



Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 11.28.2022

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Mako Bright Pre-Soak

SECTION 1: Identification

Product Identifier

Product Name: Mako Bright Pre-Soak

Product code: PR-165

Recommended Use of the Product and Restriction on Use

Relevant Identified Uses: Wall and Concrete Cleaner

Uses Advised Against: NA

Reasons Why Uses Advised Against: Not determined or not applicable.

Manufacturer or Supplier Details

Manufacturer:

United States

JBS Industries

2726 Henkle Drive

Lebanon, Ohio 45036

513-228-2800

SBAETEN@JBSINDUSTRIES.COM

Emergency Telephone Number:

North America

CHEMTREC

800-424-9300 (24 hours)

SECTION 2: Hazard(s) Identification

GHS Classification:

Skin corrosion, category 1A

Serious eye damage, category 1

Label elements

Hazard Pictograms:



Signal Word: Danger

Hazard statements:

H314 Causes severe skin burns and eye damage

H318 Causes serious eye damage

Precautionary Statements:

P260 Do not breathe dust/fume/gas/mist/vapors/spray

P280 Wear protective gloves/protective clothing/eye protection/face protection

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with

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water/shower

P363 Wash contaminated clothing before reuse

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P405 Store locked up

P501 It is the responsibility of the waste generator to characterize all waste material according to regulatory entities.

Hazards Not Otherwise Classified: None

SECTION 3: Composition/Information on Ingredients

Identification	Name	Weight %
CAS Number: 68584-22-5	Benzenesulfonic acid, C10-16-alkyl derivatives	<95
CAS Number: 7664-38-2	Orthophosphoric Acid	<85
CAS Number: 68439-46-3	Alcohols, C9-11, branched and linear, ethoxylated	<60
CAS Number: 77-92-9	Citric acid	<55
CAS Number: 7647-01-0	Hydrogen chloride	<31
CAS Number: 111-76-2	Ethylene Glycol Monobutyl Ether	<10
CAS Number: 7664-93-9	Sulfuric acid	<9.5
CAS Number: 68648-87-3	Benzene, C10-16-alkyl derivs	<9.5
CAS Number: 75-21-8	Ethylene oxide	<0.06
CAS Number: 123-91-1	1,4-dioxane	<0.06
CAS Number: 107-21-1	Ethane-1,2-diol	<0.027

Additional Information: None

SECTION 4: First Aid Measures

Description of First Aid Measures

General Notes:

Not determined or not applicable.

After Inhalation:

If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at

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rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If experiencing respiratory symptoms, seek medical advice/attention.

After Skin Contact:

Treatment is urgent. Seek emergency medical treatment. Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse.

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

After Eye Contact:

Immediately rinse eyes with plenty of gently flowing lukewarm water for 15 minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. Seek immediate medical attention, preferably from an ophthalmologist.

After Swallowing:

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. Seek immediate medical attention.

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

Most Important Symptoms and Effects, Both Acute and Delayed

Acute Symptoms and Effects:

Exposure to skin may result in redness, pain, burning, inflammation and tissue damage. Exposure to eyes may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision. Exposure via inhalation may result in cough, sore throat, burning sensation and shortness of breath. Exposure via ingestion may result in burns of the mouth and throat, abdominal pain, burning sensation in the throat and chest, nausea, vomiting, shock or collapse.

Eye contact may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision.

Delayed Symptoms and Effects:

Effects are dependent on exposure (dose, concentration, contact time).

Immediate Medical Attention and Special Treatment

Specific Treatment:

In case of eye contact, seek prompt medical attention while rinsing is continued.

In case of skin contact, seek prompt medical attention while rinsing is continued.

In case of ingestion, seek prompt medical attention.

Notes for the Doctor:

Not determined or not applicable.

SECTION 5: Firefighting Measures

Extinguishing Media

Suitable Extinguishing Media:

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

Unsuitable Extinguishing Media:

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Do not use water jet.

Specific Hazards During Fire-Fighting:

Thermal decomposition may produce irritating/toxic fumes/gases.

Special Protective Equipment for Firefighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

Special precautions:

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

SECTION 6: Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures:

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

Environmental Precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

Methods and Material for Containment and Cleaning Up:

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

Reference to Other Sections:

For personal protective equipment see Section 8. For disposal see Section 13.

SECTION 7: Handling and Storage

Precautions for Safe Handling:

Use appropriate personal protective equipment (see Section 8). Prevent skin contact. Do not get in eyes. Use only with adequate ventilation. Do not add water to the corrosive product. If it is necessary to mix a corrosive product with water, do so slowly adding the corrosive to cold water, in small amounts, and stir frequently. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use. Keep only in original packaging. Use appropriate personal protective equipment (see Section 8). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Do not get in eyes. Avoid contact with skin and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.

Conditions for Safe Storage, Including Any Incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight and away from exit paths. Store in a corrosion-resistant container with a resistant inner liner. Inspect containers and storage area regularly for signs of leak and damage. Store containers at a convenient height for handling, below eye level if possible. High shelving increases the risk of dropping containers, personal injury and exposure. Ensure that appropriate fire fighting and spill-clean up equipment is readily available. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Store separately. Keep container tightly sealed. Store away from incompatible materials

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(See Section 10).

Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

SECTION 8: Exposure Controls/Personal Protection

Only those substances with limit values have been included below.

Occupational Exposure Limit Values:

Country (Legal Basis)	Substance	Identifier	Permissible concentration
OSHA	Ethylene Glycol Monobutyl Ether	111-76-2	8-Hour TWA-PEL: 240 mg/m ³ (50 ppm)
	Orthophosphoric Acid	7664-38-2	8-Hour TWA-PEL: 1 mg/m ³ (OSHA Table Z-1 limits)
	Ethylene oxide	75-21-8	8-Hour TWA-PEL: 1 ppm
	Ethylene oxide	75-21-8	15-Minute STEL: 5 ppm
	Sulfuric acid	7664-93-9	8-Hour TWA-PEL: 1 mg/m ³
	Orthophosphoric Acid	7664-38-2	TWA: 1 mg/m ³ (OSHA Table Z-1-A)
	Orthophosphoric Acid	7664-38-2	STEL: 3 mg/m ³ (OSHA Table Z-1-A)
	Hydrogen chloride	7647-01-0	Ceiling Limit: 5 ppm (7 mg/m ³)
	Hydrogen chloride	7647-01-0	PEL: 5 ppm (7 mg/m ³)
	Ethylene oxide	75-21-8	8-Hour TWA: 0.5 ppm (Action level)
	1,4-dioxane	123-91-1	8-Hour TWA-PEL: 360 mg/m ³ (100 ppm)
	NIOSH	Ethylene Glycol Monobutyl Ether	111-76-2
Ethylene Glycol Monobutyl Ether		111-76-2	REL-TWA: 24 mg/m ³ (5 ppm [up to 10 hr])
Orthophosphoric Acid		7664-38-2	REL-TWA: 1 mg/m ³ (up to 10 hr)
Orthophosphoric Acid		7664-38-2	15-Minute STEL: 3 mg/m ³
Orthophosphoric Acid		7664-38-2	IDLH: 1000 mg/m ³
Ethylene oxide		75-21-8	IDLH: 800 ppm
Ethylene oxide		75-21-8	Ceiling Limit: 9 mg/m ³ (5 ppm [10-min/day])
Ethylene oxide		75-21-8	REL-TWA: 0.18 mg/m ³ (0.1 ppm [up to 10 hr])
Sulfuric acid		7664-93-9	REL-TWA: 1 mg/m ³ (10 hr)
Sulfuric acid		7664-93-9	IDLH: 15 mg/m ³
Hydrogen chloride		7647-01-0	IDLH: 50 ppm
Hydrogen chloride		7647-01-0	Ceiling Limit: 5 ppm (7 mg/m ³)
1,4-dioxane		123-91-1	IDLH: 500 ppm
1,4-dioxane		123-91-1	Ceiling Limit: 3.6 mg/m ³ (1 ppm [30-min])
ACGIH	Ethylene Glycol Monobutyl Ether	111-76-2	8-Hour TWA: 20 ppm
	Orthophosphoric Acid	7664-38-2	8-Hour TWA: 1 mg/m ³
	Orthophosphoric Acid	7664-38-2	15-Minute STEL: 3 mg/m ³

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Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Ethylene oxide	75-21-8	8-Hour TWA: 1 ppm
	Ethane-1,2-diol	107-21-1	8-Hour TWA: 25 ppm (vapor fraction)
	Ethane-1,2-diol	107-21-1	15-Minute STEL: 50 ppm (vapor fraction)
	Ethane-1,2-diol	107-21-1	15-Minute STEL: 10 mg/m ³ (aerosol only, inhalable fraction)
	Sulfuric acid	7664-93-9	8-Hour TWA: 0.2 mg/m ³ (thoracic fraction)
	Hydrogen chloride	7647-01-0	Ceiling Limit: 2 ppm (TLV)
	1,4-dioxane	123-91-1	8-Hour TWA: 20 ppm
United States(California)	Orthophosphoric Acid	7664-38-2	8-Hour TWA-PEL: 1 mg/m ³
	Orthophosphoric Acid	7664-38-2	15-Minute STEL: 3 mg/m ³
	Ethylene Glycol Monobutyl Ether	111-76-2	8-Hour TWA-PEL: 97 mg/m ³ (20 ppm)
	Ethylene oxide	75-21-8	15-Minute STEL: 5 ppm
	Ethylene oxide	75-21-8	8-Hour TWA-PEL: 2 mg/m ³ (1 ppm)
	Ethylene oxide	75-21-8	8-Hour TWA: 0.5 ppm (Action level)
	Sulfuric acid	7664-93-9	8-Hour TWA-PEL: 0.1 mg/m ³
	Sulfuric acid	7664-93-9	15-Minute STEL: 3 mg/m ³
	Hydrogen chloride	7647-01-0	PEL: 0.3 ppm (0.45 mg/m ³)
	Hydrogen chloride	7647-01-0	Ceiling Limit: 2 ppm
	1,4-dioxane	123-91-1	8-Hour TWA-PEL: 1 mg/m ³ (0.28 ppm)
	Ethane-1,2-diol	107-21-1	Ceiling Limit: 100 mg/m ³ (40 ppm)

Biological Limit Values:

Country (Legal Basis)	Substance	Identifier	Determinant	Specimen	Sampling time	Permissible limits
ACGIH	Ethylene Glycol Monobutyl Ether	111-76-2	Butoxyacetic acid (with hydrolysis)	Creatinine in Urine	End of shift	200 mg/g
	Ethylene oxide	75-21-8	N-(2-hydroxyethyl)-valine (HEV) hemoglobin adducts	Hemoglobin adducts	Not critical	5000 pmol/g
	Ethylene oxide	75-21-8	S-(2-hydroxyethyl) mercapturic acid (HEMA)	Creatinine in urine	End of shift	5 µg/g

Information on Monitoring Procedures:

Not determined or not applicable.

Appropriate Engineering Controls:

Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or

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equivalent).

Personal Protection Equipment

Eye and Face Protection:

Use safety glasses with side shields or goggles. Consider the use of a face shield for splash protection. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

Skin and Body Protection:

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Full body protection should be worn. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

Respiratory Protection:

If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

General Hygienic Measures:

When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

SECTION 9: Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Appearance	Liquid
Odor	Std.
Odor threshold	Not determined or not available.
pH	2
Melting point/freezing point	Not determined or not available.
Initial boiling point/range	Not determined or not available.
Flash point (closed cup)	Not determined or not available.
Evaporation rate	Not determined or not available.
Flammability (solid, gas)	Not determined or not available.
Upper flammability/explosive limit	Not determined or not available.
Lower flammability/explosive limit	Not determined or not available.
Vapor pressure	Not determined or not available.
Vapor density	Not determined or not available.
Density	Not determined or not available.
Relative density	Not determined or not available.
Solubilities	Not determined or not available.
Partition coefficient (n-octanol/water)	Not determined or not available.

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Auto/Self-ignition temperature	Not determined or not available.
Decomposition temperature	Not determined or not available.
Dynamic viscosity	Not determined or not available.
Kinematic viscosity	Not determined or not available.
Explosive properties	Not determined or not available.
Oxidizing properties	Not determined or not available.

SECTION 10: Stability and Reactivity

Reactivity:

Not reactive under recommended handling and storage conditions.

Chemical Stability:

Stable under recommended handling and storage conditions.

Possibility of Hazardous Reactions:

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

Conditions to Avoid:

Avoid generation of aerosols and mists, extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

Incompatible Materials:

None known.

Hazardous Decomposition Products:

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological Information

Acute Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data:

Name	Route	Result
Ethylene Glycol Monobutyl Ether	Dermal ATE	LD50 Rabbit: 1100 mg/kg
	Oral ATE	LD50 Rat: 1200 mg/kg (Annex VI to the CLP)
	Inhalation ATE	LC50 Rat: 3 mg/L (4 hr [Vapor] Annex VI to the CLP)
Orthophosphoric Acid	inhalation	LC50 Rat: 1923 mg/L (4 hr [aerosol])
	oral	LD50 Rat: 1530 mg/kg
	dermal	LD50 Rabbit: 2740 mg/kg
Ethylene oxide	Inhalation ATE	LC50 Rat: 700 ppmV (4 hr (Gas))
	Oral ATE	LD50 Rat: 100 mg/kg
Ethane-1,2-diol	dermal	LD50 Mouse: > 3500 mg/kg
	Oral ATE	LD50 Rat: 500 mg/kg (Converted acute toxicity point estimate)
	inhalation	LC50 Rat: >2.5 mg/L (6 hr [Aerosol])

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Name	Route	Result
1,4-dioxane	oral	LD50 Rat: 5150 mg/kg
	dermal	LD50 Rabbit: 7600 mg/kg
	inhalation	LC50 Rat: 9158 ppmV (4 hr - Vapor)
Benzenesulfonic acid, C10-16-alkyl derivatives	inhalation	LC50 Rat: >1.9 mg/L (4 h [aerosol])
	Dermal ATE	LD50 Rabbit: 1100 mg/kg
	Oral ATE	LD50 Rat: 500 mg/kg
Sulfuric acid	oral	LD50 Rat: 2140 mg/kg
	inhalation	LC50 Rat: 0.375 mg/L (4 hr [Aerosol])
Citric acid	oral	LD50 Mouse: 5400 mg/kg
	dermal	LD50 Rat: > 2000 mg/kg
Alcohols, C9-11, branched and linear, ethoxylated	oral	LD50 Rat: 3488 mg/kg
	dermal	LD50 Rabbit: > 2000 mg/kg
	inhalation	LC50 Rat: >1.6 mg/m ³ (4 hr [aerosol])
Hydrogen chloride	Inhalation ATE	LC50 Rat: 700 ppmV (4 hr [gas])

Skin Corrosion/Irritation

Assessment:

Causes severe skin burns and eye damage.

Product Data:

No data available.

Substance Data:

Name	Result
Hydrogen chloride	Causes severe skin burns.
Orthophosphoric Acid	Causes severe skin burns.
Ethylene Glycol Monobutyl Ether	Causes skin irritation.
Ethylene oxide	Causes severe skin burns.
Benzenesulfonic acid, C10-16-alkyl derivatives	Causes severe skins burns.
Sulfuric acid	Causes severe skin burns.

Serious Eye Damage/Irritation

Assessment:

Causes serious eye damage.

Product Data:

No data available.

Substance Data:

Name	Result
Hydrogen chloride	Causes serious eye damage.
Orthophosphoric Acid	Causes serious eye damage.
Ethylene Glycol Monobutyl Ether	Causes serious eye irritation.
Ethylene oxide	Causes serious eye damage.
1,4-dioxane	Causes serious eye irritation.

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Name	Result
Benzenesulfonic acid, C10-16-alkyl derivatives	Causes serious eye damage.
Sulfuric acid	Causes serious eye damage.
Citric acid	Causes serious eye irritation.
Alcohols, C9-11, branched and linear, ethoxylated	Causes serious eye damage.

Respiratory or Skin Sensitization

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Carcinogenicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data:

Name	Species	Result
Ethylene oxide		May cause cancer.
1,4-dioxane		May cause cancer. 1,4-dioxane is characterized as "likely to be carcinogenic to humans." This characterization is based on the following findings: (1) inadequate evidence of carcinogenicity in humans, and (2) sufficient evidence in animals (i.e., hepatic tumors in multiple species [three strains of rats, two strains of mouse, and in guinea pigs] mesotheliomas of the peritoneum, mammary, and nasal tumors have also been observed in rats following 2 years of oral exposure to 1,4- dioxane). U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS).

International Agency for Research on Cancer (IARC):

Name	Classification
Hydrogen chloride	Group 3
Orthophosphoric Acid	Not Applicable
Ethylene oxide	Group 1
Ethane-1,2-diol	Not Applicable
Sulfuric acid	Group 1
Alcohols, C9-11, branched and linear, ethoxylated	Not Applicable
Benzenesulfonic acid, C10-16-alkyl derivatives	Not Applicable
Citric acid	Not Applicable
Ethylene Glycol Monobutyl Ether	Group 3
Benzene, C10-16-alkyl derivs	Not Applicable
1,4-dioxane	Group 2B

National Toxicology Program (NTP):

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Name	Classification
Orthophosphoric Acid	Not Applicable
Ethylene oxide	Known to be human carcinogens
Ethane-1,2-diol	Not Applicable
Sulfuric acid	Known to be human carcinogens
Alcohols, C9-11, branched and linear, ethoxylated	Not Applicable
Benzenesulfonic acid, C10-16-alkyl derivatives	Not Applicable
Citric acid	Not Applicable
Hydrogen chloride	Not Applicable
Ethylene Glycol Monobutyl Ether	Not Applicable
Benzene, C10-16-alkyl derivs	Not Applicable
1,4-dioxane	Reasonably anticipated to be human carcinogens

OSHA Carcinogens:

Ingredient Name	CAS	OSHA Carcinogens Status
Sulfuric acid	7664-93-9	Yes

Germ Cell Mutagenicity

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data:

Name	Result
Ethylene oxide	May cause genetic defects.

Reproductive Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data:

Name	Result
Ethylene oxide	May damage fertility. Suspected of damaging the unborn child.

Specific Target Organ Toxicity (Single Exposure)

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data:

Name	Result
Hydrogen chloride	May cause respiratory irritation.
Ethylene oxide	May cause respiratory irritation. May cause drowsiness or dizziness.
1,4-dioxane	May cause respiratory irritation.

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Name	Result
Citric acid	May cause respiratory irritation.

Specific Target Organ Toxicity (Repeated Exposure)

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data:

Name	Result
Ethylene oxide	Studies on the effects of Ethylene oxide have concluded not only neurotoxic symptoms in humans, but also measured effects on nerve conduction velocities indicative of sensorimotor neuropathy, and axonal degeneration observed in nerve biopsies of exposed workers.
Ethane-1,2-diol	May cause damage to Kidney through prolonged or repeated oral exposure.
Sulfuric acid	Repeated or prolonged inhalation may damage the lungs. Risk of tooth erosion upon repeated or prolonged exposure to an aerosol of this substance.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Information on Likely Routes of Exposure:

No data available.

Symptoms Related to the Physical, Chemical, and Toxicological Characteristics:

No data available.

Other Information:

No data available.

SECTION 12: Ecological Information

Acute (Short-Term) Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data:

Name	Result
Ethylene Glycol Monobutyl Ether	Aquatic Invertebrates EC50 Daphnia magna: 1550 mg/L (48 hr [mobility])
	Fish LC50 Oncorhynchus mykiss: 1474 mg/L (96 hr)
	Aquatic Plants EC50 Raphidocelis subcapitata: 1840 mg/L (72 hr [Growth rate])
Orthophosphoric Acid	Aquatic Invertebrates EC50 Daphnia magna: > 100 mg/L (48 hr [immobilization])
	Aquatic Plants EC50 Desmodemus subspicatus: > 100 mg/L (72 hr [growth rate])
	Fish LC50 Oryzias latipes: 100 mg/L (96 hr)

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Name	Result
Ethylene oxide	Aquatic Plants EC50 Pseudokirchneriella subcapitata: 240 mg/L (96 h, read-across substance data)
	Aquatic Invertebrates LC50 Daphnia magna: 212 mg/L (48 h)
	Fish LC50 Pimephales promelas: 84 mg/L (96 h)
Ethane-1,2-diol	Aquatic Plants EC50 Raphidocelis subcapitata: 6500 - 13,000 mg/L (96 hr [growth rate])
	Aquatic Invertebrates EC50 Daphnia magna: > 100 mg/L (48 hr)
	Fish LC50 Pimephales promelas: 72,860 mg/L (96 hr)
Sulfuric acid	Aquatic Plants EC50 Algae: >100 mg/L (72 hr [growth rate])
	Fish LC50 Lepomis macrochirus: >16 - <28 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: >100 mg/L (48 hr [mobility])
Citric acid	Fish LC50 Pimephales promelas: >100 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: > 50 mg/L (48 hr [substrate reattachment abilities])
Alcohols, C9-11, branched and linear, ethoxylated	Fish LC50 Oncorhynchus mykiss: 5 - 7 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: 2.5 mg/L (48 hr [mobility])
	Aquatic Plants EC50 Raphidocelis subcapitata: 1.4 mg/L (96 hr [cell number])
Benzenesulfonic acid, C10-16-alkyl derivatives	Aquatic Invertebrates EC50 Daphnia magna: >1000 mg/L (48hr [mobility] Read-across)
	Aquatic Plants EC50 Raphidocelis subcapitata: >1000 mg/L (72 hr [growth rate] Read-across)
1,4-dioxane	Fish LC50 Pimephales promelas: 9850 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: >1000 mg/L (48 hr)
	Aquatic Plants EC50 Pseudokirchneriella subcapitata: >1000 mg/L (72 hr)

Chronic (Long-Term) Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data:

Name	Result
Ethylene Glycol Monobutyl Ether	Fish NOEC Danio rerio: > 100 mg/L (21 d [markers for endocrine disruptive effects])
	Aquatic Invertebrates NOEC Daphnia magna: 100 mg/L (21 d [reproduction])
Ethane-1,2-diol	Fish NOEC Menidia peninsulae: > 40 mg/L (28 d [mortality])
	Aquatic Invertebrates NOEC Daphnia magna: > 15,000 mg/L (21 d [reproduction])
Alcohols, C9-11, branched and linear, ethoxylated	Fish NOEC Pimephales promelas: 0.28 mg/L (30 d [mortality, Read-across substance data])
	Aquatic Invertebrates NOEC Daphnia magna: 0.77 mg/L (21 d [reproduction, Read-across substance data])
1,4-dioxane	Fish NOEC Pimephales promelas: 145 mg/L (32 d)
	Aquatic Invertebrates NOEC Daphnia magna: 1000 mg/L (21 d)

Persistence and Degradability

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Product Data: No data available.

Substance Data:

Name	Result
Ethylene oxide	Readily biodegradable (96% degradation after 28 days, measured by TOC removal).
Ethane-1,2-diol	The substance is Readily biodegradable. 90-100% degradation in water, measured by DOC removal, after 10 days.
1,4-dioxane	Not readily biodegradable (< 10 % degradation after 29 days, measured by CO2 evolution).
Benzenesulfonic acid, C10-16-alkyl derivatives	Under test conditions no biodegradation observed.
Alcohols, C9-11, branched and linear, ethoxylated	The substance is readily biodegradable. 72% degradation in water, measured by inorganic C analysis, after 28 days (Read-across substance data)..
Orthophosphoric Acid	Persistence assessment based on biodegradability is not relevant for inorganic compounds such as this substance.
Citric acid	The substance is readily biodegradable. 97% degradation in water, measured by CO2 evolution, after 28 days.
Hydrogen chloride	Persistence assessment based on biodegradability is not relevant for inorganic compounds such as this substance.
Ethylene Glycol Monobutyl Ether	The substance is readily biodegradable. 90.4% degradation, measured by CO2 evolution, after 28 days.
Sulfuric acid	The study does not need to be conducted because the substance is inorganic.

Bioaccumulative Potential

Product Data: No data available.

Substance Data:

Name	Result
Ethylene Glycol Monobutyl Ether	The substance is not expected to bioaccumulate (log Kow = 0.83).
Ethylene oxide	Low potential for bioaccumulation (logKow = -0.3).
Ethane-1,2-diol	The substance is not expected to bioaccumulate (log Pow=: -1.93).
Alcohols, C9-11, branched and linear, ethoxylated	The substance has the potential to bioaccumulate (log Pow=3.3 - 3.73 & BCF= 237 L/kg, Read-across substance data).
Orthophosphoric Acid	Bioaccumulation assessment using a classic BCF assessment is not considered relevant for inorganic compounds such as this substance.
Citric acid	The substance is not expected to bioaccumulate (log Pow= -1.55 and BCF= 3.2 L/kg- calculated value).
Hydrogen chloride	Bioaccumulation assessment using a classic BCF assessment is not considered relevant for inorganic compounds such as this substance.
Sulfuric acid	The study does not need to be conducted because the substance is inorganic.
1,4-dioxane	Does not accumulate in aquatic organisms (mean BCF: 0.45).

Mobility in Soil

Product Data: No data available.

Substance Data:

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Name	Result
Ethane-1,2-diol	Adsorption to the solid soil phase is not expected.
Alcohols, C9-11, branched and linear, ethoxylated	The substance is moderately mobile, therefore, moderate adsorption to soil is expected (log Koc=2.7 - 3.5 at 25 °C, QSAR substance data).
Orthophosphoric Acid	Mobility in soil assessment based on KOC/Kd values are not relevant for inorganic compounds such as this substance.
Citric acid	The substance is mobile, therefore, there is low potential for adsorption to soil and sediment (Koc: 10).
Hydrogen chloride	Mobility in soil assessment based on KOC/Kd values are not relevant for inorganic compounds such as this substance.
Sulfuric acid	The substance is highly mobile, therefore, adsorption to soil and sediment is not expected (Koc: 1).
1,4-dioxane	Significant adsorption to solid soil phase is not expected (calculated log Koc: 0.51 at 25 °C).

Results of PBT and vPvB assessment

Product Data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.

vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance Data:

PBT assessment:

Ethylene Glycol Monobutyl Ether	The substance is not PBT.
Ethylene oxide	This substance is not PBT.
Ethane-1,2-diol	The substance is not PBT.
Sulfuric acid	The PBT assessment does not apply to inorganic substances.
Citric acid	The substance is not PBT.
Alcohols, C9-11, branched and linear, ethoxylated	The substance is not PBT.
Orthophosphoric Acid	PBT assessment does not apply to inorganic compounds such as this substance.
Hydrogen chloride	PBT assessment does not apply to inorganic compounds such as this substance.
1,4-dioxane	Under assessment as Persistent, Bioaccumulative and Toxic (PBT list).

vPvB assessment:

Ethylene Glycol Monobutyl Ether	The substance is not vPvB.
Ethylene oxide	This substance is not vPvB.
Ethane-1,2-diol	The substance is not vPvB.
Sulfuric acid	The vPvB assessment does not apply to inorganic substances.
Citric acid	The substance is not vPvB.
Alcohols, C9-11, branched and linear, ethoxylated	The substance is not vPvB.
Orthophosphoric Acid	vPvB assessment does not apply to inorganic compounds such as this substance.
Hydrogen chloride	vPvB assessment does not apply to inorganic compounds such as this substance.

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1,4-dioxane

This substance is not vPvB.

Other Adverse Effects: No data available.

SECTION 13: Disposal Considerations

Disposal Methods:


It is the responsibility of the waste generator to characterize all waste material according to regulatory entities.

Contaminated packages:

Not determined or not applicable.

SECTION 14: Transport Information

United States Transportation of Dangerous Goods (49 CFR DOT)

UN Number	1760
UN Proper Shipping Name	Corrosive Liquid N.O.S., (Phosphoric Acid, Hydrochloric Acid)
UN Transport Hazard Class(es)	8 
Packing Group	III
Environmental Hazards	None
Special Precautions for User	None

International Maritime Dangerous Goods (IMDG)

UN Number	Not regulated
UN Proper Shipping Name	Not regulated
UN Transport Hazard Class(es)	None
Packing Group	None
Environmental Hazards	None
Special Precautions for User	None

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN Number	Not regulated
UN Proper Shipping Name	Not regulated
UN Transport Hazard Class(es)	None
Packing Group	None
Environmental Hazards	None
Special Precautions for User	None

SECTION 15: Regulatory Information

United States Regulations

Inventory Listing (TSCA): All ingredients are listed-active or exempt.

Significant New Use Rule (TSCA Section 5): None of the ingredients are listed.

Export Notification under TSCA Section 12(b): None of the ingredients are listed.

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SARA Section 302 Extremely Hazardous Substances:

75-21-8	Ethylene oxide	Listed
7664-93-9	Sulfuric acid	Listed
7647-01-0	Hydrogen chloride	Listed

SARA Section 313 Toxic Chemicals:

111-76-2	Ethylene Glycol Monobutyl Ether	Listed
75-21-8	Ethylene oxide	Listed
107-21-1	Ethane-1,2-diol	Listed
7664-93-9	Sulfuric acid	Listed
7647-01-0	Hydrogen chloride	Listed
123-91-1	1,4-dioxane	Listed

CERCLA:

7664-38-2	Orthophosphoric Acid	Listed	5000 lbs
111-76-2	Ethylene Glycol Monobutyl Ether	Listed	N/A
75-21-8	Ethylene oxide	Listed	10 lbs
107-21-1	Ethane-1,2-diol	Listed	5000 lbs
7664-93-9	Sulfuric acid	Listed	1000 lbs
7647-01-0	Hydrogen chloride	Listed	5000 lbs
123-91-1	1,4-dioxane	Listed	100 lbs

RCRA:

75-21-8	Ethylene oxide	Listed	U115
123-91-1	1,4-dioxane	Listed	U108

Section 112(r) of the Clean Air Act (CAA):

75-21-8	Ethylene oxide	Listed
107-21-1	Ethane-1,2-diol	Listed

Massachusetts Right to Know:

7664-38-2	Orthophosphoric Acid	Listed
75-21-8	Ethylene oxide	Listed
107-21-1	Ethane-1,2-diol	Listed
7664-93-9	Sulfuric acid	Listed
7647-01-0	Hydrogen chloride	Listed
111-76-2	Ethylene Glycol Monobutyl Ether	Listed
123-91-1	1,4-dioxane	Listed

New Jersey Right to Know:

7664-38-2	Orthophosphoric Acid	Listed
75-21-8	Ethylene oxide	Listed
107-21-1	Ethane-1,2-diol	Listed
7664-93-9	Sulfuric acid	Listed
7647-01-0	Hydrogen chloride	Listed
111-76-2	Ethylene Glycol Monobutyl Ether	Listed
123-91-1	1,4-dioxane	Listed

New York Right to Know:

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7664-38-2	Orthophosphoric Acid	Listed
75-21-8	Ethylene oxide	Listed
107-21-1	Ethane-1,2-diol	Listed
7664-93-9	Sulfuric acid	Listed
7647-01-0	Hydrogen chloride	Listed
111-76-2	Ethylene Glycol Monobutyl Ether	Listed
123-91-1	1,4-dioxane	Listed

Pennsylvania Right to Know:

7664-38-2	Orthophosphoric Acid	Listed
75-21-8	Ethylene oxide	Listed
107-21-1	Ethane-1,2-diol	Listed
7664-93-9	Sulfuric acid	Listed
7647-01-0	Hydrogen chloride	Listed
111-76-2	Ethylene Glycol Monobutyl Ether	Listed
123-91-1	1,4-dioxane	Listed

California Proposition 65:

⚠️WARNING: This product can expose you to chemicals including Strong inorganic acid mists containing sulfuric acid and 1,4-dioxane; which are known to the State of California to cause cancer; and Ethane-1,2-diol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

⚠️WARNING: This product can expose you to Ethylene oxide; which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Additional information: Not determined.

SECTION 16: Other Information

Abbreviations and Acronyms: None

Disclaimer:

This product has been classified in accordance with OSHA HCS 2012 guidelines. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation and disposal 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, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

NFPA: 0-0-0

HMIS: 0-0-0

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End of Safety Data Sheet