



SAFETY DATA SHEET
HYDROCHLORIC ACID SOLUTION (<10%)
REVISION 4, DATE 02 SEP 22

1. IDENTIFICATION

Product Name	Hydrochloric acid solution (<10%)
Other Names	No Data Available
Uses	General chemical (acid).
Chemical Family	No Data Available
Chemical Formula	Unspecified
Chemical Name	Hydrochloric acid, <10% aqueous solution
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)

Schedule 5



Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories Corrosive to Metals - Category 1
Skin Corrosion/Irritation - Category 2
Serious Eye Damage/Irritation - Category 2A
Specific Target Organ Toxicity (Single Exposure) - Category 3

Pictograms

Signal Word Warning

Hazard Statements

H290	May be corrosive to metals.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Precautionary Statements	Prevention	P280	Wear protective gloves/eye protection/face protection.
		P261	Avoid breathing mist/vapours/spray.
		P271	Use only outdoors or in a well-ventilated area.
	Response	P390	Absorb spillage to prevent material-damage.
		P302 + P352	IF ON SKIN: Wash with plenty of water.
		P337 + P313	If eye irritation persists: Get medical advice.
		P312	Call a POISON CENTER or doctor if you feel unwell.
		P332 + P313	If skin irritation occurs: Get medical advice.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P304 + P340	IF INHALED: Remove victim to fresh air and keep comfortable for breathing.
	Storage	P362 + P364	Take off contaminated clothing and wash it before reuse.
		P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
		P406	Store in corrosive resistant container with a resistant inner liner.
	Disposal	P405	Store locked up.
		P501	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Safe Work Australia

National Guide for Classifying Hazardous Chemicals under the Model WHS Regulations

Hazard Classification Hazardous according to the criteria of Safe Work Australia under Model WHS Regulations

3. COMPOSITION/INFORMATION ON INGREDIENTS*Ingredients*

Chemical Entity	Formula	CAS Number	Proportion
Hydrochloric acid	HCl	7647-01-0	>2 - <10 %
Water	No Data Available	7732-18-5	Balance %

4. FIRST AID MEASURES*Description of necessary measures according to routes of exposure*

Swallowed	IF SWALLOWED: Rinse mouth, then provide liquid slowly and as much as casualty can comfortably drink. Do NOT induce vomiting. Get medical advice/attention. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Never give anything by mouth to an unconscious person.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention. *Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin	IF ON SKIN (or hair): Remove and isolate contaminated clothing and shoes. Immediately flush skin and hair with running water for at least 15 minutes. For minor skin contact, avoid spreading material on unaffected skin. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Centre or doctor/physician for advice. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult.
Advice to Doctor	For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor. Treat symptomatically. Keep victim calm and warm. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. Ensure that attending medical personnel are aware of the identity and nature of the product (s) involved, and take precautions to protect themselves. Most important symptoms and effects, both acute and delayed: Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	Alert Fire Brigade and tell them location and nature of hazard. If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after fire is out. Do not approach containers suspected to be hot. Dike fire-control water for later disposal; do not scatter the material.
Flammability Conditions	Non-combustible; substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
Extinguishing Media	If material is involved in a fire, use Carbon dioxide (CO ₂), dry chemical, dry sand, alcohol-resistant foam. Use water spray or fog; do not use straight streams.
Fire and Explosion Hazard	Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated.
Hazardous Products of Combustion	Fire will produce irritating, corrosive and/or toxic gases, including Hydrogen chloride.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may be corrosive and/or toxic and cause pollution.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing - It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations

ONLY; it is not effective in spill situations where direct contact with the substance is possible.

Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	2R

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation - Ventilate enclosed spaces before entering. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Clean up all spills immediately! Avoid breathing vapours and contact with eyes, skin and clothing.
Clean Up Procedures	Collect recoverable product into labelled containers for recycling. Use clean, non-sparking tools to collect absorbed material and place it into suitable containers for later disposal (see SECTION 13).
Containment	Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. *vapour-suppressing foam may be used to reduce vapours. Use water spray to reduce vapours or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
Decontamination	Neutralise/decontaminate residue. Use soda ash or slaked lime to neutralise. Wash area and prevent runoff into drains. *After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
Environmental Precautionary Measures	Small spillages and decontamination run-off may be washed to drains with large quantities of water - Due care must still be exercised to avoid unnecessary pollution of watercourses.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground.
Personal Precautionary Measures	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation - Use only outdoors or in a well-ventilated area. Handle in accordance with good industrial hygiene and safety practice. Avoid breathing mist/vapours/spray and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). CORROSIVE TO METALS: Absorb spillage to prevent material damage (see SECTION 6). Avoid contact with incompatible materials (see SECTION 10).
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Protect containers against physical damage and check regularly for leaks. Keep away from heat and sources of ignition - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 10). Store locked up.
Container	Keep only in original packaging or suitable container, i.e. Lined metal pail/can; Plastic pail; Polyliner drum. Check all containers are clearly labelled and free from leaks.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	For Hydrogen chloride (CAS No. 7647-01-0): - Safe Work Australia Exposure Standard: TWA = 5 ppm (7.5 mg/m ³) Peak limitation. - New Zealand Workplace Exposure Standard [Next review 2023]: TWA = 5 ppm (7.5 mg/m ³) Ceiling.
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing

dispersion of it into the general work area.

Personal Protection Equipment

- Respiratory protection: In case of inadequate ventilation, wear respiratory protection. Recommended: Type B-P filter of sufficient capacity (refer to AS/NZS 1715 & 1716).
- Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses with side shields; Chemical goggles.
- Hand protection: Wear protective gloves. Recommended: Chemical protective gloves, e.g. PVC.
- Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls, PVC apron, safety footwear or gumboots, e.g. rubber.

Special Hazards Precautions

No information available.

Work Hygienic Practices

Do not eat, drink or smoke when using this product. Always wash hands with soap and water after handling. Remove contaminated clothing and shoes immediately. Do NOT allow clothing wet with material to stay in contact with skin. Wash contaminated clothing before reuse. Work clothes should be laundered separately.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Fuming liquid
Odour	Pungent
Colour	Clear, colourless to slightly yellow
pH	<2
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	No Data Available
Freezing Point	No Data Available
Solubility	Miscible with water
Specific Gravity	1.037 - 1.045
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	Hygroscopic.
Potential for Dust Explosion	Not applicable.

Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible; substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
Reactions That Release Gases or Vapours	Fire or heat will produce irritating, corrosive and/or toxic gases, including Hydrogen chloride.
Release of Invisible Flammable Vapours and Gases	Contact with metals may evolve flammable hydrogen gas.

10. STABILITY AND REACTIVITY

General Information	Contact with metals may evolve flammable hydrogen gas.
Chemical Stability	Product is considered stable. *Unstable in the presence of incompatible materials.
Conditions to Avoid	Avoid contact with incompatible materials.
Materials to Avoid	Incompatible/reactive with alkalis, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.
Hazardous Decomposition Products	Fire or heat will produce irritating, corrosive and/or toxic gases, including Hydrogen chloride.
Hazardous Polymerisation	Hazardous polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	<p>Information on toxicological effects:</p> <ul style="list-style-type: none"> - Acute toxicity: Accidental ingestion of the material may be damaging to the health of the individual. - Skin corrosion/irritation: Causes skin irritation. - Eye damage/irritation: Causes serious eye irritation. - Respiratory/skin sensitisation: Not expected to cause respiratory or skin sensitization reactions. - Germ cell mutagenicity: Hydrogen chloride does not have any significant mutagenic potential. - Carcinogenicity: IARC has designated Hydrochloric acid as being not classifiable as to its carcinogenicity to humans. i.e. Category 3. - Reproductive toxicity: No information available. - STOT (single exposure): May cause respiratory irritation. - STOT (repeated exposure): Not considered to cause serious damage to health from repeated exposure. - Aspiration toxicity: No information available. <p>Information on likely routes of exposure:</p> <ul style="list-style-type: none"> - Ingestion: Ingestion may result in nausea, abdominal irritation, pain and vomiting. - Eye contact: Causes serious eye irritation. - Skin contact: Causes skin irritation. - Inhalation: May cause respiratory irritation. Inhalation of HCl may cause choking, coughing, burning sensation and may cause ulceration of the nose, throat and larynx. Fluid on the lungs followed by generalised lung damage may follow. Chronic effects: Chronic minor exposure to hydrogen chloride (HCl) vapour or fume may cause discolouration or erosion of the teeth, bleeding of the nose and gums; and ulceration of the nasal mucous membranes.
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: COMPONENT: Hydrochloric acid: - LC50, Fish: 334.734 mg/L (96 h) [Ecotox database, US-EPA].
Persistence/Degradability	Low persistence in water/soil; Low persistence in air (Hydrochloric acid).
Mobility	Low mobility in soil (Hydrochloric acid).
Environmental Fate	Prevent entry into drains and waterways.
Bioaccumulation Potential	Low bioaccumulative potential (Hydrochloric acid).
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations. Recycle product wherever possible or treat and neutralise at an effluent treatment plant. Use soda ash or slaked lime to neutralise.
Special Precautions for Land Fill	Packaging disposal: Recycle containers, otherwise dispose of in an authorised landfill.

14. TRANSPORT INFORMATION**Land Transport (Australia)**

ADG Code

Proper Shipping Name	HYDROCHLORIC ACID
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
EPG	40 Toxic And/Or Corrosive Substances Non-Combustible - Water Reactive
UN Number	1789
Hazchem	2R
Pack Group	III
Special Provision	No Data Available

Land Transport (Fiji)

Proper Shipping Name	HYDROCHLORIC ACID
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
EPG	40 Toxic And/Or Corrosive Substances Non-Combustible - Water Reactive
UN Number	1789
Hazchem	2R
Pack Group	III
Special Provision	No Data Available

Land Transport (Malaysia)

ADR Code

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Proper Shipping Name	HYDROCHLORIC ACID
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
EPG	40 Toxic And/Or Corrosive Substances Non-Combustible - Water Reactive
UN Number	1789
Hazchem	2R
Pack Group	III
Special Provision	No Data Available

Land Transport (New Caledonia)

Proper Shipping Name	HYDROCHLORIC ACID
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
EPG	40 Toxic And/Or Corrosive Substances Non-Combustible - Water Reactive
UN Number	1789
Hazchem	2R
Pack Group	III
Special Provision	No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	HYDROCHLORIC ACID
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
EPG	40 Toxic And/Or Corrosive Substances Non-Combustible - Water Reactive
UN Number	1789
Hazchem	2R
Pack Group	III
Special Provision	

Land Transport (Papua New Guinea)

Proper Shipping Name	HYDROCHLORIC ACID
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
EPG	40 Toxic And/Or Corrosive Substances Non-Combustible - Water Reactive
UN Number	1789
Hazchem	2R
Pack Group	III
Special Provision	No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name	HYDROCHLORIC ACID
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
ERG	157 Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)

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UN Number	1789
Hazchem	2R
Pack Group	III
Special Provision	No Data Available

Sea Transport

IMDG Code

Proper Shipping Name	HYDROCHLORIC ACID
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
UN Number	1789
Hazchem	2R
Pack Group	III
Special Provision	No Data Available
EMS	F-A, S-B
Marine Pollutant	No

Air Transport

IATA DGR

Proper Shipping Name	HYDROCHLORIC ACID
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
UN Number	1789
Hazchem	2R
Pack Group	III
Special Provision	No Data Available

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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15. REGULATORY INFORMATION

General Information	HYDROCHLORIC ACID, in preparations containing 10 % or less of hydrochloric acid (HCl), is listed in Schedule 5 of the SUSMP.
Poisons Schedule (Aust)	Schedule 5

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	Not Assessed
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National/Regional Inventories

Australia (AIIIC)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes	HYACIB0500, HYACIB1898, HYACID1809, HYACID1810, HYACID1811, HYACID1819, HYACID1820, HYACID1846, HYACID1847, HYACID1848, HYACID1849, HYACID1850, HYACID1851, HYACID1856, HYACID1918, HYACID1920, HYACID1922, HYACID1929, HYACID1931, HYACID1949, HYACID1950, HYACID1952, HYACID1953, HYACID1954, HYACID2050, HYACID2051
Revision	4
Revision Date	02 Sep 2022
Reason for Issue	Updated SDS
Key/Legend	<p>< Less Than > Greater Than</p> <p>AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm² Square Centimetres CO₂ Carbon Dioxide COD Chemical Oxygen Demand deg C (°C) Degrees Celcius EPA (New Zealand) Environmental Protection Authority of New Zealand deg F (°F) Degrees Farenheit g Grams g/cm³ Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other. inHg Inch of Mercury inH₂O Inch of Water</p>

K Kelvin

kg Kilogram

kg/m³ Kilograms per Cubic Metre

lb Pound

LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

ltr or **L** Litre

m³ Cubic Metre

mbar Millibar

mg Milligram

mg/24H Milligrams per 24 Hours

mg/kg Milligrams per Kilogram

mg/m³ Milligrams per Cubic Metre

Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre

mmH₂O Millimetres of Water

mPa.s Millipascals per Second

N/A Not Applicable

NIOSH National Institute for Occupational Safety and Health

NOHSC National Occupational Health and Safety Commission

OECD Organisation for Economic Co-operation and Development

Oz Ounce

PEL Permissible Exposure Limit

Pa Pascal

ppb Parts per Billion

ppm Parts per Million

ppm/2h Parts per Million per 2 Hours

ppm/6h Parts per Million per 6 Hours

psi Pounds per Square Inch

R Rankine

RCP Reciprocal Calculation Procedure

STEL Short Term Exposure Limit

TLV Threshold Limit Value

tne Tonne

TWA Time Weighted Average

ug/24H Micrograms per 24 Hours

UN United Nations

wt Weight