

Infosafe No™	3CH4Y	Issue Date : June 2017	RE-ISSUED by ACR
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Product Name : **HYDROCHLORIC ACID 0.1M in Propan-2-ol**

Classified as hazardous

1. Identification

GHS Product Identifier	HYDROCHLORIC ACID 0.1M in Propan-2-ol
Company Name	AUSTRALIAN CHEMICAL REAGENTS (ACR) (ABN 19 008 264 211)
Address	38 - 50 Bedford Street Gillman S.A. 5013 Australia
Telephone/Fax Number	Tel: (08) 8440 2000 Fax: (08) 8440 2001
Recommended use of the chemical and restrictions on use	Determination of neutralization number (basic) by colour-indicator titration of mineral oils and laboratory reagent.
Other Information	EMERGENCY CONTACT NUMBER: +61 08 8440 2000 Business hours: 8:30am to 5:00pm, Monday to Friday.

Australian Chemical Reagents (ACR) does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Australian Chemical Reagents (ACR) with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Australian Chemical Reagents (ACR) is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

GHS classification of the substance/mixture	Eye Damage/Irritation: Category 2A Flammable Liquids: Category 2 Specific target organ toxicity - single exposure, Category 3 (respiratory tract irritation)
Signal Word (s)	DANGER
Hazard Statement (s)	H225 Highly flammable liquid and vapour. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness.
Pictogram (s)	Flame, Exclamation mark



Precautionary statement – Prevention	P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ventilating/lighting/.../equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P261 Avoid breathing fumes and vapours. P264 Wash thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection.
Precautionary statement – Response	P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312 Call a POISON CENTER or doctor/physician if you feel unwell. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention. P370+P378 In case of fire: Use foam, dry chemical, CO2 or water spray for extinction.

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Precautionary statement – Storage	P403+P235+P233 Store in a well-ventilated place. Keep cool. Keep container tightly closed.
Precautionary statement – Disposal	P405 Store locked up. P501 Dispose of contents/container according to local, state and federal regulations.

3. Composition/information on ingredients

Chemical	Liquid				
Characterization					
Ingredients	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>
	2-Propanol	67-63-0	99.6 %		
	Hydrochloric acid	7647-01-0	0.4 %		

4. First-aid measures

Inhalation	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
Ingestion	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek immediate medical advice.
Skin	Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. If rapid recovery does not occur, obtain medical attention
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.
First Aid Facilities	Maintain eyewash fountain and drench facilities in work area.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of the patient. Urine acetone test may be helpful in diagnosis. Hemodialysis should be considered in severe intoxication.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Hazards from Combustion	Hydrogen chloride gas, carbon monoxide and carbon dioxide.
Products	
Specific Methods	Caution: Use of water spray when fighting fire may be inefficient. Small fire: Use foam, dry chemical, CO2 or water spray. Large fire: Use foam, fog or water spray - Do not use water jets. If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after fire is out. Avoid getting water inside containers.
Specific hazards arising from the chemical	HIGHLY FLAMMABLE: These products have a low flash point - Will be easily ignited by heat, sparks or flames at ambient temperatures. Vapours will form explosive mixtures with air. Vapours will travel to source of ignition and flash back. Fire may produce irritating, poisonous and/or corrosive gases. Containers may explode when heated. Liquids are lighter than water. Vapours are heavier than air and will collect in low or confined areas (drains, basements, tanks). Vapours from run-off may create an explosion hazard.
Hazchem Code	3[Y]E
Precautions in connection with Fire	SCBA and structural firefighter's uniform may provide limited protection. Fully-encapsulating, gas-tight suits should be worn for maximum protection.

6. Accidental release measures

Spills & Disposal	ELIMINATE all ignition sources (no smoking, flares, sparks or flame) within at least 50m - All equipment used in handling the product must be earthed. Do not touch or walk through spilled material. Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Vapour-suppressing foam may be used to control vapours. Absorb spill with earth, sand or other non-combustible material - Use clean, non-sparking tools to collect material and place it in loosely-covered metal or plastic containers for later disposal. Water spray may be used to knock down or divert vapour clouds. SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.
Personal Precautions	Avoid inhalation, contact with skin, eyes and clothing. Remove ignition sources
Personal Protection	Wear protective clothing specified for normal operations (see Section 8)

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7. Handling and storage

Precautions for Safe Handling	Avoid ingestion and inhalation of vapours or mist. Avoid contact with eyes, skin or clothing. Avoid prolonged or repeated exposure. Avoid generation of vapours/aerosols. Keep container tightly closed. Work under hood. Use only with adequate ventilation. Keep away from heat, sparks, flame and sources of ignition. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Take measures to prevent electrostatic charging. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Do not allow to evaporate to near dryness.
Conditions for safe storage, including any incompatibilities	Store in a segregated and approved Flammables-area. Store in tightly closed containers, in a cool, dry, well-ventilated area away from direct sunlight and incompatible substances. Keep container tightly closed and sealed until ready for use. Keep away from heat, sparks, flame and all sources of ignition. Keep from contact with oxidizing materials. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. Addition of water or appropriate reducing materials will lessen peroxide formation. Store protected from moisture. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. All peroxidizable substances should be stored away from heat and light and be protected from ignition sources.
Corrosiveness	Attacks some forms of plastics, rubbers, and coatings, aluminium at high temperatures.
Storage Regulations	Refer Australian Standard AS 1940-2004 'The storage and handling of flammable and combustible liquids'.
Storage Temperatures	Store at room temperature (15 to 25 °C recommended).
Unsuitable Materials	Aluminium, iron/iron-containing compounds, light-weight-metal, some forms of plastics, rubbers, and coatings.

8. Exposure controls/personal protection

Occupational exposure limit values	Name	STEL		TWA		Footnote
		mg/m3	ppm	mg/m3	ppm	
	2-Propanol	1,230	500	983	400	
	Hydrochloric acid			7.5	5	Hydrogen chloride Peak Limitation
Other Exposure Information	A time weighted average (TWA) has been established for Isopropyl alcohol (Safe Work Australia) of 983 mg/m ³ , (400 ppm) and for Hydrogen chloride [7647-01-0] (Safe Work Australia) of 7.5 mg/m ³ Peak limitation, (5 ppm). The corresponding STEL level for Isopropyl alcohol is 1230 mg/m ³ , (500 ppm). The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.					
Appropriate engineering controls	Provide sufficient ventilation to ensure that the working environment is below the TWA (time weighted average). Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a flame proof exhaust ventilation system is required. Refer to AS 1940-The storage and handling of flammable and combustible liquids and AS 2430-Explosive gas atmospheres for further information concerning ventilation requirements.					
Respiratory Protection	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing vapours or mists. Select and use respirators in accordance with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. When mists or vapours exceed the exposure standards then the use of the following is recommended: Approved respirator with organic vapour and dust/mist filters. Filter capacity and respirator type depends on exposure levels.					

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Eye Protection	The Immediately Dangerous to Life or Health (IDLH) concentration for isopropyl alcohol is 2,000 ppm [LEL] (as of 3/1/95).
Hand Protection	The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336. Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Excellent: Supported Nitrile. Supported Neoprene. Supported Natural Rubber Latex. Unsupported Natural Rubber Latex. Butyl rubber gloves Viton rubber gloves. Good: Unsupported Neoprene. Unsupported Neoprene/Latex. Nitrile rubber gloves Supported Polyvinyl Chloride (PVC) gloves. Poor: Supported Polyvinyl Alcohol (PVA) gloves.
Personal Protective Equipment	Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.
Body Protection	Flame retardant antistatic protective clothing. Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals. Resistance for protective clothing: Excellent - Neoprene, natural rubber or latex, Buna-N, polyethylene; Good - Polyvinyl chloride (PVC); Fair - Polyvinylalcohol (PVA).
Hygiene Measures	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. Physical and chemical properties

Form	Liquid
Appearance	Clear, almost colourless liquid.
Odour	Characteristic, alcohol-like (IPA) odour.
Melting Point	~-89 °C
Boiling Point	~ 82 °C
Solubility in Water	Soluble.
Solubility in Organic Solvents	Soluble in alcohol and ether.
Specific Gravity	0.79
pH	< 0.5
Vapour Pressure	33 mm Hg @ 20 °C
Vapour Density (Air=1)	~2.1
Evaporation Rate	1.7 - 2.8 (butyl acetate=1)
Coefficient Water/Oil Distr.	Log P (o/w): - 0.05
Flash Point	~12 °C (closed cup) 2-Propanol
Flammability	Flammable. Keep away from heat, sparks or naked flames. Use flameproof equipment and fittings to prevent flammability risk. Electrically link and ground metal containers for transfer of the product to prevent accumulation of static electricity. Ensure adequate ventilation to prevent an explosive vapour-air mixture. Vapours will travel considerable distances to sources of ignition.
Auto-Ignition Temperature	425°C 2-Propanol
Flammable Limits - Lower	2% 2-Propanol
Flammable Limits - Upper	12% 2-Propanol
Explosion Properties	Formation of explosive mixtures possible with air. Explosive thermal decomposition may occur in contact with iron salts. Container explosion may occur under fire conditions.
Molecular Weight	Mixture

10. Stability and reactivity

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Chemical Stability	Stable under normal conditions of use and storage, but cannot be stored indefinitely. Under normal storage conditions, peroxidizable compounds can form and accumulate peroxides which may explode when subjected to heat or shock. This material is most hazardous when peroxide levels are concentrated by distillation or evaporation. Isopropanol is susceptible to autoxidation and therefore should be classified as peroxidizable. Sensitive to air and light.
Conditions to Avoid	Light, excess heat, exposure to moist air or water, ignition sources (open flames, sparks and static discharge, shocks and mechanical impacts) and incompatible materials.
Incompatible Materials	Strong oxidising agents (e.g. nitrates, perchlorates, peroxides), acids, acetaldehyde, alkalis, aldehydes, aluminium and high temperatures, amines, ammonia, chlorinated hydrocarbons, ethylene oxide, halogens, iron/iron-containing compounds, isocyanates, metals, nitric acid, nitrogen oxides, organic nitro compounds, phosgene, some forms of plastics, artificial and/or natural resins, rubbers, and coatings.
Hazardous Decomposition Products	Hydrogen chloride gas, carbon monoxide and carbon dioxide.
Possibility of hazardous reactions	Contact with strong oxidising agents (e.g. nitrates, perchlorates, peroxides) increases risk of fire and explosion. Contact with phosgene forms isopropyl chloroformate and hydrogen chloride. Explosive thermal decomposition may occur in contact with iron salts. Mixture with hydrogen-palladium can ignite in air.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Acute Toxicity - Oral	LD50 (rat): 5045 mg/kg (2-Propanol)
Acute Toxicity - Dermal	LD50 (rabbit): 12870 mg/kg (2-Propanol).
Acute Toxicity - Inhalation	LC50 (rat): 37.5 mg/L 4 hr (2-Propanol);
Ingestion	Causes gastrointestinal irritation with nausea, vomiting and diarrhoea. May cause kidney damage. May cause central nervous system depression, characterized by excitement, inebriation, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, narcosis, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.
Inhalation	Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, drowsiness, dizziness, unconsciousness and coma. May cause narcotic effects in high concentration. Causes upper respiratory tract irritation.
Skin	May cause irritation with pain and stinging, especially if the skin is abraded. Degreasing effect on the skin, possibly followed by secondary inflammation. Isopropanol has a low potential to cause allergic skin reactions; however, rare cases of allergic contact dermatitis have been reported. May be absorbed through intact skin. Dermal absorption has been considered toxicologically insignificant. Reported cases of deep coma associated with skin contact are thought to be a result of vapour inhalation in rooms with inadequate ventilation, rather than being attributable to percutaneous absorption of isopropanol alone.
Eye	Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause transient corneal injury. A very small amount may produce adverse effects.
Skin Sensitisation	Sensitization test (guinea pig): negative.
Carcinogenicity	Hydrochloric acid [7647-01-0] and Isopropanol [67-63-0] are evaluated in the IARC Monographs (Vol. 54; 1992 and Vol. 15, Suppl. 7, Vol. 71; 1999) as Group 3: Not classifiable as to carcinogenicity to humans.
Chronic Effects	Repeated or prolonged skin contact can cause defatting, cracking, dermatitis. Repeated or prolonged eye contact can cause eye damage.

12. Ecological information

Ecological Information	No ecological problems are to be expected when the product is handled and used with due care and attention.
Ecotoxicity	Toxic effect on fish and plankton. According to current knowledge, does not cause interferences in waste water treatment if used appropriately. Risk of formation of explosive vapours above water surface.
Persistence and degradability	Abiotic degradation: Rapid degradation. Biologic degradation: Biodegradation: 95 % /21 d modified OECD screening test Readily biodegradable. ThOD: 2.40 g/g. BOD 49 % of ThOD /5 d. COD 96 % of ThOD.
Mobility	Distribution: log P(oct): -0.05 (chief component).

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Bioaccumulative Potential	No bioaccumulation is to be expected (log P(o/w) < 1).
Acute Toxicity - Fish	P.promelas LC50: 9640 mg/l /96 h.
Acute Toxicity - Daphnia	Daphnia magna EC50: 13299 mg/l /48 h.
Acute Toxicity - Algae	Desmodesmus subspicatus IC50: >1000 mg/l /72 h. Maximum permissible toxic concentration: Sc. quadricauda IC5: 18000 mg/l /8 d.
Acute Toxicity - Bacteria	Photobacterium phosphoreum EC50: 22000 mg/l /15 min microtox test. Maximum permissible toxic concentration: Ps. putida EC5: 1050 mg/l /16 h. M.aeruginosa EC5: 1000 mg/l /8 d.
Acute Toxicity - Other Organisms	Protozoa: Maximum permissible toxic concentration: E. sulcatum EC5: 4930 mg/l /72 h.

13. Disposal considerations

Disposal Considerations	Dispose of according to relevant local, state and federal government regulations.
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14. Transport information

Transport Information	Dangerous Goods of Class 3 Flammable Liquids, are incompatible in a placard load with any of the following: - Class 1, Class 2.1, if both the Class 3 and Class 2.1, dangerous goods are in bulk, Class 2.3, Class 4.2, Class 5, Class 6, if the Class 3 dangerous goods are nitromethane and Class 7.
U.N. Number	1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S.
Transport hazard class(es)	3
Hazchem Code	3[Y]E
Packaging Method	3.8.3RT1
Packing Group	II
EPG Number	3A1
IERG Number	14

15. Regulatory information

Poisons Schedule	Not Scheduled
Hazard Category	Irritant, Highly Flammable

16. Other Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia. Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007. Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010. Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'. Safe Work Australia, 'Hazardous Substances Information System, 2005'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'. Paul McCarthy Ph. (08) 8440 2000 DISCLAIMER STATEMENT: All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. Australian Chemical Reagents (ACR) accepts no responsibility whatsoever for its
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accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.

Empirical Formula & Structural Formula Mixture: $\text{HCl} \cdot \text{CH}_3\text{CH}(\text{OH})\text{CH}_3$

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