



## Safety Data Sheet

Material Name: B/OX 316

SDS ID: EPI-0269c

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### Section 1 - PRODUCT AND COMPANY IDENTIFICATION

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**Material Name**

B/OX 316

**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

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### Section 2 - HAZARDS IDENTIFICATION

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

Acute Toxicity - Oral - Category 4  
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)**

Harmful if swallowed.  
Causes severe skin burns and eye damage.  
Very toxic to aquatic life with long lasting effects.



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### Precautionary Statement(s)

#### Prevention

Wear protective gloves/protective clothing/eye protection/face protection.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

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 locked up.

#### Disposal

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

#### Statement of Unknown Toxicity

0% of the mixture consists of ingredient(s) of unknown acute toxicity.

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### Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

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CAS	Component Name	Percent
7732-18-5	Water	40-60
12125-02-9	Ammonium chloride	15-25
7664-41-7	Ammonia	15-30
1313-27-5	Molybdenum trioxide	5-10
7758-98-7	Copper (II) sulfate	3-8

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### Section 4 - FIRST AID MEASURES

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#### **Inhalation**

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**

If swallowed, give milk or water to dilute. Seek medical attention immediately. Never give anything by mouth to an unconscious person. 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.

#### **Antidote**

None identified.

### Section 5 - FIRE FIGHTING MEASURES

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#### **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**

None identified.

#### **Advice 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.

### Section 6 - ACCIDENTAL RELEASE MEASURES

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### Personal Precautions, Protective Equipment and Emergency Procedures

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this SDS. 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

Contain the discharged material. Stop source of leak if possible. Block any potential routes to water systems. Ventilate the contaminated area. Absorb spilled product with a commercial oil absorbent, such as sand or earth. Shovel absorbed material into appropriate container for disposal. Wear appropriate protective equipment and clothing during clean-up. Avoid skin contact and inhalation of vapors during disposal of spills. Isolate area. Keep unnecessary personnel away. Follow all Local, State, Federal and Provincial regulations for disposal. Surfaces may become slippery after spillage. Block any potential routes to water systems.

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## Section 7 - HANDLING AND STORAGE

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### Precautions for Safe Handling

Wash thoroughly after handling. Keep container tightly closed.

### Conditions for Safe Storage, Including any Incompatibilities

Store locked up.

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

### Incompatible Materials

None known.

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

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### Component Exposure Limits

Ammonium chloride	12125-02-9
ACGIH:	10 mg/m <sup>3</sup> TWA fume
	20 mg/m <sup>3</sup> STEL fume
NIOSH:	10 mg/m <sup>3</sup> TWA fume
	20 mg/m <sup>3</sup> STEL fume
Mexico:	10 mg/m <sup>3</sup> TWA VLE-PPT fume



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	20 mg/m <sup>3</sup> STEL [PPT-CT] fume
Ammonia	7664-41-7
ACGIH:	25 ppm TWA
	35 ppm STEL
NIOSH:	25 ppm TWA ; 18 mg/m <sup>3</sup> TWA
	35 ppm STEL ; 27 mg/m <sup>3</sup> STEL
	300 ppm IDLH
Europe:	20 ppm TWA ; 14 mg/m <sup>3</sup> TWA
	50 ppm STEL ; 36 mg/m <sup>3</sup> STEL
OSHA (US):	50 ppm TWA ; 35 mg/m <sup>3</sup> TWA
Mexico:	25 ppm TWA VLE-PPT; 18 mg/m <sup>3</sup> TWA VLE-PPT
	35 ppm STEL [PPT-CT]; 27 mg/m <sup>3</sup> STEL [PPT-CT]

### EU - Occupational Exposure (98/24/EC) - Binding Biological Limit Values and Health Surveillance Measures

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

### ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

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

### Engineering Controls

Use adequate local exhaust to maintain emissions at point of use below the PEL when mist or spray may be generated.

### Individual Protection Measures, such as Personal Protective Equipment

#### Eye/face protection

Safety glasses or chemical goggles. It is generally recognized that contact lenses should not be worn when working with chemicals because they may contribute to the severity of an eye injury.

#### 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.



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### Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	Dark blue liquid	<b>Physical State</b>	Liquid
<b>Odor</b>		<b>Color</b>	Blue Solution
<b>Odor Threshold</b>	Not available	<b>pH</b>	9 - 10
<b>Melting Point</b>	Not available	<b>Boiling Point</b>	215 F at 102 C
<b>Freezing point</b>	32 °F (0 °C)	<b>Evaporation Rate</b>	Not available
<b>Boiling Point Range</b>	Not available	<b>Flammability (solid, gas)</b>	Not available
<b>Autoignition</b>	Not available	<b>Flash Point</b>	Not available
<b>Lower Explosive Limit</b>	Not available	<b>Decomposition temperature</b>	Not available
<b>Upper Explosive Limit</b>	Not available	<b>Vapor Pressure</b>	Not available
<b>Vapor Density (air=1)</b>	Not available	<b>Specific Gravity (water=1)</b>	1.081 - 1.1
<b>Water Solubility</b>	Completely	<b>Partition coefficient: n-octanol/water</b>	Not available
<b>Viscosity</b>	Not available	<b>Solubility (Other)</b>	Not available
<b>Density</b>	Not available	<b>Molecular Weight</b>	Not available

### 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 heat, sparks and flame.

#### Incompatible Materials

Acids. Oxidizing materials. Flammable and combustible materials.

#### Hazardous decomposition products

None known.



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### Section 11 - TOXICOLOGICAL INFORMATION

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#### 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 LD50 Rat >90 mL/kg

Ammonium chloride (12125-02-9)

Oral LD50 Rat 1650 mg/kg

Ammonia (7664-41-7)

Oral LD50 Rat 350 mg/kg (aqueous solution )

Inhalation LC50 Rat 2000 ppm 4 h

Molybdenum trioxide (1313-27-5)

Inhalation LC50 Rat >5840 mg/m<sup>3</sup> 4 h (no deaths occurred )

Copper (II) 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

Molybdenum trioxide	1313-27-5
DFG:	Category 3B (could be carcinogenic for man )



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### Germ Cell Mutagenicity

No data available.

### Tumorigenic Data

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.

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## Section 12 - ECOLOGICAL INFORMATION

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### Component Analysis - Aquatic Toxicity

Ammonium chloride	12125-02-9
Fish:	LC50 96 h Cyprinus carpio 209 mg/L [static ]
Ammonia	7664-41-7
Fish:	LC50 96 h Cyprinus carpio 0.44 mg/L; LC50 96 h Lepomis macrochirus 0.26 - 4.6 mg/L; LC50 96 h Lepomis macrochirus 1.17 mg/L [flow-through ]; LC50 96 h Pimephales promelas 0.73 - 2.35 mg/L; LC50 96 h Pimephales promelas 5.9 mg/L [static ]; LC50 96 h Poecilia reticulata >1.5 mg/L; LC50 96 h Poecilia reticulata 1.19 mg/L [static ]
Invertebrate:	LC50 48 h Daphnia magna 25.4 mg/L IUCLID
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

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### 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

Component	CAS #	Minimum Concentration
Ammonia	7664-41-7	DOT regulated marine pollutant
Copper (II) sulfate	7758-98-7	DOT regulated severe marine pollutant (anhydrous, hydrates)

#### US DOT Information:

**Shipping Name:** Corrosive Liquid, n.o.s., (Contains: Ammonium Hydroxide, Copper Sulfate)

**Hazard Class:** 8

**UN/NA #:** UN1760

**Packing Group:** II

**Required Label(s):** Corrosive

#### TDG Information:

**Shipping Name:** Corrosive Liquid, n.o.s., (Contains: Ammonium Hydroxide, Copper Sulfate)

**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.



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Ammonium chloride	12125-02-9
CERCLA:	5000 lb final RQ; 2270 kg final RQ
Ammonia	7664-41-7
SARA 302:	500 lb TPQ
SARA 313:	1 % de minimis concentration (includes anhydrous Ammonia and aqueous Ammonia from water dissociable Ammonium salts and other sources, 10% of total aqueous Ammonia is reportable under this listing)
CERCLA:	100 lb final RQ; 45.4 kg final RQ
OSHA (safety):	10000 lb TQ anhydrous); 15000 lb TQ solution, >44% Ammonia by weight)
SARA 304:	100 lb EPCRA RQ
Molybdenum trioxide	1313-27-5
SARA 313:	1 % de minimis concentration
Copper (II) sulfate	7758-98-7
CERCLA:	10 lb final RQ; 4.54 kg final RQ

### 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
Ammonium chloride	12125-02-9	Yes	Yes	Yes	Yes	Yes
Ammonia	7664-41-7	Yes	Yes	Yes	Yes	Yes
Molybdenum trioxide	1313-27-5	No	Yes	No	Yes	Yes
Copper (II) sulfate	7758-98-7	Yes	Yes	No	Yes	Yes

### Not listed under California Proposition 65

### Canada Regulations

This material is a controlled product under Canadian WHMIS regulations.

### 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



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products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Ammonium chloride	12125-02-9
	1 %
Ammonia	7664-41-7
	1 %
Molybdenum trioxide	1313-27-5
	1 %
Copper (II) sulfate	7758-98-7
	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

Ammonium chloride (12125-02-9)

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

Ammonia (7664-41-7)

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

Molybdenum trioxide (1313-27-5)

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

Copper (II) 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

### 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.

#### Other Information

##### Disclaimer:

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product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Material Safety Data Sheet before handling product. The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.