

**Section: 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : PermaTreat® PC-391T

Other means of identification : Not applicable.

Recommended use : REVERSE OSMOSIS ANTISCALANT

Restrictions on use : Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.

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Issuing date : 28.12.2014

**Section: 2. HAZARDS IDENTIFICATION****Hazard classification**

Not classified as hazardous according to Safe Work Australia. This product is not classified as a dangerous good according to national or international regulations.

**R-phrases(s)**

not hazardous

**S-phrases(s)**

Avoid contact with skin and eyes.

Wear suitable gloves and eye/face protection.

**Other hazards which do not result in classification**

None known.

**Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS-No.	Concentration: (%)
Ingredients determined not to be hazardous		100

**Section: 4. FIRST AID MEASURES**

In case of eye contact : Rinse with plenty of water. Get medical attention if symptoms occur.

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In case of skin contact	: Wash off with soap and plenty of water. Get medical attention if symptoms occur.
If swallowed	: Rinse mouth. Get medical attention if symptoms occur.  Contact the Poison's Information Centre (eg Australia 13 1126; New Zealand 0800 764 766).
If inhaled	: Get medical attention if symptoms occur.
Protection of first-aiders	: In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
Notes to physician	: Treat symptomatically.
Most important symptoms and effects, both acute and delayed	: See Section 11 for more detailed information on health effects and symptoms.

#### Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	: None known.
Specific hazards during firefighting	: Not flammable or combustible.
Hazardous combustion products	: Carbon oxides
Special protective equipment for firefighters	: Use personal protective equipment.
Specific extinguishing methods	: Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

#### Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Refer to protective measures listed in sections 7 and 8.
Environmental precautions	: Do not allow contact with soil, surface or ground water.
Methods and materials for containment and cleaning up	: Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Flush away traces with water. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.

#### Section: 7. HANDLING AND STORAGE

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Advice on safe handling	: Wash hands thoroughly after handling. Use only with adequate ventilation.
Conditions for safe storage	: Keep out of reach of children. Keep container tightly closed. Store in suitable labeled containers.
Suitable material	: Keep in properly labelled containers.
Unsuitable material	: not determined

### Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures	: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
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#### Personal protective equipment

Eye protection	: Safety glasses
Hand protection	: Wear protective gloves. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin protection	: Wear suitable protective clothing.
Respiratory protection	: No personal respiratory protective equipment normally required.
Hygiene measures	: Remove and wash contaminated clothing before re-use. Wash hands before breaks and immediately after handling the product. Wash face, hands and any exposed skin thoroughly after handling.

### Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid
Colour	: amber
Odour	: amine-like
Flash point	: > 93.3 °C
pH	: 10.8, 100 %
Odour Threshold	: no data available
Melting point/freezing point	: no data available
Initial boiling point and boiling range	: no data available
Evaporation rate	: no data available
Flammability (solid, gas)	: no data available
Upper explosion limit	: no data available
Lower explosion limit	: no data available

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Vapour pressure	: no data available
Relative vapour density	: no data available
Relative density	: 1.11 (15.6 °C)
Density	: 9.2 lb/gal
Water solubility	: completely soluble
Solubility in other solvents	: no data available
Partition coefficient: n-octanol/water	: no data available
Auto-ignition temperature	: no data available
Thermal decomposition temperature	: no data available
Viscosity, dynamic	: no data available
Viscosity, kinematic	: no data available
VOC	: no data available

#### Section: 10. STABILITY AND REACTIVITY

Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use.
Conditions to avoid	: None known.
Incompatible materials	: Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors.

#### Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact

##### Potential Health Effects

Eyes	: Health injuries are not known or expected under normal use.
Skin	: Health injuries are not known or expected under normal use.
Ingestion	: Health injuries are not known or expected under normal use.
Inhalation	: Health injuries are not known or expected under normal use.
Chronic Exposure	: Health injuries are not known or expected under normal use.

##### Experience with human exposure

Eye contact	: No symptoms known or expected.
Skin contact	: No symptoms known or expected.
Ingestion	: No symptoms known or expected.



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Inhalation : No symptoms known or expected.

#### Toxicity

##### Product

Acute oral toxicity : no data available

Acute inhalation toxicity : no data available

Acute dermal toxicity : no data available

Skin corrosion/irritation : no data available

Serious eye damage/eye irritation : no data available

Respiratory or skin sensitization : no data available

Carcinogenicity : No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive effects : No reproductive toxic effects expected.

Germ cell mutagenicity : Contains no ingredient listed as a mutagen

Teratogenicity : no data available

STOT - single exposure : no data available

STOT - repeated exposure : no data available

Aspiration toxicity : No aspiration toxicity classification

#### HUMAN HAZARD CHARACTERIZATION

Based on our hazard characterization, the potential human hazard is: Low

### Section: 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

Environmental Effects : This product has no known ecotoxicological effects.

##### **Product**

Toxicity to fish : LC50 Oncorhynchus mykiss (rainbow trout): 160 mg/l  
Exposure time: 96 hrs  
Test substance: Active Substance

LC50 Ictalurus punctatus (channel catfish): 1,212 mg/l  
Exposure time: 96 hrs  
Test substance: Active Substance

LC50 Cyprinodon variegatus (sheepshead minnow): > 5,000 mg/l

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Exposure time: 96 hrs  
Test substance: Active Substance

LC50 *Lepomis macrochirus* (Bluegill sunfish): > 330 mg/l  
Exposure time: 96 hrs  
Test substance: Active Substance

Toxicity to daphnia and other aquatic invertebrates : LC50 Grass Shrimp: > 5,000 mg/l  
Exposure time: 96 hrs  
Test substance: Active Substance

EC50 *Daphnia magna* (Water flea): 297 mg/l  
Exposure time: 48 hrs  
Test substance: Active Substance

Toxicity to algae : no data available

#### Persistence and degradability

The organic portion of this preparation is expected to be inherently biodegradable.

#### Mobility

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.

If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	: <5%
Water	: 30 - 50%
Soil	: 50 - 70%

The portion in water is expected to be soluble or dispersible.

#### Bioaccumulative potential

This preparation or material is not expected to bioaccumulate.

#### Other information

no data available

#### ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: Low

### Section: 13. DISPOSAL CONSIDERATIONS

Disposal methods : Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

### Section: 14. TRANSPORT INFORMATION

## SAFETY DATA SHEET

### PermaTreat® PC-391T

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

#### Land transport

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

#### Air transport (IATA)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

#### Sea transport (IMDG/IMO)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

### Section: 15. REGULATORY INFORMATION

Standard for the Uniform : No poison schedule number allocated  
Scheduling of Medicines and  
Poisons

#### NSF INTERNATIONAL :

This product has received NSF/International certification under NSF/ANSI Standard 60 in the reverse osmosis antiscalant category. This approval only applies to products whose container label bears the NSF/ANSI Mark. The official name is "Miscellaneous Water Supply Products." Maximum product application dosage is : 15 mg/l.

#### INTERNATIONAL CHEMICAL CONTROL LAWS :

#### TOXIC SUBSTANCES CONTROL ACT (TSCA)

The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

#### CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

#### AUSTRALIA

All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

#### CHINA

All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

#### EUROPE

The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

#### JAPAN

All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

#### KOREA

All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

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#### NEW ZEALAND

All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996, and are listed on or are exempt from the New Zealand Inventory of Chemicals.

#### PHILIPPINES

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

### Section: 16. OTHER INFORMATION

#### REFERENCES

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH, (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Revision Date	: 28.12.2014
Version Number	: 1.9
Prepared By	: Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the MSDS.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

For additional copies of an MSDS visit [www.nalco.com](http://www.nalco.com) and request access.



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## Material Safety Data Sheet

### SECTION 1 IDENTIFICATION OF MATERIAL AND SUPPLIER

Product Name	<b>SODIUM HYPOCHLORITE SOLUTION</b>
Synonyms	Liquid pool chlorine, Liquid Bleach, Labarraque's Solution
Recommended Use	Bleaching agent, Disinfectant, Oxidising agent
Supplier	Tristar Water Solutions
Street Address	56 Peel Road O'Connor, WA 6163
Telephone	(+61 8) 9331 6133
Facsimile	(+61 8) 9331 6233
Emergency Telephone	1300 883 844

### SECTION 2 HAZARDS IDENTIFICATION

This material is hazardous according to criteria of NOHSC Australia; **HAZARDOUS SUBSTANCE**  
Classified as a dangerous good by the criteria of the ADG Code; **DANGEROUS GOODS**

#### Hazard Category

C Corrosive

#### Risk Phrases

R31 Contact with acids liberates toxic gas

R34 Causes burns

R50 Very toxic to aquatic organisms

#### Safety Phrases

S1/2 Keep locked up and out of reach of children

S23 Do not breathe vapour

S24/25 Avoid contact with skin and eyes

S36/37/39 Wear suitable protective clothing, gloves & eye/face protection

S38 In 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 where possible)

S50 Do not mix with incompatible materials

Poisons Schedule: S5 Caution

### SECTION 3 COMPOSITION AND INFORMATION ON INGREDIENTS

Name of Hazardous Ingredients	CAS Number	Proportion (%)
Sodium Hypochlorite	7681-52-9	12 - 30%
Water	7732-18-5	Balance

#### SECTION 4 FIRST AID MEASURES

For advice, contact a Poisons Information Centre (Phone: Australia 131 126; New Zealand 0800 764 766) or a doctor.

Eye	If in eyes, hold eyelids apart and flush the eye continuously with running water for at least 15 minutes. Seek immediate medical assistance
Inhalation	If inhaled, remove from contaminated area – avoid becoming a casualty. To protect rescuer, use a Full-face Type B (Inorganic and acid gas) respirator or an Air-line respirator. Remove contaminated clothing and loosen clothing. Apply artificial respiration if not breathing. Seek immediate medical advice.
Skin	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water for at least 15 minutes. If swelling, redness, blistering, or irritation occurs seek medical assistance.
Ingestion	Immediately rinse mouth with water. If swallowed do not induce vomiting. Give a glass of water. Seek immediate medical assistance.
Advice to Doctor	Treat symptomatically. Can cause corneal burns. Delayed pulmonary oedema may result. Ingestion of hypochlorites releases hypochlorous acid which is irritating to the mucous membranes and skin but has low systemic toxicity. Buffer the acid by administering antacids.
First Aid Facilities	Eye wash facilities and safety shower should be available.

#### SECTION 5 FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:	Water fog (or if unavailable, fine water spray), normal foam, dry chemical powder, carbon dioxide
Specific Hazards:	Non-combustible. Decomposes on heating, emitting toxic fumes, including those of chlorine.
Precautions for Fire Fighters and Special Protective Equipment:	Wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to products of decomposition.
Hazchem Code:	2X

#### SECTION 6 ACCIDENTAL RELEASE MEASURES

If contamination of sewers or waterways has occurred advise local emergency services. Observe all local and national regulations.

Small Spills:	Wear protective equipment to prevent skin and eye contamination. Avoid inhalation of vapours. Wipe up with absorbent (clean rag or paper towels). Rinse absorbent with copious quantities of water. Allow absorbent to dry before disposing with normal household garbage.
Large Spills:	Shut off all possible sources of ignition. Clear area of all unprotected personnel. Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled containers or drums for disposal. If contamination of sewers or waterways has occurred advise local emergency services.

Dangerous Goods Initial Emergency Response Guide (SAA/SNZ HB76:2010): 37

#### SECTION 7 HANDLING AND STORAGE

This material is classified as a Dangerous Good Class 8 Corrosive by the criteria of the ADG Code and must be stored and handled in accordance with the relevant regulations.



This material is a Scheduled Poison S5 and must be stored, maintained and used in accordance with the relevant regulations.

**Storage:** Store in a secured, cool, dry, well ventilated area, removed from reducing agents, acids, organic materials, amines, metals, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage, sealed when not in use, vented and stored upright. Check regularly for leaks or spills. Large storage areas should have appropriate ventilation systems.

**Handling:** Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

## SECTION 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

### Exposure Standards:

Chemical Name	Reference	TWA		STEL		Carcinogen Category	Notices
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>		
Sodium Hypochlorite	ASCC	1	3	-	-	-	-

As published in "Workplace Exposure Standards for Airborne Contaminants, December 2011" by SWA.

**Biological Limit:** None allocated for this product.

**Engineering Controls:** Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Exposure Standards. If inhalation risk exists, use with local exhaust ventilation or while wearing suitable mist respirator. Keep containers closed when not in use.

### Personal Protective Equipment:

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods and environmental factors.

**Respiratory Protection:** If engineering controls are inadequate, wear an approved P1 or P2 particulate filter respirator conforming to AS/NZS1715 and AS/NZS1716.

**Hand Protection:** Use impervious elbow length PVC or butyl rubber gauntlet-type gloves.

**Eye Protection:** Chemical splash goggles (gas tight type preferred) and full face shield.

**Protective Clothing:** PVC overalls or jacket and pants and butyl rubber Wellington boots.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, pale yellow - green liquid
Odour:	Chlorine
pH:	12.5 @ 10% solution
Boiling Point:	>100°C
Melting Point:	-25°C
Evaporation Rate:	Not available
Flash Point:	Not applicable
Flammability Limits:	Not applicable
Specific Gravity:	1.17 – 1.22 @ 20°C
Vapour Density (air=1):	Not available
Vapour Pressure:	17.5 mm Hg @ 20°C
% Volatiles:	80% - 95%
Solubility in water:	Miscible with water

Product Name: Sodium Hypochlorite Solution

Date of Issue: October, 2014

Version: 1.0

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## SECTION 10 STABILITY AND REACTIVITY

Reactivity:	Contact with acids liberates toxic gas. Contact with hydrochloric acid evolves chlorine gas.
Chemical Stability:	Product is stable under normal conditions of use, storage and temperature. The amount of available chlorine diminishes over time.
Hazardous Reactions:	Polymerisation is not expected to occur. Reacts exothermically with acids. Reacts with ammonia, amines and ammonium salts to produce chloramines. Decomposes on heating to produce chlorine gas.
Conditions to Avoid:	Avoid heat, sparks, open flames and other ignition sources
Incompatible Materials:	Incompatible with acids, metals, metal salts, peroxides, reducing agents, and ethylene diamine tetraacetic acid. Incompatible with ammonia and ammonium compounds such as amines and ammonium salts.
Hazardous Decomposition Products:	May evolve toxic gases (chlorine) when heated to decomposition.

## SECTION 11 TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Material Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

### HEALTH EFFECTS

#### Acute:

Ingestion:	Corrosive - toxic. Ingestion may result in burns to the mouth and throat, nausea, vomiting, ulceration of the gastrointestinal tract, breathing difficulties, circulatory collapse and coma. LD <sub>50</sub> (Ingestion, mouse) = 5,800 mg/kg. TDLo (Ingestion, woman) = 1 g/kg
Eye Contact:	Highly corrosive. Contact may result in irritation, lacrimation, pain, redness, conjunctivitis and corneal burns with possible permanent damage..
Skin Contact:	Severe eye irritant. Corrosive. Contact may result in irritation, redness, pain, rash, dermatitis and possible burns. Prolonged or repeated contact may result in ulceration.
Inhalation:	Corrosive - toxic. Over exposure may result in mucous membrane irritation of the respiratory tract, coughing and possible burns. High level exposure may result in ulceration of the respiratory tract, breathing difficulties, chemical pneumonitis and pulmonary oedema (can be delayed up to 48 hours).
Chronic:	No information available for this product.

## SECTION 12 ECOLOGICAL INFORMATION

Ecotoxicity:	Avoid contaminating waterways. Very toxic to aquatic animals.
Persistence/Degradability:	Miscible with water. Hypochlorites are non-persistent in the environment.
Bioaccumulative Potential:	No accumulation potential as they gradually decompose into a salt and oxygen.
Mobility in Soil:	Miscible with water May leach to groundwater with resultant toxicity to aquatic organisms.
Environmental Impact:	May release toxic chlorine gas. Hypochlorites are extremely toxic to fish. LC <sub>50</sub> (fish) = 0.07 – 5.9 mg/L / 48h

## SECTION 13 DISPOSAL CONSIDERATIONS

Ensure waste disposal conforms to relevant local, state and federal authority waste disposal regulations.

Product Name: Sodium Hypochlorite Solution

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**Disposal Methods:** Add to a large volume of reducing solution (eg thiosulphate, metabisulphite, but not carbon, sulphur or strong reducer) and acidify with 3M sulphuric acid. When reduction is complete, add mixture to water and neutralise. Absorb with sand or similar non-combustible material and dispose of to an approved landfill site. Dispose of all contained and neutralised spill residue in accordance with DEC requirements. Treat empty containers as filled containers as required under the ADG Code.

## SECTION 14 TRANSPORTATION INFORMATION

Classified as a Dangerous Goods by the criteria of the ADG Code for transport by road and rail.

**UN No:** 1791  
**Class:** 8 Corrosive  
**Packing Group:** III  
**Proper Shipping Name:** HYPOCHLORITE SOLUTION  
**Hazchem Code:** 2X  
**Special Precautions for User:** Not to be loaded with explosives (Class 1), dangerous when wet substances (Class 4.3), oxidising agents (Class 5.1), organic peroxides (Class 5.2), radioactive substances (Class 7) or food and food packaging in any quantity, however exemptions may apply. Note that concentrated strong alkalis are incompatible with concentrated strong acids.

Dangerous Goods Initial Emergency  
 Response Guide (SAA/SNZ HB76:2010): 37

## SECTION 15 REGULATORY INFORMATION

**Poison Schedule** Classified as a S5 product using the criteria in the "Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

**AICS** All chemicals listed on the Australian Inventory of Chemical Substances.

Dangerous Goods Initial Emergency Response Guide (SAA/SNZ HB76:2010): 37

## SECTION 16 OTHER INFORMATION

### Key / legend to abbreviations and acronyms used in the MSDS

ADG	Australian Dangerous Goods
ASCC	Australian Safety and Compensation Council
DEC	Department of Environment and Conservation
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
NOHSC	National Occupational Health and Safety Commission
SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons
TWA	Time weighted average
STEL	Short term exposure level
SWA	Safe Work Australia
LD <sub>50</sub>	Lethal dose 50. The single dose of a substance that causes the death of 50% of an animal population from exposure to the substance by any route other than inhalation
LC <sub>50</sub>	Lethal concentration that kills 50% of an animal population within a specified time
TD Lo	The lowest dose of a substance known to have produced signs of toxicity
mg/m <sup>3</sup>	Milligrams per cubic metre
mg/kg	Milligrams per kilogram
pH	Relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline

### Literature references

### Contact Points

Tristar Water Solutions  
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Facsimile: (+61 8) 9331 6233

**Disclaimer**

Tristar Water Solutions provides the information contained herein in good faith but makes no representation as to its' comprehensiveness or accuracy. A properly trained person using this product intends this document only as a guide to the appropriate precautionary handling of the material. Individuals receiving the information must exercise their independent judgement in determining its appropriateness for a particular purpose. Tristar Water Solutions makes no representations or warranties, either express or implied, including without limitation any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly, Tristar Water Solutions will not be responsible for damages resulting from use of or reliance upon this information.



**Be Right™**

# SAFETY DATA SHEET

Issue Date 09-Jun-2016

Revision Date 15-Jan-2018

Version 2.2

## Section 1: Identification: Product identifier and chemical identity

### Product identifier

**Product Name** Sulfuric Acid Solution 19.2 N  
**Product Code(s)** 203832

### Other means of identification

**Safety data sheet number** M00471

### Recommended use of the chemical and restrictions on use

**Recommended Use** Standard solution. Laboratory Use.

**Uses advised against** No information available

### Details of manufacturer or importer

#### **Manufacturer**

Hach Company P.O. Box 389 Loveland, CO 80539 USA +1(970) 669-3050

#### **Supplier**

HACH Pacific 26 Brindley Street Dandenong South, 3175 AU Tel: 1300 887 735

### Emergency telephone number

13 11 26

## Section 2: Hazard(s) identification

### GHS Classification

<b>Corrosive to metals</b>	Category 1 - (H290)
<b>Skin corrosion/irritation</b>	Category 1 - (H314)
<b>Serious eye damage/eye irritation</b>	Category 1 - (H318)
<b>Respiratory sensitisation</b>	
<b>Skin sensitisation</b>	
<b>Mutagenicity</b>	
<b>Carcinogenicity</b>	
<b>Reproductive toxicity</b>	
<b>Specific target organ toxicity (single exposure)</b>	
<b>Specific target organ toxicity (repeated exposure)</b>	

### Label elements

Corrosion  
Corrosion



**Signal word** - Danger

**Hazard statements**

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

**EU Specific Hazard Statements**

Not applicable

**Precautionary statements**

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

P280 - Wear protective gloves/protective clothing/eye protection/face protection

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

P363 - Wash contaminated clothing before re-use

P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

P405 - Store locked up

P501 - Dispose of contents/container to an approved waste disposal plant

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISONS INFORMATION CENTRE or doctor

P234 - Keep only in original container

P390 - Absorb spillage to prevent material damage

**Other hazards**

Harmful to aquatic life

No information available

### Section 3: Composition and information on ingredients, in accordance with Schedule 8

**Substance**

Not applicable

**Mixture**

Chemical name	Formula	CAS No.	EC No.	Percent Range
Sulfuric acid	H <sub>2</sub> SO <sub>4</sub>	7664-93-9	231-639-5	40 - 50%

### Section 4: FIRST AID MEASURES

**Emergency telephone number**

Poisons Information Centre, Australia: 13 11 26

Poisons Information Centre, New Zealand: 0800 764 766

**Description of necessary first aid measures**

**General advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

<b>Inhalation</b>	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. 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. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary oedema may occur. Get immediate medical advice/attention.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.
<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical advice/attention.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical advice/attention.
<b><u>For emergency responders</u></b> <b>Self-protection of the first aider</b>	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

**Most important symptoms/effects, acute and delayed**

<b>Symptoms</b>	Burning sensation.
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**Indication of immediate medical attention and special treatment needed, if necessary**

<b>Note to doctors</b>	Product is a corrosive material. Use of gastric lavage or emesis is contra-indicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.
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<b>Section 5: Firefighting measures</b>
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**Suitable Extinguishing Media**

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
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<b>Unsuitable Extinguishing Media</b>	No information available
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**Specific hazards arising from the chemical**

<b>Specific hazards arising from the chemical</b>	The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours.
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**Flammable properties**

Contact with metals may evolve flammable hydrogen gas. During a fire, irritating and highly toxic gases may be generated by thermal decomposition.

**Explosive properties**

Not classified according to GHS criteria.

<b>Hazardous combustion products</b>	May emit toxic and corrosive fumes.
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**Specific/special fire-fighting measures**

<b>Specific/special fire-fighting measures</b>	No information available.
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**Special protective equipment and precautions for fire-fighters**

<b>Special protective equipment for firefighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
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## Section 6: ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

<b>Personal precautions</b>	Evacuate personnel to safe areas. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
<b>Other Information</b>	Use personal protective equipment as required. Refer to protective measures listed in Sections 7 and 8.
<b>For emergency responders</b>	Use personal protection recommended in Section 8.

### Environmental precautions

Do not allow into any sewer, on the ground or into any body of water. Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

### Methods and material for containment and cleaning up

<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so. Dam far ahead of liquid spill for later disposal.
<b>Methods for cleaning up</b>	Soak up with inert absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dam far ahead of liquid spill for later disposal. Prevent product from entering drains. Dam up. After cleaning, flush away traces with water.

### Precautions to prevent secondary hazards

Clean contaminated objects and areas thoroughly observing environmental regulations. See section 8 for more information. See section 13 for more information.

## Section 7: Handling and storage, including how the chemical may be safely used

### Preventive measures for safe handling

<b>Advice on safe handling</b>	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before re-use.
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### Precautions for safe handling

<b>General Hygiene Considerations</b>	Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.
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### Conditions for safe storage, including any incompatibilities

<b>Storage Conditions</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.
<b>Incompatible materials</b>	Oxidising agent. Acids. Bases.

## Section 8: Exposure controls and personal protection

### Control parameters

**Exposure Limits**

Chemical name	Australia
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	TWA: 1 mg/m <sup>3</sup> STEL: 3 mg/m <sup>3</sup>

**Legend**

See section 16 for terms and abbreviations

**Appropriate engineering controls****Engineering Controls**

Showers  
Eyewash stations  
Ventilation systems.

**Individual protection measures, such as personal protective equipment****Respiratory protection**

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**Hand Protection**

Wear suitable gloves. Impervious gloves.

**Eye/face protection**

Face protection shield.

**Skin and body protection**

Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

**General Hygiene Considerations**

Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

**Environmental exposure controls**

Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

**Thermal hazards**

None under normal processing.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<b>Physical state</b>	Liquid
<b>Appearance</b>	aqueous solution
<b>Odour</b>	Acidic
<b>Colour</b>	colourless
<b>Odour threshold</b>	No data available

<b><u>Property</u></b>	<b><u>Values</u></b>	<b><u>Remarks • Method</u></b>
<b>Molecular weight</b>	No data available	
<b>pH</b>	< 0.5	
<b>Melting point/freezing point</b>	~ -33 °C / -27 °F	Estimation based on theoretical calculation
<b>Boiling point/boiling range</b>	~ 109 °C / 228 °F	Estimation based on theoretical calculation
<b>Evaporation rate</b>	1.19 (water = 1)	Estimation based on theoretical calculation

Vapour pressure	20.477 mm Hg / 2.73 kPa at 25 °C / 77 °F	Estimation based on theoretical calculation
Vapor density (air = 1)	0.03 (air = 1)	
Specific gravity (water = 1 / air = 1)	1.535	
Partition Coefficient (n-octanol/water)	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Auto-ignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	No data available	
Kinematic viscosity	No data available	

**Solubility(ies)****Water solubility**

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

**Solubility in other solvents**

Chemical Name	Solubility classification	Solubility	Solubility Temperature
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F

**Other Information****Metal Corrosivity**

Classified as corrosive to metal according to GHS criteria

**Steel Corrosion Rate**

17.78 mm/yr / 0.7 in/yr

**Aluminum Corrosion Rate**

12.7 mm/yr / 0.5 in/yr

**Volatile Organic Compounds (VOC) Content**

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Sulfuric acid	7664-93-9	No data available	-

**Explosive properties****Upper explosion limit**

No data available

**Lower explosion limit**

No data available

**Flammable properties****Flash point**

No data available

**Method**

No information available

**Flammability Limit in Air****Upper flammability limit:**

No data available

**Lower flammability limit:**

No data available

**Oxidising properties**

No data available.



<b>Bulk density</b>	Not applicable
<b>Particle Size</b>	No information available
<b>Particle Size Distribution</b>	No information available

## Section 10: STABILITY AND REACTIVITY

### Reactivity

Not applicable.

### Chemical stability

**Stability** Stable under normal conditions.

### Explosion data

**Sensitivity to Mechanical Impact** None

**Sensitivity to Static Discharge** None.

### Possibility of Hazardous Reactions

**Possibility of Hazardous Reactions** None under normal processing.

### Hazardous polymerisation

None under normal processing.

### Conditions to avoid

**Conditions to avoid** Exposure to air or moisture over prolonged periods.

### Incompatible materials

**Incompatible materials** Oxidising agent. Acids. Bases.

### Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapours.

## Section 11: TOXICOLOGICAL INFORMATION

### Information on Likely Routes of Exposure

#### Product Information

<b>Inhalation</b>	Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhaled corrosive substances can lead to a toxic oedema of the lungs. Pulmonary oedema can be fatal.
<b>Eye contact</b>	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available. May cause irritation.
<b>Ingestion</b>	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhoea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.
<b>Symptoms</b>	Redness. Burning. May cause blindness. Coughing and/or wheezing.
<b>Aggravated Medical Conditions</b>	Eye disorders. Skin disorders. Respiratory disorders. Pre-existing eye disorders. Teeth.
<b>Toxicologically synergistic products</b>	None known.

**Toxicokinetics, metabolism and distribution** See ingredients information below.

Chemical name	Toxicokinetics, metabolism and distribution
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	The corrosivity of sulfuric acid makes it difficult to assess its effects on metabolism. Its corrosivity is also the main contributor to acute deaths, therefore it is not classified for acute toxicity.

#### Product Acute Toxicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

#### Unknown Acute Toxicity

0 % of the mixture consists of ingredient(s) of unknown toxicity.

#### Acute Toxicity Estimations (ATE)

ATEmix (oral)	No information available
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	No information available
ATEmix (inhalation-vapour)	No information available
ATEmix (inhalation-gas)	No information available

#### Ingredient Acute Toxicity Data

Oral Exposure Route						If available, see data below
Chemical name	End point type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data	
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	Rat LD <sub>50</sub>	2140 mg/kg	None reported	None reported	IUCILID (The International Uniform Chemical Information Database)	

Dermal Exposure Route						If available, see data below
Inhalation (Dust/Mist) Exposure Route						If available, see data below
Inhalation (Vapor) Exposure Route						If available, see data below
Chemical name	End point type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data	
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	Rat LC <sub>50</sub>	0.510 mg/L	None reported	None reported	LOLI	

Inhalation (Gas) Exposure Route If available, see data below

#### Product Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

#### Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route						If available, see data below
Dermal Exposure Route						If available, see data below
Inhalation (Dust/Mist) Exposure Route						If available, see data below
Inhalation (Vapor) Exposure Route						If available, see data below
Chemical name	End point type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data	
Sulfuric acid	Human	0.144 mg/L	5 minutes	Lungs, Thorax, or	RTECS (Registry of Toxic	

(40 - 50%) CAS#: 7664-93-9	TD <sub>Lo</sub>			<b>Respiration</b> Dyspnea	Effects of Chemical Substances)
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Inhalation (Gas) Exposure Route

If available, see data below

**Aspiration toxicity**

No data available

**Product Skin Corrosion/Irritation Data**

No data available.

**Ingredient Skin Corrosion/Irritation Data**

If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to skin	HSDB (Hazardous Substances Data Bank)

**Product Serious Eye Damage/Eye Irritation Data**

No data available.

**Ingredient Eye Damage/Eye Irritation Data**

If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to eyes	HSDB (Hazardous Substances Data Bank)

**Sensitization Information****Product Sensitization Data**

Skin Sensitization Exposure Route

No data available.

Respiratory Sensitization Exposure Route

No data available.

**Ingredient Sensitization Data**

Skin Sensitization Exposure Route

If available, see data below.

Respiratory Sensitization Exposure Route

If available, see data below.

**Chronic Toxicity Information****Product Specific Target Organ Toxicity Repeat Dose Data**

Oral Exposure Route

No data available.

Dermal Exposure Route

No data available.

Inhalation (Dust/Mist) Exposure Route

No data available.

Inhalation (Vapor) Exposure Route

No data available.

Inhalation (Gas) Exposure Route

No data available.

**Ingredient Specific Target Organ Toxicity Repeat Exposure Data**

Oral Exposure Route

If available, see data below

Dermal Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

Chemical name	End point type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	Human TC <sub>Lo</sub>	.003 mg/L	168 days	<b>Musculoskeletal</b> Changes in teeth and supporting structures	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route

If available, see data below

**Product Carcinogenicity Data**

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

**Ingredient Carcinogenicity Data**

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
Sulfuric acid	7664-93-9	A2	Group 1	Known	X

**Legend**

ACGIH (American Conference of Governmental Industrial Hygienists)	A2 - Suspected Human Carcinogen
IARC (International Agency for Research on Cancer)	Group 1 - Carcinogenic to Humans
NTP (National Toxicology Program)	Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	X - Present

Oral Exposure Route	If available, see data below
Dermal Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below
Inhalation (Gas) Exposure Route	If available, see data below

**Product Germ Cell Mutagenicity *in vitro* Data**

No data available.

**Ingredient Germ Cell Mutagenicity *in vitro* Data**

If available, see data below

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	Cytogenetic analysis	Hamster ovary	4 mmol/L	None reported	Positive test result for mutagenicity	No information available

**Product Germ Cell Mutagenicity *in vivo* Data**

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

**Ingredient Germ Cell Mutagenicity *in vivo* Data**

Oral Exposure Route	If available, see data below
Dermal Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below
Inhalation (Gas) Exposure Route	If available, see data below

**Product Reproductive Toxicity Data**

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

**Ingredient Reproductive Toxicity Data**

Oral Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below

Chemical name	End point type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	Rabbit TC <sub>Lo</sub>	.02 mg/L	7 hours	<b>Specific Developmental Abnormalities</b> Musculoskeletal system	No information available

Inhalation (Gas) Exposure Route

If available, see data below

## Section 12: ECOLOGICAL INFORMATION

### Ecotoxicity

#### Unknown Aquatic Toxicity

0 % of the mixture consists of components(s) of unknown hazards to the aquatic environment.

### Product Ecological Data

#### Aquatic toxicity

Fish

No data available

Crustacea

No data available

Algae

No data available

### Ingredient Ecological Data

#### Aquatic toxicity

Fish

If available, see ingredient data below

Crustacea

If available, see ingredient data below

Algae

No data available

### Other Information

#### Persistence and degradability

##### Product Biodegradability Data

No data available.

##### Ingredient Biodegradability Data

### Bioaccumulation

#### Product Bioaccumulation Data

No data available.

#### Partition Coefficient (n-octanol/water)

Not applicable

#### Ingredient Bioaccumulation Data

### Mobility

#### Soil Organic Carbon-Water Partition Coefficient

Not applicable

### Water solubility

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Soluble	> 1000 mg/L	25 °C / 77 °F

### Other adverse effects

No information available.

## Section 13: DISPOSAL CONSIDERATIONS

### Disposal methods

<b>Waste from residues/unused products</b>	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
<b>Contaminated packaging</b>	Do not re-use empty containers.

## Section 14: TRANSPORT INFORMATION

### ADG

<b>UN Number</b>	UN2796
<b>Proper shipping name</b>	SULPHURIC ACID
<b>Hazard Class</b>	8
<b>Packing Group</b>	II
<b>Description</b>	UN2796, SULPHURIC ACID, 8, II

### IATA

<b>UN/ID no</b>	UN2796
<b>Proper shipping name</b>	Sulphuric acid solution
<b>Hazard Class</b>	8
<b>Packing Group</b>	II
<b>ERG Code</b>	8L
<b>Description</b>	UN2796, Sulphuric acid solution, 8, II

### IMDG

<b>UN/ID no</b>	UN2796
<b>Proper shipping name</b>	Sulphuric acid solution
<b>Hazard Class</b>	8
<b>Packing Group</b>	II
<b>EmS-No</b>	F-A, S-B
<b>Description</b>	UN2796, Sulphuric acid solution, 8, II

### **Additional information**

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.  
 If the item is part of a reagent set or kit the classification would change to the following:  
 UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.  
 If the item is not regulated, the Chemical Kit classification does not apply.

## Section 15: REGULATORY INFORMATION

### Regulatory information

#### National regulations

##### Australia

Model Work Health and Safety Regulations  
 [NOHSC:2011(2003)] National Code of Practice for the Preparation of Material Safety Data Sheets  
 Labelling of Workplace Hazardous Chemicals Code of Practice  
 See section 8 for national exposure control parameters

**Poison Schedule Number** 6

### **National pollutant inventory**

Subject to reporting requirement

Chemical name	National pollutant inventory
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Sulfuric acid - 7664-93-9	10 tonne/yr Threshold category 1
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**Banned and/or restricted**

No Products Listed.

**International Inventories**

<b>TSCA</b>	Complies
<b>DSL/NDL</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	Complies
<b>IECSC</b>	Complies
<b>KECL</b>	Complies
<b>PICCS</b>	Complies
<b>TCSI</b>	Complies
<b>AICS</b>	Complies
<b>NZIoC</b>	Complies

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances**ENCS** - Japan Existing and New Chemical Substances**IECSC** - China Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**TCSI** - Taiwan Chemical Substances Inventory**AICS** - Australian Inventory of Chemical Substances**NZIoC** - New Zealand Inventory of Chemicals**International Regulations****Ozone-depleting substances (ODS)** Not applicable**Persistent Organic Pollutants** Not applicable**Export Notification requirements** Not applicable

<b>Section 16: Any other relevant information</b>
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**Key or legend to abbreviations and acronyms used in the safety data sheet**

<i>NIOSH IDLH</i>	<i>Immediately Dangerous to Life or Health</i>
<i>ACGIH</i>	<i>ACGIH (American Conference of Governmental Industrial Hygienists)</i>
<i>NDF</i>	<i>no data</i>

**Legend - Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Ceiling Limit Value	MAC	MAC
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitisation
RSP	Respiratory sensitisation	**	Hazard Designation

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C	Carcinogen	R	Reproductive toxicant
M	mutagen		

**Prepared By** Hach Product Compliance Department

**Issue Date** 09-Jun-2016

**Revision Date** 15-Jan-2018

**Revision Note**

None

**Reference Sources for Section 11**

See Section 11: TOXICOLOGICAL INFORMATION

**Disclaimer**

**USER RESPONSIBILITY:** Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.**

HACH COMPANY©2017

**End of Safety Data Sheet**



## SAFETY DATA SHEET

### PermaClean™ PC-33

#### Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : PermaClean™ PC-33

Other means of identification : Not applicable.

Recommended use : REVERSE OSMOSIS CLEANER

Restrictions on use : Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.

Company : ECOLAB PTY LTD  
2 Drake Avenue  
Macquarie Park NSW 2113  
Australia  
A.B.N. 59 000 449 990  
TEL: 1300 654 224  
FAX: +61 2 8870 8680

Emergency telephone number : 1800 205 506  
International: +64 7 958 2372

Issuing date : 17.06.2016

#### Section: 2. HAZARDS IDENTIFICATION

##### GHS Classification

Serious eye damage/eye irritation : Category 1

##### GHS Label element

Hazard pictograms :



Signal Word : Danger

Hazard Statements : Causes serious eye damage.

Precautionary Statements : **Prevention:**  
Wear eye protection/face protection.  
**Response:**  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

Other hazards : None known.

#### Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Chemical Name	CAS-No.	Concentration: (%)
Tetrasodium EDTA	64-02-8	30 - 60

## SAFETY DATA SHEET

### PermaClean™PC-33

#### Section: 4. FIRST AID MEASURES

- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
- In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
- If swallowed : Contact the Poison's Information Centre (eg Australia 13 1126; New Zealand 0800 764 766).  
  
Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention if symptoms occur.
- Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
- Notes to physician : Treat symptomatically.
- Most important symptoms and effects, both acute and delayed : See Section 11 for more detailed information on health effects and symptoms.

#### Section: 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : None known.
- Specific hazards during firefighting : Not flammable or combustible.
- Hazardous combustion products : Decomposition products may include the following materials: Carbon oxides
- Special protective equipment for firefighters : Use personal protective equipment.
- Specific extinguishing methods : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Hazchem Code : 2X

#### Section: 6. ACCIDENTAL RELEASE MEASURES

- Initial Emergency Response Guide No : 37
- Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate

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certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.

- Environmental precautions : Do not allow contact with soil, surface or ground water.
- Methods and materials for containment and cleaning up : Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Flush away traces with water. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.

### Section: 7. HANDLING AND STORAGE

- Advice on safe handling : Avoid contact with skin and eyes. Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.
- Conditions for safe storage : Keep out of reach of children. Keep container tightly closed. Store in suitable labeled containers.
- Suitable material : The following compatibility data is suggested based on similar product data and/or industry experience: HDPE (high density polyethylene), Stainless Steel 304, Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use., Mild steel, Stainless Steel 316L, Polyurethane, Buna-N, EPDM, Polyethylene, Polypropylene, PVC, Epoxy phenolic resin, Neoprene, Chlorosulfonated polyethylene rubber, Fluoroelastomer
- Unsuitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Brass, 100% phenolic resin liner

### Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

- Engineering measures : Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

#### Personal protective equipment

- Eye protection : Safety goggles  
Face-shield
- Hand protection : Wear the following personal protective equipment:  
Standard glove type.  
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Skin protection : Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
- Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick

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drenching or flushing of the eyes and body in case of contact or splash hazard.

#### Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid
Colour	: light yellow
Odour	: Slight
Flash point	: > 93.3 °C
pH	: 10.8 - 12, 1 %, (25 °C)
Odour Threshold	: no data available
Melting point/freezing point	: FREEZING POINT: -13 °C
Initial boiling point and boiling range	: 107 °C
Evaporation rate	: no data available
Flammability (solid, gas)	: no data available
Upper explosion limit	: no data available
Lower explosion limit	: no data available
Vapour pressure	: similar to water
Relative vapour density	: no data available
Relative density	: 1.3,
Density	: 1.26 g/cm <sup>3</sup> , 10.51 lb/gal
Water solubility	: completely soluble
Solubility in other solvents	: no data available
Partition coefficient: n-octanol/water	: no data available
Auto-ignition temperature	: no data available
Thermal decomposition temperature	: no data available
Viscosity, dynamic	: no data available
Viscosity, kinematic	: no data available
Molecular weight	: no data available
VOC	: 0 %

#### Section: 10. STABILITY AND REACTIVITY

Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use.
Conditions to avoid	: None known.
Incompatible materials	: Acids Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors.
Hazardous decomposition	: Decomposition products may include the following materials:

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products

Carbon oxides

#### Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact

##### Potential Health Effects

Eyes : Causes serious eye damage.

Skin : Health injuries are not known or expected under normal use.

Ingestion : Health injuries are not known or expected under normal use.

Inhalation : Health injuries are not known or expected under normal use.

Chronic Exposure : Health injuries are not known or expected under normal use.

##### Experience with human exposure

Eye contact : Redness, Pain, Corrosion, Irritation

Skin contact : No symptoms known or expected.

Ingestion : No symptoms known or expected.

Inhalation : No symptoms known or expected.

##### Toxicity

###### Product

Acute oral toxicity : LD50 rat: > 2,000 mg/kg  
Test substance: Product

Acute inhalation toxicity : no data available

Acute dermal toxicity : no data available

Skin corrosion/irritation : no data available

Serious eye damage/eye irritation : no data available

Respiratory or skin sensitization : no data available

Carcinogenicity : No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive effects : No reproductive toxic effects expected.

Germ cell mutagenicity : Contains no ingredient listed as a mutagen

Teratogenicity : no data available

STOT - single exposure : no data available

STOT - repeated exposure : no data available

Aspiration toxicity : No aspiration toxicity classification

##### Human Hazard Characterization

Based on our hazard characterization, the potential human hazard is: High

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### Section: 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

Environmental Effects : This product has no known ecotoxicological effects.

#### Product

Toxicity to fish : LC50 *Lepomis macrochirus* (Bluegill sunfish): 1,030 mg/l  
Exposure time: 96 hrs  
Test substance: Product

NOEC *Lepomis macrochirus* (Bluegill sunfish): 456 mg/l  
Exposure time: 96 hrs  
Test substance: Product

Toxicity to daphnia and other aquatic invertebrates : no data available

Toxicity to algae : no data available

#### Persistence and degradability

The organic portion of this preparation is expected to be inherently biodegradable.

Total Organic Carbon (TOC) : 94,000 mg/l

#### Mobility

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.

If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air : <5%  
Water : 30 - 50%  
Soil : 50 - 70%

The portion in water is expected to be soluble or dispersible.

#### Bioaccumulative potential

This preparation or material is not expected to bioaccumulate.

#### Other information

no data available

#### ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: Low

### Section: 13. DISPOSAL CONSIDERATIONS

Disposal methods : Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in

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compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

#### Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

##### Land transport

Proper shipping name : CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S  
UN/ID No. : UN 3267  
Transport hazard class(es) : 8  
Packing group : III  
IERG No : 37  
Hazchem Code : 2X

Special precautions for user : Dangerous goods of Class 8 (Alkali) are 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 7 Radioactive substances  
and are incompatible with food or food packaging in any quantity.

##### Air transport (IATA)

UN/ID No. : UN 3267  
Proper shipping name : CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S  
Technical name(s) : Tetrasodium EDTA, Sodium Hydroxide  
Transport hazard class(es) : 8  
Packing group : III

##### Sea transport (IMDG/IMO)

UN/ID No. : UN 3267  
Proper shipping name : CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S  
Technical name(s) : Tetrasodium EDTA, Sodium Hydroxide  
Transport hazard class(es) : 8  
Packing group : III

#### Section: 15. REGULATORY INFORMATION

Standard for the Uniform : No poison schedule number allocated  
Scheduling of Medicines and Poisons

##### INTERNATIONAL CHEMICAL CONTROL LAWS :

##### TOXIC SUBSTANCES CONTROL ACT (TSCA)

The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

##### CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

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#### AUSTRALIA

All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

#### CHINA

All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

#### JAPAN

All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

#### KOREA

All substances in this product comply with the Chemical Control Act (CCA) and are listed on the Existing Chemicals List (ECL)

#### NEW ZEALAND

All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996, and are listed on or are exempt from the New Zealand Inventory of Chemicals.

#### PHILIPPINES

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

### Section: 16. OTHER INFORMATION

#### REFERENCES

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),  
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,  
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version),  
Micromedex, Inc., Englewood, CO.

Revision Date	: 17.06.2016
Date of first issue	: 17.06.2016
Version Number	: 1.0
Prepared By	: Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling,



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use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. For additional copies of an SDS visit [www.nalco.com](http://www.nalco.com) and request access.



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## MATERIAL SAFETY DATA SHEET

Date of Issue : July 2012

### SECTION 1 IDENTIFICATION OF MATERIAL AND SUPPLIER

**Product Name** CITRIC ACID SOLUTION

**Synonyms** 2-Hydroxy-1,2,3-propanetricarboxylic acid

**Recommended Use** Preparation of citrates, flavouring extracts, confections, soft drinks, acidifier, dispersing agent, sequestering agent, water-conditioning agent, cleaning and polishing stainless steel and other metals

**Supplier** Tristar Water Solutions

**Street Address** 56 Peel Road O'Connor, WA 6163

**Telephone** (+61 8) 9331 6133

**Facsimile** (+61 8) 9331 6233

**Emergency Telephone** 1300 883 844

### SECTION 2 HAZARDS IDENTIFICATION

Not classified as Hazardous according to criteria of NOHSC Australia

**Categories**

Xi Irritant

**Risk Phrase(s):**

R36/37/38 Irritating to eyes, respiratory system and skin

**Safety Phrase(s):**

S24/S25 Avoid contact with skin and eyes

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S27/28 In case of contact with skin, remove all contaminated clothing and wash immediately with plenty of water. If irritation persists, seek medical advice

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

### SECTION 3 COMPOSITION AND INFORMATION ON INGREDIENTS

Name of Hazardous Ingredients	CAS Number	Proportion (%)
Citric Acid Anhydrous	77-92-9	30 - 50

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Water	7732-18-5	50 - 70
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#### SECTION 4 FIRST AID MEASURES

For advice, contact a Poisons Information Centre (Phone: Australia 131 126; New Zealand 0800 764 766) or a doctor.

- Ingestion:** Immediately rinse mouth with water. Do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.
- Eye Contact:** Hold eyes open and flush eyes with water for at least 15 minutes. If irritation persists, seek medical advice.
- Skin Contact:** Remove any contaminated clothing and wash affected area thoroughly with running water. If skin irritation occurs, seek medical advice. Wash contaminated clothing before re-use.
- Inhalation:** Remove victim from area of exposure – avoid becoming a casualty. If rapid recovery does not occur, seek medical advice.
- First Aid facilities:** Portable water should be available to rinse eyes or skin. Provide eye baths and safety showers.
- Advice to Doctor:** Treat symptomatically.

#### SECTION 5 FIRE-FIGHTING MEASURES

- Specific Hazards:** Non-combustible liquid although if allowed to evaporate, the residue may burn in the presence of strong ignition source.
- Suitable Extinguishing Media:** Water fog (or if unavailable, fine water spray), foam, dry chemical powder, carbon dioxide
- Hazards from combustion products:** Combustion of residue are carbon dioxide and carbon monoxide gas and irritating fumes and acrid smoke
- Precautions for Fire Fighters and Special Protective Equipment:** Wear full protective clothing and self-contained breathing apparatus.

#### SECTION 6 ACCIDENTAL RELEASE MEASURES

Observe all local and national regulations.

**Spills and Disposal:**  
Contain and sweep/shovel up spills with inert dust binding material or use an industrial vacuum cleaner. Transfer to a suitable, labelled container and hold for safe disposal. Personnel involved in the clean-up should wear full protective clothing. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Do not allow product to reach drains, sewers or waterways. If the product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management Authority. Use spark-proof tools and equipment.

#### SECTION 7 HANDLING AND STORAGE

**Handling:** Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling.

Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Avoid breathing spray or mist. Do not breathe dust.

**Storage:** Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials including oxidizing agents, combustible materials and sources of ignition. Protect from direct sunlight.

## SECTION 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Exposure Standards:** No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC).

**Biological Limit Value:** No information available on biological limits for this product.

**Personal Protective Equipment:**

**Respiratory Protection:** If engineering controls are inadequate, wear an approved P1 or P2 particulate filter respirator conforming to AS/NZS1715 and AS/NZS1716.

**Hand Protection:** Use impervious PVC or rubber gloves.

**Eye Protection:** Wear safety glasses with side shields as described in Australian Standards AS/NZS1337 - Eye Protectors for Industrial Applications.

**Protective Clothing:** Wear cotton overalls buttoned at the neck and wrist to prevent skin exposure.

**Engineering Controls:** 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.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Clear, colourless liquid
<b>Odour:</b>	Odourless
<b>Molecular Formula:</b>	$C_6H_8O_7$
<b>Specific Gravity:</b>	1.24 – 1.26
<b>Relative Vapour Density (air=1):</b>	Not available
<b>Vapour Pressure (20 °C):</b>	Not available
<b>Boiling Point (°C):</b>	103
<b>Solubility in water (g/L):</b>	Miscible with water
<b>Freezing Point (°C):</b>	-63 to -27
<b>pH:</b>	1.5 – 2.5

## SECTION 10 STABILITY AND REACTIVITY

**Chemical Stability:** Product is stable under normal conditions of use, storage and temperature.

**Hazardous Decomposition Products:** When heated to decomposition, oxides of carbon may form.

**Incompatible Materials:** Oxidisers, bases. Can be explosive with metal nitrates

## SECTION 11 TOXICOLOGICAL INFORMATION

### HEALTH EFFECTS

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Acute:

Ingestion: Swallowing may irritate the gastrointestinal tract causing nausea, vomiting and diarrhoea.

Eye Contact: Highly irritating to eyes. May cause tearing, stinging, blurred vision and redness.

Skin Contact: Causes irritation to skin, including redness, itching and pain.

Inhalation: Breathing in mists or aerosols may result in respiratory irritation.

Chronic: No information for product.

Toxicological Data: Citric Acid (77-92-9) Oral LD<sub>50</sub> (rat) : 3000 mg/kg  
Oral LD<sub>50</sub> (mice) : 5040 mg/kg  
Draize Test, Rabbit, eye : 750 µg/24h (Severe irritant)  
Draize Test, Rabbit, skin : 500 mg/24h (Mild irritant)

## SECTION 12 ECOLOGICAL INFORMATION

Ecotoxicity: No information available

Persistence/Degradability: No information available

Environmental Impact: No information available

Mobility: Miscible with water.

## SECTION 13 DISPOSAL CONSIDERATIONS

Disposal Methods: Ensure waste disposal conforms to local waste disposal regulations.

## SECTION 14 TRANSPORTATION INFORMATION

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail.

UN No: Not applicable

Class: Not applicable

Packing Group: Not applicable

Proper Shipping Name: CITRIC ACID SOLUTION

Hazchem Code: Not applicable

## SECTION 15 REGULATORY INFORMATION

Poisons Schedule: Not applicable

## SECTION 16 OTHER INFORMATION

Contact Points  
Tristar Water Solutions

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Telephone: (+61 8) 9331 6133  
Facsimile: (+61 8) 9331 6233

#### Disclaimer

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