

NFPA Classification	DOT / TDG Pictograms	WHMIS Classification	HMIS	PROTECTIVE CLOTHING
			Health: 3 Flammability: 0 Reactivity: 0 PPE: J	

## Section I. Chemical Product and Company Identification

<b>PRODUCT NAME/ TRADE NAME</b>		<b>Superphosphoric Acid</b>	
<b>SYNONYM</b>	Superphosphoric Acid, SPA	<b>MSDS NUMBER:</b>	14077
<b>CHEMICAL NAME</b>	Phosphoric acid	<b>REVISION NUMBER</b>	4.9
<b>CHEMICAL FAMILY</b>	Inorganic acid.	<b>MSDS prepared by</b>	September 24, 2006
<b>CHEMICAL FORMULA</b>	H <sub>3</sub> PO <sub>4</sub>	<b>the Environment, Health and Safety Department on:</b>	
<b>MATERIAL USES</b>	Agricultural industry: Manufacture of fertilizer products. Industrial applications: Manufacture of inorganic products.	<b>24 HR EMERGENCY TELEPHONE NUMBER:</b>  Transportation: 1-800-792-8311 Medical: 1-888-670-8123	
<b>MANUFACTURER</b>	Agrium U.S. Inc. Suite 1700, 4582 South Ulster St. Denver, Colorado, U.S.A. 80237	<b>SUPPLIER</b>	Agrium North American Wholesale 13131 Lake Fraser Drive, S.E. Calgary, Alberta, Canada, T2J 7E8  Agrium U.S. Inc. Suite 1700, 4582 South Ulster St. Denver, Colorado, U.S.A., 80237

## Section II. Hazardous Ingredients

NAME	CAS #	Exposure Limits (ACGIH)						% by Weight
		TLV-TWA mg/m <sup>3</sup>	TLV-TWA ppm	STEL mg/m <sup>3</sup>	STEL ppm	CEIL mg/m <sup>3</sup>	CEIL ppm	
Phosphoric acid	7664-38-2	1		3				68-70% as P <sub>2</sub> O <sub>5</sub>
Sulfuric acid	7664-93-9	0.2 (T)						2.5

### ACGIH TLV notations:

---- No assigned TLV

(C) - Ceiling - the concentration not to be exceeded at any time

(I) - measured as the Inhalable fraction of the aerosol

(R) - measured as the Respirable fraction of the aerosol

(T) - measured as the Thoracic fraction of the aerosol

### TOXICOLOGICAL DATA ON INGREDIENTS

#### The TFI Product Testing Program for Phosphoric acid:

Acute oral LD50: 1,530 mg/kg rat

Acute inhalation LC50: 61mg/m<sup>3</sup> as P<sub>2</sub>O<sub>5</sub>, guinea pig; 271mg/m<sup>3</sup> as P<sub>2</sub>O<sub>5</sub>, mouse; 1217mg/m<sup>3</sup> as P<sub>2</sub>O<sub>5</sub>, rat; 1689mg/m<sup>3</sup> as P<sub>2</sub>O<sub>5</sub> as P<sub>2</sub>O<sub>5</sub>, rabbit

Acute eye irritation, OECD 405 protocol: not irritating at <17% solution, severe irritation at higher concentrations

Acute dermal toxicity, LD50: >1,260 mg/kg, rabbit, 85% solution; >3,160 rabbit, 75% soln

Ecotoxicity:

Acute toxicity to fish, bluegill sunfish, 96hr LC50 = pH 3.0-3.5

Acute toxicity to invertebrates, Daphnia, 12 hr EC50 = pH 4.1-4.6

**The TFI Product Testing Program for Sulfuric acid:**

Acute oral LD50, OECD 401 protocol: 2,140 mg/kg rat

Acute inhalation LC50, 1 hr, guinea pig: 18-61mg/m3

Acute dermal toxicity, NOAEL: <5%

Ecotoxicity:

Acute toxicity to fish, zebra fish, 96hr LC50, OECD 203 protocol, 500mg/L (pH 2.29)

Acute toxicity to invertebrates, Daphnia, 24hr ISO 6341 15 protocol EC50 = 29 mg/L (pH 3.5)

**Section III. Hazards Identification.**

**POTENTIAL ACUTE HEALTH EFFECTS**

Extremely dangerous in case of eye contact or skin contact. Corrosive to skin and eyes on contact. Skin contact may produce burns. Dangerous in case of ingestion or inhalation. Liquid or spray mist may produce tissue damage particularly to the eyes, the mucous membranes of the nose, mouth and respiratory tract. Inhalation of the spray mist may produce severe irritation of the respiratory tract, characterized by coughing, choking, or shortness of breath.

**POTENTIAL CHRONIC HEALTH EFFECTS**

Repeated inhalation of mists or vapours can produce varying degree of respiratory irritation or lung damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation or skin burns and ulcerations.

Contains minor amounts of sulfuric acid (approximately 2%). Epidemiological studies of workers chronically exposed to sulfuric acid have suggested an increased risk for upper respiratory cancers. The International Agency for Research in Cancer has concluded that occupational exposure to strong inorganic acid mists containing sulphuric 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 assessment were confounded by exposure to alkyl sulphates (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.

**Section IV. First Aid Measures**

**EYE CONTACT**

Immediately flush eyes with water for 30 minutes or longer keeping eyelids open. Obtain immediate medical attention. Continue to flush eyes, if possible, while transporting to medical care.

**MINOR SKIN CONTACT**

Immediately flush with water for a minimum of 30 minutes while removing contaminated clothing. Obtain immediate medical attention. Continue to flush, if possible, while being transported to medical care.

**EXTENSIVE SKIN CONTACT**

No additional information.

**MINOR INHALATION**

Inhalation of mist may produce irritation of respiratory tract. Loosen tight clothing. Allow to rest in a well ventilated area. Give artificial respiration if breathing has stopped. Obtain immediate medical attention.

**SEVERE INHALATION**

In emergency situations use proper respiratory protection to evacuate affected individuals to a safe area as soon as possible. Loosen tight clothing around the person's neck and waist. Oxygen may be administered if breathing is difficult. If the person is not breathing, perform artificial respiration. Obtain immediate medical attention.

**SLIGHT INGESTION**

Do not induce vomiting. Quickly transport the person to an emergency care facility. Removal of the substance from the stomach must be done by medical personnel. If tolerated, give no more than 1 cup of milk or water (or 1/2 cup for children) to rinse the mouth and throat and dilute the stomach contents.

If spontaneous vomiting does occur, lower the head so that the vomit will not reenter the mouth and throat. Rinse mouth with water.

**EXTENSIVE INGESTION**

No additional information.

**Section V. Fire and Explosion Data**

THE PRODUCT IS	Non-flammable.
AUTO-IGNITION TEMPERATURE	Not applicable.
FLASH POINT	Not applicable.
FLAMMABILITY LIMITS	Not applicable.
PRODUCTS OF COMBUSTION	Not applicable.
FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Not applicable.
EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	May react with iron or other metals to generate hydrogen gas, which may present an explosion hazard.
FIRE FIGHTING MEDIA AND INSTRUCTIONS	Non-flammable. Material will not burn. Undergoes thermal decomposition at elevated temperatures to release toxic and combustible gases.
SPECIAL REMARKS ON FIRE HAZARDS	Non-flammable. When heated to decomposition it emits highly corrosive fumes.
SPECIAL REMARKS ON EXPLOSION HAZARDS	The substance in itself is not explosive.

**Section VI. Accidental Release Measures**

SMALL SPILL	Absorb with an inert dry material and place in an appropriate waste disposal container. Neutralize the residue with sodium carbonate or crushed limestone.
LARGE SPILL	Corrosive liquid. Avoid contact with spilled material. Stop leak if without risk. Absorb with dry earth, sand or other non-combustible material. Dike, if needed, to prevent entry into sewers, or confined areas. Call for assistance on disposal. Neutralize the residue with sodium carbonate or crushed limestone.

**Section VII. Handling and Storage**

PRECAUTIONS	Do not ingest. Do not breathe fumes, vapor or spray. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin and eyes. Keep away from incompatible materials such as caustics. May corrode metallic surfaces. Lined vessels are recommended for storage. Consult a metallurgical specialist for recommendations pertaining to your requirements.
STORAGE	Ensure compatibility with storage vessel materials of construction. Keep away from incompatible materials such as caustics. Keep locked up and out of reach of children.

**Section VIII. Exposure Controls/Personal Protection**

ENGINEERING CONTROLS	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of mists or vapors below their respective threshold limit value. Ensure that an eyewash station and safety shower is near the work location.
PERSONAL PROTECTION	Wear splash goggles, a full impervious PVC suit, butyl rubber gloves, and rubber boots. Be sure to use a NIOSH approved respirator with P-100 cartridges when ventilation is inadequate.
PERSONAL PROTECTION IN CASE OF LARGE RELEASE	In the event of possible exposure to high concentrations of mists, or work which may require contact with liquid acid or acid residues, use a fully impervious EPA Level C chemical protective suit or better. The use of a full facepiece respirator with P-100 filter cartridges is recommended to prevent overexposure by inhalation. For U.S. work sites where respiratory protection is required, ensure that a respiratory protection program meeting 29 CFR 1910.134 is in place.
EXPOSURE LIMITS	

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ACGIH TLV-TWA Phosphoric Acid: 1 mg/m<sup>3</sup>, STEL 3 mg/m<sup>3</sup>  
 ACGIH TLV-TWA Sulfuric Acid: 0.2 mg/m<sup>3</sup> as the Thoracic fraction of the aerosol  
 OSHA PEL Phosphoric Acid: 8Hr TWA 1 mg/m<sup>3</sup>  
 OSHA PEL Sulfuric Acid: 8Hr TWA 1 mg/m<sup>3</sup>  
 Alberta OEL TWA Phosphoric Acid: 1 mg/m<sup>3</sup>, STEL 3 mg/m<sup>3</sup>  
 Alberta OEL TWA Sulfuric Acid: 1 mg/m<sup>3</sup>, STEL 3 mg/m<sup>3</sup>

Federal, State, and Provincial exposure limits may vary. Consult local officials for acceptable exposure limits in your jurisdiction.

**Section IX. Physical and Chemical Properties**

<b>PHYSICAL STATE AND APPEARANCE</b>	Viscous, oily liquid.		
<b>MOLECULAR WEIGHT</b>	Not applicable.	<b>COLOR</b>	Clear green.
<b>pH (10% SOLN/WATER)</b>	1	<b>ODOR</b>	Odorless.
<b>BOILING POINT</b>	260°C (500°F)	<b>ODOR THRESHOLD</b>	Not available.
<b>MELTING POINT</b>	15°C (59°F)	<b>TASTE</b>	Burning, acidic taste.
<b>CRITICAL TEMPERATURE</b>	Not available.	<b>VOLATILITY</b>	Not available.
<b>SPECIFIC GRAVITY g/cc</b>	2.0 (Water = 1)	<b>SOLUBILITY</b>	Easily soluble in cold water, hot water, methanol. Insoluble in non-polar organic materials.
<b>BULK DENSITY kg/m<sup>3</sup> ; lbs/ft<sup>3</sup></b>	2000 kg/m <sup>3</sup> ; 124.9 lbs/ft <sup>3</sup> ; 16.7 lbs/gal (US)	<b>DISPERSION PROPERTIES</b>	See solubility in water, methanol.
<b>VAPOR PRESSURE</b>	0.03 mm of Hg (@ 20°C)	<b>WATER/OIL DIST. COEFF.</b>	Only soluble or dispersed in water.
<b>VAPOR DENSITY</b>	1.12 (Air = 1)		

**Section X. Stability and Reactivity Data**

<b>STABILITY</b>	The product is stable.
<b>INSTABILITY TEMPERATURE</b>	Not applicable.
<b>CONDITIONS OF INSTABILITY</b>	No additional remark.
<b>INCOMPATIBILITY WITH VARIOUS SUBSTANCES</b>	Extremely reactive or incompatible with alkalis. Slightly reactive to reactive with organic materials, metals. Very slightly to slightly reactive with reducing agents. May react with oxidizing agents, combustible materials, or other acids to release heat and volatile acidic gases.
<b>CORROSIVITY</b>	Extremely corrosive to steel, highly corrosive to aluminum, zinc, copper. Slightly corrosive to 304 or 316 stainless steel.
<b>SPECIAL REMARKS ON REACTIVITY</b>	Reacts violently with water especially when water is added to the product. Reacts with metals and metallic salts.
<b>SPECIAL REMARKS ON CORROSIVITY</b>	Corrosive to ferrous metals and alloys. Corrosive to brass. Will corrode a wide variety of metals. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment.

**Section XI. Toxicological Information**

<b>SIGNIFICANT ROUTES OF EXPOSURE</b>	Ingestion. Skin contact. Inhalation.
<b>TOXICITY TO ANIMALS</b>	See Section II.
<b>SPECIAL REMARKS ON TOXICITY TO ANIMALS</b>	Similar effects to those identified for humans may result on exposure.
<b>OTHER EFFECTS ON HUMANS</b>	No additional information.
<b>SPECIAL REMARKS ON CHRONIC EFFECTS ON HUMANS</b>	No additional remark.
<b>SPECIAL REMARKS ON OTHER EFFECTS ON HUMANS</b>	No additional remark.


**Section XII. Ecological Information**

<b>ECOTOXICITY</b>	Corrosive to skin and eyes on contact. May cause burns to mouth, throat and stomach. May cause corneal opacity. May be harmful to fish, livestock, and wildlife.  Aquatic/Marine Toxicity: Harmful to fish and other water organisms if pH drops below 5. Highly soluble. Will disperse with current. Release to watercourses may cause effects down stream from the point of release. Provides a source of phosphate nutrient which can promote algal growth in waterways. Rapid algal growth may result in eutrication of waterways (oxygen depletion from decomposition of decaying plant matter), reducing the viability of waterways for other organisms. U.S. D.O.T.: This material is NOT listed as a Marine pollutant. Non-toxic for humans or animals.
<b>BOD and COD</b>	Not available.
<b>PRODUCTS OF DEGRADATION</b>	Not applicable.
<b>TOXICITY OF THE PRODUCTS OF DEGRADATION</b>	The products of biodegradation are as toxic as the original product.
<b>SPECIAL REMARKS ON THE PRODUCTS OF DEGRADATION</b>	No additional remark.

**Section XIII. Disposal Considerations**

<b>WASTE DISPOSAL OR RECYCLING</b>	Recover and place material in a suitable container for intended use or disposal. Ensure disposal complies with government requirements and local regulations.
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**Section XIV. Transport Information**

<b>DOT / TDG CLASSIFICATION</b>	TDG CLASS 8: Corrosive liquid.
<b>PIN and Shipping Name</b>	Proper Shipping Name: Phosphoric Acid PIN #: UN1805 PGIII
<b>SPECIAL PROVISIONS FOR TRANSPORT</b>	A7,IB3,IP3,N34,T4,TP1
<b>DOT (U.S.A) (Pictograms)</b>	

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**Section XV. Other Regulatory Information and Pictograms**

**OTHER REGULATIONS** CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): This product is on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.  
 OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).  
 TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.  
 SARA TITLE III:  
 1. EHS (EXTREMELY HAZARDOUS SUBSTANCES) LIST: Not Listed  
 CERCLA HAZARDOUS SUBSTANCES and REPORTABLE QUANTITIES: Listed (EPA, 1996)  
 1. Statutory RQ (Reportable Quantity): 5000 pounds. The statutory source for designation of this hazardous substance under CERCLA is CWA Section 311(b)4.  
 2. Final RQ (Reportable Quantity): 5000 pounds (2270 kilograms); Final RQ Category: D  
 The following substance is listed in SARA Section 313 and is to be reported:  
 Sulfuric acid, CAS # 7664-93-9, 2.5 wt%.  
 CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986 (CA Health and Safety Code Sec 25249.6):  
 This product contains the following chemical known to the State of California to cause cancer - strong inorganic acid mists containing sulfuric acid.  
 This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.

<b>OTHER CLASSIFICATIONS</b>	<b>HCS (U.S.A.)</b>	HCS CLASS: Toxic. HCS CLASS: Corrosive liquid.
	<b>DSCL (EEC)</b>	35- Causes severe burns. 41- Risk of serious damage to eyes. 20/22- Harmful by inhalation and if swallowed.

<b>National Fire Protection Association (U.S.A.)</b>	Hazards presented under acute emergency conditions only:		<b>Fire Hazard</b>
			<b>Reactivity</b>
			<b>Specific Hazard</b>

<b>TDG (Pictograms - Canada)</b>	
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<b>DSCL (Europe) (Pictograms)</b>	
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<b>ADR (Europe) (Pictograms)</b>	
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**Section XVI. Other Information**

**REFERENCES**

- Transportation of Dangerous Goods Act and Clear Language Regulations, current revision.
- Canada Gazette Part II, Vol. 122, No. 2 Registration SOR/88-64 31 December, 1987 Hazardous Products Act "Ingredient Disclosure List".
- Domestic Substances List, Canadian Environmental Protection Act.
- 29 CFR Part 1910
- 33 CFR Parts 151, 153, 154, 156
- 40 CFR Parts 1-799
- 46 CFR Part 153
- 49 CFR Parts 1-199
- American Conference of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances, 2006.

-NFPA 704, National Fire Codes Online, National Fire Protection Association, current edition at time of MSDS preparation.

-Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers

-TOMES® System: Heitland G & Hurlbut KM (Eds) (electronic version): MICROMEDEX, Greenwood Village, Colorado, USA. Available at: <http://csi.micromedex.com> (2006). The TOMES® System includes MEDITEXT® Medical Management; HAZARDTEXT® Hazard Management; INFOTEXT® Documents; ERG2000 Emergency Response Guidebook Documents; REPROTEXT®: Heitland G & Hurlbut KM (Eds); CHRIS Hazardous Chemical Data: U.S. Department of Transportation, U.S. Coast Guard, Washington, D.C. (2006); HSDB: Hazardous Substances Data Bank. National Library of Medicine, Bethesda, Maryland (2006); IRIS: Integrated Risk Information System. U.S. Environmental Protection Agency, Washington, D.C. (2006); NIOSH: Pocket Guide to Chemical Hazards. National Institute for Occupational Safety and Health, Cincinnati, Ohio (2006); OHM/TADS: Oil and Hazardous Materials Technical Assistance Data System. U.S. Environmental Protection Agency, Washington, D.C. (2006); REPROTOX®: Scialli A.R. Georgetown University Medical Center and Reproductive Toxicology Center, Columbia Hospital for Women Medical Center, Washington, D.C. (2006); RTECS®: Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio (2006); and SHEPARDS: Shepard T.H.: Shepard's Catalog of Teratogenic Agents (2006).

-The Fertilizer Institute Product Testing Program Results, March 2003

**OTHER SPECIAL  
CONSIDERATIONS**

HMIS information added in this revision.

**FOR FURTHER SAFETY, HEALTH, OR  
ENVIRONMENTAL INFORMATION ON  
THIS PRODUCT, CONTACT**

**AGRIUM**  
Wholesale Environment, Health and Safety  
Telephone (780) 998-6906 or Fax (780) 998-6677

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