

Australian statement of hazardous nature : Classified as hazardous according to criteria of Safe Work Australia

## Section 1 - Identification

**Product Name** Hydrochloric acid, 0.5N Standardized Solution

**Synonyms** Muriatic acid ; Hydrogen chloride ; HCl

<b>Product Code</b>	<b>S36878</b>
<b>Address</b>	ThermoFisher Scientific Australia Pty Ltd 5 Caribbean Drive, Scoresby VICTORIA 3179, Australia
<b>Emergency Tel.</b>	<b>CHEMTREC®</b> <b>03 9757 4559 or +613 9757 4559</b>
<b>Telephone / Fax Numbers</b>	Tel: 1300 735 292 Fax: 1800 067 639
<b>E-mail address</b>	ANZinfo@thermofisher.com

**Recommended Use** Laboratory chemicals.

**Uses advised against** This product contains one or more substance(s) on the Illicit Drug Precursors/Reagents list. Verify requirements related to using, handling and storing these substances. This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product contains one or more substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern.

## Section 2 - Hazard(s) Identification

### Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

#### Physical hazards

Substances/mixtures corrosive to metal

Category 1

#### Health hazards

No hazards identified

#### Environmental hazards

No hazards identified

#### Label Elements



Corrosion

**Signal Word**

**Warning**

**Hazard Statements**

H290 - May be corrosive to metals

**Precautionary Statements**

P234 - Keep only in original packaging

P390 - Absorb spillage to prevent material damage

P406 - Store in corrosion resistant polypropylene container with a resistant inliner

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

**Other information**

This product does not contain any known or suspected endocrine disruptors

Toxic to terrestrial vertebrates

## Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Water	7732-18-5	>90 - 99
Hydrochloric acid	7647-01-0	>1 - <10

## Section 4 - First Aid Measures

<b>Inhalation</b>	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>General Advice</b>	If symptoms persist, call a physician.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
<b>First Aid Facilities</b>	Eyewash, safety shower and washroom.
<b>Most important symptoms and effects</b>	None reasonably foreseeable.
<b>Notes to Physician</b>	Treat symptomatically.

## Section 5 - Fire Fighting Measures

**Suitable Extinguishing Media**

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

**Extinguishing media which must not be used for safety reasons**

No information available.

#### Hazardous Decomposition Products

Hydrogen chloride gas.

#### 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.

#### Special protective equipment and precautions for fire fighters

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

## Section 6 - Accidental Release Measures

#### Emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation.

#### Environmental Precautions

Should not be released into the environment.

#### Methods for Containment and Clean Up

##### Clean-up methods - small spillage

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

##### Clean-up methods - large spillage

Typically only supplied in small quantities as packaged goods.

If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

#### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## Section 7 - Handling and Storage

#### Precautions for Safe Handling

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

#### Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep only in the original container.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

## Section 8 - Exposure Controls and Personal Protection

#### Exposure limits

**AUS** - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)]

Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)] updated in August, 2005. Safe Work Australia

**ACGIH** - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace.

**UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020.

**DE** - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

**NZ** - Workplace Exposure Standards and Biological Exposure Indices (6th edition). New Zealand Department of Labor

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Hydrochloric acid	Ceiling: 5 ppm Ceiling: 7.5 mg/m <sup>3</sup>	Ceiling: 5 ppm Ceiling: 7.5 mg/m <sup>3</sup>	Ceiling: 2 ppm	STEL: 5 ppm 15 min STEL: 8 mg/m <sup>3</sup> 15 min TWA: 1 ppm 8 hr TWA: 2 mg/m <sup>3</sup> 8 hr	TWA: 2 ppm (8 Stunden). AGW - exposure factor 2 TWA: 3 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 TWA: 2 ppm (8 Stunden). MAK TWA: 3.0 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 4 ppm Höhepunkt: 6 mg/m <sup>3</sup>

#### Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### Exposure Controls

##### Engineering Measures

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

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

#### Personal protective equipment

##### Eye Protection

Goggles (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

##### Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Butyl rubber	> 480 minutes	0.20 mm	AS/NZS 2161	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
Neoprene	> 480 minutes	0.35 mm		
Nitrile rubber	> 480 minutes	0.45 mm		
PVC	> 480 minutes	0.18 mm		
Viton (R)	> 480 minutes	0.30 mm		

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

##### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

##### Respiratory Protection

Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of respiratory protective devices

##### Recommended Filter type:

Particulates filter conforming to EN 143 (or AUS/NZ equivalent)  
When RPE is used a face piece Fit Test should be conducted

#### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

#### Environmental exposure controls

No information available.

## Section 9 - Physical and Chemical Properties

**Information on basic physical and chemical properties**

<b>Appearance</b>	Colorless	
<b>Physical State</b>	Liquid	
<b>Odor</b>	Odorless	
<b>Odor Threshold</b>	No data available	
<b>pH</b>	1	
<b>Melting Point/Range</b>	No data available	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	100 - 103 °C / 212 - 217.4 °F	
<b>Flash Point</b>	Not applicable	<b>Method -</b> No information available
<b>Evaporation Rate</b>	No data available	
<b>Flammability (solid,gas)</b>	Not applicable	Liquid
<b>Explosion Limits</b>	No data available	
<b>Vapor Pressure</b>	No data available	
<b>Vapor Density</b>	No data available	(Air = 1.0)
<b>Specific Gravity / Density</b>	1.00-1.05	
<b>Bulk Density</b>	Not applicable	Liquid
<b>Water Solubility</b>	Miscible	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	No data available	
<b>Viscosity</b>	No data available	
<b>Explosive Properties</b>	No information available	
<b>Oxidizing Properties</b>	No information available	

**Other information**

## Section 10 - Stability and Reactivity

<b>Reactivity</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Incompatible products, Excess heat.
<b>Incompatible Materials</b>	Strong oxidizing agents, Reducing Agent, Bases, Metals.
<b>Hazardous Decomposition Products</b>	Hydrogen chloride gas.
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.

## Section 11 - Toxicological Information

**Information on Toxicological Effects**

**Product Information**

<b>(a) acute toxicity;</b>	
<b>Oral</b>	Based on ATE data, the classification criteria are not met
<b>Dermal</b>	Based on ATE data, the classification criteria are not met
<b>Inhalation</b>	Based on ATE data, the classification criteria are not met

**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

(b) skin corrosion/irritation; Based on available data, the classification criteria are not met  
Bridging principle "Dilution"

(c) serious eye damage/irritation; Based on available data, the classification criteria are not met

Bridging principle "Dilution"

(d) respiratory or skin sensitization;  
Respiratory Based on available data, the classification criteria are not met  
Skin Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

(f) carcinogenicity; Based on available data, the classification criteria are not met  
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(h) STOT-single exposure; Based on available data, the classification criteria are not met

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs None known.

(j) aspiration hazard; Based on available data, the classification criteria are not met

Symptoms / effects, both acute and delayed No information available

## Section 12 - Ecological Information

**Ecotoxicity effects** Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
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

**Persistence** Miscible with water, Persistence is unlikely, based on information available.

**Bioaccumulative Potential** Bioaccumulation is unlikely

### Mobility

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility Highly mobile in soils

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

**Persistent Organic Pollutant** This product does not contain any known or suspected substance

**Ozone Depletion Potential** This product does not contain any known or suspected substance

## Section 13 - Disposal Considerations

**Waste from Residues/Unused** Do not allow into drains or watercourses or dispose of where ground or surface waters may

<b>Products</b>	be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.
<b>Contaminated Packaging</b>	Dispose of this container to hazardous or special waste collection point.
<b>Other Information</b>	Chemical wastes should be disposed through a licensed commercial waste collection service. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not flush to sewer. Solutions with low pH-value must be neutralized before discharge.

## Section 14 - Transport Information

### IMDG/IMO

<b>UN-No</b>	UN1789
<b>Proper Shipping Name</b>	HYDROCHLORIC ACID, SOLUTION
<b>Hazard Class</b>	8
<b>Packing Group</b>	III

### ADG

<b>UN-No</b>	UN1789
<b>Proper Shipping Name</b>	HYDROCHLORIC ACID SOLUTION
<b>Hazard Class</b>	8
<b>Packing Group</b>	III

Component	Hazchem Code
Hydrochloric acid 7647-01-0 ( >1 - <10 )	2R 2RE

### IATA

<b>UN-No</b>	UN1789
<b>Proper Shipping Name</b>	HYDROCHLORIC ACID, SOLUTION
<b>Hazard Class</b>	8
<b>Packing Group</b>	III

<b>Environmental hazards</b>	No hazards identified
<b>Special Precautions</b>	No special precautions required
<b>Additional information</b>	None known

## Section 15 - Regulatory Information

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

#### National Regulations      **Australia**

See section 8 for national exposure control parameters.

#### **Standard for the Uniform Scheduling of Medicines and Poisons**

Classified as a scheduled poison according to the Standard for Uniform Scheduling of Medicines and Poisons.

Component	Standard for the Uniform Scheduling of Medicines and Poisons
Hydrochloric acid - 7647-01-0	Schedule 5 listed - except its salts and derivatives; in preparations except: in preparations containing <=0.5% of Hydrochloric acid, or for therapeutic use

	Schedule 6 listed - except its salts and derivatives; except: when included in Schedule 5, in preparations for therapeutic use, or in preparations containing $\leq 0.5\%$ of Hydrochloric acid
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**Australian Industrial Chemicals Introduction Scheme (AICIS)**

Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
Water - 7732-18-5	Present	-
Hydrochloric acid - 7647-01-0	Present	-

**Australian - Illicit Drug Precursors/Reagents Substance List**

This product contains one or more substance(s) on the Illicit Drug Precursors/Reagents list. Verify requirements related to using, handling and storing these substances.

**Chemicals of Security Concern**

This product contains one or more substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

Component	Australian - Illicit Drug Precursors/Reagents Substance List	Chemicals of Security Concern
Hydrochloric acid - 7647-01-0	Category 3	Listed in Appendix A

**Legend**

Category 3 - Chemicals and apparatus that may be used in the illicit production of drugs. Purchases from this list should alert companies or organizations to seek further indicators of any suspicious orders or enquiries. No official reporting is required for items on this list unless considered warranted

**Chemicals of Security Concern** - for further information see <http://www.chemicalsecurity.gov.au/securityconcerns>

**National pollutant inventory** Subject to reporting requirements

Component	National pollutant inventory
Hydrochloric acid - 7647-01-0	10 tonne/yr. Threshold category 1 400 tonne/yr. Threshold category 2a 1 tonne/h. Threshold category 2a 2000 tonne/yr. Threshold category 2b 60000 MWH. Threshold category 2b 20 MW. Threshold category 2b

**Prohibition or notification/licensing requirements**

Shown below are details of specific prohibition/notifications or licensing requirements when they apply.

This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction.

**International Inventories**

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	ISHL	IECSC	KECL
Water	X	X	231-791-2	-	X	X	-	X	X		X	KE-35400
Hydrochloric acid	X	X	231-595-7	-	X	X	-	X	X	X	X	KE-20189

**Legend:** X - Listed. '-' - Not Listed. **KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

**International Regulations**

**Ozone Depletion Potential** This product does not contain any known or suspected substance

**Persistent Organic Pollutant** This product does not contain any known or suspected substance



Rotterdam Convention (PIC) Not applicable

**Basel convention on the control of transboundary movements of hazardous wastes and their disposal**

Take note that wastes may be subject to export, import, or transit controls pursuant to the Basel convention and/or local regulations implementing the Basel convention.

Component	Basel Convention (Hazardous Waste)	Australian Hazardous Waste Act - Categories of Wastes to Be Controlled
Hydrochloric acid - 7647-01-0	Annex I - Y34	Y34 solid or solution

Component	CAS No	OECD HPV	Restriction of Hazardous Substances (RoHS)	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Water	7732-18-5	Listed	Not applicable	Not applicable	Not applicable
Hydrochloric acid	7647-01-0	Listed	Not applicable	25 tonne	250 tonne

**Authorisation/Restrictions according to EU REACH**

Component	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)
Hydrochloric acid	-	Use restricted. See entry 75. (see link for restriction details)	-

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

## Section 16 - Other Information

### Legend

<b>AICS</b> - Australian Inventory of Chemical Substances <b>TSCA</b> - United States Toxic Substances Control Act Section 8(b) Inventory <b>DSL/NDL</b> - Canadian Domestic Substances List/Non-Domestic Substances List <b>IECSC</b> - Chinese Inventory of Existing Chemical Substances <b>PICCS</b> - Philippines Inventory of Chemicals and Chemical Substances <b>TWA</b> - Time Weighted Average <b>IARC</b> - International Agency for Research on Cancer <b>ICAO/IATA</b> - International Civil Aviation Organization/International Air Transport Association <b>MARPOL</b> - International Convention for the Prevention of Pollution from Ships <b>NZS 5433:2020</b> - Transport of Dangerous Goods on Land <b>LD50</b> - Lethal Dose 50% <b>EC50</b> - Effective Concentration 50% <b>WEL</b> - Workplace Exposure Limit <b>DNEL</b> - Derived No Effect Level <b>POW</b> - Partition coefficient Octanol:Water <b>vPvB</b> - very Persistent, very Bioaccumulative <b>VOC</b> - (Volatile Organic Compound)	<b>NZIoC</b> - New Zealand Inventory of Chemicals <b>EINECS/ELINCS</b> - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances <b>ENCS</b> - Japanese Existing and New Chemical Substances  <b>KECL</b> - Korean Existing and Evaluated Chemical Substances <b>CAS</b> - Chemical Abstracts Service <b>ACGIH</b> - American Conference of Governmental Industrial Hygienists Predicted No Effect Concentration (PNEC) <b>IMO/IMDG</b> - International Maritime Organization/International Maritime Dangerous Goods Code <b>ADG</b> - Australian Code for the Transport of Dangerous Goods by Road and Rail <b>OECD</b> - Organisation for Economic Co-operation and Development <b>LC50</b> - Lethal Concentration 50% <b>ATE</b> - Acute Toxicity Estimate <b>RPE</b> - Respiratory Protective Equipment <b>NOEC</b> - No Observed Effect Concentration <b>BCF</b> - Bioconcentration factor <b>PBT</b> - Persistent, Bioaccumulative, Toxic
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**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>  
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:**

**Physical hazards**

On basis of test data

**Health Hazards**

Bridging principle "Dilution" Calculation method

**Environmental hazards**

Bridging principle "Dilution" Calculation method

**Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

**Revision Date**

17-Jul-2024

**Revision Summary**

New emergency telephone response service provider.

**This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).**

**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 Safety Data Sheet**