



## Material Safety Data Sheet

### SECTION 4 – FIRST AID MEASURES

**Inhalation First Aid:** Move victim to fresh air immediately. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask. **Obtain medical attention immediately.**

**Skin Contact First Aid:** Flush skin with running water for at least 20 minutes while removing contaminated clothing and shoes. **Obtain medical attention immediately.** Thoroughly wash clothing before reuse or discard.

**Eye Contact First Aid:** Flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. **Obtain medical attention immediately.** DO NOT allow victim to rub eyes or keep eyes closed.

**Ingestion First Aid:** DO NOT INDUCE VOMITING. If Victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. **Obtain medical attention immediately.**

**Medical Conditions Aggravated:** Contact may aggravate disorders of the eyes, skin, gastrointestinal, and respiratory system.

**Chronic Effects:** May cause adverse kidney effects. Chronic exposure may cause lung damage, dermatitis, conjunctivitis, dental erosion, jaw necrosis, chronic cough, bronchitis, chemical pneumonitis, or gastrointestinal disturbances.

**Note to Physician:** Treat symptomatically.

### SECTION 5 – FIRE FIGHTING MEASURES

**Flash Point/Method:** Not applicable.

**Auto Ignition Temperature:** Not applicable.

**Upper/Lower Explosion Limits:** No data available.

**Extinguishing Media:** Use media suitable for surrounding fire.

**Fire Fighting Procedures:** As with any fire, fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Use water spray to keep fire-exposed containers cool.

**Fire & Explosion Hazards:** Thermal decomposition can lead to release of irritating gases and highly toxic gases. Contact with metals may evolve flammable hydrogen gas. Substance may react with water, and may release corrosive and/or toxic gases. Containers may explode when heated or if contaminated with water.

**Hazardous Products of Decomposition and/or Combustion:** Irritating or poisonous vapors can be formed during thermal decomposition; avoid breathing vapors or mists.

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**NFPA Ratings:** HEALTH - 3      FLAMMABILITY - 0      REACTIVITY - 1

### SECTION 6 – ACCIDENTAL RELEASE MEASURES

Wear appropriate personal protective equipment (see Section 8). Stop leak if safe to do so without risk. Ensure adequate ventilation. Avoid contact with skin, eyes, and clothing.

Neutralize spill with sodium bicarbonate. Cover with sand, dry lime or soda ash. After effervescence ceases, place in a closed container for disposal. Remove all sources of ignition. Provide ventilation. Do not get water inside containers. A vapor suppressing foam may be used to reduce vapors. Keep in suitable and closed containers for disposal.

All disposal methods must be in compliance with all Federal, State, Local and Provincial laws, and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

### SECTION 7 – HANDLING AND STORAGE

**Handling:** Wear personal protective equipment. Ensure adequate ventilation. Do not breathe vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.

**Storage:** Keep containers tightly closed. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not store in metal containers. Do not store near alkaline substances.

### SECTION 8 – PERSONAL PROTECTION/ EXPOSURE CONTROL

**Respiratory Protection:** Ensure adequate ventilation, especially in confined areas. Do not breathe vapor, mist, or gas. Respirators: 50mg/M3 HiEPF/SAF/SCBAF; 200mg/M3 SAF: PD, PP, CF. Firefighting- SCBAF: PD.PP.

**Skin Protection:** Wear protective gloves and other protective clothing as appropriate to prevent skin contact.

**Eye Protection:** Wear safety glasses with side shields for normal operating conditions. Wear chemical safety goggles if use conditions generate splashes, mists, or sprays.

**Ventilation Protection:** General exhaust ventilation is usually adequate under normal operating conditions. However, if use conditions generate mists or sprays, use local exhaust ventilation.

**Other Protection:** Recommend means of washing the eyes with a gentle flow of cool to tepid water be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather. Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees on the safe use and handling of this product.

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**Exposure Limits:** Occupational exposure limits have not been established for this material. However, for the components:

### Exposure Limits, mg / m<sup>3</sup>

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydrogen Chloride	Ceiling: 2 ppm	Ceiling: 7 mg/m <sup>3</sup> Ceiling 5 ppm (Vacated) Ceiling: 5 ppm (Vacated) Ceiling: 7 mg/m <sup>3</sup> Ceiling: 7 mg/m <sup>3</sup>	IDLH: 50 ppm Ceiling 5 ppm Ceiling 7 mg/m <sup>3</sup>
Sulfuric Acid	0.2 mg/m <sup>3</sup> (thoracic fraction)	1 mg/m <sup>3</sup> TWA	1 mg/m <sup>3</sup> TWA 15 mg/m <sup>3</sup> ILDH
Phosphoric Acid	1 mg/m <sup>3</sup> TWA 3 mg/m <sup>3</sup> STEL	1 mg/m <sup>3</sup> TWA	1 mg/m <sup>3</sup> TWA
Water	Not listed	Not listed	Not listed

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Hydrogen Chloride	Ceiling: 7.5 mg/m <sup>3</sup> Ceiling: 5 ppm	Peak: 7 mg/m <sup>3</sup> Peak: 5 ppm	CEV: 2 ppm

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

**Appearance & Odor:** Colorless, low viscosity, weakly pungent liquid.

**Boiling Point:** 100 - 103°C (212-217°F)

**pH:** -0.5 to 1

**Specific Gravity:** 1.0 - 1.2

**Solubility in Water:** Miscible

## SECTION 10 – STABILITY AND REACTIVITY

**Stability:** Stable under normal temperatures and pressures. Above 200°C converts to pyrophosphoric acid. At 20-150°C loses water to form strong acid capable of reacting violently with bases, become corrosive, and react with metal to form hydrogen gas.

**Incompatibilities:** Sodium tetraborate/alkaline compounds, water reactive substances (e.g. sulfuric acid, sodium metal, potassium metal, calcium carbide, nitromethane)

**Hazardous Polymerization:** Will not occur.

**Hazardous Decomposition Products:** Hydrogen chloride gas, carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), oxides of sulfur, oxides of phosphorus

**Conditions to Avoid:** Avoid exposure to extreme temperatures and contact with incompatible materials.

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### SECTION 11 – TOXICOLOGICAL INFORMATION

**Toxicological Data:** There are no toxicological data available for this material. However, for the components of this material:

**Hydrogen Chloride:** Acute Toxicity

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrogen chloride	700 mg/kg ( Rat )	5010 mg/kg ( Rabbit)	3124 ppm ( Rat ) 1 h

#### Chronic Toxicity

**Carcinogenicity:** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA	Mexico
Hydrogen chloride	Not listed	Group 3	Not listed	Not listed	Not listed

#### IARC: (International Agency for Research on Cancer)

- Group 1 - Carcinogenic to Humans
- Group 2A - Probably Carcinogenic to Humans
- Group 2B - Possibly Carcinogenic to Humans

**Mutagenic Effects** Mutagenic effects have occurred in microorganisms.

**Reproductive Effects** Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects** Developmental effects have occurred in experimental animals.

**Teratogenicity** Teratogenic effects have occurred in experimental animals.

#### Sulfuric Acid:

RTECS#: CAS# 7664-93-9: WS5600000 ; CAS# 7732-18-5: ZC0110000

LD50/LC50:

RTECS:

#### CAS# 7664-93-9:

Draize test, rabbit, eye: 250 ug Severe;  
Inhalation, mouse: LC50 = 320 mg/m<sup>3</sup>/2H;  
Inhalation, mouse: LC50 = 320 mg/m<sup>3</sup>;  
Inhalation, rat: LC50 = 510 mg/m<sup>3</sup>/2H;  
Inhalation, rat: LC50 = 510 mg/m<sup>3</sup>;  
Oral, rat: LD50 = 2140 mg/kg;

RTECS:

#### CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg;

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### Carcinogenicity:

Sulfuric acid - ACGIH: A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists)

California: carcinogen, initial date 3/14/03 (Strong inorganic acid mists containing sulfuric acid).

NTP: Known carcinogen (Strong inorganic acid mists containing s).

IARC: Group 1 carcinogen

### Phosphoric acid:

#### RTECS:

CAS# 7732-18-5: ZC0110000.

CAS# 7664-38-2: TB6300000.

#### LD50/LC50:

CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.

CAS# 7664-38-2: Oral, rat: LD50 = 1530 mg/kg ; Skin, rabbit: LD50 = 2740 mg/kg.

### Carcinogenicity:

CAS# 7732-18-5: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 7664-38-2: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

### Epidemiology:

Concentrated phosphoric acid is corrosive to skin, eyes, mucous membranes. Increased risk among persons with chronic respiratory/skin disease.

## SECTION 12 – ECOLOGICAL INFORMATION

### Toxicological Information:

**Ecotoxicity:** Do not empty into drains.

**Persistence and Degradability** No information available

**Bioaccumulation/ Accumulation** No information available

**Mobility** No information available

## SECTION 13 – DISPOSAL CONSIDERATIONS

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

## SECTION 14 – TRANSPORTATION INFORMATION

**DOT Shipping Name:** Corrosive Liquids, N.O.S. (Hydrochloric Acid, Sulfuric Acid, Phosphoric Acid)

**Hazard Class:** 8

**Identification Number:** UN 1760

**Packing Group:** III

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### SECTION 15 – REGULATORY INFORMATION

#### Hydrochloric Acid (HCl) International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Water	X	X	-	231-791-2	-		X	-	X	X	KE-35400 X
Hydrogen Chloride	T	X	-	231-595-7	-		X	X	X	X	KE-20189 X

**Legend:**

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

#### U.S. Federal Regulations

TSCA 12(b) Not applicable

#### SARA 313

Component	CAS-No	Weight %	SARA 313 – Threshold Values %
Hydrogen chloride	7647-01-0	3.65	1.0

#### SARA 311/312 Hazardous Categorization

Acute Health Hazard No

Chronic Health Hazard No

Fire Hazard No

Sudden Release of Pressure Hazard No

Reactive Hazard No

#### Clean Water Act

Component	CWA – Hazardous Substances	CWA – Reportable Quantities	CWA – Toxic Pollutants	CWA - Priority Pollutants
Hydrogen chloride	X	5000 lb	-	-

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### Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hydrogen chloride	X		-

### OSHA

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Hydrogen chloride	X	TQ: 5000 lb

### CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hydrogen chloride	5000 lb	5000 lb

**California Proposition 65:** This product does not contain any Proposition 65 chemicals.

### State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hydrogen chloride	X	X	X	X	X

### U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

### U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Hydrogen chloride	0 lb STQ (anhydrous); 11250 lb STQ (37% concentration or greater)

### Other International Regulations

**Mexico - Grade** No information available  
**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class:** E Corrosive material

### Sulfuric acid

European/International Regulations

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European Labeling in Accordance with EC Directives

Hazard Symbols: C

Risk Phrases:

R 34 Causes burns.

Safety Phrases:

S 23 Do not inhale gas/fumes/vapour/spray.

S 24/25 Avoid contact with skin and eyes.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 28B After contact with skin, wash immediately with plenty of water and soap.

S 30 Never add water to this product.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 7664-93-9: 2

CAS# 7732-18-5: Not available

Canada

CAS# 7664-93-9 is listed on Canada's DSL List

CAS# 7732-18-5 is listed on Canada's DSL List

Canadian WHMIS Classifications: D1A, E

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 those regulations.

CAS# 7664-93-9 is listed on Canada's Ingredient Disclosure List

CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.

US Federal

TSCA

CAS# 7664-93-9 is listed on the TSCA Inventory.

CAS# 7732-18-5 is listed on the TSCA Inventory

### Phosphoric Acid

US Federal

TSCA

CAS# 7732-18-5 is listed on the TSCA Inventory.

CAS# 7664-38-2 is listed on the TSCA Inventory.

### SARA Reportable Quantities (RQ)

CAS# 7664-38-2: final RQ = 5000 pounds (2270 kg)

### CERCLA/SARA Section 313

None of the components are on this list.

### OSHA - Highly Hazardous

None of the components are on this list.

### US State

State Right to Know

Phosphoric acid can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

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### California Regulations

### European/International Regulations

#### Canadian DSL/NDSL

CAS# 7732-18-5 is listed on Canada's DSL List.

CAS# 7664-38-2 is listed on Canada's DSL List.

#### Canada Ingredient Disclosure List

CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.

CAS# 7664-38-2 is listed on Canada's Ingredient Disclosure List.

## SECTION 16 – OTHER INFORMATION

**Disclaimer:** The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the user thereof. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial and local laws. Reference MSDSs: Hydrochloric acid solution, 1N, Fisher Scientific, 15-Feb-2010; Sulfuric acid, 1N standard solution, Acros organics, 20-Sep-2009; Phosphoric acid, 10% v/v, LabChem, Inc, 7-Sep-2004

**Revision Indicator:** Legal Entity name change 04/01/11