

# Material Safety Data Sheet

## ORTHOPHOSPHORIC ACID 85%

**Infosafe No.** AJ1XR      **Issue Date** August 2005      **Status** ISSUED by APSSC

**Classified as hazardous according to criteria of NOHSC**

### COMPANY DETAILS

**Company Name** APS, A Division of Nuplex Industries (Aust) Pty Ltd (ABN 25 000 045 572)  
**Address** 8 Abbott Road SEVEN HILLS  
NSW 2147

**Emergency Tel.** 1800 022 037 (24H)  
**Tel/Fax** Tel: (02) 9839 4000 Fax: (02) 9674 6225  
**Other Information** New Zealand: Asia Pacific Specialty Chemicals (NZ) Limited  
119 Carbine Road  
Mt Wellington, Auckland 6  
Emergency Tel: 0800 154 666 (24H)  
Telephone: (09) 276 4019  
Fax: (09) 276 7231

### IDENTIFICATION

**Product Code** A371  
**Product Name** ORTHOPHOSPHORIC ACID 85%

**Proper Shipping Name** PHOSPHORIC ACID  
**Other Names** Not Available  
**UN Number** 1805  
**DG Class** 8  
**Packing Group** III  
**Hazchem Code** 2R  
**Poisons Schedule** S6  
S6 ; New Zealand:S3

**Product Use** Manufacture of phosphate fertilizers and salts, polyphosphates, detergents, pharmaceutical chemicals, activated carbon, animal feed, ceramics, food additive, food processing, rust inhibitors, wax and rubber latex; also used in electropolishing, engraving and photoengraving, printing, metal cleaning, sugar refining and water treatment.

### Physical Data

**Appearance** Clear, colourless syrupy liquid; odourless.  
**Melting Point** 21°C (85% solution)  
**Boiling Point** 158°C (85% solution)(water boils off first).  
**Vapour**

<b>Pressure Specific Gravity</b>	Not available
<b>Flash Point</b>	1.685 (85% solution)
<b>Flamm. Limit LEL</b>	Not applicable
<b>Flamm. Limit UEL</b>	Not applicable
<b>Solubility in Water</b>	Not applicable
	Soluble

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## Other Properties

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<b>Autoignition Temp.</b>	Not available
<b>Evaporation Rate</b>	Slower than butyl acetate.
<b>pH Value</b>	1.5 (1% H <sub>3</sub> PO <sub>4</sub> )
<b>Decomposition Temperature</b>	Not available
<b>Stability</b>	Stable under normal storage conditions.
<b>Haz.</b>	
<b>Polymerization</b>	Will not occur.
<b>Materials to Avoid</b>	Strong bases and, strong oxidising and reducing agents; sulphides, phosphides, cyanides, acetylides, fluorides and carbides.
<b>Other Information</b>	Acidity: Strong acid. K <sub>1</sub> = 7.1 x 10 <sup>(-3)</sup> ; K <sub>2</sub> = 8.0 x 10 <sup>(-8)</sup> ; K <sub>3</sub> = 4.8 x 10 <sup>(-13)</sup>

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## Ingredients

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Ingredients	Name	CAS	Proportion
	Phosphoric acid	7664-38-2	80-95 %
	Water	7732-18-5	5-20 %

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## HEALTH HAZARD INFORMATION

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### Health Effects

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<b>Acute - Swallowed</b>	Ingestion of this product may cause burns to the mouth and throat, pain in the stomach, difficulty in breathing, nausea, vomiting, diarrhea, and convulsions. It cause gastric or esophageal perforation.
<b>Acute - Eye</b>	Corrosive to eyes. Mists may cause severe eye irritation. When splashed in the concentrated solutions can cause severe burns, pain and permanent eye damage.
<b>Acute - Skin</b>	Corrosive to skin - skin contact will cause redness, itching, irritation, severe pain and chemical burns with resultant tissue destruction.
<b>Acute - Inhaled</b>	Inhalation of mists or vapours will result in respiratory irritation and possible ha corrosive effects including lesions of the nasal septum, pulmonary edema, pneumonitis and emphysema.
<b>Hazards Identification</b>	

Australia:  
 Classified as Hazardous, according to criteria of National Occupational Health & Commission, Australia (NOHSC).  
 Classified as Dangerous Goods, according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

New Zealand:

Classified as Hazardous according to the NZ Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001.

Classified as Dangerous Goods for transport, according to the NZS 5433:1999 Transport of Dangerous Goods on Land.

**Chronic** Prolonged exposures can cause necrosis of nasal passages and edema of lungs.

## First Aid

<b>Swallowed</b>	Never give anything by mouth if victim is semi-conscious or unconscious. Immediately wash out mouth with copious amounts of water. Seek immediate medical attention.
<b>Eye</b>	If contact with the eyes occurs, wash with copious amounts of water for approximately 15 minutes holding eyelids open. Take care not to rinse contaminant water into the non-affected eye. Seek immediate medical attention.
<b>Skin</b>	If skin or hair contact occurs, remove contaminated clothing and flush skin and thoroughly with running water. Seek medical attention.
<b>Inhaled</b>	Remove the source of contamination or move the affected person to fresh air. If airways are clear. Keep at rest. Seek medical attention.
<b>First Aid Facilities</b>	Eye wash station, safety shower and normal washroom facilities.
<b>Other Information</b>	For advice in an emergency, contact the Poisons Information Centre (Phone eg Australia 131 126; New Zealand Phone 0800 POISON (0800-764-766)).

## Advice to Doctor

**Advice to Doctor** Treat symptomatically.

## Other Health Hazard Information

## PRECAUTIONS FOR USE

<b>Exposure Limits</b>	The National Occupational Health & Safety Commission (NOHSC), Australia and Occupational Safety and Health Service (OSH) of the New Zealand Department Labour have established the following exposure standards for phosphoric acid. National Occupational Health And Safety Commission (NOHSC), Australia exposure standards:																
	<table> <thead> <tr> <th rowspan="2">Substance</th> <th colspan="2">TWA</th> <th colspan="2">STEL</th> <th rowspan="2">NOTICE</th> </tr> <tr> <th>ppm</th> <th>mg/m<sup>3</sup></th> <th>ppm</th> <th>mg/m<sup>3</sup></th> </tr> </thead> <tbody> <tr> <td>Phosphoric acid</td> <td>-</td> <td>1</td> <td>-</td> <td>3</td> <td>-</td> </tr> </tbody> </table>	Substance	TWA		STEL		NOTICE	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	Phosphoric acid	-	1	-	3	-
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<b>Other Exposure Info.</b>	As published by the National Occupational Health and Safety Commission (NOHSC) and the New Zealand Occupational Safety and Health Service (OSH). TWA (Time Weighted Average): The average airborne concentration of a particulate substance when calculated over a normal eight-hour working day, for a five-day week. STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.																
<b>Eng. Controls</b>	Provide sufficient ventilation to keep airborne levels below the exposure limits. If vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a local exhaust ventilation system is required.																

## Personal Protection

<b>Respirator Type (AS 1716)</b>	If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapour/mist filter should be used. Reference should be made to Australian/New Zealand Standards AS/NZS 1715, Selection, and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.
<b>Eye Protection</b>	Safety glasses with side shields, goggles or full-face shield as appropriate recommended. Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.
<b>Glove Type</b>	Wear laminated film, nitrile or other suitable gloves conforming to AS/NZS 2161 Occupational protective gloves. Final choice of appropriate gloves may vary according to individual circumstances i.e. methods of handling or according to risk assessment undertaken.
<b>Clothing</b>	Wear appropriate clothing, including chemical resistant apron where clothing is to be contaminated.
<b>Work/Hygiene Practices</b>	Maintain high standards of personal hygiene i.e. wash hands prior to eating, drinking, smoking or using toilet facilities.

## Flammability

<b>Fire Hazards</b>	Non combustible material. However, contact of phosphoric acid with common metals produces hydrogen which may form flammable mixtures with air.
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## SAFE HANDLING INFORMATION

### Storage and Transport

<b>Storage Precautions</b>	Store in a cool, dry, well-ventilated area away from heat, oxidising agents and incompatible materials, and foodstuffs. Keep containers closed when not in use and securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Phosphoric acid solutions should be stored in glass containers or other acid-resistant materials. The storage area should be clean and well ventilated. It should have acid-resistant floor and approved drainage. To prevent crystallization of concentrated phosphoric acid solutions, minimum storage temperatures are 21°C for 85% solutions and 4°C for 80% solutions.
<b>Transport</b>	<p>Australia:</p> <p>This material is a Class 8 Corrosive Substance according to the Australian Code of Practice for the Transport of Dangerous Goods by Road and Rail.</p> <p>Class 8 - Corrosive Substances are incompatible in a placard load with any of the following:</p> <ul style="list-style-type: none"> <li>- Class 1, Explosives</li> <li>- Class 4.3, Dangerous When Wet Substances</li> <li>- Class 5.1, Oxidising Agents &amp; Class 5.2 - Organic Peroxides</li> <li>- Class 6, Toxic Substances (where the Toxic substances are cyanides and the corrosives are acids),</li> <li>- Class 7, Radioactive Substances</li> </ul> <p>and are incompatible with food and food packaging in any quantity.</p> <p>New Zealand:</p> <p>This material is classified as a Class 8 - Corrosive Substance according to NZS 5433:1999 Transport of Dangerous Goods on Land.</p> <p>Class 8 substances must not be loaded in the same freight container or on the same vehicle with:</p> <ul style="list-style-type: none"> <li>- (Class 1) Explosives</li> <li>- (Class 5.1) Oxidising substances</li> <li>- (Class 5.2) Organic peroxides</li> <li>- (Class 7) Radioactive materials unless specifically exempted</li> </ul>

and are incompatible with food and food packaging in any quantity.  
 Note 1; Cyanides (Class 6.1) must not be loaded in the same freight container or on the same vehicle with acids (Class 8).

Note 2; Strong acids must not be loaded in the same freight container or on the same vehicle with strong alkalis. Packing Group I and II acids and alkalis should be considered as strong.

Class 8 substances must not be loaded with in the same freight container; and on the same vehicle must be separated horizontally by at least 3 metres unless all but are packed in separate freight containers with:

- (Class 4.3) Dangerous when wet substances

Goods of packing group II or III may be loaded in the same freight container or on the same vehicle if transported in segregation devices with:

- (Class 4.3) Dangerous when wet substances

- (Class 5.1) Oxidising substances

- (Class 5.2) Organic peroxides

and are incompatible with food and food packaging in any quantity.

## Handling

Use in a well ventilated area. Do not mix with bases and other incompatible materials. Protect from freezing. Avoid generating mists. Use smallest possible amounts in designated areas with adequate ventilation. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Corrosion of equipment and surfaces should be considered in areas where hot or misted phosphoric acid is present. Soda ash or lime should be kept nearby for emergency use. Label containers. Keep containers closed when not in use. Empty containers may contain residues which are hazardous. When preparing or diluting acid solutions, the acid should be added to water with plenty of careful stirring. This will prevent overheating, splashing or splattering of the acid.

## Proper

**Shipping Name** PHOSPHORIC ACID

**EPG Number** 8A1

**IERG Number** 37

## Packaging

**Method** 3.8.8RT8

## Spills and Disposal

### Accidental Release Measures

Wear appropriate personal protective equipment and clothing to prevent exposure. Restrict access to area until completion of clean-up. Ensure cleanup is conducted by trained personnel only. Stop leak if safe to do so. Increase ventilation. If possible, contain the spill. Place inert absorbent material onto spillage. Use clean non-sparking tools to collect the material and place into suitable labelled containers. Do not dump material but contain. Dispose of waste according to federal, Environmental Protection Authority and state regulations. If the spillage enters the waterways contact the Environmental Protection Authority, or your local Waste Management Authority. Note: Neutralize with sodium bicarbonate (NaHCO<sub>3</sub>) or a mixture of soda ash/soda lime. Shovel residue into containers for disposal. Lime is the preferred neutralizing agent because of the low solubility of the calcium phosphate formed.

### Disposal

**Considerations** The spilled or waste material must be disposed of in accordance with applicable and national regulations.

## Fire/Explosion Hazard

### Fire/Explos. Hazard

This product is not combustible, but will decompose under fire conditions releasing toxic and irritating oxides of phosphorus. Phosphoric acid is not combustible, but contact with common metals produces hydrogen which may form flammable mixtures with air.

### Hazardous Combustion Products Hazardous

Under fire conditions this product will decompose and emit toxic and/or irritating smoke, phosphoric acid fumes and phosphorus oxides.

**Decomposition****or Byproducts** Oxides of phosphorus.**Fire Fighting Precautions** Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) and full protective clothing to prevent exposure to vapours, fumes or products of combustion. Water spray may be used to cool down heat-exposed containers and help prevent rupture. Water spray may also be used to control acid vapours.**Extinguishing Media** Extinguish fire with foam, dry chemical powder, carbon dioxide, water spray or fog.

Do not use water jets.

**Hazardous Reaction** Reacts with strong alkalis, strong oxidising and reducing agents, most metals, sulphides, phosphides, cyanides, acetylides, fluorides and carbides, releasing flammable or toxic gases.**Hazchem Code** 2R

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**OTHER INFORMATION**

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**Toxicology** For Phosphoric acid:  
LD50 (oral, rat): 1,530 mg/kg  
LD50 (dermal, rabbit): 2,740 mg/kg  
Skin Irritation - Standard Draize Test:  
Rabbit, 595 mg/24H: Severe  
Eye Irritation - Standard Draize Test:  
Rabbit, 119 mg: Severe**Environment Protection Risk Statement** Do not allow product to enter drains, waterways or sewers.**Safety Statement** R34 Causes burns.  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S23(3) Do not breathe spray.  
S24/25 Avoid contact with skin and eyes.  
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.**Regulatory Information** Australia:  
Classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC).  
Classified as Schedule 6 (S6) Poison, according to the Standard for the Uniform Scheduling of Drugs and Poisons, 2004. (No. 19).  
New Zealand:  
Classified as Hazardous according to the NZ Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001.  
Classified as Schedule 3 (S3) Standard Poison, according to the New Zealand Toxic Substances Regulations 1983.**Hazard Category** Corrosive  
**Ecotoxicity** Not available  
**Persistence / Degradability** Not available  
**Mobility** Not available  
**AICS (Australia)** All constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).  
**SDS History** MSDS Reviewed: August 2005  
Supersedes: October 2000

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**CONTACT POINT**

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**Contact** Australia: Business Hours: Mr Paul Verren  
Telephone: (02) 9839 4024  
Emergency Tel: 1800 022 037

New Zealand: Business Hours: Mr Lloyd Williams  
Telephone: (09) 276 4019  
Emergency Tel: 0800 154 666

IMPORTANT ADVICE: This MSDS summarizes our best knowledge of the health safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including its use in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact Nuplex Industries (Aust) Pty Ltd. Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is provided to our customers and is also available on request.

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End of MSDS

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