

# Material Safety Data Sheet

## Hydrochloric acid 32-38% solution

ACC# 11155

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Hydrochloric acid 32-38% solution

**Catalog Numbers:** A142-212, A142P-19, A142P-20, A144-212, A144-212LC, A144-500, A144-500LB, A144-500LC, A144-612GAL, A144C-212, A144C-212EA, A144P-19, A144P-20, A144S-212, A144S-212EA, A144S-500, A144SI-212, A466-1, A466-2, A466-250, A466-2LC, A466-500, A481-212, A481-212LC, A508-212, A508-212LC, A508-4, A508-500, A508SK-212, AS481-212LC, NC9373124, S71942SC, S71942SCND, S71943, S71943ND, S80038, SA49

**Synonyms:** Muriatic acid; Chlorohydric acid; Hydrogen chloride in aqueous solution.

**Company Identification:**

Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410

**For information, call:** 201-796-7100

**Emergency Number:** 201-796-7100

**For CHEMTREC assistance, call:** 800-424-9300

**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7732-18-5	Water	62-68	231-791-2
7647-01-0	Hydrogen chloride	32-38	231-595-7

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

**Appearance:** clear, colorless to pale yellow liquid.

**Danger!** Causes eye and skin burns. Causes digestive and respiratory tract burns. May be fatal if inhaled or swallowed. Repeated or prolonged exposure may cause erosion of exposed teeth. Corrosive to metal.

**Target Organs:** Respiratory system, gastrointestinal system, teeth, eyes, skin.

#### Potential Health Effects

**Eye:** May cause irreversible eye injury. Vapor or mist may cause irritation and severe burns. Contact with liquid is corrosive to the eyes and causes severe burns.

**Skin:** Contact with liquid is corrosive and causes severe burns and ulceration. The severity of injury depends on the concentration of the solution and the duration of exposure.

**Ingestion:** Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract.

**Inhalation:** May be fatal if inhaled. May cause severe irritation of the respiratory tract with sore

throat, coughing, shortness of breath and delayed lung edema. Causes chemical burns to the respiratory tract. Causes corrosive action on the mucous membranes.

**Chronic:** Prolonged or repeated skin contact may cause dermatitis. Repeated exposure may cause erosion of teeth. Repeated exposure to low concentrations of HCl vapor or mist may cause bleeding of nose and gums. Chronic bronchitis and gastritis have also been reported.

## Section 4 - First Aid Measures

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

**Skin:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

**Ingestion:** If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

**Inhalation:** POISON material. If inhaled, get medical aid immediately. Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

**Notes to Physician:** Do NOT use sodium bicarbonate in an attempt to neutralize the acid.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. Not flammable, but reacts with most metals to form flammable hydrogen gas. Use water spray to keep fire-exposed containers cool. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated.

**Extinguishing Media:** Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 0; Instability: 1

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Isolate area and deny entry. Provide ventilation. Spill may be carefully neutralized with lime (calcium oxide, CaO). A vapor suppressing foam may be used to reduce vapors. Approach spill from upwind.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Contents may develop pressure upon prolonged storage. Do not get in eyes, on skin, or on

clothing. Keep container tightly closed. Discard contaminated shoes. Keep away from strong bases and metals. Use caution when opening. Do not use with metal spatula or other metal items. Do not breathe vapor or mist. Use only with adequate ventilation or respiratory protection.

**Storage:** Store in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area. Do not store in metal containers. Store away from alkalies. Separate from oxidizing materials.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use a corrosion-resistant ventilation system.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Water	none listed	none listed	none listed
Hydrogen chloride	2 ppm Ceiling	50 ppm IDLH	5 ppm Ceiling; 7 mg/m <sup>3</sup> Ceiling

**OSHA Vacated PELs:** Water: No OSHA Vacated PELs are listed for this chemical. Hydrogen chloride: No OSHA Vacated PELs are listed for this chemical.

### Personal Protective Equipment

**Eyes:** Wear chemical splash goggles and face shield.

**Skin:** Wear appropriate gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** clear, colorless to pale yellow

**Odor:** strong, pungent

**pH:** 0.01

**Vapor Pressure:** 84 mm Hg @ 20 deg C

**Vapor Density:** 1.27 (air=1)

**Evaporation Rate:** > 1.00 (N-butyl acetate)

**Viscosity:** Not available.

**Boiling Point:** 83 deg C @ 760 mmHg

**Freezing/Melting Point:** -66 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Soluble.

**Specific Gravity/Density:** 1.19 (38%)

**Molecular Formula:** HCl.H<sub>2</sub>O

**Molecular Weight:** 36.46

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Excess heat.

**Incompatibilities with Other Materials:** Metals, strong oxidizing agents, strong reducing agents, bases, acetic anhydride, alcohols, amines, sulfuric acid, vinyl acetate, epoxides (e.g. butyl glycidyl ether), chlorosulfonic acid, carbides, beta-propiolactone, ethyleneimine, propylene oxide, lithium silicides, 2-aminoethanol, 1,1-difluoroethylene, magnesium boride, mercuric sulfate, aldehydes, cyanides, sulfides, phosphides.

**Hazardous Decomposition Products:** Hydrogen chloride, chlorine, hydrogen gas.

**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 7732-18-5: ZC0110000

**CAS#** 7647-01-0: MW4025000; MW4031000

**LD50/LC50:**

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

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

**CAS#** 7647-01-0:

Inhalation, mouse: LC50 = 1108 ppm/1H;

Inhalation, mouse: LC50 = 20487 mg/m<sup>3</sup>/5M;

Inhalation, mouse: LC50 = 3940 mg/m<sup>3</sup>/30M;

Inhalation, mouse: LC50 = 8300 mg/m<sup>3</sup>/30M;

Inhalation, rat: LC50 = 3124 ppm/1H;

Inhalation, rat: LC50 = 60938 mg/m<sup>3</sup>/5M;

Inhalation, rat: LC50 = 7004 mg/m<sup>3</sup>/30M;

Inhalation, rat: LC50 = 45000 mg/m<sup>3</sup>/5M;

Inhalation, rat: LC50 = 8300 mg/m<sup>3</sup>/30M;

Oral, rabbit: LD50 = 900 mg/kg;

Inhalation LC50 (aerosol) rat: 8300mg/m<sup>3</sup>/30M; Oral LDLo Man: 2857 ug/kg; Oral LDLo Woman: 420 uL/kg; Inhalation LCLo Human: 1300 ppm/30M.

**Carcinogenicity:**

**CAS#** 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**CAS#** 7647-01-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No data available.

**Teratogenicity:** Female rats were exposed to 450 mg/m<sup>3</sup> of HCl for 1 hour either prior to mating or on day 9 of pregnancy. Developmental effects were observed in the offspring. However, this exposure caused toxic effects, including mortality, in the mothers.

**Reproductive Effects:** No information available.

**Mutagenicity:** See actual entry in RTECS for complete information.

**Neurotoxicity:** No information available.

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Bluegill/Sunfish: 3.6 mg/L; 48Hr; Lethal (unspecified) Fish: Bluegill/Sunfish: LC50; 96 Hr; pH 3.0-3.5 No data available.

**Environmental:** Will exhibit extensive evaporation from soil surfaces. Upon transport through the soil, hydrochloric acid will dissolve some of the soil materials (especially those with carbonate bases) and the acid will neutralize to some degree.

**Physical:** No information available.

**Other:** No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	HYDROCHLORIC ACID	HYDROCHLORIC ACID
<b>Hazard Class:</b>	8	8
<b>UN Number:</b>	UN1789	UN1789
<b>Packing Group:</b>	II	II

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

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

CAS# 7647-01-0 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 7647-01-0: 5000 lb final RQ; 2270 kg final RQ

#### SARA Section 302 Extremely Hazardous Substances

CAS# 7647-01-0: 500 lb TPQ (gas only)

#### SARA Codes

CAS # 7647-01-0: immediate.

#### Section 313

This material contains Hydrogen chloride (CAS# 7647-01-0, 32-38%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

#### Clean Air Act:

CAS# 7647-01-0 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

**Clean Water Act:**

CAS# 7647-01-0 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**

CAS# 7647-01-0 is considered highly hazardous by OSHA.

**STATE**

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 7647-01-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**California Prop 65**

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

C

**Risk Phrases:**

R 34 Causes burns.

R 37 Irritating to respiratory system.

**Safety Phrases:**

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

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# 7732-18-5: No information available.

CAS# 7647-01-0: 1

**Canada - DSL/NDSL**

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

CAS# 7647-01-0 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of E, D1A.

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.

**Canadian Ingredient Disclosure List**

CAS# 7647-01-0 is listed on the Canadian Ingredient Disclosure List.

**Section 16 - Additional Information**

**MSDS Creation Date:** 7/06/1999

**Revision #20 Date:** 4/01/2008

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*