SAFETY DATA SHEET

Hydrochloric Acid (1 N Solution)

1. Product Identification

1.1. Product Identifiers

1.1.1. Name:

Hydrochloric Acid (1 N)

1.1.2. Part Number:

2173

1.1.3. CAS Number:

7647-01-0

1.2. Relevant Identified Uses and Uses Advised Against

1.2.1. Identified Uses:

Laboratory chemical

1.3. Details of Supplier of Safety Data Sheet

1.3.1. Company:

ARTMS Inc
8575 Commerce Court
Burnaby, BC, V5A 4N5
Canada

1.3.2. Phone Number:

+1 (604) 228 4016

1.4. Emergency Contact Phone Number

1.4.1. Emergency Phone Number:

1-888-CANUTEC (226-8832) (North American use) and/or 1-613-996-6666 (International use)

2. Hazard Identification

2.1. Classification of Substance/Mixture

Corrosive to metals (Category 1), H290

Skin corrosion (Category 1B), H314

Serious eye damage (Category 1), H318

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

2.2. GHS Label Elements, Including Primary Statements

2.2.1. Pictogram:

2.2.2. Signal Word:

Danger

2.2.3. Hazard statement(s):

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

2.2.4. Precautionary statement(s):

P234 Keep only in original packaging.

P261 Avoid breathing dust/ fume/ gas/ mist/vapors/ spray.

P264 Wash skin thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing Immediately call a POISON CENTER/doctor.

P363 Wash contaminated clothing before reuse.

P390 Absorb spillage to prevent material damage.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3. Hazards Not Otherwise Classified (HNOC) or covered by GHS

None

3. Composition/Information on Ingredients

3.1. Substances/Mixtures

3.1.1. Formula: HCl

3.1.2. Molecular Weight 36.46 g/mol

Substance	Composition (wt%)	CAS Number	EC Number	Classification
Water	96.4 %	7732-18-5	231-791-2	N/A
Hydrochloric Acid	3.6 %	7647-01-0	231-595-7	Met. Corr. 1; Skin Corr. 1B; Eye Dam. 1; STOT SE 3; H290, H314, H318, H335 Concentration limits: >= 0.1 %: Met. Corr. 1, H290; >= 10 %: Skin Corr. 1B, H314; 10 - < 25 %: Eye Irrit. 2, H319; >= 10 %: STOT SE 3, H335;

4. First Aid Measures

4.1. Description of First Aid Measures

4.1.1. General Advice:

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

4.1.2. If inhaled:

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

4.1.3. In case of skin contact:

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

4.1.4. In case of eye contact:

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

4.1.5. If swallowed:

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2. Most Important Symptoms and Effects (Both Acute and Delayed)

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3. Indication of and Immediate Medical Attention and Special Treatment Needed

No data available.

5. Fire Fighting Measures

5.1. Extinguishing Media

5.1.1. Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2. Special Hazards Arising from the Substance/Mixture

Hydrogen chloride gas

5.3. Advice for Firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4. Further Information

No data available.

6. Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

6.2. Environmental Precautions

Do not let product enter drains.

6.3. Methods and Materials for Containment and Cleaning

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4. Reference to Data Sheet Sections

For disposal see section 13.

7. Handling and Storage

7.1. Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials.

7.3. Specific End Use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure Controls/Personal Protection

8.1. Control Parameters

Component	CAS Number	Value	Control Parameters	Basis
Hydrochloric Acid	7647-01-0	(c)	2 ppm 3 mg/m^3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		C	2 ppm	Canada. British Columbia OEL
		C	5 ppm 7.5 mg/m^3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	A substance which may not be recirculated in accordance with section 108.			
		C	2 ppm	USA. ACGIH Threshold Limit Values (TLV)

8.2. Exposure Controls

8.2.1. Appropriate engineering controls:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.2.2. Personal Protective Equipment:

8.2.2.1. Eye/face protection:

Tightly fitting safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

8.2.2.2. Skin protection:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

8.2.2.3. Body protection:

Complete suit protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

8.2.2.4. Respiratory protection:

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

8.2.2.5. Control of environmental exposure:

Do not let product enter drains.

9. Physical and Chemical Properties

9.1. Information on Basic Physical and Chemical Properties

Property	Data/Value
Appearance	Colorless Liquid
Odor	Odorless
Odor Threshold	No data available
pH	0
Melting/Freezing Point	No data available
Initial Boiling Point and Range	No data available
Flash Point	No data available
Evaporation Rate	No data available
Flammability	Not flammable
Upper/Lower Flammability/Explosive Limits	No data available
Vapor Pressure	No data available

Vapor Density	No data available
Density	1.01 g/cm^3 at 25 °C (77 °F)
Water Solubility	Soluble
Partition Coefficient: n-octanol/water	No data available
Auto-Ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	Not applicable
Oxidizing Properties	None

9.2. Other Safety Information

No other data available.

10. Stability and Reactivity

10.1. Reactivity

See section 10.3

10.2. Chemical Stability

Stable under recommended storage conditions

10.3. Possibility of Hazardous Reactions

Generates dangerous gases or fumes in contact with metals.

10.4. Conditions to Avoid

No data available.

10.5. Incompatible Materials

Bases, Amines, Alkali metals, Metals, permanganates, for example potassium permanganate, Fluorine, metal acetylides, hexalithium disilicide.

10.6. Hazardous Decomposition Properties

Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas.

Other decomposition products - No data available

In the event of fire: see section 5

11. Toxicology

11.1. Information on Toxicological Effects

11.1.1. Acute toxicity:

No data available.

11.1.2. Inhalation:

Cough or difficulty in breathing (Hydrochloric acid)

11.1.3. Dermal:

No data available.

11.1.4. Skin corrosion/irritation:

Possible damages: Irritation

11.1.5. Serious eye damage/eye irritation:

Possible damages: Irritation

11.1.6. Respiratory or skin sensitization:

No data available.

11.1.7. Germ cell mutagenicity:

No data available.

11.1.8. Carcinogenicity:

No data available.

11.1.9. Reproductive toxicity:

No data available.

11.1.10. Specific target organ toxicity – single exposure:

The substance or mixture is not classified as specific target organ toxicant, single exposure.

11.1.11. Specific target organ toxicity – repeated exposure:

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

11.1.12. Aspiration hazard:

Based on available data the classification criteria are not met.

11.1.13. Additional information:

Handle in accordance with good industrial hygiene and safety practice.

11.2. Components (Hydrochloric Acid)

11.2.1. Acute toxicity:

No data available.

11.2.2. Inhalation:

Cough Difficulty in breathing (Hydrochloric acid)

11.2.3. Dermal:

No data available.

11.2.4. Skin corrosion/irritation:

Skin - reconstructed human epidermis (RhE) (Hydrochloric acid)

Result: Corrosive

(OECD Test Guideline 431)

11.2.5. Serious eye damage/eye irritation:

Eyes - Bovine cornea (Hydrochloric acid)

Result: Corrosive

(OECD Test Guideline 437)

Causes serious eye damage. (Hydrochloric acid)

11.2.6. Respiratory or skin sensitization:

Maximization Test - Guinea pig (Hydrochloric acid)

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity:

Chromosome aberration test in vitro (Hydrochloric acid)

Chinese hamster ovary cells

Result: Conflicting results have been seen in different studies.

11.2.7. Carcinogenicity:

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Hydrochloric acid)

11.2.8. Reproductive toxicity:

No data available.

11.2.9. Specific target organ toxicity – single exposure:

May cause respiratory irritation. (Hydrochloric acid)

The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. (Hydrochloric acid)

11.2.10. Specific target organ toxicity – repeated exposure:

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

11.2.11. Aspiration hazard:

No aspiration toxicity classification (Hydrochloric acid)

11.2.12. Additional information:

RTECS: MW4025000

Inhalation of vapors may cause:, burning sensation, Cough, wheezing, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema (Hydrochloric acid). To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Hydrochloric acid)

12. Ecological Information

12.1. Toxicity

No data available.

12.2. Persistence and Degradability

No data available.

12.3. Bio-accumulative Potential

No data available.

12.4. Mobility in Soil

No data available.

12.5. Results of PBT and vPvB Assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6. Other Adverse Effects

May be harmful to aquatic organisms due to the shift of the pH. Do not empty into drains.

13. Disposal Considerations

13.1. Waste Treatment Methods

13.1.1. Product:

Waste material must be disposed of in accordance with the national and local regulations. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

13.1.2. Contaminated Packaging:

Dispose of as unused product.

14. Transport Information

14.1. DOT (US)

UN number: 1789

Class: 8

Packing group: II

Proper shipping name: Hydrochloric acid

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

14.2. IMDG

UN number: 1789

Class: 8

Packing group: II

EMS-No: F-A, S-B

Proper shipping name: HYDROCHLORIC ACID

14.3. IATA

UN number: 1789

Class: 8

Packing group: II

Proper shipping name: Hydrochloric acid

15. Regulatory Information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

16. Other Information

16.1. Further Information

No further data available.

Disclaimer:

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product regarding appropriate safety precautions. It does not represent any guarantee of the properties of the product. ARTMS Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.

END OF SDS