

SAFETY DATA SHEET

Creation Date 15-Feb-2010

Revision Date 18-Dec-2025

Revision Number 8

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

1. Identification

Product Name Hydrochloric acid solution, 1N

Cat No. : SA48-1; SA48-1LC; SA48-4; SA48-20; SA48-20LC; SA48-200; SA48-500; XXSA48PD200LI; NC1278766

Synonyms Muriatic acid solution; Hydrogen chloride solution

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

Corrosive to metals	Category 1
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1

Label Elements

Signal Word

Danger

Hazard Statements

May be corrosive to metals
Causes skin irritation
Causes serious eye damage

**Precautionary Statements****Prevention**

Keep only in original packaging

Wear eye/face protection

Wear protective gloves

Wash face, hands and any exposed skin thoroughly after handling

Skin

IF ON SKIN: Wash with plenty of soap and water

Take off contaminated clothing

If skin irritation occurs: Get medical advice/attention

Eyes

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 or doctor/physician

Storage

Store in corrosive resistant polypropylene container with a resistant inliner

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

Hazards classified under paragraph (d)(1)(ii) of 1910.1200

No information available

3. Composition/information on Ingredients

Component	CAS No	Weight %
Water	7732-18-5	96.35
Hydrochloric acid	7647-01-0	3.65

4. First-aid measures

General Advice

If symptoms persist, call a physician.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Inhalation

Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention.

Ingestion

Do NOT induce vomiting. Get medical attention.

Most important symptoms and effects

May cause skin irritation and/or dermatitis.

Notes to Physician

Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media No information available

Flash Point Not applicable
Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Thermal decomposition can lead to release of irritating gases and vapors. Hydrogen chloride gas.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health
2

Flammability
0

Instability
0

Physical hazards
N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing.

Environmental Precautions Avoid release to the environment. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and Storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Incompatible Materials. Metals. Reducing Agent. Aldehydes. Oxidizing agent.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Hydrochloric acid	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³ (Vacated) Ceiling: 5 ppm (Vacated) Ceiling: 7 mg/m ³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m ³	Ceiling: 2 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection 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.

Recommended Filter type: Acid gases filter. Type E. Yellow. conforming to EN14387.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Physical State Liquid
Color Clear
Odor pungent
Odor Threshold No information available

Property

Melting Point/Range 0 °C / 32 °F
Softening Point No data available
Boiling Point/Range 100 °C / 212 °F
Flash Point Not applicable
Flammability (liquid) No data available
Flammability (solid,gas) Not applicable
Explosion Limits No data available

Remarks • **Method**

Method - No information available

Liquid

Autoignition Temperature No data available
Decomposition Temperature No data available
pH 1.1
Viscosity No data available
Water Solubility Soluble in water
Solubility in other solvents No information available
Partition Coefficient (n-octanol/water)
Vapor Pressure No data available
Density / Specific Gravity 1.0 - 1.2
Bulk Density Not applicable
Vapor Density No information available
Particle characteristics Not applicable (liquid)

(0.1N)

Liquid
(Air = 1.0)

Other Information

Molecular Formula HCl
Molecular Weight 36.46

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Excess heat.
Incompatible Materials	Metals, Reducing Agent, Aldehydes, Oxidizing agent
Hazardous Decomposition Products	Thermal decomposition can lead to release of irritating gases and vapors, Hydrogen chloride gas
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Information on expected route of exposure

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Ingestion	May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion causes burns of the upper digestive and respiratory tracts.
Eyes	Causes severe eye irritation and possible burns.
Skin	Contact causes severe skin irritation and possible burns.

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
Hydrochloric acid	238 - 277 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	1.68 mg/L (Rat) 1 h

Toxicologically Synergistic Products	No information available
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(b) skin corrosion/irritation;	Category 2
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(c) serious eye damage/irritation;	Category 1
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(d) respiratory or skin sensitization;	
Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity;	No data available
	Mutagenic effects have occurred in microorganisms

(f) carcinogenicity;	The table below indicates whether each agency has listed any ingredient as a carcinogen
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Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Hydrochloric acid	7647-01-0	Not listed	Not listed	Not listed	Not listed	Not listed

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

(g) reproductive toxicity;	No data available
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Reproductive Effects
Developmental Effects
Teratogenicity

Experiments have shown reproductive toxicity effects on laboratory animals.
 Developmental effects have occurred in experimental animals.
 Teratogenic effects have occurred in experimental animals.

(h) STOT-single exposure;

No data available

(i) STOT-repeated exposure;

No data available

Target Organs

No information available.

(j) aspiration hazard;

No data available

Other Adverse Effects

See actual entry in RTECS for complete information

Symptoms / effects, both acute and delayed No information available.

Other Adverse Effects

See actual entry in RTECS for complete information.

Endocrine Disrupting Properties

This product does not contain any known or suspected endocrine disruptors.

12. Ecological information

Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hydrochloric acid	-	282 mg/L LC50 96 h Gambusia affinis mg/L LC50 48 h Leuciscus idus	-	56mg/L EC50 72h Daphnia

Persistence and Degradability

Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation

No information available.

Mobility

Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1789
Proper Shipping Name HYDROCHLORIC ACID
Hazard Class 8
Packing Group III

TDG

UN-No UN1789
Proper Shipping Name HYDROCHLORIC ACID
Hazard Class 8
Packing Group III

IATA

UN-No UN1789
Proper Shipping Name HYDROCHLORIC ACID

Hazard Class	8
Packing Group	III
IMDG/IMO	
UN-No	UN1789
Proper Shipping Name	HYDROCHLORIC ACID
Hazard Class	8
Packing Group	III

15. Regulatory Information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Water	7732-18-5	X	ACTIVE	-
Hydrochloric acid	7647-01-0	X	ACTIVE	-

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)

Not applicable

TSCA 12(b) - Notices of Export

Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Water	7732-18-5	X	-	231-791-2	X	X		X	X	KE-35400
Hydrochloric acid	7647-01-0	X	-	231-595-7	X	X	X	X	X	KE-20189

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting thresholds
Hydrochloric acid	7647-01-0	3.65	1.0 %	-

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Hydrochloric acid	X	5000 lb	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hydrochloric acid	X		-

OSHA - Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Hydrochloric acid	-	TQ: 5000 lb

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
Hydrochloric acid	5000 lb	5000 lb	5000 lb 2270 kg

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Water	-	-	X	-	-
Hydrochloric acid	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Hydrochloric acid	Release STQs - 15000lb (concentration >=37%) Release STQs - 5000lb (anhydrous) Theft STQs - 500lb (anhydrous)

Other International Regulations**Mexico - Grade**

No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Water	7732-18-5	-	-	-
Hydrochloric acid	7647-01-0	-	Use restricted. See entry 75. (see link for restriction details)	-

REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Water	7732-18-5	Listed	Not applicable	Not applicable	Not applicable
Hydrochloric acid	7647-01-0	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable
Hydrochloric acid	7647-01-0	25 tonne	250 tonne	Not applicable	Annex I - Y34

16. Other Information

Prepared By Product stewardship (Regulatory Affairs)
Thermo Fisher Scientific
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Creation Date 15-Feb-2010
Revision Date 18-Dec-2025
Print Date 18-Dec-2025
Revision Summary Updated to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS