

Comet Chemical Company Ltd.

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Materials Safety Data - PHOSPHORIC ACID 85% or 75% (Orthophosphoric Acid)

Shipping Name	UN - 1805
Transport of Dangerous Goods Class	PHOSPHORIC ACID, LIQUID
WHMIS Class	Class 8; Packing Group III
Material Use	E
	compounding, of detergents, pharmaceuticals, fertilisers, food additives, metal treatment, rust inhibitors, fireproofing, etc.

1. HAZARDOUS INGREDIENTS	CAS NUMBER	%	TWAEV (mg/m ³)	LD ₅₀ ORAL	(mg/kg) SKIN	LC ₅₀ (mg/m ³) INHALATION
Phosphoric Acid	7664-38-2	75%-85%	1	1530	2740	850

2.

PHYSICAL CHARACTERISTICS

Odour & Appearance	clear, colourless, odourless, mobile liquid (85% is syrupy)
Odour Threshold	none, odourless
Vapour Pressure	85% - 2.2mmHg / 0.29kPa; 75% - 5.6mmHg / 0.75kPa (20°C) – NOTE: water vapour only
Vapour Density (air = 1)	as water vapour
Boiling Point	85% - 158°C; 75% - 135°C – NOTE: decomposes to pyrophosphoric acid on drying at 213°C
Melting Point	85% melts at 21°C; 75% melts at -17.5°C
Specific Gravity	85% - 1.685; 75% - 1.573 (20°C)
Water Solubility	complete
pH	below 1, 1% solution = pH 2.1 (strongly acid)

3.

FLAMMABILITY & REACTIVITY

Flash Point	will not burn
Autoignition Temperature	will not burn
Flammable Limits	will not burn
Hazardous Combustion Products	heating to dryness yields various toxic oxides of phosphorous including phosphoric anhydride, which reacts violently with water
Firefighting Precautions	as for materials sustaining fire - firefighters must wear SCBA
Sensitivity to Static Discharge	not sensitive
Sensitivity to Mechanical Impact	not sensitive
Chemical Stability	stable; will not polymerize
Reactive With	ferrous metals and alloys, ceramics, glass; violent reaction with alkalies; releases toxic gases on contact with sulphides, phosphides, cyanides, carbides, mercaptans, & silicides; reacts with glass, porcelain, stainless steel, earthenware, above 200°C
Dangerous Decomposition Products	toxic, corrosive fumes of phosphoric anhydride on heating

4.

TOXICOLOGY

EFFECTS OF ACUTE EXPOSURE

Skin Contact	highly corrosive to skin
Skin Absorption	not absorbed; severe damage to skin prevents absorption
Eye Contact	highly irritating - likely to cause permanent damage unless rinsed promptly
Inhalation	low vapour pressure makes this very unlikely; mist is corrosive to respiratory system
Ingestion	highly corrosive to mouth and throat

(Phosphoric Acid, cont'd)

EFFECTS OF CHRONIC EXPOSURE

General	too corrosive for chronic exposure; dilute material relatively harmless	
Sensitising	no	
Carcinogenic	no effects documented in humans	
Reproductive Effect	experimental mutagen - no effects documented in humans	
Synergistic With	not known	
Estimated LD ₅₀	1800mg/kg (oral, rat); 3300mg/kg (skin, rabbit)	<i>NOTE: calculated for 85%</i>
Estimated LC ₅₀	1000mg/m ³ (inhalation, rat)	<i>NOTE: calculated for 85%</i>

5. PROTECTIVE EQUIPMENT

Hands	butyl rubber, neoprene rubber, natural rubber or polyvinyl chloride (PVC) gloves <i>(Most waterproof materials protect well against this product.)</i>
Eyes	safety glasses with side shields; face shield highly recommended
Respirator	not required unless product mist is generated - then use dust/mist filter plus acid gas cartridge
Clothing	impermeable (hands, above) apron, boots, long sleeves, if splashing is anticipated

6. ENVIRONMENT

Leak Precaution	dyke to control spillage and prevent environmental contamination
Handling Spill	if the product is reacting (eg: bubbling), thoroughly ventilate area before attempting any cleanup – flammable hydrogen gas or other decomposition products may be present; recover free liquid with corrosion resistant pumps (neutralisation may be appropriate prior to pumping), dilute residue with water and neutralise with limestone, clay or chalk; absorb residue on dry sand or earth and store in closed containers for disposal
Waste Disposal	small quantities (20 - 40 litres) of neutralised material may be flushed to sewer with plenty of water, larger amounts cause eutrophication of streams and ponds - consult local authorities before disposal; <i>neutralised material is a good fertilizer and may be disposed of in this manner</i>

7. STORAGE & HANDLING

Store in original shipping container or similar. Dissolves ferrous metals, certain alloys and glass (when hot). Use with good ventilation as manufacturing process may cause the release of toxic or flammable gases. ***Heat may convert this material to highly reactive phosphoric anhydride.*** Avoid all contact with skin. Launder work clothes frequently. An eye bath and safety shower must be available near the workplace.

8. FIRST AID

SKIN:	Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered.
EYES:	Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is any irritation.
INHALATION:	Remove from contaminated area promptly. CAUTION: Phosphoric acid reacts with many materials to produce toxic gases - rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION:	Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, keep victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

NOTE: Inadvertent inhalation of vomited material may seriously damage the lungs. The risk and danger of this is greater than the risk of poisoning through absorption of this product. The stomach should be emptied under medical supervision, after the installation of an airway to protect the lungs.

Emergency telephone numbers - weekdays from 8:00 - 5:00 (705) 436-5580
at all other times (800) 567-7455 (Philip Environmental)

Prepared for Comet Chemical Co. Ltd., by Nicholas Morgan, November 2002; Revised August 2005

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