

Infosafe No™ 1CH4Y Issue Date : August 2020 RE-ISSUED by CHEMSUPP

Product Name **PERCHLORIC ACID**

Classified as hazardous

1. Identification

GHS Product Identifier PERCHLORIC ACID

Company Name CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)

Address 38 - 50 Bedford Street GILLMAN
SA 5013 Australia

Telephone/Fax Number Tel: (08) 8440-2000

Emergency phone number CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

E-mail Address www.chemsupply.com.au

Recommended use of the chemical and restrictions on use Analytical chemistry, dehydrating agent, fluoride determination, decomposition of organic samples for the determination of mercury, electropolishing of metals, manufacture of various esters, explosives, catalyst and ingredient of electrolytic bath in deposition of lead.

Other Names	<u>Name</u>	<u>Product Code</u>
	PERCHLORIC ACID 70% Premium grade	PA421

Other Information

Chem-Supply Pty Ltd 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 Chem-Supply Pty Ltd 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 Chem-Supply Pty Ltd 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 Oxidizing Liquids: Category 1
Acute Toxicity - Oral: Category 4
Skin Corrosion/Irritation: Category 1A
Corrosive to Metals: Category 1

Signal Word (s) DANGER

Hazard Statement (s) H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H290 May be corrosive to metals.

Pictogram (s) Flame over circle, Corrosion, Exclamation mark



Precautionary statement – Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P220 Keep/Store away from clothing/.../combustible materials.
P221 Take any precaution to avoid mixing with combustibles ...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P283 Wear fire/flame resistant/retardant clothing.
P234 Keep only in original container.

Infosafe No™ 1CH4Y Issue Date : August 2020 RE-ISSUED by CHEMSUPP

Product Name **PERCHLORIC ACID**

Classified as hazardous

Precautionary statement – Response P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P306+P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 Immediately call a POISON CENTER or doctor/physician.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary statement – Storage P371+P380+P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
P370+P378 In case of fire: Use FLOODING QUANTITIES OF WATER for extinction.
P390 Absorb spillage to prevent material damage.
P405 Store locked up.
P406 Store in corrosive resistant/... container with a resistant inner liner.

Precautionary statement – Disposal P501 Dispose of contents/container according to local, state and federal regulations.

3. Composition/information on ingredients

Ingredients	Name	CAS	Proportion
	Perchloric acid	7601-90-3	70 %
	Water	7732-18-5	30 %

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. Immediately obtain medical aid if cough or other symptoms appear.

Ingestion Rinse mouth thoroughly with water immediately. DO NOT induce vomiting because of risk of aspiration. If vomiting occurs give further water to achieve effective dilution. Seek immediate medical assistance.

Skin Wash affected area thoroughly with soap and water. Remove contaminated clothing and wash before reuse or discard. If symptoms develop seek 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 safety shower in work area.

Advice to Doctor Treat symptomatically based on judgement of doctor and individual reactions of the patient.

Other Information For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor at once.

5. Fire-fighting measures

Specific Methods Small fire: USE FLOODING QUANTITIES OF WATER. Do not use dry chemicals, CO2 or foam. If safe to do so, move undamaged containers from fire area. Do not move cargo if cargo has been exposed to heat.
Large fire: Flood fire area with water from a protected position. Cool containers with flooding quantities of water until well after fire is out - If impossible, withdraw from area and let fire burn. Avoid getting water inside containers: a violent reaction may occur. Dam fire control water for later disposal.

Specific hazards arising from the chemical Will accelerate burning when involved in a fire. May explode from heating, shock, friction or contamination. Some will react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, clothing, etc). Fire may produce irritating, poisonous, and/or corrosive gases. Containers may explode when heated. Runoff may create fire or explosion hazard.

Hazchem Code 2P

Infosafe No™ 1CH4Y	Issue Date :August 2020	RE-ISSUED by CHEMSUPP
--------------------	-------------------------	-----------------------

Product Name **PERCHLORIC ACID**

Classified as hazardous

Precautions in connection with Fire Wear SCBA and chemical splash suit. Structural firefighter's uniform will provide limited protection.

6. Accidental release measures

Spills & Disposal Do not contaminate. Keep combustibles (wood, paper, clothing, oil, etc.) away from spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use water spray to knock down vapours or divert vapour clouds. Prevent entry into waterways, drains or confined areas. Prevent exposure to heat.

Small Liquid Spill

Use a non-combustible material like vermiculite, sand or earth to soak up the product and place in a loosely-covered container for later disposal.

Large Liquid Spill

SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.

Personal Precautions Evacuate the area of all non-essential personnel. Remove ignition sources

Personal Protection Wear protective clothing specified for normal operations (see Section 8)

7. Handling and storage

Precautions for Safe Handling Use in well ventilated areas away from all ignition sources. In case of insufficient ventilation, wear suitable respiratory equipment. When dealing with this product, repeat or prolonged skin exposure without protection should be prevented in order to lessen the possibility of skin disorders. It is essential that all who are exposed to this material maintain high standards of person hygiene i.e. washing hands prior to eating, drinking, and smoking or using toilet facilities.

Conditions for safe storage, including any incompatibilities Store in a cool, dry well-ventilated area away from sources of ignition (and heat), out of direct sunlight, oxidising agents, foodstuff and clothing. Keep containers closed when not in use and securely sealed. Protect against physical damage. Inspect regularly for leaks and damage. If discolouration of the acid solution occurs, the solution should be discarded. Glass, ceramic or polyethylene containers should be used for storage.

Corrosiveness Corrosive to metals.

Storage Regulations Refer Australian Standard AS 4326 'The storage and handling of oxidizing agents'.

8. Exposure controls/personal protection

Other Exposure Information No exposure standards have been established for this product by Safe Work Australia, however, the TWA exposure standard for dusts/mists not otherwise specified is 10 mg/m³. All atmospheric contamination should be kept to as low a level as is workable.

Appropriate engineering controls Maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.

Respiratory Protection Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection. Recommendation: Use an air-purifying respirator suitable for acid mist.

Eye 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. Recommendation: Use chemical safety goggles. Where splashing of solutions is possible, use full face shield.

Hand Protection Wear gloves of impervious material conforming to AS/NZS 2161: Occupational protective gloves - Selection, use and maintenance. Final choice of appropriate glove type will vary according to individual circumstances. This

Infosafe No™ 1CH4Y	Issue Date : August 2020	RE-ISSUED by CHEMSUPP
--------------------	--------------------------	-----------------------

Product Name **PERCHLORIC ACID**

Classified as hazardous

	can include methods of handling, and engineering controls as determined by appropriate risk assessments. Avoid skin contact when removing gloves from hands, do not touch the gloves outer surface. Dispose of gloves as hazardous waste.
Personal Protective Equipment	Personal protective equipment should not solely be relied upon to control risk and should only be used when all other reasonably practicable control measures do not eliminate or sufficiently minimise risk. Guidance in selecting personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.
Footwear	Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.
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. Recommendation: GOOD: Natural rubber; neoprene rubber; Nitrile rubber; Nitrile/polyvinylchloride; polyvinyl chloride. FAIR/POOR: Polyvinyl alcohol (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	Colourless, fuming, hygroscopic liquid.
Odour	Pungent odour.
Melting Point	-18 °C (melting temperature)
Boiling Point	203°C (70% solution)
Solubility in Water	Soluble.
Specific Gravity	1.16 - 1.7 (70% solution)
pH	<1 (H ₂ O, 20 °C)
Vapour Pressure	6.8 mmHg (25°C)
Flammability	Not combustible but assists combustion of other substances.
Molecular Weight	100.47

10. Stability and reactivity

Chemical Stability	Stable at concentrations below 73%. Concentrated solutions above 73% and the anhydrous acid are unstable. Although 68 - 72% cold perchloric acid behaves as a strong but nonoxidizing acid, it becomes an extreme oxidant and powerful dehydrator at elevated temperatures (>160 °C) or when anhydrous. It may be fairly readily dehydrated to the anhydrous acid, eg. strong concentrated acids (sulfuric, oleum, fuming nitric), inorganic anhydrides (sulfur trioxide and dioxide, phosphorous pentoxide, thionyl chloride, etc.), organic anhydrides, and halogens. Dry perchlorates can be explosive. Sensitive to heating (explosive decomposition). Hygroscopic. Evolves heat on combination with water.
Conditions to Avoid	Extremes of temperature and direct sunlight. Incompatibles.
Incompatible Materials	Antimony compounds, alcohols, anhydrides, amines, acids, bismuth, combustible materials, dehydrating agents, ethers, fluorine, finely powdered metals, hydrochloric acid, hydriodic acid, hypophosphites, halogen and halogenated hydrocarbons, heat, hydrogen and hydrogen halides compounds, impurities/dust, metals, nitric acid, nitriles, nitrogen triiodide, nonmetallic oxides, organic substances, organic combustible substances, phosphorus halides, reducing agents, strong bases, strong acids, semi-metals, semimetallic oxides, sulfoxides, conc. sulfuric acid, sodium iodide, strong reducing agents.

Infosafe No™ 1CH4Y	Issue Date : August 2020	RE-ISSUED by CHEMSUPP
--------------------	--------------------------	-----------------------

Product Name **PERCHLORIC ACID**

Classified as hazardous

Hazardous Decomposition Products	Chlorine, chlorine dioxide, chlorinated oxides, hydrochloric acid.
Possibility of hazardous reactions	May ignite or explode spontaneously in contact with flammable and combustible materials. Mixtures with hydriodic acid may ignite spontaneously. Mixtures with sodium iodide may ignite. Forms explosive mixture with dehydrating agents and antimony compounds. Forms explosive mixture with bismuth, nitrogen triiodide and hypophosphites when heated. Contact with hydrochloric acid may cause violent decomposition. Contact with fluorine produces highly reactive fluorine perchlorate. Hydrogen may form upon contact with metals (danger of explosion!).
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Acute Toxicity - Oral	LD50 (rat): 1,100 mg/kg (anhydrous substance).
Ingestion	Harmful if swallowed. Cause severe burns of the mouth, esophagus and stomach (risk of perforation) with consequent pain, nausea, vomiting, thirst, diarrhea, circulatory collapse and possibly death. Risk of cardiovascular failure.
Inhalation	Vapours or mist can cause burning sensation in nose and throat, irritation to respiratory tract, coughing, wheezing, laryngitis, shortness of breath, lung irritation, headache, nausea, vomiting, burns of mucous membranes and lungs, spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.
Skin	Causes severe burns with discoloration, redness, itching, pain and swelling. Repeated or prolonged contact may lead to dermatitis.
Eye	Corrosive. Vapour or mist causes severe eye irritation which can result in redness, pain, stinging, loss of colour vision (blue vision), corneal oedema, lachrymation and possible irreversible eye damage. Risk of blindness.
Respiratory sensitisation	Not classified based on available information.
Skin Sensitisation	Not classified based on available information.
Germ cell mutagenicity	Not classified based on available information.
Carcinogenicity	Not classified based on available information.
Reproductive Toxicity	Not classified based on available information.
STOT-single exposure	Not classified based on available information.
STOT-repeated exposure	Not classified based on available information.
Chronic Effects	Repeated or prolonged skin contact to dilute solutions may cause dermatitis. Prolonged exposure to vapour or mist may cause severe coughing and vomiting.
Mutagenicity	Not classified based on available information.

12. Ecological information

Ecotoxicity	Biological effects: Toxic for aquatic organisms. Harmful effect due to pH shift. Does not cause biological oxygen deficit.
--------------------	--

13. Disposal considerations

Disposal Considerations	Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations. Neutralise acid solution with sodium hydroxide, sodium bisulfite or soda ash to pH 7.
--------------------------------	---

14. Transport information

Infosafe No™ 1CH4Y	Issue Date :August 2020	RE-ISSUED by CHEMSUPP
--------------------	-------------------------	-----------------------

Product Name **PERCHLORIC ACID**

Classified as hazardous

Transport Information	Dangerous goods of Class 5.1 (Oxidizing Agent) are incompatible in a placard load with any of the following: Class 1, Class 2.1, Class 2.3, Class 3, Class 4, Class 5.2, Class 7, Class 8, Fire risk substances and Combustible liquids.
U.N. Number	1873
UN proper shipping name	PERCHLORIC ACID
Transport hazard class(es)	5.1
Sub.Risk	8
Hazchem Code	2P
Packing Group	I
EPG Number	5E1
IERG Number	31
UN Number (Air Transport, ICAO)	1873
IATA/ICAO Packing Group	I
IATA/ICAO Hazard Class	5.1 : Oxidising substance
IATA/ICAO Sub Risk	8: Corrosive substance
IATA/ICAO Proper Shipping Name	PERCHLORIC ACID with more than 50% but not more than 72% acid, by mass
Passenger Aircraft - UN packing instructions	NOT ALLOWED
Cargo Aircraft - UN Packing Instructions	553
Cargo Aircraft - Maximum quantity per package	2.5L
IMDG UN No	1873
IMDG Description	PERCHLORIC ACID with more than 50% but not more than 72% acid, by mass
IMDG Hazard Class	5.1 : Oxidising substance
IMDG Subsidiary Risk	8: Corrosive substance
IMDG Pack. Group	P502
IMDG EMS	F-A S-Q
IMDG Marine pollutant	No

15. Regulatory information

Regulatory Information	All of the significant ingredients in this formulation are compliant with Australian Industrial Chemicals Introduction Scheme (AICIS) regulations. Not listed under WHS Regulation 2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Poisons Schedule	Not Scheduled

16. Other Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia. National Road Transport Commission, 'Australian Code for the Transport of
------------------------------	---

Infosafe No™ 1CH4Y	Issue Date : August 2020	RE-ISSUED by CHEMSUPP
--------------------	--------------------------	-----------------------

Product Name **PERCHLORIC ACID**

Classified as hazardous

Dangerous Goods by Road and Rail 7th. Ed.'.
Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals'.
Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand.
Safe Work Australia, 'Hazardous Chemical Information System'.
Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances'.
Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment'.

Contact Person/Point

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. Chem-Supply accepts no responsibility whatsoever for its 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**

HClO₄

...End Of MSDS...

© Copyright Chemical Safety International Pty Ltd

Copyright in the source code of the HTML, PDF, XML, XFO and any other electronic files rendered by an Infosafe system for Infosafe MSDS displayed is the intellectual property of Chemical Safety International Pty Ltd.

Copyright in the layout, presentation and appearance of each Infosafe MSDS displayed is the intellectual property of Chemical Safety International Pty Ltd. The compilation of MSDS's displayed is the intellectual property of Chemical Safety International Pty Ltd.

Copying of any MSDS displayed is permitted for personal use only and otherwise is not permitted. In particular the MSDS's displayed cannot be copied for the purpose of sale or licence or for inclusion as part of a collection of MSDS without the express written consent of Chemical Safety International Pty Ltd.