

OMEGA CHEMICALS

Manufacturers of Aluminium Sulphate – Suppliers of Industrial Chemicals



Date of Issue: 26 March 2012

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MATERIAL SAFETY DATA SHEET

HYDROCHLORIC ACID 33%

1. Identification of Product & Supplier

Product Name:	Hydrochloric Acid 33%.
Other Names:	Muriatic Acid, Hydrogen Chloride Solution, Hydrochloric Acid Solution, Spirits of Salt.
Manufacturers Product Code:	Hydrochloric Acid 33%.
Use:	Preparation of chlorides; refining tin and tantalum ores; neutralising basic (alkali) solutions; hydrolysing starch and proteins in food processing; pickling and cleaning of metals; chemical intermediate, catalyst and solvent for organic synthesis; oil and gas well treatment; boiler scale removal; acidifier in pharmaceutical production; laboratory reagent. Veterinary therapeutic category – has been used as a gastric acidifier.
Manufacturer:	Omega Chemicals, 55 Fitzgerald Road, Laverton North, Victoria 3026.
Phone:	(03) 8368 8000.

2. Hazard Identification

Classified as Hazardous according to the criteria of Safe Work Australia.

Classified as Dangerous according to the ADG Code.

CORROSIVE!

Risk Phrases:

- R23 Toxic by inhalation.
- R34 Causes burns
- R35 Causes severe burns.
- R37 Irritating to respiratory system.
- R41 Risk of serious eye damage.

Safety Phrases:

- S1/S2 Keep locked up and out of the reach of children.
- S3/S9 Keep container in a cool, well-ventilated place.
- S13 Keep away from food, drink and animal feeding stuffs.
- S20 When using do not eat or drink.
- S23 Do not breathe gas, fumes, vapours or spray.
- S24/25 Avoid contact with skin and eyes.
- S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S27 Take off immediately all contaminated clothing.
- S28 After contact with skin, wash immediately with plenty of water.
- S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S38 If case of insufficient ventilation, wear suitable respiratory equipment.
- S45 In case of accident or if you feel unwell seek medical advice immediately (show the label whenever possible).
- S50 Do not mix with alkalis (reacts violently). Do not mix with sodium hypochlorite and oxidizing agents (liberates chlorine gas).
- S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.
- S63 In case of accident by inhalation: remove casualty to fresh air and keep at rest.

S64 If swallowed, rinse mouth with water, (only if the person is conscious).

3. Composition/Information on Ingredients

Ingredients:	CAS Number	Proportion:
Hydrogen chloride	7647-01-0	>33%
Water	7732-18-5	Balance to 100%

4. First Aid Measures

For advice, contact Poisons Information Centre on 131 126 or a Doctor.

Ingestion: Immediately rinse mouth with water. Give plenty of water to drink. DO NOT induce vomiting. If vomiting occurs give further water. Seek immediate medical attention.

Eyes: Flush with water for 15 minutes holding eye open. Seek immediate medical attention.

Skin: Remove all contaminated clothing without delay. Wash skin gently and thoroughly with copious amounts of water and non-abrasive soap for 15 minutes. If swelling, blistering or redness persists, seek immediate medical attention. Ensure contaminated clothing is washed before re-use or discarded.

Inhalation: Remove the source of contamination or move the victim to fresh air; avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have qualified person give oxygen through a face mask. If breathing has stopped apply artificial respiration at once. In the event of cardiac arrest, apply external cardiac massage. Seek immediate medical attention.

Advice to Doctor: Treat symptomatically and for exposure to acidic substances. Patient should remain under observation for 48 hours as delayed pulmonary oedema may develop.

Additional Information

Aggravated medical conditions caused by exposure: Prolonged exposure to low levels may cause erosion of the teeth and ulceration of the nose and gums.

5. Fire Fighting Measures

Extinguishing Media:	In case of fire, use an appropriate extinguishing media (water fog, foam or dry chemical powder) that is the most suitable for surrounding fire conditions.
Hazards from Combustion:	Product is non-flammable and stable under normal conditions of use and storage. Reacts violently with alkalis. Reacts with sodium hypochlorite and oxidizing agents liberating chlorine. Corrosive to most metals liberating flammable hydrogen gas. Heating can cause expansion or decomposition leading to violent rupture of containers.
Flammability Conditions:	Product is a non-flammable liquid. However, flammable hydrogen gas may be formed in contact with metals.
Hazchem Code:	2R
Special Protective Precautions and Equipment for Fire Fighters:	Fire fighters should wear a self-contained breathing apparatus and full protective clothing along with protective equipment. Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. Accidental Release Measures

Emergency Procedure:	Evacuate all unnecessary personnel. Work upwind. Increase ventilation. Use water spray to disperse vapours. Personnel involved in the clean-up should wear full protective clothing; self-contained breathing apparatus may be needed for prolonged periods of exposure. Avoid walking through spilled product as it may be slippery. Cover drains. Collect, bind and pump off spills. Do not allow product to enter drains, sewers, waterways or soil. If contamination of drains has occurred, advise the local emergency services.
Methods and Materials for Containment and Clean Up:	Contain spilled product using absorbent (soil, sand, sawdust, inert material, vermiculite). Prevent run off into drains, sewers waterways or soil. Collect and seal in properly labelled drums ready for appropriate disposal. Dilute remaining product with water, then carefully neutralize with slaked lime or soda ash, adjusting the pH to between 6 and 10. For large spills notify local emergency services.

7. Handling and Storage

Precautions for Safe Handling:	Ensure an eye bath and safety shower are available and ready for use. Wear appropriate protective equipment to prevent inhalation, skin and eye contact. Ensure a high level of personal hygiene is maintained when using this product, that is, always wash hands before eating, drinking, smoking or using the toilet.
Container Type:	Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001. Store in original packaging as approved by manufacturer. A corrosion-resistant container made of fibreglass or polyethylene is suitable. Metal containers must not be used.
Conditions for Safe Storage, including any Incompatibles:	Store in a cool, dry, well-ventilated area out of direct sunlight. Do not store with incompatible products such as strong alkalis and oxidizing agents. Keep containers securely sealed and protected against physical damage. Do not store with any foodstuffs.

8. Exposure Controls

National Exposure Standards:	Hydrochloric Acid: AU OEL Peak Limitation: 5 ppm or 7.5 mg/m ³ .
Biological Limit Values:	No data available.
Engineering Controls:	Ensure ventilation is adequate to maintain air concentrations below exposure standards. Use with local exhaust ventilation or while wearing acid mist respirator. Keep containers closed when not in use in a well-ventilated area.
Personal Protection:	Respirator: If inhalation risk exists, wear an approved acid mist respirator. Eyes: Chemical goggles or face shield. Hands: Elbow-length impervious neoprene or nitrile gloves. Clothing: Protective overalls, splash apron and rubber boots.

After using this product always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

9. Physical and Chemical Properties

Core Information

Appearance:	Colourless to yellow clear liquid with characteristic fuming. Tends to fume at higher concentrations.	
Formula:	HCl.	
Molecular Weight:	36.46.	
Odour:	Stinging, pungent odour.	
Odour Threshold	1 to 5 ppm.	
pH (1% v/v in Water):	1.5 to 2.0.	
Vapour Pressure:	4.0 atmospheres (at 17.8°C).	
Vapour Density:	No data available.	
Boiling Point:	108.6°C.	
Freezing Point:	-46.2°C.	
Solubility (in Water):	Miscible.	
Specific Gravity:	1.16 (at 20°C).	
Flash Point:	N/A.	
Flammability Limits (as Percent Volume in Air):	Lower Explosive Limit	N/A.
	Upper Explosive Limit	N/A.
Ignition Temperature:	No data available.	

Additional Information

Specific Heat Value:	4.18 J.g ⁻¹ .K ⁻¹ .
Particle Size:	No data available.
Volatile Organic Compounds Content (VOC):	No data available.
Viscosity:	1.9 mPa.s (at 15°C).
Percent Volatile:	No data available.

Octanol/Water Partition Coefficient:	No data available.
Saturated Vapour Concentration:	No data available.
Additional Characteristics:	No data available.
Flame Propagation/Burning Rate of Solid Materials:	No data available.
Properties that may Initiate or Contribute to the Intensity of a Fire:	Contact with strong alkalis may generate heat.
Potential for Dust Explosion:	No data available.
Reactions that Release Flammable Gases or Vapours:	Avoid contact with metals; corrosive to most metals liberating flammable hydrogen gas.
Fast or Intensely Burning Characteristics:	No data available.
Non-Flammables that Could Contribute Unusual Hazards to a Fire:	No data available.
Release of Invisible Flammable Vapours and Gases:	No data available.
Decomposition Temperature:	No data available.
Evaporation Rate:	<1.0 (where n-butyl acetate = 1).

10. Stability and Reactivity

Chemical Stability:	Stable under normal conditions.
Conditions to Avoid:	Avoid contact with metals, strong acids and alkalis and strong oxidizing agents. Avoid heating.
Incompatible Materials:	Will react with water or steam to produce toxic and corrosive vapours. Keep away from strong acids and bases and strong oxidising agents. Avoid contact with metals; corrosive to most metals liberating flammable hydrogen gas. Reacts with zinc, aluminium, galvanised iron, brass, copper and copper alloys. Keep away from cyanides and sulphides. Keep away from all foodstuffs.
Hazardous Decomposition Products:	Hydrogen Chloride gas.

- Hazardous Reactions:** Exothermic (produces heat) reactions can occur if in contact with aldehydes, amines, vinylmethyl ether, potassium permanganate, salts of oxy-halogenic acids, semi-metallic oxides and semi-metallic hydrogen compounds.
- There is a risk of ignition, or formation of flammable gases or vapours, if in contact with sulphides, carbides, hydrides, fluorine, aluminium, formaldehyde, lithium silicide, metals and strong alkalis.
- There is a risk of explosion if in contact with concentrated sulphuric acid and alkali metals.

11. Toxicological Information

Toxicity Data

- LD50:** 900 mg/kg (rabbit, oral).
- LC50:** 312 ppm (rat, 1 hour, inhalation).
- Lowest Lethal Concentration:** 1300 ppm (Human, 30 minutes, inhalation).
- Lowest Lethal Concentration:** 3000 ppm (Human, 5 minutes, inhalation).

The vapour is irritating and is severely destructive to the eyes, skin, upper respiratory tract and mucous membranes. The liquid burns the eyes and skin. Ingestion of this product will cause severe irritation and damage.

Vapour concentrations (in air) of 35 ppm cause irritation of the throat upon short exposure, concentrations between 50 and 100 ppm for 1 hour are barely tolerable and concentrations of 1000 to 2000 ppm are dangerous, even for a brief exposure time.

This product has been classified by the IARC as a Group-3 agent.

Acute (short term)

- Ingestion:** May be harmful if swallowed. Will cause severe irritation and chemical burns to the mouth, oesophagus and stomach (corrosion of gastrointestinal tract). Danger of perforation of the oesophagus and the stomach. May cause vomiting, diarrhoea and abdominal pain.
- Eye:** Eye irritation. Causes serious eye damage. Corrosive to eyes, contact can cause corneal burns. Can result in permanent injury. Risk of blindness.
- Skin:** Corrosive to skin. May cause skin burns. Contact with skin will result in severe irritation.

Inhalation: Vapour is an irritant to mucous membranes above 35ppm. May cause coughing, choking and inflammation of the respiratory tract. Possible harmful corrosive effects. Exposure to high vapour concentrations may cause lung damage including pulmonary oedema. Effects may be delayed.

Chronic (long term)

Ingestion: Repeated or prolonged exposure can cause erosion of teeth and ulceration of the gums.

Skin: Repeated or prolonged exposure can cause dermatitis.

Inhalation: Repeated or prolonged exposure can cause bronchitis, pneumonia and pulmonary oedema and ulceration of the nose.

12. Ecological Information

Ecotoxicity: Forms corrosive mixtures with water even if diluted. Harmful effect due to pH shift.

Persistence and Degradability: No data available.

Mobility: No data available.

Additional Information

Environmental Fate (Exposure): No data available.

Bio accumulative Potential: No data available.

Other Adverse Effects: Discharge into the environment must be avoided. Avoid contaminating waterways.

Aquatic Toxicity: 282 ppm/96 hours (mosquito fish, TL_m, fresh water).
100-330 ppm/48 hours (shrimp, LC50, salt water).

13. Disposal Considerations

Disposal Methods: Dispose of in accordance with all local, state and federal regulations. Refer to appropriate State Waste Disposal Authority. Observe local regulations. After dilution and careful neutralisation, approved liquid waste land fill site may be suitable.

Special Precautions for Landfill or Incineration: No data available.

14. Transport Information

UN Number:	1789.
UN Proper Shipping Name:	Hydrochloric Acid.
Dangerous Goods Class:	8.
Subsidiary Risk:	None allocated.
Packaging Group:	II.
Special Precautions for User:	CORROSIVE & TOXIC.
Hazchem Code:	2R.



Incompatible Classes

This Product is incompatible in a placard load with any of the following:

- Class 1 – Explosives.
- Class 4.3 - Dangerous When Wet Substances.
- Class 5.1 - Oxidising Agents
- Class 5.2 - Organic Peroxides.
- Class 6 - Toxic Substances (where the toxic substances are cyanides).
- Class 7 - Radioactive Substances
- All food and food packaging in any quantity.

15. Regulatory Information

Poisons Schedule:	6.
EPG:	40.
AICS Name:	Hydrochloric Acid.
Additional information:	No data available.

16. Other Information

Revision Details

Date of Issue:	26 March 2012.
Reason for Revision:	5 year review. Updated to a new format. Additional information added.

Literature References

Chemical Rubber Company:	Handbook of Chemistry and Physics, 85 th Edition.
Merck	The Merck Index, 14 th Edition.
Weiss, G.	Hazardous Chemicals Data Book, 2 nd Edition.
Luxon, S. G.	Hazards in the Chemical Laboratory, 5 th Edition.
Sax, N. Irving	Dangerous Properties of Industrial Materials, 3 rd Edition.
Safe Work Australia:	Hazardous Substances Information System (HSIS) Exposure Standards Data-Base, December 2010.
National Transport Commission:	Australian Code for the Transport of Dangerous Goods by Road and Rail, Volume 7.

Abbreviations

CAS Number:	Chemical Abstract Service Registry Number.
IARC:	International Agency for Research on Cancer.
EPG:	Emergency Procedure Guide.
LC50:	Lethal Concentration 50%: The lowest concentration at which approximately 50% of test animals will die when exposed to the specified concentration by inhalation.
LD50:	Lethal Dose 50%: The lowest concentration at which approximately 50% of test animals will die when given the specified dose by mouth.
TL_m:	Medium Tolerance Limit: Approximately 50% of fish will show abnormal behaviour, including death, for the given concentration and time.
ADG Code:	Australian Code for the Transport of Dangerous Goods by Road and Rail, Volume 7.
AICS Name:	Australian Inventory of Chemical Substances Name.
OEL:	Occupational Exposure Level.
N/A:	Not Applicable.

Disclaimer

This Material Safety Data Sheet is offered solely for information, consideration and investigation to determine the suitability of various health and safety precautions as may be required under the user's specific conditions and processes. All such conditions and processes are beyond the control of Omega Chemicals.

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