
1. Product and Company Identification

Product Name	Hydrochloric Acid 28-32%
Synonym(s)	Aqueous hydrogen chloride, Chlorohydric acid, HCl, Hydrochloric acid, Muriatic acid, Spirits of salt
CAS #	Mixture
Product Use	Industrial applications
Supplier information	PVS Benson 1012 Gore Road Freelton, ON L0R1K0 CA Phone: 1-800-265-0014 Emergency Services (24 hours / 7 days): 1-519-821-0215

2. Hazards Identification

Emergency overview	DANGER -- CORROSIVE CAUSES SKIN AND EYE BURNS. VERY TOXIC.
Potential short term health effects	
Routes of exposure	Eye, Skin contact, Inhalation, Ingestion.
Eyes	Causes chemical burns. May cause blindness.
Skin	Causes chemical burns.
Inhalation	Harmful if inhaled. May cause respiratory tract irritation or chemical burns.
Ingestion	Harmful if swallowed. May cause chemical burns to mouth, throat and stomach.
Target organs	Eyes. Respiratory system. Skin.
Chronic effects	Prolonged or repeated exposure to dilutions can cause drying, defatting and dermatitis.
Signs and symptoms	Symptoms are prostration, gasping, pallor, and uncoordinated movements. Symptoms may include redness, oedema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. The product causes burns of eyes, skin and mucous membranes.
Potential environmental effects	See section 12.

3. Composition/Information on ingredients

Components	CAS #	Percent
Hydrochloric acid	7647-01-0	15 - 40

4. First Aid Measures

First aid procedures	
Eye contact	Immediately flush with cool water. Remove contact lenses, if applicable, and continue flushing for 20 minutes. Obtain medical attention immediately.
Skin contact	Immediately flush with cool water for 20 minutes while removing contaminated clothing and shoes. Discard or wash well before reuse. Obtain medical attention if irritation persists.
Inhalation	If symptoms develop, move victim to fresh air. If symptoms persist, obtain medical attention. If breathing has stopped, trained personnel should administer CPR immediately.
Ingestion	Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.
Notes to physician	Symptoms may be delayed.
General advice	Avoid contact with eyes and skin. Wear impervious gloves and chemical splash goggles. Immediate medical attention is required. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Keep out of reach of children.

5. Fire-fighting Measures

Flammable properties	Not flammable by WHMIS criteria. Not flammable, but reacts with most metals to form flammable hydrogen gas.
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Extinguishing media	
Suitable extinguishing media	Treat for surrounding material.
Unsuitable extinguishing media	Not available
Protection of firefighters	
Specific hazards arising from the chemical	Firefighters should wear a self-contained breathing apparatus.
Protective equipment for firefighters	Firefighters should wear full protective clothing including self contained breathing apparatus.
Hazardous combustion products	May include and are not limited to: Hydrogen gas. Chlorine gas. Irritating, corrosive and/or toxic gases or fumes will be released during a fire.
Explosion data	
Sensitivity to mechanical impact	Not available.
Sensitivity to static discharge	Not available.

6. Accidental release measures

Personal precautions	Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak.
Environmental precautions	Prevent entry into waterways, sewers, basements or confined areas.
Methods for containment	Stop leak if you can do so without risk.
Methods for cleaning up	Should not be released into the environment. Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills in original containers for re-use. Large Spills: Wet down with water and dike for later disposal. After removal flush contaminated area thoroughly with water.

7. Handling and storage

Handling	Ensure adequate ventilation. Do not use in poorly ventilated or confined spaces without proper respiratory protection. Avoid breathing vapours or mists of this product. Wear appropriate personal protective equipment when handling this product. Do not get this material in your eyes, on your skin, or on your clothing. Prevent acid from contacting strong alkalis or metals. Add compound slowly to water, never water to compound. Keep container tightly closed. Wash thoroughly after handling.
Storage	<p>FOR DRUM, TOTE, AND BOTTLE STORAGE CONTAINERS: Store in a cool, dry, well-ventilated place. Store only in closed, properly labeled containers. Keep container closed when not in use. When opening container, loosen closure slowly and carefully to relieve possible internal pressure or preferably, utilize a safety relief valve where available.</p> <p>FOR BULK STORAGE CONTAINERS: Bulk storage tanks should be constructed of corrosion-resistant materials such as rubber- or glass-lined steel, fiberglass, or plastic. Bulk storage tanks should contain a dike sufficiently large enough to contain entire contents.</p>

8. Exposure controls/Personal protection

Occupational exposure limits		
US. ACGIH Threshold Limit Values		
Components	Type	Value
Hydrochloric acid (CAS 7647-01-0)	Ceiling	2 ppm
Exposure limits	See above	
Engineering controls	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.	
Personal protective equipment		
Eye/Face protection	Chemical splash goggles.	
Hand protection	Impervious gloves. Confirm with reputable supplier first.	
Skin and body protection	Use of an impervious apron is recommended.	

Respiratory protection

If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. Wash hands before breaks and immediately after handling the product.

9. Physical and chemical properties

Appearance	Liquid
Colour	Colourless to pale yellow
Form	Liquid
Odour	Pungent
Odour threshold	1 - 5 ppm
Physical state	Liquid.
pH	< 1
Freezing point	-52.5 °C (-62.5 °F)
Boiling point	85 °C (185 °F)
Pour point	Not available.
Evaporation Rate	Not available
Flash point	Not applicable
Auto-ignition temperature	Not applicable
Flammability limits in air, upper, % by volume	Not applicable
Flammability limits in air, lower, % by volume	Not applicable
Vapour pressure	35 mmHg @ 25°C
Vapour density	1.267 (air=1)
Specific gravity	1.16
Partition coefficient (n-octanol/water)	Not available.
Solubility (Water)	Miscible
Relative density	1.161 - 1.19 g/cm ³
Viscosity	1.75 cp @ 20°C
VOC	Not available
Percent volatile	100

10. Stability and reactivity

Reactivity	Reacts vigorously with alkaline material. Reacts with soft metals such as aluminum and zinc producing flammable hydrogen gas. This product may react with reducing agents. Corrosive to metals.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.
Chemical stability	Stable under recommended storage conditions.
Conditions to avoid	Heat, flames and sparks. Do not mix with other chemicals.
Incompatible materials	Caustics. Oxidizers. Reducing agents. Soft metals.
Hazardous decomposition products	May include and are not limited to: Hydrogen chloride. Chlorine gas. Irritating and/or toxic fumes and gases may be emitted upon the products decomposition.

11. Toxicological information

Toxicological data

Components	Species	Test results
Hydrochloric acid (CAS 7647-01-0)		
Acute		
<i>Dermal</i>		
LD50	Mouse	1449 mg/kg
	Rat	5010 mg/kg
<i>Inhalation</i>		
LC50	Mouse	1108 ppm, 1 Hours
		554 ppm
	Rat	3124 ppm, 1 Hours
		1562 mg/l/4h
<i>Oral</i>		
LD50	Rabbit	900 mg/kg
	Rat	700 mg/kg

Effects of acute exposure

Eye contact	Causes chemical burns. May cause blindness.
Skin contact	Causes chemical burns.
Inhalation	Harmful if inhaled. May cause respiratory tract irritation or chemical burns.
Ingestion	Harmful if swallowed. May cause chemical burns to mouth, throat and stomach.
Sensitisation	Non-hazardous by WHMIS criteria.
Chronic effects	Non-hazardous by WHMIS criteria.
Carcinogenicity	Non-hazardous by WHMIS criteria.

ACGIH Carcinogens

Hydrochloric acid (CAS 7647-01-0) A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Hydrochloric acid (CAS 7647-01-0) Volume 54 - 3 Not classifiable as to carcinogenicity to humans.

Mutagenicity	Non-hazardous by WHMIS criteria.
Reproductive effects	Non-hazardous by WHMIS criteria.
Teratogenicity	Non-hazardous by WHMIS criteria.
Name of Toxicologically Synergistic Products	Not available.

12. Ecological information

Ecotoxicity Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

Ecotoxicological data

Components	Species	Test results
Hydrochloric acid (CAS 7647-01-0)		
Aquatic		
Fish	LC50 Western mosquitofish (<i>Gambusia affinis</i>)	282 mg/L, 96 hours
Persistence and degradability	Not available.	
Bioaccumulation/accumulation	Not available	
Mobility in environmental media	Not available.	
Environmental effects	Harmful to aquatic life.	
Aquatic toxicity	Not available.	
Partition coefficient	Not available.	
Chemical fate information	Not available.	

13. Disposal considerations

Disposal instructions	Waste must be disposed of in accordance with federal, state/provincial and local environmental control regulations.
Waste from residues / unused products	Not available
Contaminated packaging	Not available

14. Transport information

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number	UN1789
Proper shipping name	Hydrochloric acid
Hazard class	8
Packing group	II

TDG



15. Regulatory information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Canada WHMIS Ingredient Disclosure: Threshold limits

Hydrochloric acid (CAS 7647-01-0) 1 %

WHMIS status	Controlled
WHMIS classification	Class D - Division 1A, Class E - Corrosive Material
WHMIS labeling	



Inventory Status

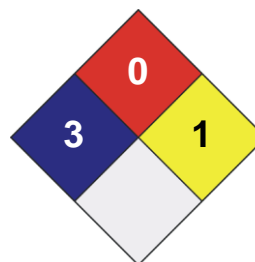
Country(s) or region	Inventory Name	On Inventory (Yes/No)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	/ 3
FLAMMABILITY	0
PHYSICAL HAZARD	1
PERSONAL PROTECTION	X



Disclaimer

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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Prepared by

Dell Tech Laboratories Ltd. Phone: (519) 858-5021

Other information

This MSDS conforms to the ANSI Z400.1/Z129.1-2010 Standard.