



Safety Data Sheet

Material Name: B/OX 311

SDS ID: EPI-0026

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

B/OX 311

Product Use

Antiquing Solution.

Details of the supplier of the safety data sheet

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.

Acute Toxicity - Inhalation - Vapor - Category 3
Skin Corrosion/Irritation - Category 1
Serious Eye Damage/Eye Irritation - Category 1
Hazardous to the Aquatic Environment - Acute - Category 1
Hazardous to the Aquatic Environment - Chronic - Category 1

GHS Label Elements

Symbol(s)



Signal Word

Danger

Hazard Statement(s)

Toxic if inhaled
Causes severe skin burns and eye damage
Very toxic to aquatic life with long lasting effects

Precautionary Statement(s)



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Prevention

Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Wash thoroughly after handling
Avoid release to the environment
Do not breathe dusts or mists

Response

Collect spillage
IF INHALED: Remove person to fresh air and keep comfortable for breathing
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
Immediately call a POISON CENTER or doctor
Specific treatment (see label)

Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Disposal

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

Statement of Unknown Toxicity

6.899999999999999% of the mixture consists of ingredient(s) of unknown acute toxicity.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
7732-18-5	Water	85-90
7664-38-2	Phosphoric acid	3-7
7783-00-8	Selenous acid	1-4
7758-98-7	Cupric sulfate	1.5-3
27546-07-2	Molybdate (Mo ₂ O ₇ ²⁻), diammonium	1-2



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Section 4 - FIRST AID MEASURES

Inhalation

If inhaled, immediately remove the affected person to fresh air. 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 medical attention or advice.

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

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.

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.

Hazardous Combustion Products

May produce toxic selenous fumes.

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

Avoid contact with skin and eyes. Wear appropriate personal protective equipment.

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.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place. Keep container tightly closed

Store locked up

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

Phosphoric acid	7664-38-2
ACGIH:	1 mg/m ³ TWA
	3 mg/m ³ STEL
NIOSH:	1 mg/m ³ TWA
	3 mg/m ³ STEL
	1000 mg/m ³ IDLH
Europe:	1 mg/m ³ TWA
	2 mg/m ³ STEL



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OSHA (US):	1 mg/m3 TWA
Mexico:	1 mg/m3 TWA LMPE-PPT
	3 mg/m3 STEL [LMPE-CT]
Molybdate (Mo2O72-), diammonium	27546-07-2
ACGIH:	0.5 mg/m3 TWA as Mo respirable fraction (related to Molybdenum soluble compounds)
NIOSH:	1000 mg/m3 IDLH as Mo (related to Molybdenum soluble compounds)
OSHA (US):	5 mg/m3 TWA as Mo (related to Molybdenum soluble compounds)
Mexico:	5 mg/m3 TWA LMPE-PPT as Mo (related to Molybdenum soluble compounds)
	10 mg/m3 STEL [LMPE-CT] as Mo (related to Molybdenum soluble compounds)

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.

Skin Protection

Use impervious gloves. 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. Use good industrial hygiene practices in handling this material.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Light Blue Solution	Physical State	Liquid
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Odor	Characteristic	Color	Not available
Odor Threshold	Not available	pH	0 - 2
Melting Point	Not available	Boiling Point	220 °F (105 °C)
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)	1.08 - 1.108
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.



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Hazardous decomposition products

May produce volatile organoselenides or hydrogen selenide.

Section 11 - TOXICOLOGICAL INFORMATION

Acute and Chronic Toxicity

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 LD50 Rat >90 mL/kg

Phosphoric acid (7664-38-2)

Oral LD50 Rat 1530 mg/kg

Dermal LD50 Rabbit 2740 mg/kg

Inhalation LC50 Rat >850 mg/m³ 1 h

Cupric sulfate (7758-98-7)

Oral LD50 Rat 300 mg/kg

Dermal LD50 Rabbit 1000 mg/kg

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

Molybdate (Mo ₂ O ₇ ²⁻), diammonium	27546-07-2
ACGIH:	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans (related to Molybdenum soluble compounds)

Germ Cell Mutagenicity

No data available.

Tumorigenic Data

No data available

Reproductive Toxicity



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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

Cupric 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.

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

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

US DOT Information:

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

Hazard Class: 8



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UN/NA #: UN1760

Packing Group: II

Required Label(s): Corrosive

TDG Information:

Shipping Name: Corrosive Liquid N.O.S., (Contains: Phosphoric 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.

Phosphoric acid	7664-38-2
CERCLA:	5000 lb final RQ; 2270 kg final RQ
Selenous acid	7783-00-8
SARA 302:	1000 lb lower TPQ; 10000 lb upper TPQ
CERCLA:	10 lb final RQ; 4.54 kg final RQ
SARA 304:	10 lb EPCRA RQ
Cupric sulfate	7758-98-7
CERCLA:	10 lb final RQ; 4.54 kg final RQ

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

Acute Health: yes Chronic Health: yes 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
Phosphoric acid	7664-38-2	Yes	Yes	Yes	Yes	Yes
Selenous acid	7783-00-8	No	Yes	No	Yes	Yes
Cupric sulfate	7758-98-7	Yes	Yes	No	Yes	Yes



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Molybdate (Mo2O72-), diammonium	27546-07-2	Yes	No	Yes	No	No
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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

Phosphoric acid	7664-38-2
	1 %
Selenous acid	7783-00-8
	1 %
Cupric sulfate	7758-98-7
	1 %
Molybdate (Mo2O72-), diammonium	27546-07-2
	1 % (related to Molybdenum compounds)

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

Phosphoric acid (7664-38-2)

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

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

Cupric sulfate (7758-98-7)



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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

Molybdate (Mo2O72-), diammonium (27546-07-2)

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

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

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.