SAFETY DATA SHEET

Revision date 15-Jul-2022 **Revision Number** 1

1. Identification

Product identifier

Product Name B/OX 313

Other means of identification

Product Code(s) EPI-0045C

UN number or ID number UN3264

Synonyms None

Details of the supplier of the safety data sheet

Manufacturer Address
Electrochemical Products Inc.
17000 West Lincoln Ave
New Berlin, WI 53151
Phone: 262-786-9330
E-mail: us-sales@epi.com
www.epi.com
Fax: 262-786-9403

Emergency telephone number

Emergency Telephone NCEC (#EPI-29003) +1 202 464 2554, +44 1865 407333

2. Hazard(s) identification

Classification

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Carcinogenicity	Category 1A
Specific target organ toxicity (repeated exposure)	Category 2

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Danger

Hazard statements
Causes skin irritation
Causes serious eye irritation
May cause cancer
May cause damage to organs through prolonged or repeated exposure

Appearance Light blue solution **Physical state** Liquid **Odor** Characteristic

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
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 water and soap
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash it before reuse

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Other information
May be harmful if swallowed. Harmful to aquatic life. Toxic to aquatic life with long lasting effects.

3. Composition/information on ingredients

Substance

Not applicable.

Mixture

Chemical name	CAS No	Weight-%	Trade secret
Water	7732-18-5	80-100	*
Sulfuric acid, copper(2+) salt (1:1)	7758-98-7	3-7	*
Selenious acid	7783-00-8	0.5-1.5	*
Nitric acid	7697-37-2	0.5-1.5	*
Hydrogen chloride	7647-01-0	0.5-1.5	*
Surfactants	Trade secret	0.5-0.99	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

General advice IF exposed or concerned: Get medical advice/attention. Show this safety data sheet to the doctor in attendance.

Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get medical attention immediately if symptoms occur.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms	May cause redness and tearing of the eyes. Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.
Specific hazards arising from the chemical	No information available.
Explosion data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.
Other information	Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Pick up and transfer to properly labeled containers.

7. Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls/personal protection

Control parameters

Exposure Limits

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Sulfuric acid, copper(2+) salt (1:1) 7758-98-7	TWA: 1 mg/m³ Cu dust and mist	-	IDLH: 100 mg/m³ Cu dust and mist TWA: 1 mg/m³ Cu dust and mist
Selenious acid 7783-00-8	TWA: 0.2 mg/m³ Se	TWA: 0.2 mg/m³ Se (vacated) TWA: 0.2 mg/m³ Se	IDLH: 1 mg/m³ Se TWA: 0.2 mg/m³ except Selenium hexafluoride Se
Nitric acid 7697-37-2	STEL: 4 ppm TWA: 2 ppm	TWA: 2 ppm TWA: 5 mg/m³ (vacated) TWA: 2 ppm (vacated) TWA: 5 mg/m³ (vacated) STEL: 4 ppm (vacated) STEL: 10 mg/m³	IDLH: 25 ppm TWA: 2 ppm TWA: 5 mg/m³ STEL: 4 ppm STEL: 10 mg/m³
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m³

Biological occupational exposure limits
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection If splashes are likely to occur, wear safety glasses with side-shields.

Hand protection Wear suitable gloves. Impervious gloves.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Do not eat, drink or smoke when using this product. Wash hands before breaks and

immediately after handling the product. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes or clothing.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Light blue solution
Color	light blue
Odor	Characteristic

Property	Values	Remarks • Method
pH	0 - 2	None known
Melting point / freezing point	0 °C / 32 °F	None known
Boiling point / boiling range	105 °C / 221 °F	None known
Flash point	No data available	None known
Relative density	1.03 - 1.07	None known
Water solubility	Completely soluble	None known

Other information

VOC Content (%)	0

10. Stability and reactivity

Reactivity No information available.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Conditions to avoid None known based on information supplied.

Incompatible materials Strong acids. Strong bases. Strong oxidizing agents.

Hazardous decomposition products None known based on information supplied.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Skin contact Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).

Ingestion Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. May cause redness and tearing of the eyes.

Acute toxicity

Numerical measures of toxicity
No information available

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	4,668.50 mg/kg
ATEmix (dermal)	37,313.40 mg/kg
ATEmix (inhalation-dust/mist)	46.822 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg (Rat)	-	-
Sulfuric acid, copper(2+) salt (1:1) 7758-98-7	= 300 mg/kg (Rat)	> 2000 mg/kg (Rat)	-
Nitric acid 7697-37-2	-	-	= 2500 ppm (Rat) 1 h
Hydrogen chloride 7647-01-0	238 - 277 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	= 1.68 mg/L (Rat) 1 h
Surfactants	= 4 g/kg (Rat)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Irritating to skin.

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Selenious acid 7783-00-8	-	Group 3	-	-
Nitric acid 7697-37-2	-	Group 2A Group 1	-	X
Hydrogen chloride 7647-01-0	-	Group 3	-	X

Legend

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 3 - Not Classifiable as to Carcinogenicity in Humans

OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Target organ effects Liver, Kidney, Respiratory system, Eyes, Skin.

Aspiration hazard No information available.

Other adverse effects No information available.

Interactive effects No information available.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects. Harmful to aquatic life.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Sulfuric acid, copper(2+) salt (1:1) 7758-98-7	-	LC50: =0.1mg/L (96h, Oncorhynchus mykiss)	-	EC50: 0.0058 - 0.0073mg/L (48h, Daphnia magna)

Persistence and degradability No information available.

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
Nitric acid 7697-37-2	-2.3

Other adverse effects No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

US EPA Waste Number U204

14. Transport information

DOT

UN number or ID number UN3264
Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s.
Transport hazard class(es) 8
Packing group II
Reportable Quantity (RQ) (Sulfuric acid, copper(2+) salt (1:1): RQ (kg)= 4.54, Selenious acid: RQ (kg)= 4.54)
Sulfuric acid, copper(2+) salt (1:1): RQ (lb)= 10, Selenious acid: RQ (lb)= 10
DOT reportable quantity kg (calculated) Sulfuric acid, copper(2+) salt (1:1): RQ (kg)= 85.00, Selenious acid: RQ (kg)= 424.00

DOT Reportable Quantity lbs. (calculated)	Sulfuric acid, copper(2+) salt (1:1): RQ (lb)= 187.00, Selenious acid: RQ (lb)= 935.00
Special Provisions	386, B2, IB2, T11, TP2, TP27
DOT Marine Pollutant	I
Marine pollutant	Sulfuric acid, copper(2+) salt (1:1), Selenious acid
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrogen chloride), 8, II, Marine pollutant (Sulfuric acid, copper(2+) salt (1:1), Selenious acid)
Emergency Response Guide Number	154

TDG

UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.
Transport hazard class(es)	8
Packing group	II
Special Provisions	16
Marine pollutant	Sulfuric acid, copper(2+) salt (1:1), Selenious acid.
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrogen chloride), 8, II

MEX

UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.
Transport hazard class(es)	8
Packing group	II
Technical Name	Nitric acid, Hydrogen chloride
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrogen chloride), 8, II
Special Provisions	274

ICAO (air)

UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.
Transport hazard class(es)	8
Packing group	II
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrogen chloride), 8, II
Special Provisions	A3

IATA

UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.
Transport hazard class(es)	8
Packing group	II
Technical Name	Nitric acid, Hydrogen chloride
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrogen chloride), 8, II
Special Provisions	A3, A803
ERG Code	8L

IMDG

UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.
Transport hazard class(es)	8
Packing group	II
EmS-No	F-A, S-B
Special Provisions	274
Marine pollutant	P
Marine Pollutant	Sulfuric acid, copper(2+) salt (1:1)
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrogen chloride, Sulfuric acid, copper(2+) salt (1:1)), 8, II, Marine pollutant

RID

UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.
Transport hazard class(es)	8
Packing group	II
Classification code	C1

Special Provisions	274
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrogen chloride), 8, II, Environmentally Hazardous

ADR

UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.
Transport hazard class(es)	8
Packing group	II
Classification code	C1
Tunnel restriction code	(E)
Special Provisions	274
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrogen chloride), 8, II, (E), Environmentally Hazardous

ADN

UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.
Transport hazard class(es)	8
Packing group	II
Classification code	C1
Special Provisions	274
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrogen chloride), 8, II, Environmentally Hazardous
Equipment Requirements	PP, EP

15. Regulatory information

International Inventories

TSCA Complies

Chemical name	CAS No	US TSCA Inventory listing	US TSCA inactive/active designation
Water	7732-18-5	Present	Active
Sulfuric acid, copper(2+) salt (1:1)	7758-98-7	Present	Active
Selenious acid	7783-00-8	Present	Active
Hydrogen chloride	7647-01-0	Present	Active
Nitric acid	7697-37-2	Present	Active
Surfactants	-	Present	Active

DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	Reportable Quantity (RQ)
Sulfuric acid, copper(2+) salt (1:1) 7758-98-7	10 lb	-	RQ 10 lb final RQ RQ 4.54 kg final RQ
Selenious acid 7783-00-8	10 lb	10 lb	RQ 10 lb final RQ RQ 4.54 kg final RQ
Nitric acid 7697-37-2	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ
Hydrogen chloride 7647-01-0	5000 lb	5000 lb	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Water 7732-18-5	-	-	X
Sulfuric acid, copper(2+) salt (1:1) 7758-98-7	X	-	X
Selenious acid 7783-00-8	X	-	X
Hydrogen chloride 7647-01-0	X	-	X
Nitric acid 7697-37-2	X	-	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA	**Health hazards** 2	**Flammability** 0	**Instability** 0	**Special hazards** -
HMIS	**Health hazards** 2 *	**Flammability** 0	**Physical hazards** 0	**Personal protection** X

Chronic Hazard Star Legend ** = Chronic Health Hazard*

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Revision date 15-Jul-2022
Revision Note No information available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet