



SAFETY DATA SHEET

OLIN CORPORATION

Product name: Hydrochloric acid, < 37%

Issue Date: 03/15/2017

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OLIN CORPORATION encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: Hydrochloric acid, < 37%

Recommended use of the chemical and restrictions on use

Identified uses: For industrial formulation as a food processing agent. Pharmaceuticals. Organic Chemical Synthesis Oil and gas extraction.

COMPANY IDENTIFICATION

OLIN CORPORATION
190 CARONDELET PLAZA
CLAYTON MO 63105
UNITED STATES

Customer Information Number:

+1 844-238-3445
INFO@OLINBC.com

EMERGENCY TELEPHONE NUMBER

Local Emergency Contact: 1 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Corrosive to metals - Category 1

Skin corrosion - Category 1B

Serious eye damage - Category 1

Specific target organ toxicity - single exposure - Category 3

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

May be corrosive to metals.
Causes severe skin burns and eye damage.
May cause respiratory irritation.

Precautionary statements**Prevention**

Keep only in original container.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
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.
Wash contaminated clothing before reuse.
Absorb spillage to prevent material damage.

Storage

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Store in corrosive resistant container with a resistant inner liner.

Disposal

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

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Concentration
Hydrochloric acid	7647-01-0	>= 20.0 - <= 36.5 %

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Immediate continued and thorough washing in flowing water for at least 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash clothing before reuse. Properly dispose of leather items such as shoes, belts, and watchbands. Suitable emergency safety shower facility should be immediately available.

Eye contact: - Wash eyes with plenty of water for 15 minutes at least. Do not forget to remove contact lenses. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Material may cause severe pulmonary edema. For persons receiving significant exposure to this material, consider chest x-ray and keep under observation for 48 - 72 hr. for delayed onset of pulmonary edema. Humidified oxygen, intermittent positive pressure breathing, assisted respiration/CPAP and steroid therapy should be considered in treatment. Physical exertion may potentiate exposure effects during the first 24 - 72 hours. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Repeated exposure to acid fumes or mists may be associated with bleeding, ulceration of nose, mouth and gums and erosion of dental enamel. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

5. FIREFIGHTING MEASURES

Suitable extinguishing media: This material does not burn. If exposed to fire from another source, use suitable extinguishing agent for that fire.

Unsuitable extinguishing media: Do not use water.

Special hazards arising from the substance or mixture

Hazardous combustion products: Fire conditions may cause this product to decompose. Refer to section 10 - Thermal Decomposition.

Unusual Fire and Explosion Hazards: Product reacts with water. Reaction may produce heat and/or gases. This reaction may be violent.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Water is not recommended, but may be applied in large quantities as a fine spray when other extinguishing agents are not available. This material does not burn. Fight fire for other material that is burning. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Evacuate area. Keep upwind of spill. Ventilate area of leak or spill. Only trained and properly protected personnel must be involved in clean-up operations. Refer to section 7, Handling, for additional precautionary measures. See Section 10 for more specific information. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Small spills: Dilute with large quantities of water. Collect in suitable and properly labeled containers. Large spills: Contain spilled material if possible. Attempt to neutralize by adding materials such as Limestone. Lime. Soda ash. Pump into suitable and properly labeled containers. Contact your supplier for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not get in eyes, on skin, on clothing. Do not swallow. Do not breathe vapour. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in the following material(s): Plastic. Polyethylene-lined container. Natural rubber. See Section 10 for more specific information. Store away from incompatible materials. See STABILITY AND REACTIVITY section. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Hydrochloric acid	ACGIH	C	2 ppm
	OSHA Z-1	C	7 mg/m3 5 ppm
	CAL PEL	PEL	0.45 mg/m3 0.3 ppm
	CAL PEL	C	2 ppm
	OSHA P0	C	7 mg/m3 5 ppm

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Neoprene. Polyvinyl chloride ("PVC" or "vinyl"). Styrene/butadiene rubber. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Viton. Chlorinated polyethylene. Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

The following should be effective types of air-purifying respirators: Acid gas cartridge with particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid.
Color	White to yellow
Odor	acidic
Odor Threshold	No test data available
pH	< 2 <i>Literature</i>

Melting point/range	-27 - 57.22 °C (-17 - 135.00 °F)
Freezing point	-27 - 57.22 °C (-17 - 135.00 °F)
Boiling point (760 mmHg)	53 - 107.78 °C (127 - 226.00 °F)
Flash point	<i>Not applicable</i> None
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	<i>Literature</i> Not applicable
Upper explosion limit	<i>Literature</i> Not applicable
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	11 <i>Literature</i>
Relative Density (water = 1)	1.01 - 1.186 at 20 °C (68 °F) <i>Literature</i>
Water solubility	Miscible in water
Partition coefficient: n-octanol/water	log Pow: -2.65
Auto-ignition temperature	<i>Literature</i> Not applicable
Decomposition temperature	No test data available No test data available
Kinematic Viscosity	2 m ² /s <i>Calculated.</i>
Explosive properties	No data available
Oxidizing properties	No data available
Liquid Density	71.6 - 72.6 lb/ft ³ at 20 °C (68 °F) <i>Estimated.</i>
Molecular weight	36.46 g/mol
Percent volatility	>= 99 % <i>Literature</i>

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: Heat is generated when mixed with water. Spattering and boiling can occur. Avoid contact with strong bases. Avoid contact with: Sulfuric acid. Amines. Bases. Carbonates. Oxidizers. Corrosive to some metals. Contact with common metals can generate flammable hydrogen gas.

Hazardous decomposition products: Decomposition products can include and are not limited to: Hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat.

Oral LD50 has not been determined due to corrosivity.

Acute dermal toxicity

Absorption has not been determined due to corrosivity.

The dermal LD50 has not been determined.

Acute inhalation toxicity

Brief exposure (minutes) to easily attainable concentrations may cause adverse effects. Mist may cause severe irritation of the upper respiratory tract (nose and throat) and lungs. Vapor may cause severe irritation of the upper respiratory tract (nose and throat) and lungs. May cause severe pulmonary edema (fluid in the lungs). Excessive exposure may cause lung injury.

LC50, Rat, 4 Hour, dust/mist, 1.03 mg/l

Skin corrosion/irritation

Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage.

Serious eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Vapor may cause lacrimation (tears).

Sensitization

For skin sensitization:

No relevant information found.

For respiratory sensitization:

No relevant information found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory Tract

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Repeated excessive exposure may cause erosion of teeth and bleeding and ulceration of nose, mouth and gums.

Carcinogenicity

Did not cause cancer in laboratory animals. An epidemiology study of workers did not show any association between hydrogen chloride exposure and lung cancer.

Teratogenicity

No relevant data found.

Reproductive toxicity

No relevant data found.

Mutagenicity

No relevant data found.

Aspiration Hazard

Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

COMPONENTS INFLUENCING TOXICOLOGY:

Hydrochloric acid

Acute oral toxicity

Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat.

Oral LD50 has not been determined due to corrosivity.

Acute dermal toxicity

The dermal LD50 has not been determined.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish

May decrease pH of aquatic systems to < pH 5 which may be toxic to aquatic organisms.

Persistence and degradability

Biodegradability: Biodegradation is not applicable.

Bioaccumulative potential

Bioaccumulation: Partitioning from water to n-octanol is not applicable. No bioconcentration is expected because of the relatively high water solubility.

Partition coefficient: n-octanol/water(log Pow): -2.65

Mobility in soil

No data available for assessment due to technical difficulties with testing.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and

compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Waste water treatment system.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Hydrochloric acid
UN number	UN 1789
Class	8
Packing group	II
Reportable Quantity	Hydrochloric acid

Classification for SEA transport (IMO-IMDG):

Proper shipping name	HYDROCHLORIC ACID
UN number	UN 1789
Class	8
Packing group	II
Marine pollutant	No
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Hydrochloric acid
UN number	UN 1789
Class	8
Packing group	II

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Acute Health Hazard

Chronic Health Hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

Components	CASRN
Hydrochloric acid	7647-01-0

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

Calculated RQ exceeds reasonably attainable upper limit.

Components	CASRN	RQ (RCRA Code)
Hydrochloric acid	7647-01-0	5000 lbs RQ

Pennsylvania Worker and Community Right-To-Know Act:

The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	CASRN
Hydrochloric acid	7647-01-0

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product is not listed, but it may contain elements known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 Safe Drinking Water and Toxic Enforcement Act. For additional information, contact Olin.

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System

NFPA

Health	Fire	Reactivity
3	0	0

Revision

Identification Number: 10000001219 / A619 / Issue Date: 03/15/2017 / Version: 1.1

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)
C	Ceiling limit
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
OSHA P0	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
PEL	Permissible exposure limit

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

OLIN CORPORATION urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.