

Section 1. Identification

Product identifier : AMBERPHOS-54®
 Product code : AMMGA; BDMGA
 SDS # : 212
 Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Manufacture of chemical products. Fertilizer. Manufacture of specialty fertilizers.

Uses advised against

Product is not intended for consumer use. Reserved for industrial and professional use only.

Supplier's details : PCS Sales (USA), Inc. (A Subsidiary of Nutrien Ltd.)
 Suite 150
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 Deerfield, IL 60015
 United States

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 211 - 19th Street East
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 Emergency telephone : Nutrien North American
 number (with hours of : 24 HOUR EMERGENCY TELEPHONE NUMBERS:
 operation) :
 English:
 Transportation Emergencies: 1-800-792-8311
 Medical Emergencies: 1-303-389-1653

 French or Spanish:
 Transportation or Medical Emergencies: 1-303-389-1654

Section 2. Hazard identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

 Classification of the : CORROSIVE TO METALS - Category 1
 substance or mixture : SKIN CORROSION - Category 1B
 SERIOUS EYE DAMAGE - Category 1
 CARCINOGENICITY - Category 1B
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

GHS label elements

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Section 2. Hazard identification

Hazard pictograms :



Signal word :

: Danger

Hazard statements :

: May be corrosive to metals.
 Causes severe skin burns and eye damage.
 May cause respiratory irritation.
 May cause cancer. (inhalation)

Precautionary statements

General :

: Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention :

: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye or face protection. Keep only in original packaging. Use only outdoors or in a well-ventilated area. Avoid breathing vapor. Wash thoroughly after handling.

Response :

: Absorb spillage to prevent material damage. IF exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor. IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or doctor. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

Storage :

: Store locked up. Store in a well-ventilated place. Keep container tightly closed. Store in a corrosion resistant container with a resistant inner liner.

Disposal :

: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 3. Composition/information on ingredients

Substance/mixture :

: Mixture

Other means of identification :

: Not available.

Ingredient name	% (w/w)	CAS number
phosphoric acid	74 - 77	7664-38-2
water	19 - 25	7732-18-5
sulfuric acid	2.5 - 4	7664-93-9

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

Section 4. First-aid measures

- Eye contact** : CORROSIVE. Begin eye irrigation immediately. All eye exposures require medical evaluation following decontamination. Immediately rinse eyes with large quantities of water or saline for a minimum 30 minutes, longer irrigation time is preferred if possible, due to the chemical reaction that occurs - see Notes to Physician below. If possible, remove contact lenses being careful not to cause additional eye damage. If the initial water supply is insufficient, keep the affected area wet with a moist cloth and transfer the person to the nearest place where rinsing can be continued for the recommended length of time. Call an ambulance for transport to hospital. Continue eye irrigation during transport. For additional advice call the medical emergency number on this safety data sheet or your poison center or doctor.
- Inhalation** : CORROSIVE. If mists or vapors are present in unknown or excessive concentrations, rescuers must wear appropriate respiratory protection and a suit resistant to acids (Level B or C). REMOVE PERSON TO FRESH AIR. Watch closely for signs of wheezing and breathing difficulties. Maintain an open airway. If not breathing, begin CPR. Oxygen may be administered by trained personnel. Affected persons who have stopped breathing or are having difficulty breathing or are unconscious need immediate medical attention. Call an ambulance for transport to hospital. For additional advice call the medical emergency number on this SDS or your poison center or doctor.
- Skin contact** : CORROSIVE. Causes severe burns. Immediately begin rinsing the affected areas with water. Remove contaminated clothing and shoes. Affected areas should be rinsed for a minimum 30 minutes, longer irrigation time is preferred if possible, due to the chemical reactions that occur. Luke-warm water is recommended for continued irrigation to prevent hypothermia. Conscious persons without breathing difficulties may benefit from prolonged irrigation in a fixed shower or bathing facility prior to hospital transport. Call an ambulance for transport to hospital. Continue skin irrigation during transport. For additional advice call the medical emergency number on this safety data sheet or your poison center or doctor. Clean shoes thoroughly before reuse. Wash clothing before reuse.
- Ingestion** : CORROSIVE. May cause severe burns to the mouth, throat, and stomach. If the affected person requires cardiopulmonary resuscitation, avoid mouth to mouth contact. Do not induce vomiting. If vomiting occurs, attempt to keep head lower than the chest so that vomit does not enter the lungs. Wash face and mouth with water to remove visible material. If the exposed person is conscious and can swallow, give 1-2 sips of water. Do not give anything else by mouth. Loosen tight clothing such as collar, tie, belt or waistband to prevent any breathing restrictions. For signs of breathing difficulties, refer to the INHALATION section. Call an ambulance for transportation to hospital. For additional advice, call the medical emergency number on this safety data sheet or your poison center or doctor.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Corrosive to eyes. Causes serious eye damage.
- Inhalation** : Irritating to the respiratory system. May cause breathing difficulties.
- Skin contact** : Corrosive to the skin. Causes severe burns.
- Ingestion** : Corrosive to the digestive tract. May cause burns to the mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties

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Section 4. First-aid measures

- Skin contact** : Adverse symptoms may include the following:
 pain or irritation
 redness
 blistering may occur
- Ingestion** : Adverse symptoms may include the following:
 throat and stomach pain
 difficulty swallowing
 nausea or vomiting

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Phosphoric acid is an acid which may cause coagulative necrosis. Treatment is symptomatic and supportive. The extent of injury depends on duration of exposure and concentration of liquid. Do not attempt to use chemicals to neutralize the exposure.
- Specific treatments** : Outcomes can be improved by minimizing time to decontamination and extending decontamination times to reduce tissue damage. Expert opinion indicates extended decontamination is required to remove corrosive chemicals. Skin and eye decontamination should be performed for a minimum of 20 - 30 minutes. Extended decontamination times may be required depending on the exposure. To avoid hypothermia, irrigation water should be maintained at a comfortable temperature. If the patient is not in extremis, it may be necessary to delay transport to emergency care facilities to ensure adequate decontamination time. However, early patient transport may be necessary depending on patient's condition or the availability of water. If possible, continue skin and/or eye irrigation during emergency medical transport. Double-bag contaminated clothing and personal belongings of the patient.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Decontamination measures may be necessary. Personnel and equipment must be checked and decontaminated prior to leaving the area.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Non-flammable. Material will not burn. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

- Specific hazards arising from the chemical** : Reacts violently with water. Will react with water or steam to produce heat and corrosive fumes. Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Flammable concentrations of vapor may accumulate in the headspace of containers.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
 sulfur oxides
 phosphorus oxides
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contain and collect the water used to fight the fire for later treatment and disposal.

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Section 5. Fire-fighting measures

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

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". Refer to Emergency Response Guidebook, Guide 154 for further information regarding spill control and Isolation/ Protective Action Distances Guidelines.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused adverse impacts (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Put on appropriate personal protective equipment (see Section 8). Stop leak if without risk. Move containers from spill area. Neutralize acids by applying basic substances (soda ash or lime) or use an acid spill kit. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Put on appropriate personal protective equipment (see Section 8). Approach release from upwind. Stop leak if without risk. Prevent entry into sewers, water courses, basements or confined areas. Move containers from spill area. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). The spilled material may be neutralized with calcium carbonate, crushed limestone, or sodium carbonate.

Place spilled material in an appropriate container for disposal. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Do not breathe vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage. Refer to NFPA 400 Hazardous Materials Code for further information on the safe storage and handling of hazardous materials.

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Section 7. Handling and storage

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a corrosion resistant container with a resistant inner liner. Store locked up. Separate from alkalis. Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Flammable concentrations of vapor may accumulate in the headspace of containers. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Refer to NFPA 400 Hazardous Materials Code for further information on the safe storage and handling of hazardous materials.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
phosphoric acid	<p>ACGIH TLV (United States, 3/2020). TWA: 1 mg/m³ 8 hours. STEL: 3 mg/m³ 15 minutes.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1 mg/m³ 8 hours. STEL: 3 mg/m³ 15 minutes.</p> <p>NIOSH REL (United States, 10/2016). TWA: 1 mg/m³ 10 hours. STEL: 3 mg/m³ 15 minutes.</p> <p>OSHA PEL (United States, 5/2018). TWA: 1 mg/m³ 8 hours.</p> <p>CA Alberta Provincial: (Canada, 6/2018). 15 min OEL: 3 mg/m³ 15 minutes. 8 hrs OEL: 1 mg/m³ 8 hours.</p> <p>British Columbia Provincial: (Canada, 1/2020). TWA: 1 mg/m³ 8 hours. STEL: 3 mg/m³ 15 minutes.</p> <p>CA Ontario Provincial (Canada, 6/2019). TWA: 1 mg/m³ 8 hours. STEL: 3 mg/m³ 15 minutes.</p> <p>CA Quebec Provincial. (Canada, 7/2019). TWAEV: 1 mg/m³ 8 hours. STEV: 3 mg/m³ 15 minutes.</p> <p>Saskatchewan Provincial: (Canada, 7/2013). STEL: 3 mg/m³ 15 minutes. TWA: 1 mg/m³ 8 hours.</p>
sulfuric acid	<p>OSHA PEL 1989 (United States, 3/1989). TWA: 1 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 10/2016). TWA: 1 mg/m³ 10 hours.</p> <p>ACGIH TLV (United States, 3/2020). TWA: 0.2 mg/m³ 8 hours. Form: Thoracic fraction</p> <p>OSHA PEL (United States, 5/2018). TWA: 1 mg/m³ 8 hours.</p>

Section 8. Exposure controls/personal protection

CA Ontario Provincial (Canada, 6/2019).
TWA: 0.2 mg/m³ 8 hours. Form: Thoracic particulate matter.

CA Alberta Provincial:
(Canada, 6/2018).
15 min OEL: 3 mg/m³ 15 minutes.
8 hrs OEL: 1 mg/m³ 8 hours.

CA Quebec Provincial. (Canada, 7/2019).
TWA_{EV}: 1 mg/m³ 8 hours.
STEV: 3 mg/m³ 15 minutes.

British Columbia Provincial: (Canada, 1/2020).
TWA: 0.2 mg/m³ 8 hours. Form: thoracic

Saskatchewan Provincial: (Canada, 7/2013).
STEL: 0.6 mg/m³ 15 minutes.
TWA: 0.2 mg/m³ 8 hours.

- Appropriate engineering controls** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Ensure any process release discharges in a controlled manner to an approved safe location.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Contact your personal protective equipment manufacturer to verify the compatibility of the equipment for the intended purpose.

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 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. Recommended: butyl rubber, neoprene rubber, nitrile rubber, PVC.
- Body protection** : 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. Recommended: chemical-resistant protective suit

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Section 8. Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Impervious rubber safety boots.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- For U.S. work sites where respiratory protection is required, ensure that a respiratory protection program meeting 29 CFR 1910.134 requirements is in place.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Liquid. [Viscous liquid.]
- Color** : Hazy Amber to Black.
- Odor** : Characteristic.
- Odor threshold** : Not available.
- pH** : 1
- Melting point/freezing point** : <-6.7°C (<19.9°F)
- Boiling point, initial boiling point, and boiling range** : 136 to 163°C (276.8 to 325.4°F)
- Flash point** : [Product does not sustain combustion.]
- Evaporation rate** : Not available.
- Flammability** : Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminum, tin, lead and zinc.
- Lower and upper explosion limit/flammability limit** : Not available.
- Vapor pressure** : 0.27 to 0.8 kPa (2 to 6 mm Hg) [room temperature]
- Relative vapor density** : 3.4 [Air = 1]
- Relative density** : 1.7
- Bulk density** : 14.4 lb/gal
- Solubility** : Easily soluble in the following materials: cold water and hot water.
- Solubility in water** : Soluble
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : Not applicable.
- Decomposition temperature** : Not available.
- Viscosity** : Variable, depending on temperature. Refer to the technical data sheet for this product.
- Particle characteristics**
- Median particle size** : Not applicable.

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Section 10. Stability and reactivity

- Reactivity** : Reacts violently with bases. May be corrosive to metals. Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Reacts violently with bases.
- Conditions to avoid** : Keep away from incompatible materials. May be corrosive to metals. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment.
- Incompatible materials** : Reactive or incompatible with the following materials: alkalis, oxidizing agents, metals.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
phosphoric acid	LD50 Oral	Rat	1.25 g/kg	-
sulfuric acid	LD50 Oral	Rat	2140 mg/kg	-

Conclusion/Summary : Corrosive material. Corrosive to the digestive tract.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
sulfuric acid	Eyes - Severe irritant	Rabbit	-	250 ug	-
	Eyes - Severe irritant	Rabbit	-	0.5 minutes 5 mg	-

Conclusion/Summary

- Skin** : Corrosive to the skin.
- Eyes** : Corrosive to eyes. Causes serious eye damage.
- Respiratory** : Irritating to the respiratory system.

Sensitization

Not available.

Conclusion/Summary

- Skin** : No known significant effects or critical hazards.
- Respiratory** : No known significant effects or critical hazards.

Mutagenicity

Not available.

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Not available.

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Section 11. Toxicological information

Conclusion/Summary : The International Agency for Research on Cancer has concluded that occupational exposure to strong inorganic acid mists are carcinogenic to humans. The U.S. National Toxicology Program has concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid are carcinogenic.

Classification

Product/ingredient name	IARC	NTP	ACGIH
sulfuric acid	1	Known to be a human carcinogen.	A2

Reproductive toxicity

Not available.

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Not available.

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
AMBERPHOS-54®	Category 3	-	Respiratory tract irritation
sulfuric acid	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact : Corrosive to eyes. Causes serious eye damage.
Inhalation : Irritating to the respiratory system. May cause breathing difficulties.
Skin contact : Corrosive to the skin. Causes severe burns.
Ingestion : Corrosive to the digestive tract. May cause burns to the mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
 pain
 watering
 redness

Inhalation : Adverse symptoms may include the following:
 respiratory tract irritation
 coughing
 wheezing and breathing difficulties

Skin contact : Adverse symptoms may include the following:
 pain or irritation
 redness
 blistering may occur

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Section 11. Toxicological information

Ingestion : Adverse symptoms may include the following:
throat and stomach pain
difficulty swallowing
nausea or vomiting

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : See above.

Potential delayed effects : See above.

Long term exposure

Potential immediate effects : See above.

Potential delayed effects : See below.

Potential chronic health effects

Not available.

Conclusion/Summary : See below.

General : Adverse effects are typically the result of acute overexposure. These effects may be long term or permanent in nature.

Carcinogenicity : Epidemiological studies of workers chronically exposed to sulfuric acid have suggested increased risk for upper respiratory cancers, especially laryngeal cancer. The International Agency for Research in Cancer and NTP has concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to man, however, sulfuric acid itself is not considered a confirmed human carcinogen at this time. The epidemiological studies which provided the basis for the IARC and NTP assessments were confounded by exposure to alkyl sulfates (known animal carcinogens), other chemicals, and smoking. Based on the evidence from all human and animal studies, no definitive relationship has been shown between increased risk of respiratory tract cancer and sulfuric acid alone. Sulfuric acid can react with other substances to form mutagenic and possibly carcinogenic products such as alkyl sulfates.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
sulfuric acid	2140	N/A	N/A	N/A	N/A

Other information : Not available.

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Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
phosphoric acid	Acute EC50 105 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 60 ppm Fresh water	Fish - Lepomis macrochirus	96 hours
sulfuric acid	Acute LC50 42500 µg/l Marine water	Crustaceans - Pandalus montagui - Adult	48 hours
	Acute LC50 36 µl/L Marine water	Fish - Agonus cataphractus	96 hours

Conclusion/Summary : May be harmful to the environment if released in large quantities. Excessive nutrient runoff to a body of water may result in eutrophication.

Persistence and degradability

Conclusion/Summary : Not persistent. Readily biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
water	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
water	-1.38	-	low

Mobility in soil





Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	TDG	DOT	IMDG	IATA
UN number	UN1805	UN1805	UN1805	UN1805
UN proper shipping name	PHOSPHORIC ACID SOLUTION	PHOSPHORIC ACID SOLUTION	PHOSPHORIC ACID SOLUTION	PHOSPHORIC ACID SOLUTION
Transport hazard class(es)	8 	8 	8 	8 
Packing group	III	III	III	III

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: 3/26/2021

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Section 14. Transport information

Marine pollutant	No.	No.	No.	No.
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Additional information

TDG : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8).

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : The following components are listed: phosphorus (total); sulphuric acid
CEPA Toxic substances : None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.
Canada : All components are listed or exempted.
China : All components are listed or exempted.
Europe : All components are listed or exempted.
Japan : **Japan inventory (CSCL):** All components are listed or exempted.
Japan inventory (ISHL): Not determined.
New Zealand : All components are listed or exempted.
Philippines : All components are listed or exempted.
Republic of Korea : All components are listed or exempted.
Taiwan : All components are listed or exempted.
Thailand : All components are listed or exempted.
Turkey : Not determined.
United States : All components are active or exempted.
Viet Nam : All components are listed or exempted.
U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
Clean Water Act (CWA) 311: Phosphoric acid, solid; sulfuric acid

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Section 15. Regulatory information

Clean Air Act Section 112(b) : Not listed
Hazardous Air Pollutants
(HAPs)

Clean Air Act Section 602 : Not listed
Class I Substances

Clean Air Act Section 602 : Not listed
Class II Substances

DEA List I Chemicals : Not listed
(Precursor Chemicals)

DEA List II Chemicals : Listed
(Essential Chemicals)

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
sulfuric acid	2.5 - 4	Yes.	1000	66.3	1000	66.3

SARA 311/312

Classification : CORROSIVE TO METALS - Category 1
SKIN CORROSION - Category 1B
SERIOUS EYE DAMAGE - Category 1
CARCINOGENICITY - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Composition/information on ingredients

Name	%	Classification
phosphoric acid	74 - 77	CORROSIVE TO METALS - Category 1 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1
sulfuric acid	2.5 - 4	CORROSIVE TO METALS - Category 1 SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1 CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	sulfuric acid	7664-93-9	2.5 - 4
Supplier notification	sulfuric acid	7664-93-9	2.5 - 4

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: PHOSPHORIC ACID; SULFURIC ACID

New York : The following components are listed: Phosphoric acid; Sulfuric acid

New Jersey : The following components are listed: PHOSPHORIC ACID; SULFURIC ACID; OIL of VITRIOL; DIHYDROGEN SULFATE

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Pennsylvania : The following components are listed: PHOSPHORIC ACID; SULFURIC ACID

California Prop. 65

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

Section 16. Other information

History

Date of issue/Date of revision : 3/29/2022

Date of previous issue : 3/26/2021

Version : 2.3

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HPR = Hazardous Products Regulations
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

Procedure used to derive the classification

Classification	Justification
CORROSIVE TO METALS - Category 1 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1 CARCINOGENICITY - Category 1B SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Expert judgment Weight of evidence Weight of evidence Weight of evidence Weight of evidence

✔ Indicates information that has changed from previously issued version.

Notice to reader

Supply chain partners must ensure they pass this SDS, and all other relevant safety information to their customers.

DISCLAIMER AND LIMITATION OF LIABILITY

The information and recommendations contained in this Safety Data Sheet ("SDS") relate only to the specific material referred to herein (the "Material") and do not relate to the use of such Material in combination with any other material or process. The information and recommendations contained herein are believed to be current and correct as of the date of this SDS. HOWEVER, THE INFORMATION AND RECOMMENDATIONS ARE PRESENTED WITHOUT WARRANTY, REPRESENTATION OR LICENSE OF ANY KIND, EXPRESS OR IMPLIED, WITH RESPECT TO THEIR ACCURACY, CORRECTNESS OR COMPLETENESS, AND THE SELLER, SUPPLIER AND MANUFACTURER OF THE MATERIAL AND THEIR RESPECTIVE AFFILIATES (COLLECTIVELY, THE "SUPPLIER") DISCLAIM ALL LIABILITY FOR RELIANCE ON SUCH INFORMATION AND RECOMMENDATIONS. This SDS is not a guarantee of safety. A buyer or user of the Material (a "Recipient") is responsible for ensuring that it has all current information necessary to safely use the Material for its specific purpose.

Date of issue/Date of revision : 3/29/2022 Date of previous issue : 3/26/2021 Version : 2.3 15/16

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FURTHERMORE, THE RECIPIENT ASSUMES ALL RISK IN CONNECTION WITH THE USE OF THE MATERIAL. THE RECIPIENT ASSUMES ALL RESPONSIBILITY FOR ENSURING THE MATERIAL IS USED IN A SAFE MANNER IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL, HEALTH, SAFETY AND SECURITY LAWS, POLICIES AND GUIDELINES. THE SUPPLIER DOES NOT WARRANT THE MERCHANTABILITY OF THE MATERIAL OR THE FITNESS OF THE MATERIAL FOR ANY PARTICULAR USE AND ASSUMES NO RESPONSIBILITY FOR INJURY OR DAMAGE CAUSED DIRECTLY OR INDIRECTLY BY OR RELATED TO THE USE OF THE MATERIAL.