency**
9347 - 193 Street, Surrey, B.C., V4N 4E7		Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

Section 1: Product Identification

MSDS Code: 41606 **Name: Accelerator**

Related Part Numbers: 41606-250ML

Use: In tank # 4 in the MG Electroless Copper-Plating System.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
16872-11-0	Fluoroboric Acid	23-25%	N/E	2 mg/m^3	N/E

Section 3: Hazards Identification

Eyes: Causes eye irritation, pain, reddening and possibly blindness.

Skin: May cause skin irritation, discomfort and chemicals burns.

Inhalation: Causes respiratory tract irritation, coughing and sore throat.

Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea.

Chronic: Repeated skin over exposure can result in dermatitis. Ingestion can cause fluoride poisoning and maybe fatal.

Section 4: First Aid Measure

Eyes: Remove contact lenses. Flush with water. Get medical aid if irritation occurs or persist.

Skin: Wash skin with soap and water. Get medical aid if symptoms persist.

Inhalation: Immediately remove from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Ingestion: Do not induce vomiting. Rinse mouth with water. If conscious, give 1-2 glasses of water. Get doctor immediately. Never give anything by mouth to an unconscious person.

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: Sweep dry material into a plastic container. Provide adequate ventilation. For diluted material, sprinkle absorbent compound onto spill, then sweep into a plastic container. Wipe up further residue with paper towel and place into container. Wash spill area with soap and water.

Section 7: Handling and Storage

Handling: Use eye, skin and clothing protection. Do not ingest or inhale. Do not expose container to heat. Diluted

product must be stored in a vented container as it will gas off and create pressure in a sealed container.

Storage: Store in a cool, dry, well-ventilated area, away from incompatible substances and where freezing is possible.

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 rubber or neoprene protective clothing to prevent skin contact. Use a NIOSH approved respirator when necessary.

Section 9: Physical and Chemical Properties

Physical State:	Liquid	**Odor:**	Slight Acidic	**Solubility in water:**	100 %	**Evaporation Rate:**	Similar to water	
Boiling Point:	103°C	**Specific Gravity:**	1.18@25°C	**Vapor Pressure:**	18mmHg @30°C	**Vapor Density:**	Similar to water	**pH:** <1

Section 10: Stability and Reactivity

Stability: Stable at normal conditions and temperatures.

Conditions to avoid: Contact with incompatible materials.

Incompatibilities: This solution will react with strong bases, cyanide compounds and metals. This product is not compatible with water reactive materials.

Polymerization: Will not occur.

Decomposition: Hydrogen fluoride, boron oxides.

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure)

Carcinogenicity: (risk of cancer)

Teratogenicity: (risk of malformation in an unborn fetus)

Reproductive Toxicity: (risk of sterility)

Mutangenicity: (risk of heritable genetic effects)

Lethal Exposure Concentrations:	**Ingestion (LD50):**	**Inhalation (LC50):**	**Skin (LD50):**	**Inhalation (TCLo):**
Fluoroboric Acid	100 mg/kg Rat	N/A	N/A	N/A

Section 12: Ecological Information

General Information: 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

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage

Section 14: Transportation Information

Ground Canada: (1 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: (1 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 1L)

Shipper must be trained and certified. Refer to CFR 49 (USA), and TDG regulations (Canada).
Shipping Name: **Fluoroboric Acid Solution**, UN number: **1775**, Class: **8**, Packing Group: **II**.
Recommend using original MG Chemicals UN Certified outer cartons. Tape all seems 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: **Fluoroboric Acid Solution**, UN number: **1775**, Class: **8**, Packing Group: **II**.
Recommend: **DO NOT SHIP BY AIR**.

Sea:

Shipper must be trained and certified. Refer to IMDG regulations.
Shipping Name: **Fluoroboric Acid Solution**, UN number: **1775**, Class: **8**, Packing Group: **II**.

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 is in compliance.

WHMIS

This product belongs to the following categories: **D2B, 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)

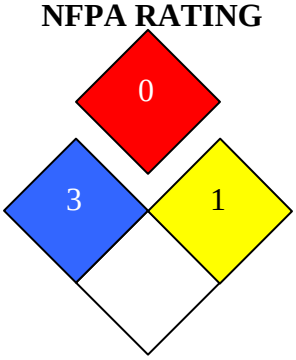
This product does not contain chemicals known to the state to cause reproductive toxicity or cancer.

HMIS RATING

HEALTH:	3
FLAMMABILITY:	0
PHYSICAL HAZARD:	1
PERSONAL PROTECTION: (PPE)	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.

Material Safety Data Sheet

Revision Date	**Prepared by**	**Technical Information**
November 9, 2010	Patti Rogers	1-800-201-8822 or support@mgchemicals.com
Head Office		**Emergency**
9347 - 193 Street, Surrey, B.C., V4N 4E7		Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

Section 1: Product Identification

MSDS Code: 41607 **Name: Plating Solution Part A**

Related Part Numbers: 41607-250ML

Use: In tank # 5 in the MG Electroless copper-plating solution.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
139-89-9	Hydroxy EDTA	27-28	N/E	N/E	N/E
1310-73-2	Sodium Hydroxide	0.5-1.0	N/E	N/E	2C mg/m3
5064-31-3	Trisodium Nitriotriacetate	0.5-1.0	N/E	N/E	N/E

Section 3: Hazards Identification

Eyes: Causes eye irritation.

Skin: May cause skin irritation.

Inhalation: Causes respiratory tract irritation.

Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea.

Chronic: N/E

Section 4: First Aid Measure

Eyes: Remove contact lenses. Flush with water. Get medical aid if irritation occurs or persist.

Skin: Wash skin with soap and water. Get medical aid if symptoms persist.

Inhalation: Immediately remove from exposure to fresh air.

Ingestion: Do not induce vomiting. Rinse mouth with water. If conscious, give 1-2 glasses of water. Get doctor immediately. Never give anything by mouth to an unconscious person.

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 a fire, fire run-off water should be contained to prevent possible environmental damage.

Section 6: Accidental Release Measures

Spill Procedure: Sweep dry material into a plastic container. Provide adequate ventilation. For diluted material, sprinkle absorbent compound onto spill, then sweep into a plastic container. Wipe up further residue with paper towel and place into container. Wash spill area with soap and water.

Section 7: Handling and Storage

Handling: Use eye, skin and clothing protection. Do not ingest or inhale. Do not expose container to heat. Diluted product must be stored in a vented container as it will gas off and create pressure in a sealed container.

Storage: Store in a cool, dry, well-ventilated area, away from incompatible substances.

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 rubber or neoprene protective clothing to prevent skin contact. Use a NIOSH approved respirator when necessary.

Section 9: Physical and Chemical Properties

Physical State:	Liquid	**Odor:**	Slight Amine	**Solubility in water:**	100 %	**Evaporation Rate:**	Similar to water	
Boiling Point:	>100°C	**Specific Gravity:**	1.187°C	**Vapor Pressure:**	18mmHg@ 20°C	**Vapor Density:**	Equal to water	**pH:** >13.0

Section 10: Stability and Reactivity

Stability: Stable at normal conditions and temperatures. Sodium Hydroxide reacts with carbon dioxide from the air to form sodium carbonate.

Conditions to avoid: Contact with incompatible materials.

Incompatibilities: Strong acids, metals, many organic and inorganic chemicals.

Polymerization: Will not occur.

Decomposition: Sodium and carbon oxides.

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure)

Carcinogenicity: (risk of cancer)

Teratogenicity: (risk of malformation in an unborn fetus)

Reproductive Toxicity: (risk of sterility)

Mutangenicity: (risk of heritable genetic effects)

Lethal Exposure Concentrations:	Ingestion (LD50):	Inhalation (LC50):	Skin (LD50):	Inhalation (TCLo):
Hydroxy EDTA	N/A	N/A	N/A	N/A
Sodium Hydroxide	681 mg/kg Mouse	N/A	N/A	N/A
Trisodium Nitriotriacetate	N/A	N/A	N/A	N/A

Section 12: Ecological Information

General Information: 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

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.

Section 14: Transportation Information

Ground Canada: (1 Liter and smaller)

Classified as **LTD. QTY**.
Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations). **Recommend Shipper be trained and certified.**

Ground USA: (1 Liter and smaller)

Classified as **LTD. QTY.**
Recommend Shipper be trained and certified.

Ground Canada and USA: (sizes over 1L)

Shipper must be trained and certified. Refer to CFR 49 (USA), and TDG regulations (Canada).
Shipping Name: **Caustic Alkali Liquid N.O.S. (Contains Sodium Hydroxide)**, UN number: **1719**, Class: **8**, Packing Group: **II**.
Recommend using original MG Chemicals UN Certified outer cartons. Tape all seems 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: **Caustic Alkali Liquid N.O.S. (Contains Sodium Hydroxide)**, UN number: **1719**, Class: **8**, Packing Group: **II**.
Recommend: **DO NOT SHIP BY AIR**.

Sea:

Shipper must be trained and certified. Refer to IMDG regulations.
Shipping Name: **Caustic Alkali Liquid N.O.S. (Contains Sodium Hydroxide)**, UN number: **1719**, Class: **8**, Packing Group: **II**.

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: **D2B, 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.

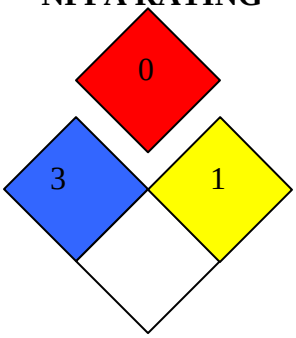
California Proposition 65 (Chemicals know to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)
This product does not contain chemicals known to the state to cause reproductive toxicity or cancer.

HMIS RATING

HEALTH:	3
FLAMMABILITY:	0
PHYSICAL HAZARD:	1
PERSONAL PROTECTION: (PPE)	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.

Material Safety Data Sheet

Revision Date	**Prepared by**	**Technical Information**
November 9, 2010	Patti Rogers	1-800-201-8822 or support@mgchemicals.com
Head Office		**Emergency**
9347 - 193 Street, Surrey, B.C., V4N 4E7		Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

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 de 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/m3) 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

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

Section 10: Stability and Reactivity

Stability: Stable at normal conditions and temperatures.

Conditions to avoid: Contact with incompatible materials.

Incompatibilities: Strong oxidizers, strong caustic chemicals, reducing agents, phenols, acetylene, hydroxylamine and urea.

Polymerization: Will not occur.

Decomposition: Oxides and salts of copper, carbon dioxide, carbon monoxide and oxides or sulfur.

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure) Repeated skin contact may cause defatting of the skin resulting in dermatitis.

Carcinogenicity: (risk of cancer) Formaldehyde IARC 2B: Probably Carcinogenic to humans.

Teratogenicity: (risk of malformation in an unborn fetus) No

Reproductive Toxicity: (risk of sterility) No

Mutangenicity: (risk of heritable genetic effects) No

Lethal Exposure Concentrations:	Ingestion (LD50):	Inhalation (LC50):	Skin (LD50):	Inhalation (TCLo):
Copper sulfate	300 mg/kg Rat	N/A	N/A	7.5 mg/kg Rat
Formaldehyde	42 mg/kg Rat	400 mg/m3 2H Rat	270 mg/kg Rabbit	0.05 mg/m3/4H Rat
Methanol	7300 mg/kg Mouse	64000 ppm/4H Rat	200000 mg/kg Rabbit	10000 ppm/7H Rat

Section 12: Ecological Information

General Information: 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

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.

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

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 know to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)

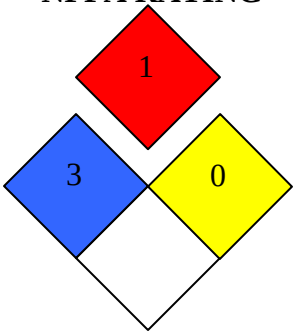
This product does contain Formaldehyde known to the state to cause cancer.

HMIS RATING

HEALTH:	3
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
PERSONAL PROTECTION (PPE):	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.

Material Safety Data Sheet

Revision Date	**Prepared by**	**Technical Information**
November 9, 2010	Patti Rogers	1-800-201-8822 or support@mgchemicals.com
Head Office		**Emergency**
9347 - 193 Street, Surrey, B.C., V4N 4E7		Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

Section 1: Product Identification

MSDS Code: 41609 **Name: Plating Solution Part C**

Related Part Numbers: 41609-250ML

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
139-89-9	Hydroxy EDTA	1.9 – 2.1	N/E	N/E	N/E
1310-73-2	Sodium Hydroxide	4.5 - 4.9	N/E	2 mg/m3	N/E

Section 3: Hazards Identification

Eyes: Liquid in contact with eyes may cause (depending on duration) irritation, scarring, blistering, ulceration, disintegration and possible blindness.

Skin: Depending on duration of contact, may cause reddening, scarring, chemical burns, and ulceration. Burns may not be immediately painful. Repeated skin overexposure can result in dermatitis.

Inhalation: If vapors, mist or sprays of this product are inhaled, they may irritate and burn the nose, throat and lungs. Symptoms can include coughing, tightness of the chest, and difficulty breathing. Inhalation over-exposure can cause pulmonary edema (potentially life threatening condition) and symptoms may be delayed by hours or days.

Ingestion: Ingestion is not anticipated to be likely route of occupational exposure. If the product is swallowed, it will irritate and burn the mouth, throat, esophagus, and other tissues of the digestive system. Symptoms may include pain, vomiting, diarrhea, and collapse.

Chronic: Persistent irritation and dermatitis (drying, cracking, and inflammation of the skin) may result from repeated over-exposure to this product. Severe inhalation and ingestion over-exposure maybe fatal.

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 product is involved in fire, fire run-off water should be contained to prevent possible environmental damage.

Section 6: Accidental Release Measures

Spill Procedure: Provide adequate ventilation. Wear appropriate personal protection. Sprinkle absorbent compound onto spill, then sweep into a plastic or metal container. Wipe up further residue with paper towel and place in container. Wash spill 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. Use in a well ventilated area. Do not eat or drink while handling this product.

Storage: Keep away from sources of heat. 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. Use a NIOSH approved respirator when necessary.

Section 9: Physical and Chemical Properties

Physical State:	Liquid	**Odor:**	Odorless	**Solubility in water:**	100%	**Evaporation Rate:**	Similar to water		
Boiling Point:	93°C	**Specific Gravity:**	1.05°C @25	**Vapor Pressure:**	18mm Hg @ 20	**Vapor Density:**	Equal to water	**PH:**	11.0-12.0

Section 10: Stability and Reactivity

Stability: Stable at normal conditions and temperatures. Sodium Hydroxide reacts with carbon dioxide from the air to form sodium carbonate.

Conditions to avoid: Contact with incompatible materials.

Incompatibilities: Strong acids, metals, many organic and inorganic chemicals

Polymerization: Will not occur.

Decomposition: Sodium and carbon oxides.

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure) No

Carcinogenicity: (risk of cancer) No

Teratogenicity: (risk of malformation in an unborn fetus) No

Reproductive Toxicity: (risk of sterility) No

Mutangenicity: (risk of inheritable genetic effects) No

Lethal Exposure Concentrations:	**Ingestion (LD50):**	**Inhalation (LC50):**	**Skin (LD50):**	**Inhalation (TCLo):**
Hydroxy EDTA	N/A	N/A	N/A	N/A

Sodium Hydroxide	N/A	N/A	N/A	N/A

Section 12: Ecological Information

General Information: 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

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.

Section 14: Transportation Information

Ground Canada: (1 Liter and smaller)

Classified as **LTD QTY**.
Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations). **Recommend Shipper be trained and certified.**

Ground USA: (1 Liter and smaller)

Classified as **LTD QTY.**
Recommend Shipper be trained and certified.

Ground Canada and USA: (sizes over 1 L)

Shipper must be trained and certified. Refer to CFR 49 (USA), and TDG regulations (Canada).
Shipping Name: **Sodium Hydroxide Solution**, UN number: **1824**, Class: **8**, Packing Group: **II**.
Recommend using original MG Chemicals UN Certified outer cartons. Tape all seems 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: **Sodium Hydroxide Solution**, UN number: **1824**, Class: **8**, Packing Group: **II**.
Recommend: **DO NOT SHIP BY AIR**.

Sea:

Shipper must be trained and certified. Refer to IMDG regulations.
Shipping Name: **Sodium Hydroxide Solution**, UN number: **1824**, Class: **8**, Packing Group: **II**.

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: **D2B, 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)

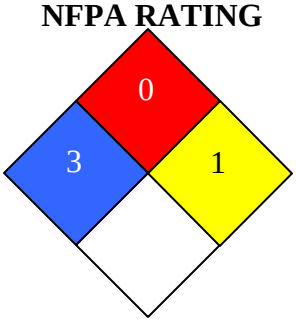
This product does not contain chemicals known to the state to cause reproductive toxicity or cancer.

HMIS RATING

HEALTH:	3
FLAMMABILITY:	0
PHYSICAL HAZARD:	1
PERSONAL PROTECTION: (PPE)	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.