



Material Safety Data Sheet

1. Product and Company Identification

Product name : **Hydrogen Chloride, Anhydrous**

Chemical formula : HCl

Synonyms : Hydrochloric acid, Anhydrous; Anhydrous hydrochloric acid; Hydrogen Chloride; Spirits of Salt; Muriatic acid; Hydrochloric acid; Hydrochloric acid gas; Hydrogen Chloride (HCl); UN 1050

Company : Med Tech Gases, Inc.
20 Hall Street
Medford, MA 02155

Telephone : 800-FINE-GAS

Emergency : 800-424-9300

2. Composition/Information on Ingredients

Components	CAS Number	% Volume
Hydrogen Chloride, Anhydrous	7647-01-0	100%

3. Hazards Identification

Emergency Overview

May cause respiratory tract burns, skin burns, eye burns, mucous membrane burns.
Containers may rupture or explode if exposed to heat. May react on contact with water.

Potential Health Effects

Inhalation : Burns.
Eye contact : Burns.
Skin contact : Burns.
Ingestion : Burns.
Chronic Health Hazard : None known.

4. First Aid Measures

General advice : None.

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Skin contact : Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

Ingestion : If swallowed, drink plenty of water. Do NOT induce vomiting. Get immediate medical attention.

Inhalation : If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Note to physicians : For inhalation, consider oxygen.
Avoid gastric lavage or emesis.

5. Fire-Fighting Measures

Suitable extinguishing media : Carbon dioxide, regular dry chemical.
Large fires: Use regular foam or flood with fine water spray.
Specific hazards : Negligible fire hazard. Containers may rupture or explode if exposed to heat.
Fire fighting : Do not get water inside container. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Keep unnecessary people away, isolate hazard area and deny entry.

6. Accidental Release Measures

Air release : Reduce vapors with water spray. Stay upwind and keep out of low areas. Collect runoff for disposal as potential hazardous waste.
Soil release : Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).
Water release : Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).
Occupational spill/release : Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material. Do not get water inside container. Keep unnecessary people away. Isolate hazard area and deny entry.
Small spills: Flood with water. Large spills: Dike for later disposal. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. Handling and Storage

Handling

Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.

Storage

Store in accordance with all current regulations and standards. Keep separated from incompatible substances. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Protect from physical damage. Store in a cool, dry place. Store in a well-ventilated area. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355 Part B).

8. Exposure Controls / Personal Protection

Exposure limits

ACGIH : 2 ppm Ceiling
OSHA (final) : 5 ppm Ceiling; 7 mg/m³ Ceiling
OSHA (vacated) : 5 ppm Ceiling; 7 mg/m³ Ceiling
NIOSH : 5 ppm Ceiling; 7 mg/m³ Ceiling

IDLH

50 ppm

Engineering measures/Ventilation

Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal protective equipment

- Respiratory protection : The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
50 ppm – Any air-purifying half-mask respirator equipped with cartridge(s) providing protection against the compound of concern.
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.
Any powered, air-purifying respirator with cartridge(s) providing protection against the substance.
Any supplied-air respirator.
Any self-contained breathing apparatus with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLH conditions – Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape – Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.
Any appropriate escape-type, self-contained breathing apparatus.
- Hand protection : Wear appropriate chemical resistant gloves.
- Eye protection : Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
- Skin and body protection : Wear appropriate chemical resistant clothing.

9. Physical and Chemical Properties

- Form : Gas.
Color : Colorless.
Odor : Irritating odor.
Molecular weight : 36.46
Vapor pressure : 30400 mmHg @ 17.8°C
Vapor density : 1.268 (air = 1)
Boiling point : -85°C
Melting point : -115°C
Water solubility : 82.3% @ 0°C
Specific gravity : 1.187 @ -85°C (water = 1)
Solvent solubility : Soluble: alcohol, ether, benzene, methanol.

10. Stability and Reactivity

- Stability : May react with evolution of heat on contact with water.
- Conditions to avoid : Minimize contact with material. Avoid inhalation of material or combustion by-products. Containers may rupture or explode if exposed to heat.
- Materials to avoid : Cyanides, metals, amines, bases, metal carbide, oxidizing materials, acids, halo carbons, combustible materials, halogens, metal salts.
- Hazardous : Thermal decomposition products: chlorine.

decomposition
products

11. Toxicological Information

The components of this material have been reviewed in various sources and the following endpoints are published:

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0) : Inhalation LC50 Rat: 3124 ppm/1H; Oral LD50 Rat: 700 mg/kg; Dermal LD50 Rabbit: > 5010 mg/kg

Acute Toxicity Level

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0) : Toxic: Inhalation
Moderately toxic: Ingestion

Component Carcinogenicity

ACGIH : A4 – Not Classifiable As A Human Carcinogen
IARC : Monograph 54 [1992] (Group 3 (not classifiable))

Local Effects

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0) : Corrosive: inhalation, skin, eye, ingestion

12. Ecological Information

Aquatic Toxicity

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0) : Fish: 96 Hr LC50 Gambusia affinis: 282 mg/L [static]

13. Disposal Considerations

Waste from residues / unused products : Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D002.
Contaminated packaging : Return cylinder to supplier.

14. Transport Information

DOT (US only)

Proper shipping name : Hydrogen chloride, anhydrous
Class : 2.3
UN/ID No. : UN1050
Labeling : Poison gas, Corrosive
Additional Info : Toxic-Inhalation Hazard Zone C

15. Regulatory Information

U.S. Federal Regulations

This material contains one or more of the following chemicals required under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

HYDROGEN : SARA 302: 500 lb TPQ (gas only)
CHLORIDE, 5000 lb final RQ; 2270 kg final RQ
ANHYDROUS (7647- SARA 313: 1.0% de minimis concentration (acid aerosols including mists,
01-0) Vapors, gas, fog and other airborne forms of any particle size)
CERCLA: 500 lb final RQ; 2270 kg final RQ
OSHA (safety): 5000 lb TQ; 5000 lb TQ (anhydrous)

SARA 311/312

Acute: Yes
Chronic: No
Fire: No
Reactive: Yes
Pressure: Yes

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
HYDROGEN CHLORIDE, ANHYDROUS	7647-01-0	Yes	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65