



Safety Data Sheet

Material Name: B/OX 313

SDS ID: EPI-0045c

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

B/OX 313

Product Use

Antiquing Solution.

Manufacturer Information

Electrochemical Products Inc.
17000 West Lincoln Ave
New Berlin, WI 53151
Phone: 262-786-9330
Emergency Phone #: Chemtrec #800-424-9300 (CCN7498)
E-mail: us-sales@epi.com
www.epi.com
Fax: 262-786-9403

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.

Skin Corrosion/Irritation - Category 2
Serious Eye Damage/Eye Irritation - Category 2A
Hazardous to the Aquatic Environment - Acute - Category 1
Hazardous to the Aquatic Environment - Chronic - Category 1

GHS Label Elements**Symbol(s)****Signal Word**

Warning

Hazard Statement(s)



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Causes skin irritation
Causes serious eye irritation
Very toxic to aquatic life with long lasting effects

Precautionary Statement(s)

Prevention

Wear protective gloves/protective clothing/eye protection/face protection
Wash thoroughly after handling
Avoid release to the environment

Response

Collect spillage
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Specific treatment (see label)

Storage

None needed according to classification criteria

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
7732-18-5	Water	88-92
7758-98-7	Copper (II) sulfate	3-6
7783-00-8	Selenous acid	1-3
7647-01-0	Hydrogen chloride	0.5-0.99
7697-37-2	Nitric acid	0.5-0.99

Section 4 - FIRST AID MEASURES

Inhalation



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IF INHALED: Remove person to fresh air and keep comfortable for breathing. Give artificial respiration if not breathing. Seek medical attention.

Skin

Immediately flush skin with lots of running water for 30 minutes. Remove contaminated clothing and shoes. Wash before reuse. Get immediate medical attention.

Eyes

In case of contact, immediately flush eyes with large amounts of water, continuing to flush for 30 minutes. Get immediate medical attention.

Ingestion

Give several glasses of water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to a victim who is unconscious or is having convulsions. Call a physician immediately.

Indication of any immediate medical attention and special treatment needed

Ingestion will result in metallic taste, garlic odor to breath, nausea. Breathing mists can cause nose and throat irritation. Garlic odor to breath, headaches, dizziness, difficulty breathing.

Note to Physicians

Ingestion will result in metallic taste, garlic odor to breath, nausea. Breathing mists can cause nose and throat irritation. Garlic odor to breath, headaches, dizziness, difficulty breathing.

Antidote

Not Applicable.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog.

Unsuitable Extinguishing Media

None known.

Special Hazards Arising from the Chemical

None known.

Hazardous Combustion Products

May produce toxic selenous fumes.

Special Protective Equipment and Precautions for Firefighters

Not available.

Fire Fighting Measures

Firefighters should wear full-face, self-contained breathing apparatus and impervious protective clothing. Firefighters should avoid inhaling any combustion products.



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Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear appropriate protective equipment and clothing during clean-up. Avoid contact with skin and eyes.

Methods and Materials for Containment and Cleaning Up

Isolate area. Keep unnecessary personnel away.

Environmental Precautions

Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps. Block any potential routes to water systems.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Wash thoroughly after handling. Keep container tightly closed.

Conditions for Safe Storage, Including any Incompatibilities

None needed according to classification criteria

Keep the container tightly closed and in a cool, well-ventilated place.

Incompatible Materials

None known.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Hydrogen chloride	7647-01-0
ACGIH:	2 ppm Ceiling
NIOSH:	5 ppm Ceiling; 7 mg/m ³ Ceiling
	50 ppmIDLH
Europe:	5 ppm TWA; 8 mg/m ³ TWA
	10 ppm STEL; 15 mg/m ³ STEL
OSHA (US):	5 ppmCeiling; 7 mg/m ³ Ceiling
Mexico:	5 ppmCeiling; 7 mg/m ³ Ceiling
Nitric acid	7697-37-2



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ACGIH:	2 ppm TWA
	4 ppm STEL
NIOSH:	2 ppmTWA; 5 mg/m3TWA
	4 ppmSTEL; 10 mg/m3STEL
	25 ppmIDLH
Europe:	1 ppm STEL; 2.6 mg/m3 STEL
OSHA (US):	2 ppmTWA; 5 mg/m3TWA
Mexico:	2 ppmTWA LMPE-PPT; 5 mg/m3TWA LMPE-PPT
	4 ppmSTEL [LMPE-CT]; 10 mg/m3STEL [LMPE-CT]

Biological limit value

There are no biological limit values for any of this product's components.

Engineering Controls

Use general ventilation and use local exhaust, where possible, in confined or enclosed spaces.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection

Wear safety glasses with side shields or chemical goggles.

Skin Protection

Use of an impervious apron is recommended. Use of protective coveralls and long sleeves is recommended.

Respiratory Protection

If ventilation is not sufficient to effectively prevent buildup of vapor/mist/fume/dust, appropriate NIOSH/MSHA respiratory protection must be provided.

Glove Recommendations

Use of impervious gloves is recommended.

Protective Materials

Eye wash fountain and emergency showers are recommended.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Light Blue Solution	Physical State	Liquid
Odor	Characteristic	Color	light blue
Odor Threshold	Not available	pH	0 - 2
Melting Point	Not available	Boiling Point	220 F at 105 C



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Freezing point	32 °F (0 °C)	Evaporation Rate	(Approx. equal to Water)
Boiling Point Range	Not available	Flammability (solid, gas)	Not available
Autoignition	Not available	Flash Point	Not available
Lower Explosive Limit	Not available	Decomposition	Not available
Upper Explosive Limit	Not available	Vapor Pressure	Not available
Vapor Density (air=1)	(Approx. equal to water)	Specific Gravity (water=1)	1.03 - 1.07
Water Solubility	Completely	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Solubility (Other)	Not available
Density	Not available	VOC	0

Section 10 - STABILITY AND REACTIVITY

Reactivity

Will not occur.

Chemical Stability

This is a stable material.

Possibility of Hazardous Reactions

Will not occur.

Conditions to Avoid

Avoid contact with extreme heat.

Incompatible Materials

This product may react with strong acids. This product may react with strong reducing agents. Organic compounds and cyanides.

Hazardous decomposition products

May produce volatile organoselenides or hydrogen selenide.



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Section 11 - TOXICOLOGICAL INFORMATION

Acute and Chronic Toxicity

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath headache, nausea, and vomiting. It causes conjunctivitis leading eventually to an allergic type of reaction of the eyes. Acute selenium poisoning produces central nervous system effects, which include nervousness, convulsions, and drowsiness. Other signs of gastrointestinal distress, teeth that are discolored or decayed, odorous (garlic-like) breath, and partial loss of hair and nails. Chronic exposure by inhalation can produce symptoms that include pallor, coating of the tongue, anemia, irritation of the mucosa, lumbar pain, liver and spleen damage, as well as any of the other previously mentioned symptoms.

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Water (7732-18-5)

Oral LD50Rat >90 mL/kg

Copper (II) sulfate (7758-98-7)

Oral LD50Rat 300 mg/kg

Dermal LD50Rabbit 1000 mg/kg

Hydrogen chloride (7647-01-0)

Oral LD50Rat 238 - 277 mg/kg

Dermal LD50Rabbit >5010 mg/kg

Inhalation LC50Rat 1.68 mg/L 1 h

Nitric acid (7697-37-2)

Inhalation LC50Rat 67 ppm 4 h

Immediate Effects

No information on significant adverse effects.

Delayed Effects

No information on significant adverse effects.

Irritation/Corrosivity Data

No data available.

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Component Carcinogenicity

Hydrogen chloride	7647-01-0
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
IARC:	Monograph 54 [1992](Group 3 (not classifiable))



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Germ Cell Mutagenicity

No data available.

Reproductive Toxicity

No data available.

Specific Target Organ Toxicity - Single Exposure

No data available.

Specific Target Organ Toxicity - Repeated Exposure

No data available.

Aspiration hazard

No data available.

Medical Conditions Aggravated by Exposure

No data available.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

Copper (II) sulfate	7758-98-7
Fish:	LC50 96 h Oncorhynchus mykiss 0.1 mg/L
Invertebrate:	EC50 48 h Daphnia magna 0.0058 - 0.0073 mg/L [static] EPA

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods

Waste must be handled in accordance with all federal, state, provincial, and local regulations. Transport waste material to an authorized waste location, or incinerate under controlled conditions. Do not allow this material to drain into sewers/water supplies. Dispose of waste material in accordance with all applicable Federal, State or provincial and local environmental regulations. See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Section 14 - TRANSPORT INFORMATION

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants



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Component	CAS #	Minimum Concentration
Copper (II) sulfate	7758-98-7	DOT regulated severe marine pollutant (anhydrous, hydrates)

US DOT Information:

Shipping Name: Corrosive Liquid N.O.S., (Contains: Hydrochloric Acid, Selenous Acid)

Hazard Class: 8

UN/NA #: UN1760

Packing Group: II

Required Label(s): Corrosive

TDG Information:

Shipping Name: Corrosive Liquid N.O.S., (Contains: Hydrochloric Acid, Selenous Acid)

Hazard Class: 8

UN#: UN1760

Packing Group: II

Required Label(s): Corrosive

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Copper (II) sulfate	7758-98-7
CERCLA:	10 lbfinal RQ; 4.54 kgfinal RQ
Selenous acid	7783-00-8
SARA 302:	1000 lb lower TPQ; 10000 lb upper TPQ
CERCLA:	10 lbfinal RQ; 4.54 kgfinal RQ
SARA 304:	10 lb EPCRA RQ
Hydrogen chloride	7647-01-0
SARA 302:	500 lb TPQ gas only)



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SARA 313:	1 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)
CERCLA:	5000 lbfinal RQ; 2270 kgfinal RQ
OSHA (safety):	5000 lb TQ; 5000 lb TQ anhydrous)
SARA 304:	5000 lb EPCRA RQ gas only)
Nitric acid	7697-37-2
SARA 302:	1000 lb TPQ
SARA 313:	1 % de minimis concentration
CERCLA:	1000 lbfinal RQ; 454 kgfinal RQ
OSHA (safety):	500 lb TQ >=94.5% by weight)
SARA 304:	1000 lb EPCRA RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C)

Acute Health: no **Chronic Health:** no **Fire:** no **Pressure:** no **Reactivity:** no

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Copper (II) sulfate	7758-98-7	Yes	Yes	No	Yes	Yes
Selenous acid	7783-00-8	No	Yes	No	Yes	Yes
Hydrogen chloride	7647-01-0	Yes	Yes	Yes	Yes	Yes
Nitric acid	7697-37-2	Yes	Yes	Yes	Yes	Yes

Not listed under California Proposition 65

Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Copper (II) sulfate	7758-98-7
	1 %



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Selenous acid	7783-00-8
	1 %
Hydrogen chloride	7647-01-0
	1 %
Nitric acid	7697-37-2
	1 %

Component Analysis - Inventory

Water (7732-18-5)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes

Copper (II) sulfate (7758-98-7)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Selenous acid (7783-00-8)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Hydrogen chloride (7647-01-0)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Nitric acid (7697-37-2)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes



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Section 16 - OTHER INFORMATION

HMIS Rating

Health: 2 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

NFPA Ratings

Health: 2 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

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