SAFETY DATA SHEET

This Safety Data Sheet (SDS) complies with the requirements of the U.S. Federal Occupational Safety and Health Administration Hazard Communication Standard (29 CFR 1910.1200, as updated in 2024) and equivalent state Standards. It has also been developed in accordance with the United Nations Globally Harmonized System of Classification of Chemicals (GHS) and the Canadian Workplace Hazardous Materials Information System (WHMIS). Refer to Section 16 of this document for the definition of terms and abbreviations.

SECTION 1: IDENTIFICATION

1.1 PRODUCT IDENTIFICATION

- **PRODUCT NAME: STAINLESS STELL BLACKENER**

1.2 PRODUCT USE AND RESTRICTIONS

- **IDENTIFIED USE:** Various metal-working and finishing applications.
- **IDENTIFIED USERS:** For sale to, use and storage by personnel trained in handling product safely.

1.3 MANUFACTURER INFORMATION

- **MANUFACTURER/SUPPLIER: JAX CHEMICAL COMPANY**
- **ADDRESS:** 640 South Fulton Avenue, Mount Vernon, NY 10550
- **BUSINESS PHONE:** 914-668-1818 (Monday – Friday, 9:00 am – 5:00 pm)
- **EMERGENCY PHONE:** 1-800-535-5053 (INFOTRAC; U.S. & Canada; 24 hours)
  +1-352-323-3500 (INFOTRAC; International)

1.4 OTHER PRODUCT INFORMATION

- This product is sold and used in relatively small volumes. This SDS has been developed to address safety concerns affecting specific handling situations associated with product use and those involving warehouses and other workplaces where large numbers of product containers are stored or distributed.

SECTION 2: HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:

REGULATION	CLASSIFICATION
OSHA HAZARD COMMUNICATION (GHS)	Skin corrosion (Category 1C); Acute Toxicity – Oral (Category 4); Acute Toxicity – Inhalation (Category 4).

2.2 LABEL ELEMENTS:

- OSHA/CLP – BASED ON GLOBALLY HARMONIZED SYSTEM

Symbol: To the right.

Signal Word: Danger.

Hazard statement(s)

Causes severe skin burns and eye damage. Harmful if swallowed or inhaled.

Precautionary statement(s)

PREVENTION: Keep away from children. Read label before use. Do not eat, drink, or smoke when using this product. Wear protective globes/protective clothing/eye/face protection. Use only outdoors or in a well-ventilated area. Do not breathe mists, vapors, or spray. Wash hands and exposed skin thoroughly after handling.

RESPONSE: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing and wash it before reuse. Rinse skin with water or shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

STORAGE: Store locked up.

DISPOSAL: Dispose of contents/ container to an approved waste disposal plant.

SECTION 2: HAZARDS IDENTIFICATION (Continued)

2.3 OTHER PERTINENT DATA ON CHEMICAL AND PHYSICAL HAZARDS:

- Not applicable.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 INDENTIFICATION OF HAZARDOUS SUBSTANCES IN PRODUCT

NAME	CAS NUMBER	GHS HAZARD CLASSIFICATION FOR COMPONENT	% (w/w)
Hydrochloric Acid	7647-01-0	SPECIFIC TO THIS CONCENTRATION: Skin corrosion (Category 1C); Acute Toxicity – Oral (Category 4); Acute Toxicity – Inhalation (Category 4).	1-5%
Selenious Acid	7783-00-8	Acute toxicity, oral (Category 3); Acute toxicity, inhalation (Category 3); Aquatic toxicity, acute (Category 1); Aquatic toxicity, chronic (Category 1)	1-5%
Copper Sulfate	7758-98-7	Acute toxicity, Oral (Category 3); Skin irritation (Category 2), Eye irritation (Category 2A); Acute aquatic toxicity (Category 1; M factor 10); Chronic aquatic toxicity (Category 1)	0.1-5%
The remaining components are not classified as hazardous in their existing concentrations.			Balance

SECTION 4: FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES

- **BASIC FIRST AID BY EXPOSURE ROUTE:**

AREA EXPOSED	TREATMENT
Eye Contact:	Flush with copious amounts of water for 15 minutes. "Roll" eyes during flush. Seek medical attention immediately.
Skin Contact:	Flush area with warm, running water for several minutes. Seek medical attention if irritation persists or there is skin tissue damage. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Seek medical attention if irritation persists or there is skin tissue damage.
Inhalation:	Obtain fresh air. Seek medical attention if irritation persists or symptoms continue after exposure ends.
Ingestion:	If conscious only: Rinse mouth with water. Drink several cups of water. Do not induce vomiting. Contact a Poison Control Center or physician for instructions.
Additional Steps:	Wash clothing after reuse.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

- **ACUTE HEALTH EFFECTS:**

AREA EXPOSED	EFFECTS
Eye Contact:	Corrosive to eye tissue; contact will cause pain, redness, and tissue damage. Chemical burns and blindness may occur.
Skin Contact:	Corrosive to skin tissue; contact will cause pain, redness, and tissue damage. Chemical burns may occur.
Inhalation:	Very irritating to the respiratory system; inhalation of sprays, mists, and vapors can cause coughing, nasal congestion, and sore throat.
Ingestion:	Corrosive and may cause severe and permanent damage to mouth, throat, and stomach. May be fatal if swallowed.

- **CHRONIC HEALTH EFFECTS:** Prolonged or repeated contact may cause dermatitis.
- **TARGET ORGANS:** Skin, eyes, and respiratory system.

4.3 INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

- **GENERAL INFORMATION: For all exposures:** In case of accident, or if you feel unwell, seek medical advice immediately. Take this document and a copy of the label to the healthcare professional.
- **RECOMMENDATIONS TO PHYSICIANS:** Treat symptomatically.
- **MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:** Medical conditions impacting the target organs can be aggravated upon overexposure.

SECTION 5: FIREFIGHTING MEASURES

5.1 EXTINGUISHING MEDIA

- **RECOMMENDED FIRE EXTINGUISHING MEDIA:** Water Spray, Water Jet, Dry Powder, Foam, Carbon Dioxide, Halon, or any other.
- **UNSUITABLE FIRE EXTINGUISHING MEDIA:** None known.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

- **NFPA FLAMMABILITY CLASSIFICATION:**

NFPA Rating:

NFPA Hazard Classification: Not flammable. Corrosive.

- **UNUSUAL HAZARDS IN FIRE SITUATIONS:**

POTENTIAL HAZARD	DESCRIPTION FOR PRODUCT
Decomposition:	Generates extremely irritating vapors, hydrogen chloride gas, copper compounds, and selenium oxides.
Incompatibilities:	See Section 10 (Reactivity and Stability).
Explosion Sensitivity to Mechanical Impact:	Not applicable.
Explosion Sensitivity to Static Discharge:	Not applicable.

5.3 ADVICE FOR FIREFIGHTERS

- Self-Contained Breathing Apparatus and full protective equipment for fire response should be worn in any situation. Move containers from fire area if it can be done without risk to personnel. Otherwise, use water spray to keep fire-exposed containers cool.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, AND EMERGENCY PROCEDURES

- **RESPONSE TO INCIDENTAL RELEASES:** Personnel who have received basic chemical safety training can generally handle small-scale releases. Gloves and safety glasses must be worn when cleaning-up spills. Use caution during clean-up; contaminated floors and items may be slippery.
- **RESPONSE TO NON-INCIDENTAL RELEASES:** Generally, releases of this product will be no larger than the loss of one shipment of material. Subsequently, personnel can follow the instructions for incidental releases.

  As needed, respond to non-incidental chemical releases of this product (such as the simultaneous destruction of several pallets of this product) by clearing the impacted area and contacting appropriate emergency personnel.

  In the unlikely event of a multi-container release of the product**,** and there is no other hazardous condition in the area, the use of an air-purifying respirator with acid gas cartridge, face-shield, safety glasses, and double gloves (e.g. nitrile over latex gloves), and body protection is recommended if splashes/sprays/mists can be generated during clean-up or the concentration of vapors is high. Use Self-Contained Breathing Apparatus if concentration of oxygen is less than 19.5% or is unknown.
- **RESPONSE PROCEDURES FOR ANY RELEASE:** Absorb spilled liquid with polypads or other suitable absorbent materials. If appropriate, neutralize contaminated area and equipment with acid neutralizing agent (e.g., sodium bicarbonate). Rinse contaminated items and area thoroughly. Confirm that neutralization is complete with pH paper**.**

6.2 ENVIRONMENTAL PRECAUTIONS

- **IN CASE OF SPILL:** Collect spillage promptly. Avoid response actions that can cause a release of a significant amount of the substance into the environment. Avoid accidental dispersal of spilled material into soil, waterways, and sewers.

6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN-UP

- **SPILL RESPONSE EQUIPMENT:** Polypad or other absorbent material; acid neutralizing agent (e.g., sodium bicarbonate); pH paper.

6.4 REFERENCE TO OTHER SECTIONS

- See Section 8 (Exposure Controls/Personal Protection) for personal protective equipment recommendations.
- See Section 13 (Disposal Recommendations) for information on waste disposal.

SECTION 7: HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

- **HYGIENE PRACTICES:** Follow good chemical hygiene practices. Do not smoke, drink, eat, or apply cosmetics in the chemical use area. Avoid inhalation of vapors, mists, and sprays. Use in well-ventilated area. Avoid contact with skin or eyes. Remove contaminated clothing promptly. Clean up spilled product immediately.
- **HANDLING PRACTICES:** Employees must be appropriately trained to use this product safely as needed. Keep containers closed when not in use.

7.2 CONDITIONS FOR SAFE STORAGE

- **STORAGE PRACTICES:** Store locked up. Keep container dry. Use non-metal containers or metal containers with corrosion-resistant lining. Ensure all containers are correctly labeled. Store containers away from direct sunlight, sources of intense heat, or where freezing is possible. Store this product away from incompatible chemicals. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain residual liquid; therefore, empty containers should be handled with care.
- **INCOMPATIBILITIES:** See Section 10 (Stability and Reactivity).

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

- **AIRBORNE EXPOSURE LIMITS:**

COMPONENT	ACGIH TLV	OSHA PEL	NIOSH REL	OTHER
Hydrochloric Acid	C = 2ppm	C = 5 ppm	C = 5 ppm	NIOSH IDLH = 50 ppm CAL OSHA PEL: TWA = 0.3 ppm; C = 2 ppm
Selenious Acid (Selenium compounds, as Se).	TWA= 0.2 mg/m^3	TWA= 0.2 mg/m^3	TWA= 0.2 mg/m^3	CAL OSHA PEL: TWA= 0.2 mg/m^3
Copper Sulfate (as Copper and its inorganic compounds)	NE	NE	NE	Sigma Aldrich: TWA = 1 mg/m^3 CAL OSHA PEL: TWA 1 mg/m^3

- **BIOLOGICAL OCCUPATIONAL EXPOSURE LIMITS:** Not established.

8.2 EXPOSURE CONTROLS

- **ENGINEERING CONTROLS:** Ensure area has adequate ventilation.
- **RESPIRATORY PROTECTION:** None normally required during use with this product.
- **HAND PROTECTION:** Neoprene or nitrile gloves are recommended. Ensure gloves are intact prior to use.
- **EYE PROTECTION:** A face shield with safety glasses is recommended if splashes or sprays can be generated. Otherwise, wear safety glasses with side-shields or safety goggles.
- **BODY PROTECTION:** Use body protection appropriate to task (rubber apron, lab coat).

8.3 PERSONAL PROTECTIVE EQUIPMENT SYMBOLS

Hand Protection 

Eye/Face Protection 

Body Protection. 

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

- **APPEARANCE AND DISTINGUISHING CHARACTERISTICS:**

PROPERTY	DATA
State:	Liquid.
Color:	Light blue.
Odor:	Sharp, acrid.
Odor Threshold:	Hydrochloric Acid = 0.255 to 10.06 ppm
pH:	< 2.0

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

- **PHYSICAL DATA:**

PROPERTY	DATA
Melting Point/Freezing Point:	Approximately 0°C (32 °F).
Initial Boiling Point/Boiling Range:	Approximately 100°C (212 °F).
Flash Point:	Not applicable.
Evaporation Rate (Water = 1):	Approximately 1.0.
Flammability:	Not applicable.
Upper/Lower Explosive Limits	Not applicable.
Vapor Pressure:	Not determined.
Vapor Density	Not determined.
Relative Density (Density):	Approximately 1.0
Solubility:	Soluble in water.
Partition Coefficient/n-octanol/water:	Not determined.
Autoignition Temperature:	Not applicable.
Decomposition Temperature:	Not determined.
Kinematic Viscosity:	Not determined.
Particle Characteristics:	Not applicable.

9.2 OTHER USEFUL INFORMATION ON PROPERTIES

- **VOC (less water & exempt):** 0.0 g/L **VOC % By WEIGHT:** 0.0%.

SECTION 10: STABILITY AND REACTIVITY

10.1 REACTIVITY AND CHEMICAL STABILITY

- The product is not reactive under typical conditions of use or handling.
- Normally stable under standard temperatures and pressures.

10.2 POSSIBILITY OF HAZARDOUS REACTIONS (INCLUDING THOSE ASSOCIATED WITH FORSEEABLE EMERGENCY)

- Product is not self-reactive, water-reactive, or air-reactive; it will not undergo hazardous polymerization**.**

10.3 CONDITIONS TO AVOID

- Avoid contact with incompatible chemicals.

10.4 INCOMPATIVLE MATERIALS

- Strong bases. Cyanides. Powdered metals. Oxidizing agents.

10.5 HAZARDOUS DECOMPOSITION PRODUCTS

- Thermal decomposition of this product generates hydrogen chloride gas, and copper/selenium compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON ACUTE TOXICITY

- **PRODUCT TOXICOLOGY DATA:** The following are calculated estimates for the product:
  - Acute Toxicity Estimate (Oral) > 300 mg/kg
  - Acute Toxicity Estimate (Dermal) > 2000 mg/kg
  - Acute Toxicity Estimate (Inhalation) > 20 mg/L

- **SUBSTANCE TOXICOLOGY DATA:** The following data are available for the hazardous components in this product listed in Section 3 (Composition/Information on Ingredients).

HYDROCHLORIC ACID
LC50 (Inhalation, Rat) = 3124 ppm/1 hour
LCLo (Inhalation, Human) = 1300 ppm/30 minutes
LCLo (Inhalation, Human) = 3000 ppm/5 minutes
LDLo (Oral-Man): 2857 µg/kg
LD50 (Oral-Rabbit) = 900 mg/kg
LDLo (Oral-Woman) = 420 µL/kg: Behavioral: excitement; Cardiac: pulse rate; Kidney, Ureter, Bladder: hematuria
LDLo (Unreported-Man) 81 mg/kg

SELENIOUS ACID
LD50 (Intravenous-Mouse) = 11 mg/kg
LDLo (Oral-Rat) = 25 mg/kg
LDLo (Intraperitoneal-Rat) = 10 mg/kg

COPPER SULFATE
LD50 (Oral, mouse) = 369 mg/kg
LD50 (Oral, mouse) = 87 mg/kg
LD50 (Oral, rat) = 300 mg/kg
LD50 (Oral, rat) = 960 mg/kg

- **DEGREE OF IRRITATION:** The product causes severe skin burns and eye damage.

HYDROCHLORIC ACID
Skin corrosion/irritation: Skin – rabbit; causes burns.
Serious eye damage/eye irritation**:** Eyes – rabbit: Corrosive to eyes

- **SENSITIZATION:** No component is reported to be a skin or respiratory sensitizer.
- **REVIEW OF ACUTE SYMPTOMS AND EFFECTS BY ROUTE OF EXPOSURE:** See Section 2 (Hazards Information) and Section 4 (First-Aid Measures) for additional details.
    - **Eyes:** Corrosive to eyes.
    - **Skin:** Corrosive to skin.
    - **Inhalation:** Respiratory irritant; corrosive to mucous membranes and respiratory system tissue.
    - **Ingestion:** Corrosive to digestive system tissue; harmful or fata if swallowed.

11.2 INFORMATION ON CHRONIC TOXICITY

- **CARCINOGENICITY STATUS:** This table summarizes the carcinogenicity listing for the components of this product. "NO" indicates that the substance is not considered to be, or suspected to be, a carcinogen by the listed agency.

CHEMICAL	IARC	NTP	NIOSH	OSHA	OTHER
Hydrochloric Acid	IARC-3: Unclassifiable as to Carcinogenicity in Humans	NO	NO	NO	TLV-4: Not Classifiable as a human carcinogen.
Selenious Acid; (Selenium Compounds, as Se)	IARC-3: Unclassifiable as to Carcinogenicity in Humans	NO	NO	NO	EPA-D: Not classifiable as to human carcinogenicity.
Copper Sulfate	NO	NO	NO	NO	For "Copper and its Inorganic Compounds" = EPA-D: Not classifiable as to human carcinogenicity.

- **REPRODUCTIVE TOXICITY INFORMATION:** This product is not reported to cause adverse reproductive effects upon normal circumstances of use and handling. The following information is available for components of this product:
    - **HYDROCHLORIC ACID**: LCLo (Inhalation-Rat) 450 mg/m3/1 hour: female 1 day(s) pre-mating: Reproductive: Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus); Specific Developmental Abnormalities: homeostasis.
    - **COPPER SULFATE:** TDLo (Oral-Pig) 140 mg/kg: female 1-15 week(s) after conception lactating female 4 week(s) post-birth: Reproductive: Effects on Newborn: biochemical and metabolic; TDLo (Intraperitoneal-Rat) 791 mg/kg/18 weeks-intermittent: Nutritional and Gross Metabolic: weight loss or decreased weight gain; TDLo (Intraperitoneal-Rat) 7500 μg/kg: female 3 day(s) after conception: Reproductive: Fertility: other measures of fertility; TDLo (Subcutaneous-Rat) 12,768 μg/kg: male 1 day(s) pre-mating: Reproductive: Paternal Effects: testes, epididymis, sperm duct; TDLo (Subcutaneous-Mouse) 12,768 μg/kg: male 30 day(s) pre-mating: Reproductive: Paternal Effects: testes, epididymis, sperm duct; TDLo (Intratesticular-Rat) 3192 μg/kg: male 1 day(s) pre-mating: Reproductive: Paternal Effects: spermatogenesis (incl. genetic material, sperm morphology, motility, and count), testes, epididymis, sperm duct; TDLo (Intravenous-Mouse) 3200 μg/kg: female 8 day(s) after conception: Reproductive: Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus); Specific Developmental Abnormalities: Central Nervous System, cardiovascular (circulatory) system.

- **MUTAGENIC EFFECTS:** This product is not reported to cause adverse mutagenic effects upon normal circumstances of use and handling. The following information is available for components of this product:
    - **HYDROCHLORIC ACID:** DNA Repair (Bacteria-*Escherichia coli*) 25 □g/well81; Sex Chromosome Loss and Nondisjunction, (Inhalation-*Drosophila melanogaster*) 100 ppm/24 hours; Sex Chromosome Loss and Nondisjunction, (Oral-*Drosophila melanogaster*) 100 ppm; Cytogenetic Analysis (Parenteral-grasshopper) 20 mg; Cytogenetic Analysis (Hamster-Lung) 30 mmol/L; Cytogenetic Analysis (Hamster-Ovary) 8 mmol/L
    - **SELENIOUS ACID:** Cytogenetic Analysis (Human-Lymphocyte) 10 mmol/L; Micronucleus Test (Intraperitoneal-Mouse) 10 mg/kg/2 days-continuous.
    - **COPPER SULFATE:** Mutation Test Systems-not otherwise (Bacteria-Bacillus subtilis) 400 μmol/L; Sex Chromosome Loss and Nondisjunction (Parenteral-*Drosophila melanogaster*) 1000 ppm; Sex Chromosome Loss and Nondisjunction (Unreported-*Drosophila melanogaster*) 7100 ppm; DNA Damage (Rat-*Ascites tumor*) 500 μmol/L; DNA Damage (Rat-Liver) 1 mmol/L; DNA Inhibition (Intraperitoneal-Mouse) 20 gm/kg; Morphological Transformation (Hamster-Embryo) 80 μmol/L Unscheduled DNA Synthesis (Hamster-Embryo) 200 μmol/L.

- **SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE:** Respiratory irritation.
- **SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE:** Not applicable.
- **ASPIRATION HAZARD:** Not applicable.

SECTION 11: TOXICOLOGICAL INFORMATION (Continued)

- **TOXICOLOGICALLY SYNERGISTIC PRODUCTS:** None known.
- **ADDITIONAL TOXICOLOGY:** Selenious acid is the most toxic form of selenium, ingestion is almost invariably fatal. Stupor, respiratory depression, hypotension, and death can result several hours post ingestion. Severe hypotension develops secondary both to decreased contractility from a toxic cardiomyopathy and to inappropriately low peripheral vascular resistance. Laboratory abnormalities include thrombocytopenia, moderate hepatorenal dysfunction, and elevated serum kinase levels.

SECTION 12: ECOLOGICAL INFORMATION

12.1 ENVIRONMENTAL TOXICITY

- Based on available data, this product is anticipated to be harmful or fatal to contaminated terrestrial plants or animals.
- Based on available data, this product is anticipated to be harmful or fatal to contaminated aquatic plants or animals.
- Based on the concentration of components, the product is classified as Acute aquatic toxicity (Category 2); Acute aquatic toxicity (Category 2).
- The following aquatic toxicity data are available for components of this product:

HYDROCHLORIC ACID
TLm (sunfish) = 96 hours/ pH 3.6/ 20°C
TLm (goldfish) = 96 hours/ pH 4/ 20°C
TLm (Gambusia affinis, mosquito fish) 96 hours = 282 ppm (fresh water)
TLm (stickleback) = 96 hours/ pH 4.6/ 20°C
LC (Lepomis macrochirus, bluegill sunfish) 48 hours = 3.6 mg/L
LC50 (shrimp) 48 hours = 100-330 ppm (salt water)
LC50 (starfish) 48 hours = 100-300 mg/L/ 48 hours
LC50 (cockle) = 330-1000 mg/L

HYDROCHLORIC ACID (Continued)
LC50 (Carassium auratus, goldfish) = 178 mg/L (1-2-hour survival time)
LC50 (shore crab) 48 hours = 240 mg/L
LC50 (Lepomis macrochirus/bluegill sunfish) 96 hours = pH 3.0-3.5

COPPER SULFATE
Fish: Rainbow trout: LC50 = 0.1- 2.5 mg/L; 96 Hr; Unspecified
Fish: Bluegill/Sunfish: LC50 = 0.6 mg/L; 48 Hr; 15 mg/L $CaCO_3$
Fish: Bluegill/Sunfish: LC50 = 8.0 mg/L; 48 Hr; 68 mg/L $CaCO_3$
Fish: Bluegill/Sunfish: LC50 = 10.0 mg/L; 48 Hr; 100 mg/L $CaCO_3$
Fish: Bluegill/Sunfish: LC50 = 45.0 mg/L; 48 Hr; 132 mg/L $CaCO_3$

12.2 PERSISTENCE AND DEGRADABILITY

- When released into the soil, the components of this product are expected to biodegrade, dissipate in soils via oxidation, or otherwise chemically degrade or photo-decompose via solar radiation. Specific environmental fate data for components of this product are as follows:
    - **HYDROCHLORIC ACID:** Water solubility: 56.5 g/ 100 cc (60°C); 82.3 g/ 100 cc (0°C); Environmental Fate: If spilled onto the soil, Hydrochloric Acid will infiltrate the soil. The presence of water will increase the movement through soil. During transport, the acid will dissolve carbonate-based material and will be somewhat neutralized by these materials; however, a significant amount of the acid will remain. Overtime the pH will be neutralized by natural alkalinity and carbon dioxide. If released to an aquatic environment, Hydrochloric Acid will almost completely dissociate.
    - **COPPER SULFATE:** Persistence: May persist at toxic levels indefinitely. Biodegradation: No evidence was found to indicate that there is any biotransformation process for copper compounds which would have a significant bearing on the fate of copper in aquatic environments (soluble copper salts). Terrestrial Fate: In soil, Copper Sulfate is partly washed down to lower levels, partly bound by soil components, and partly oxidatively transformed. Aquatic Fate: Several processes determine the fate of copper in the aquatic environment: complex formation, especially with humic substances; sorption to hydrous metal oxides, clays, and organic materials; and bioaccumulation. The formation of complexes with organic ligands modifies the solubility and precipitation behavior of copper such that solid copper species probably do not precipitate under normal circumstances. Furthermore, complexed copper is more easily adsorbed by clay and other surfaces than the free (hydrated) cation. The aquatic fate of copper is highly dependent on such variables as pH, Eh /oxidation-reduction potential in millivolts/, concentrations of organic materials and adsorbents, availability of precipitating iron and manganese oxides, biological activity, and competition with other heavy metals.

12.3 BIOACCUMULATIVE POTENTIAL

- The following data are available for components of this product:
    - **SELENIOUS ACID:** Bioconcentration: It is known that selenium accumulates in living tissues. For example, the selenium content of human blood is about 0.2 ppm. This value is about 1,000 times greater than the selenium found in surface waters on the planet earth. It is clear that the human body does accumulate or concentrate selenium with respect to the environmental levels of selenium. Selenium has been found in marine fish meal at levels of about 2ppm. This amount is around 50,000 times greater than the selenium found in seawater. It seems obvious that marine fish are efficient concentrators of selenium.

12.4 MOBILITY IN SOIL

- It is to be expected this product will have small mobility in soil. Some of the components may get into the soil and, ultimately, the ground water. Product spreads on the water surface.

12.5 OTHER ADVESE ENVIRONMENTAL EFFECTS

- None reported.

SECTION 13: DISPOSAL CONSIDERATION

13.1 WASTE TREAMENT METHODS

- Dispose of in accordance with local, state, and national regulations.
- Do not mix wastes of this product with other waste streams.

13.2 DISPOSAL CONSIDERATIONS

- **EPA RCRA WASTE CODE:** D002, D010; applicable to wastes consisting only of this product.

13.3 DISPOSITION OF EMPTY CONTAINERS

- Empty containers may contain residual liquid; therefore, empty containers should be handled with care.
- Empty containers should be discarded properly.

SECTION 14: TRANSPORT INFORMATION

14.1 HAZARDOUS MATERIALS TRANSPORATION REGULATIONS

- **DEPARTMENT OF TRANSPORTATION HAZARDOUS MATERIALS SHIPPING REGULATIONS:**

UN/NA Number	Proper Shipping Name	Packing Group	Hazard Class	Label	North American Emergency Response Guide #	Marine Pollutant Status
UN3264	Corrosive liquids, acidic, inorganic, n.o.s. (hydrochloric acid, selenious acid)	III	8		154	Yes; based on presence of Selenious Acid.

- **LIMITED QUANTITY EXCEPTIONS [49 CFR 173.154(b)]**: Limited quantities for Class 8, Packing Group III materials have inner packagings not over 5.0 L [1.3 gal] (liquids) net capacity each, packed in strong outer packaging.
- **CANADIAN TRANSPORTATION INFORMATION**: This product is regulated by Transport Canada as dangerous goods under Canadian transportation standards. Refer to above information.
- **IATA DESIGNATION**: This product is regulated as dangerous goods by the International Air Transport Association.

Basic Description	Passenger and Cargo Aircraft				Cargo Aircraft Only	
	Limited Quantity		Packing Instruction	Max. Qty per PKG	Packing Instruction	Max. Qty per PKG
	Packing Instruction	Max. Qty per PKG				
UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (hydrochloric acid, selenious acid), 8, PGIII	Y841	1L	852	5L	856	60L

- **IMO DESIGNATION**: This product is regulated as dangerous goods by the International Maritime Organization.

Basic Description	Limited and Excepted Quantity Provisions		Packing		EmS
	Limited Quantities	Excepted Quantities	Instructions	Provisions	
UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (hydrochloric acid, selenious acid), 8, PGIII	5L	E1	P001, LP01	--	FA-SB

14.2 ENVIRONMENTAL HAZARDS

- Based on the volume of product shipped, product is typically excepted from regulations related to Marine Pollutants because of the limited hazards to the environment.

14.3 SPECIAL PRECAUTIONS FOR TRANSPORTERS

- Avoid release into the environment and collect spillage if it occurs.

14.4 TRANSPORT IN BULK

- Not applicable.

SECTION 15: REGULATORY INFORMATION

15.1 OTHER IMPORTANT U.S. SAFETY, HEALTH, AND ENVIRONMENTAL REGULATIONS

- **U.S. SARA THRESHOLD PLANNING QUANTITY**: Not applicable to Hydrochloric Acid in this concentration; Selenious Acid = 454/4540 kg (1000/10,000 lb.).
- **U.S. SARA HAZARD CATEGORIES (SECTION 311/312, 40 CFR 370-21):** Skin Corrosion/Irritation; Eye Damage/Irritation; Acute Toxicity; Specific Target Organ Toxicity (Single and Repeated Exposure); Corrosive to Metals.
- **U.S. CERCLA REPORTABLE QUANTITY (RQ):** Hydrochloric Acid Solution = 5000 lb. (2270 kg). Selenious Acid Solution = 10 lb. (4.45 kg). Copper Sulfate = 10 lb. (4.45 kg)
- **U.S. SARA 313:** Selenious Acid and Copper Sulfate are subject to the reporting requirements of SARA Title III Section 313.
- **U.S. TSCA INVENTORY STATUS:** All components of this product are listed on the TSCA Inventory.
- **US CLEAN AIR ACT (SECTION 112r):** Not applicable.

15.2 OTHER IMPORTANT U.S. STATE REGULATIONS FOR COMPONENTS

- **CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) STATUS:** Not applicable.
- **STATE HAZARDOUS SUBSTANCES LIST:**

COMPONENT	NJ Right to Know	PA Right to Know	MA Right to Know	OTHER
Hydrochloric Acid	LISTED	LISTED	LISTED	ND
Selenious Acid	LISTED	LISTED	LISTED	ND
Copper Sulfate	LISTED	LISTED	LISTED	ND

15.3 OTHER IMPORTANT CANADIAN SAFETY, HEALTH, AND ENVIRONMENTAL REGULATIONS

- **ADDITIONAL WHMIS INFORMATION:** The following information is pertinent for this product.
  - **WHIMS 2015:** See Section 2.
  - This SDS contains all the information required by the HPR.
- **CANADIAN DSL/NDSL INVENTORY STATUS:** Listed components of this product are on the DSL/NDSL Inventory.
- **CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** The components of this product are not on the CEPA Priority Substances Lists.

SECTION 16: OTHER INFORMATION

16.1 INDICATION OF CHANGE

- **DATE OF REVISION:** October 4, 2024
- **SUPERCEDES**: February 8, 2021
- **CHANGE INDICATED:** Update of document for compliance with 2024 US OSHA Hazard Communication standard. Review and update of data, based on currently available information.
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16.2 HAZARDOUS MATERIALS SYSTEM RATING

Health	**3**
Flammability	**0**
Physical Hazard	**0**
Protective Equipment	**C/D**

(Personal Protective Equipment Rating: Occupational Use situations: C: Body protection, gloves/safety goggles-safety glasses with side shields; D: Add face-shield if splashes or sprays are anticipated. Selection based on use. See section 8 for details.)

SECTION 16: OTHER INFORMATION (Continued)

16.3 DEFINITIONS

SECTION	EXPLANATION OF TEMS/ABBREVIATIONS
ALL	OSHA: U.S. Federal Occupational Safety and Health Administration. WHMIS: Canadian Workplace Hazardous Materials Standard. GHS: Globally Harmonized System of Classification of Chemical Substances. HCS: Hazard Communication Standard (U.S.). HPR: Hazardous Products Regulations (Canada).
3	CAS Number: Chemical Abstract Service Number, used by the American Chemical Society to uniquely identify a chemical.
5	NFPA: National Fire Protection Association. NFPA FLAMMABILITY CLASSIFICATION: The NFPA uses the flash point (Fl.P.) and boiling point (BP) to classify flammable or combustible liquids. Class IA: Fl.P. below 73°F and BP below 100°F. Class IB: Fl.P. below 73°F and BP at or above 100°F. Class IC: Fl.P. at or above 73°F and BP at or above 100°F. Class II: Fl.P. at or above 100°F and below 140°F. Class IIIA: Fl.P. at or above 140°F and below 200°F. Class IIIB: Fl.P. at or above 200°F. NFPA HAZARDOUS MATERIALS RATING: This is a rating system used to summarize physical and health hazards to firefighters Blue = Health hazard; Red = Fire Hazard; Yellow = Reactivity Hazard. 0 = No Significant Hazard. 1 = Slight Hazard. 2 = Moderate Hazard. 3 = Severe Hazard. 4 = Extreme Hazard.
8	NE: Not established. ACGIH: American Conference of Government Industrial Hygienists; TWA: Time-Weighted Average (over an 8-hour work day); STEL: Short-Term Exposure Limit (15-minute average, no more than 4-times daily and each exposure separated by one-hour minimally); C: Ceiling Limit (concentration not to be exceeded in a work environment). PEL: Permissible Exposure Limit. NIOSH: National Institute of Occupational Safety and Health; REL: Recommended Exposure Limit. ppm: Parts per Million. mg/m^3: Milligrams per cubic meter. mppcf: Millions of Particles per Cubic Foot. BEI: Biological Exposure Limit.
9	pH: Scale (0 to 14) used to rate the acidity or alkalinity of aqueous solutions. For example, a pH value of 0 indicates a strongly acidic solution, pH of 7 indicates a neutral solution, and a pH value of 14 indicates an extremely basic solution. FLASH POINT: Temperature at which a liquid generates enough flammable vapors so that ignition may occur. AUTOIGNITION TEMPERATURE: Temperature at which spontaneous ignition occurs. LOWER EXPLOSIVE LIMIT (LEL): The minimal concentration of flammable vapors in air which will sustain ignition. UPPER EXPLOSIVE LIMIT (UEL): The maximum concentration of flammable vapors in air which will sustain ignition. ≈: Approximately symbol. VOC: Volatile Organic Compound.
11	CARCINOGENICITY STATUS: NTP: National Toxicology Program. IARC: International Agency for Research on Cancer. REPRODUCTIVE TOXICITY INFORMATION: Germ Cell Mutagenicity: Substance capable of causing chromosomal damage to cells. Embryotoxicity: Substance capable of damaging the developing embryo in an overexposed female. Teratogen: Substance capable of damaging the developing fetus in an overexposed female. Reproductive toxin: Substance capable of adversely affecting male or female reproductive organs or functions. TOXICOLOGY DATA: LD *xx* or LC*xx*: The Lethal Dose or Lethal Concentration of a substance which will be fatal to a given percentage (*xx*) of exposed test animals by the designate route of administration. This value is used to access the toxicity of chemical substances to humans. TD*xx* or TC*xx*: The Toxic Dose or Toxic Concentration of a substance which will cause an adverse effect to a given percentage (*xx*) of exposed test animals by the designate route of administration.
12	EC50: Effect Concentration (on 50% of study group); BOD: Biological Oxygen Demand. TLM: Threshold Limit, Median.
13	RCRA: Resource Conservation and Recovery Act. The regulations promulgated under this act under Act are found in 40 CFR, Sections 260 ff, and define the requirements of hazardous waste generation, transport, treatment, storage, and disposal. EPA RCRA Waste Codes: Defined in 40 CFR Section 261.
15	NJ: New Jersey. PA: Pennsylvania. MA: Massachusetts. ND: Not determined. CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act. SARA: Superfund Amendments and Reauthorization Act.
16	HAZARDOUS MATERIALS IDENTIFICATION SYSTEM RATING: This is a rating system used by industry to summarize physical and health hazards to chemical users and was originally developed by the National Paint and Coating Association. 0 = No Significant Hazard. 1 = Slight Hazard. 2 = Moderate Hazard. 3 = Severe Hazard. 4 = Extreme Hazard.

16.4 DISCLAIMER

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