

### 1. IDENTIFICATION

<b>Product Name</b>	<b>Hydrochloric acid, &gt;25%</b>
<b>Other Names</b>	Hydrochloric acid 31 - 33%; Hydrochloric acid 32%; Hydrochloric acid 33%
<b>Uses</b>	Industrial use.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	HCl
<b>Chemical Name</b>	Aqueous hydrogen chloride
<b>Product Description</b>	No Data Available

#### Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty 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

### 2. HAZARD IDENTIFICATION

**Poisons Schedule (Aust)** Schedule 6

#### Globally Harmonised System

<b>Hazard Classification</b>	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
<b>Hazard Categories</b>	Corrosive to Metals - Category 1 Skin Corrosion/Irritation - Category 1B Serious Eye Damage/Irritation - Category 1 Specific Target Organ Toxicity (Single Exposure) - Category 3



Pictograms



Signal Word

Danger

Hazard Statements

- H290** May be corrosive to metals.
- H314** Causes severe skin burns and eye damage.
- H335** May cause respiratory irritation.
- H433** Harmful to terrestrial vertebrates.

Precautionary Statements

- |            |                    |   |  |
|------------|--------------------|---|--|
| Prevention | <b>P260</b>        | Do not breathe fume/mist/vapours/spray.   |  |
|            | <b>P280</b>        | Wear protective gloves/protective clothing/eye protection/face protection.                                |  |
|            | <b>P271</b>        | Use only outdoors or in a well-ventilated area.   |  |
|            | Response           | <b>P303 + P361 + P353</b>   | IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.                       |
|            |                    | <b>P310</b>   | Immediately call a POISON CENTER or doctor/physician.  |
|            |                    | <b>P305 + P351 + P338</b>   | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
|            |                    | <b>P390</b>   | Absorb spillage to prevent material damage.  |
|            |                    | <b>P301 + P330 + P331</b>   | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.   |
|            |                    | <b>P363</b>   | Wash contaminated clothing before reuse.   |
|            |                    | <b>P304 + P340</b>  | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.                                 |
| Storage    | <b>P403 + P233</b> | Store in a well-ventilated place. Keep container tightly closed.  |  |
|            | <b>P406</b>        | Store in corrosive resistant container with a resistant inner liner.                                      |  |
|            | <b>P405</b>        | Store locked up.  |  |
| Disposal   | <b>P501</b>        | 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)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Water	H2O	7732-18-5	<75 %
Hydrochloric acid	HCl	7647-01-0	>25 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed

IF SWALLOWED: If conscious and alert, rinse mouth then drink 200 - 300 mL water to dilute the substance. Do NOT induce vomiting. Immediately call a Poison Centre or doctor/physician for advice. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration;



Rinse mouth, then drink more water. Keep victim calm and warm - Obtain immediate medical care. Never give anything by mouth to an unconscious or convulsing person.

<b>Eye</b>	IF IN EYES: Immediately flush eyes with running water for at least 15 minutes, holding eyelids open and occasionally lifting the upper and lower lids. Immediately call a Poison Centre or doctor/physician for advice. Remove contact lenses if present and easy to do. If irritation persists, continue rinsing. Keep victim calm and warm - Obtain immediate medical care. Do not transport victim until the recommended flushing period is completed, unless flushing can be continued during transport.
<b>Skin</b>	IF ON SKIN (or hair): Remove contaminated clothing and shoes immediately. Flush skin and hair with running water for at least 15 minutes. Immediately call a Poison Centre or doctor/physician for advice. In case of gross contamination, drench contaminated clothing and skin with plenty of water before removing clothes. For minor skin contact, avoid spreading material on unaffected skin. Keep victim calm and warm - Obtain immediate medical care. Do not transport victim until the recommended flushing period is completed, unless flushing can be continued during transport. During transport or if medical treatment is delayed, immerse the affected area in iced water. If immersion is not practicable, apply compresses of iced water. Wash contaminated clothing and shoes before reuse; Discard heavily contaminated clothing and shoes in a manner which limits further exposure.
<b>Inhaled</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a Poison Centre or doctor/physician for advice. Apply resuscitation if victim is not breathing – Do not use direct mouth-to-mouth method if victim ingested or inhaled the substance; use alternative respiratory method or proper respiratory device. Administer oxygen if breathing is difficult. Keep victim calm and warm - Obtain immediate medical care.
<b>Advice to Doctor</b>	Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Symptoms may appear up to 48 hrs after exposure. Strict adherence to first aid measures following any exposure is essential. SPEED IS ESSENTIAL. Treat symptomatically. Ensure that attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to protect themselves.
<b>Medical Conditions Aggravated by Exposure</b>	No information available.

## 5. FIRE FIGHTING MEASURES

<b>General Measures</b>	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out. Water spray may be used to knock down escaping vapour. Avoid getting water inside containers. When any large containers are involved in a fire, consider evacuation of areas within 800 m in all directions.
<b>Flammability Conditions</b>	Non-combustible; Material does not burn, but may produce toxic and/or corrosive fumes upon heating.
<b>Extinguishing Media</b>	If material is involved in a fire, use dry chemical, Carbon dioxide (CO <sub>2</sub> ), foam or water spray for extinction. Use extinguishing media suitable for surrounding fires.
<b>Fire and Explosion Hazard</b>	Will react with many compounds (some violently) releasing flammable, toxic and/or corrosive gases and runoff. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated or contaminated with water.
<b>Hazardous Products of Combustion</b>	Fire will produce irritating, toxic and/or corrosive gases, including chlorine.
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may be toxic and/or corrosive and may pollute waterways.
<b>Personal Protective Equipment</b>	Liquid-tight chemical protective clothing (splash suit) in combination with self-contained breathing apparatus (SCBA) should be used. Structural firefighter's uniform is NOT effective for this material.
<b>Flash Point</b>	No Data Available
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available
<b>Hazchem Code</b>	2R

## 6. ACCIDENTAL RELEASE MEASURES

<b>General Response Procedure</b>	Ensure adequate ventilation - Ventilate enclosed spaces before entering. ELIMINATE all ignition sources. Do not touch or walk through spilled material. Do not breathe mist/vapours and prevent contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	Absorb with earth, sand or other non-combustible material; Use clean non-sparking tools to collect material and place it into suitable containers for later disposal (see SECTION 13).
<b>Containment</b>	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Cover with dry earth and/or other non-combustible material followed by plastic sheet to minimise spreading. Vapour-suppressing foam may be used to



control vapours; Water spray may be used to knock down or divert vapour clouds.

**Decontamination**

If possible, neutralize contaminant at the spilled area with lime, limestone, sodium carbonate (soda ash), sodium bicarbonate, and dilute sodium hydroxide. Ensure adequate decontamination of tools and equipment following clean up.

**Environmental Precautionary Measures**

Small spillages and decontamination run-off may be washed to drains with large quantities of water. Due care must however 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. Large spill: Consider downwind evacuation of areas within 250 m.

**Personal Precautionary Measures**

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8). Large spill: Wear SCBA and chemical splash suit.

**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. Do not breathe mist/vapours and prevent contact with eyes, skin and clothing. Do not ingest. Wear protective gloves/protective clothing/eye protection/face protection (see SECTION 8). CORROSIVE: Always add acid to water during dilution - NEVER add water to acid. Avoid contact with common metals. Use corrosion-resistant structural materials. Absorb spillage to prevent material damage (see SECTION 6).

**Storage**

Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Containers should be labelled and protected from damage. Keep away from heat and sources of ignition - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 10). Store locked up. If stored indoors, building floors should be acid resistant with drains to a treatment system. Electrical equipment should be flameproof and protected against corrosive action.

**Container**

Keep only in the original container or suitable material, i.e. rubber lined steel, PVC/FRP, FRP. Containers should have a safety relief valve - Care should be taken to release any internal pressure slowly.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**General**

For Hydrochloric acid (CAS No. 7647-01-0):  
 - Safe Work Australia (SWA) Exposure Standard: TWA = 5 ppm (7.5 mg/m3) Peak limitation.  
 - New Zealand Workplace Exposure Standard (WES): TWA = 5 ppm (7.5 mg/m3) Ceiling.  
 - OSHA PEL/NIOSH REL: TWA = 5 ppm (7 mg/m3) Ceiling.  
 - Immediately dangerous to life or health (IDLH) concentration: 50 ppm.

**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. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Electrical equipment should be flameproof and protected against corrosive action.

**Personal Protection Equipment**

- Respiratory protection: Wear respiratory protection in case of inadequate ventilation, if facing concentrations above the exposure limit or unknown concentrations. Recommended: Chemical cartridge respirator or air-purifying respirator, providing protection against acid gas (Filter Type E); Supplied air respirator or self-contained breathing apparatus (SCBA).  
 - Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Wear chemical goggles and full face shield.  
 - Hand protection: Wear protective gloves. Recommended: Wear impervious gloves, e.g. Nitrile rubber (full contact); Latex gloves (splash contact).  
 - Skin/body protection: Wear appropriate personal protective clothing to prevent skin contact. Recommended: Wear impervious protective clothing, including boots, lab coat, apron or full-body suit.

**Special Hazards Precautions**

Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside drums, or any types of steel containers or tanks upon storage.

**Work Hygienic Practices**

Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing thoroughly before reuse.

**9. PHYSICAL AND CHEMICAL PROPERTIES**



<b>Physical State</b>	Liquid
<b>Appearance</b>	Clear liquid
<b>Odour</b>	Pungent
<b>Colour</b>	Colourless to slightly yellow
<b>pH</b>	<1 (Neat)
<b>Vapour Pressure</b>	No Data Available
<b>Relative Vapour Density</b>	No Data Available
<b>Boiling Point</b>	81.5 - 110 °C
<b>Melting Point</b>	-74 °C
<b>Freezing Point</b>	No Data Available
<b>Solubility</b>	Miscible with water
<b>Specific Gravity</b>	1.0 - 1.2
<b>Flash Point</b>	No Data Available
<b>Auto Ignition Temp</b>	No Data Available
<b>Evaporation Rate</b>	>1 (Butyl acetate = 1)
<b>Bulk Density</b>	No Data Available
<b>Corrosion Rate</b>	No Data Available
<b>Decomposition Temperature</b>	No Data Available
<b>Density</b>	No Data Available
<b>Specific Heat</b>	No Data Available
<b>Molecular Weight</b>	No Data Available
<b>Net Propellant Weight</b>	No Data Available
<b>Octanol Water Coefficient</b>	No Data Available
<b>Particle Size</b>	No Data Available
<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	No Data Available
<b>Viscosity</b>	No Data Available
<b>Volatile Percent</b>	No Data Available
<b>VOC Volume</b>	No Data Available
<b>Additional Characteristics</b>	No information available.
<b>Potential for Dust Explosion</b>	Not applicable.
<b>Fast or Intensely Burning Characteristics</b>	No information available.
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No information available.
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	Will react with many compounds (some violently) releasing flammable, toxic and/or corrosive gases and runoff.
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	Non-combustible; Material does not burn, but may produce toxic and/or corrosive fumes upon heating.
<b>Reactions That Release Gases or Vapours</b>	When heated to decomposition, emits toxic hydrogen chloride fumes. Can react violently if in contact with oxidising agents, liberating chlorine.
<b>Release of Invisible Flammable Vapours and Gases</b>	Contact with metals will produce hydrogen gas which can form explosive mixtures with air.

## 10. STABILITY AND REACTIVITY

### General Information

Decomposes on heating, with release of (highly) toxic gases/vapours (chlorine). Reacts exothermically with many compounds. Reacts violently with (some) bases. Reacts with (strong) oxidizers, with release of (highly) toxic gases/vapours (chlorine). Reacts with (some) metals, with release of highly flammable gases/vapours (hydrogen).



<b>Chemical Stability</b>	Material is stable under normal conditions.
<b>Conditions to Avoid</b>	Keep away from heat and sources of ignition.
<b>Materials to Avoid</b>	Incompatible/reactive with strong mineral acid, strong bases, metals, metal oxides, hydroxides, amines, carbonates and other alkaline materials; cyanides, sulfides, sulfites, sulfuric acid and formaldehyde; oxidising agents.
<b>Hazardous Decomposition Products</b>	When heated to decomposition, emits toxic hydrogen chloride fumes. Contact with metals will produce hydrogen gas which can form explosive mixtures with air. Can react violently if in contact with oxidising agents, liberating chlorine.
<b>Hazardous Polymerisation</b>	Hazardous polymerisation does not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>General Information</b>	<ul style="list-style-type: none"> <li>- Acute toxicity: Acute lethal effects are expected due to the corrosive nature of the chemical. Ingestion will immediately cause corrosion of and damage to the gastrointestinal tract. Potential sequelae following ingestion include perforation, scarring of the oesophagus or stomach and stricture formation causing dysphagia or gastric outlet obstruction.</li> <li>- Skin corrosion/irritation: Corrosive - Causes severe skin burns. Contact with this material will cause burns to the skin.</li> <li>- Eye damage/irritation: Corrosive - Causes serious eye damage. May cause permanent impairment of vision, including blindness.</li> <li>- Respiratory/skin sensitisation: Not expected to cause respiratory or skin sensitization reactions.</li> <li>- Germ cell mutagenicity: Hydrogen chloride does not have any significant mutagenic potential.</li> <li>- Carcinogenicity: IARC has designated Hydrochloric acid as being not classifiable as to its carcinogenicity to humans. i.e. Category 3.</li> <li>- Reproductive toxicity: No information available.</li> <li>- STOT (single exposure): May cause respiratory irritation. Higher concentrations are corrosive to the mucous membrane. Acute inhalation (mist or vapour) may cause coughing, hoarseness, inflammation and ulceration of the respiratory tract and chest pain. Fluid build up on the lung (pulmonary oedema) may occur up to 48 hours after exposure and could prove fatal.</li> <li>- STOT (repeated exposure): Not considered to cause serious damage to health from repeated exposure. However, local irritation effects are expected due to the corrosivity of the chemical. Chronic occupational exposure has been reported to cause gastritis, chronic bronchitis, dermatitis and photosensitisation. Prolonged exposure to low concentration may cause dental discolouration and erosion.</li> <li>- Aspiration toxicity: No information available.</li> </ul>
<b>Acute</b>	
<b>Ingestion</b>	<p>Acute toxicity (Oral):                  COMPONENT: Hydrochloric acid (CAS No. 7647-01-0):                  - LD50, Rats (female): 238 - 277 mg/kg bw. (3.3% conc.) [NICNAS].</p>
<b>Carcinogen Category</b>	None

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	<p>Aquatic toxicity:</p> <ul style="list-style-type: none"> <li>- LC50, Fish (Gambusia affinis): 282 mg/L (96 h) [Hydrochloric acid].</li> <li>- EC50, Daphnia (Water flea): 56 mg/L (72 h) [Hydrochloric acid].</li> </ul>
<b>Persistence/Degradability</b>	Persistence is unlikely based on available information.
<b>Mobility</b>	No information available.
<b>Environmental Fate</b>	Large discharges may contribute to the acidification of water and be fatal to fish and other aquatic life. Can cause damage to vegetation. Can cause severe damage to aquatic plants.
<b>Bioaccumulation Potential</b>	No information available.
<b>Environmental Impact</b>	No Data Available

## 13. DISPOSAL CONSIDERATIONS

<b>General Information</b>	Dispose of contents/container through a licensed waste contractor and in accordance with local/regional/national regulations. Decontamination and destruction of containers should be considered.
<b>Special Precautions for Land Fill</b>	Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed



together, if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals.

**14. TRANSPORT INFORMATION**

**Land Transport (Australia)**

ADG Code

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

**Sea Transport**

IMDG Code

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

**Air Transport**

IATA DGR

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



**15. REGULATORY INFORMATION**

<b>General Information</b>	No Data Available
<b>Poisons Schedule (Aust)</b>	Schedule 6

**National/Regional Inventories**

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

**16. OTHER INFORMATION**

<b>Related Product Codes</b>	HYACIB1000, HYACIB1500, HYACIB1600, HYACIB1893, HYACIB1895, HYACIB1900, HYACIB1901, HYACIB1902, HYACIB1903, HYACIB1904, HYACIB1940, HYACIB1941, HYACIB2000, HYACIB2100, HYACIB2200, HYACIB2300, HYACIB2500, HYACIB2510, HYACIB3000, HYACIB3001, HYACIB3002, HYACIB3003, HYACIB3004, HYACIB3005, HYACIB3016, HYACIB3060, HYACIB3200, HYACIB3500, HYACIB3600, HYACIB3700, HYACIB3701, HYACIB3702, HYACIB3703, HYACIB3705, HYACIB4000, HYACIB4005, HYACIB5000, HYACIB6000, HYACIB6700, HYACIB6900, HYACIB7500, HYACIB7900, HYACIB8000, HYACIB8001, HYACIB8100, HYACIB8500, HYACIB8501, HYACIB8502, HYACIB9000, HYACIB9500, HYACIB9600, HYACIB9601, HYACIB9602, HYACIB9603, HYACIB9604, HYACIC1000, HYACIC1001, HYACIC1300, HYACIC1500, HYACIC2000, HYACIC2001, HYACIC3000, HYACIC3001, HYACIC3002, HYACIC3003, HYACIC3004, HYACIC3005, HYACIC3006, HYACIC3007, HYACIC3008, HYACIC3050, HYACIC3070, HYACIC3300, HYACIC3400, HYACIC3700, HYACIC4003, HYACIC4400, HYACIC5000, HYACIC6000, HYACIC6300, HYACIC6301, HYACIC6500, HYACIC7300, HYACIC7500, HYACIC7501, HYACIC7502, HYACIC7505, HYACIC8000, HYACID0800, HYACID1000, HYACID1001, HYACID1002, HYACID1003, HYACID1004, HYACID1005, HYACID1006, HYACID1007, HYACID1008, HYACID1009, HYACID1010, HYACID1011, HYACID1012, HYACID1013, HYACID1014, HYACID1015, HYACID1016, HYACID1017, HYACID1018, HYACID1019, HYACID1020, HYACID1021, HYACID1022, HYACID1023, HYACID1024, HYACID1025, HYACID1026, HYACID1027, HYACID1028, HYACID1030, HYACID1200, HYACID1300, HYACID1301, HYACID1400, HYACID1500, HYACID1501, HYACID1600, HYACID1700, HYACID1701, HYACID1730, HYACID1733, HYACID1800, HYACID1801, HYACID1802, HYACID1803, HYACID1804, HYACID1805, HYACID1806, HYACID1807, HYACID1808, HYACID1812, HYACID1813, HYACID1814, HYACID1815, HYACID1816, HYACID1817, HYACID1818, HYACID1821, HYACID1822, HYACID1823, HYACID1824, HYACID1825, HYACID1826, HYACID1827, HYACID1828, HYACID1829, HYACID1830, HYACID1831, HYACID1832, HYACID1833, HYACID1834, HYACID1835, HYACID1836, HYACID1837, HYACID1838, HYACID1839, HYACID1840, HYACID1841, HYACID1842, HYACID1857, HYACID1858, HYACID1859, HYACID1860, HYACID1861, HYACID1862, HYACID1863, HYACID1864, HYACID1865, HYACID1866, HYACID1867, HYACID1868, HYACID1869, HYACID1870, HYACID1871, HYACID1872,
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**Revision**

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**Revision Date**

25 Apr 2019

**Reason for Issue**

SDS updated

**Key/Legend**

< Less Than  
> Greater Than  
**AICS** Australian Inventory of Chemical Substances  
**atm** Atmosphere  
**CAS** Chemical Abstracts Service (Registry Number)  
**cm<sup>2</sup>** Square Centimetres  
**CO<sub>2</sub>** 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/cm<sup>3</sup>** 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  
**inH<sub>2</sub>O** Inch of Water  
**K** Kelvin  
**kg** Kilogram  
**kg/m<sup>3</sup>** 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  
**m<sup>3</sup>** Cubic Metre  
**mbar** Millibar  
**mg** Milligram  
**mg/24H** Milligrams per 24 Hours  
**mg/kg** Milligrams per Kilogram  
**mg/m<sup>3</sup>** Milligrams per Cubic Metre  
**Misc** or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.  
**mm** Millimetre  
**mmH<sub>2</sub>O** 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

