

**pH CONTROL SULPHURIC ACID**

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 Section 1 -- PRODUCT AND COMPANY IDENTIFICATION  
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PRODUCT NAME	HMIS CODES
pH Control Sulphuric Acid	Health 2
PRODUCT CODES	Flammability 2
PHC/1, PHC/5 PHC/20	Reactivity 0
CHEMICAL FAMILY	PPI B
Organic/Inorganic	
USE	
Ph Control of water	
MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
Greenleaf Solutions Ltd	Poisons Information Centre
PO Box 64-125	New Zealand 0800-764-766
Botany, Auckland NZ 1703	Australia 13-1126
DATE OF PREPARATION	TECHNICAL SERVICE TELEPHONE NO.
15 <sup>th</sup> December, 2012	0064-9-530 9550

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 Section 2 -- COMPOSITION/INFORMATION ON INGREDIENTS  
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Sulphuric Acid	7664-93-9	10 - 20%	Yes
Water	7732-18-5	80 - 90%	No

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 Section 3. Hazards Identification 8.2C - 8.3A  
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Emergency Overview

DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR CONTACTED WITH SKIN. HARMFUL IF INHALED. AFFECTS TEETH. CANCER HAZARD. STRONG INORGANIC ACID MISTS CONTAINING SULFURIC ACID CAN CAUSE CANCER. Risk of cancer depends on duration and level of exposure.

Health Rating: 2 - Moderate

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 3 - Severe (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Colour Code: White (Corrosive)  
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Potential Health Effects

Inhalation:

Corrosive. Effects should be less severe than from exposure to higher concentrations of sulphuric acid. Symptoms may include irritation of the nose and throat, laboured breathing, as well as lung oedema, damage to the mucous membranes and upper respiratory tract.

Ingestion:

Corrosive. Effects should be less severe than from exposure to higher concentrations of sulphuric acid. Symptoms may include severe burns of the mouth, throat, and stomach. Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations, and scanty urine may follow ingestion or skin contact. Circulatory shock is often the immediate cause of death. May cause sore throat, vomiting, diarrhoea.

Skin Contact:

Corrosive. Effects should be less severe than from exposure to higher concentrations of sulphuric acid. Symptoms may include redness, pain, and burns to the skin. Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations, and scanty urine may follow ingestion or skin contact. Circulatory shock is often the immediate cause of death.

Eye Contact:

Corrosive. Effects should be less severe than from exposure to higher concentrations of sulphuric acid. Symptoms may include blurred vision, redness, pain, and burns to eye tissue. Concentrated solutions can cause blindness.

Chronic Exposure:

Long term exposure to mist or vapours may cause damage to teeth. Chronic exposure to mists containing sulphuric acid is a cancer hazard.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

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 4. First Aid Measures  
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First aid procedures given apply to concentrated solutions. Exposures to dilute solutions may not require these extensive first aid procedures.

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Ingestion:

DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Call a physician immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Excess acid on skin can be neutralized with a 2% solution of bicarbonate of soda. Call a physician immediately.

Eye Contact:

Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

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 5. Fire Fighting Measures  
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Fire: Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

Explosion: Contact with most metals causes formation of flammable and explosive hydrogen gas.

Fire Extinguishing Media: Dry chemical, foam, water or carbon dioxide. Concentrated solutions are water reactive.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Structural fire-fighter's protective clothing is ineffective for fires involving this material. Stay away from sealed containers.

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### 6. Accidental Release Measures

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Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer!

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### 7. Handling and Storage

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Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat and incompatible materials. Do not wash out container and use it for other purposes. When diluting, always add the acid to water; never add water to the acid. When opening metal containers, use non-sparking tools because of the possibility of hydrogen gas being present. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapours, liquid); observe all warnings and precautions listed for the product.

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### 8. Exposure Controls/Personal Protection

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#### Airborne Exposure Limits:

For Sulphuric Acid:

- OSHA Permissible Exposure Limit (PEL) -  
1 mg/m<sup>3</sup> (TWA)
- ACGIH Threshold Limit Value (TLV) -  
0.2 mg/m<sup>3</sup>(T) (TWA) for sulphuric acid - A2 Suspected Human Carcinogen for sulphuric acid contained in strong inorganic mists.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. 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. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

#### Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a full face piece respirator with an acid gas cartridge and particulate filter (NIOSH type N100 filter) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P particulate filter. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres. Where respirators are required, you must have a written program covering the basic requirements in the OSHA respirator standard. These include training, fit testing, medical approval, cleaning, maintenance, cartridge change schedules, etc. See 29CFR1910.134 for details.

#### Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

#### Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Clear, colourless solution.

Odour: Odourless.

Solubility: Miscible in water.

Specific Gravity: ca. 1.0 (0.1%), 1.07 (10%)

pH: 1 N solution (ca. 5% w/w) = 0.3; 0.1 N solution (ca. 0.5% w/w) = 1.2; 0.01 N solution (ca. 0.05% w/w) = 2.1.

% Volatiles by volume @ 21C (70F): > 95

Boiling Point: No information found.

Melting Point: 3C (100%), -32C (93%), -38C (78%), -64C (65%).

Vapour Density (Air=1): No information found.

Vapour Pressure (mm Hg): No information found.

Evaporation Rate (BuAc=1): No information found.

10. Stability and Reactivity

Stability: Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products: (The following information applies to concentrated solutions). Toxic fumes of sulphur when heated to decomposition. Will react with water or steam to produce toxic and corrosive fumes. Reacts with carbonates to generate carbon dioxide gas, and with cyanides and sulphides to form poisonous hydrogen cyanide and hydrogen sulphide respectively.

Hazardous Polymerization: Will not occur.

Incompatibilities: Potassium chlorate, potassium per chlorate, potassium permanganate, sodium, lithium, bases, organic material, halogens, metal acetylides, oxides and hydrides, metals (yields hydrogen gas), strong oxidizing and reducing agents and many other reactive substances.

Conditions to Avoid: Heat, incompatibles.

11. Toxicological Information

Toxicological Data:

Oral rat LD50: 2140 mg/kg; inhalation rat LC50: 510 mg/m<sup>3</sup>/2H; standard Draize, eye rabbit, 250 ug (severe); investigated as a tumorigen, mutagen, reproductive effector.

Carcinogenicity:

Cancer Status: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulphuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulphuric acid and not to sulphuric acid or sulphuric acid solutions.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Sulphuric Acid (7664-93-9)	No	No	None
Water (7732-18-5)	No	No	None

12. Ecological Information

Environmental Fate:

When released into the soil, this material may leach into groundwater. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition. When released into the air, this material may be removed from the atmosphere to a moderate extent by dry deposition.

Environmental Toxicity:

LC50 Flounder 100 to 330 mg/l/48 hr aerated water/Conditions of bioassay not specified; LC50 Shrimp 80 to 90 mg/l/48 hr aerated water /Conditions of bioassay not specified; LC50 Prawn 42.5 ppm/48 hr salt water /Conditions of bioassay not specified.

This material may be toxic to aquatic life.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: SULFURIC ACID (WITH NOT MORE THAN 51% ACID)  
 Hazard Class: 8  
 UN/NA: UN2796  
 Packing Group: II  
 Information reported for product/size: 20L

International (Water, I.M.O.)

Proper Shipping Name: SULPHURIC ACID (WITH NOT MORE THAN 51% ACID)  
 Hazard Class: 8  
 UN/NA: UN2796  
 Packing Group: II  
 Information reported for product/size: 20L

15. Regulatory Information

Chemical Inventory Status - Part 1\

Ingredient	TSCA	EC	Japan	Australia
Sulphuric Acid (7664-93-9)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

\Chemical Inventory Status - Part 2\

Ingredient	Korea	--Canada--		Phil.
		DSL	NDSL	
Sulphuric Acid (7664-93-9)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

MATERIAL SAFETY DATA SHEET

Greenleaf Solutions Ltd

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302-		-----SARA 313-----	
	RQ	TPQ	List	Chemical Catg.
Sulphuric Acid (7664-93-9)	1000	1000	Yes	No
Water (7732-18-5)		No	No	No

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	CERCLA	-RCRA-	-TSCA-
		261.33	8 (d)
Sulphuric Acid (7664-93-9)	1000	No	No
Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: Yes  
SARA 311/312: Acute: Yes      Chronic: Yes      Fire: No      Pressure: No  
Reactivity: No      (Pure / Liquid)

Australian Hazchem Code: 2R  
Poison Schedule: None allocated.  
WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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16. Other Information

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NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 0  
Label Hazard Warning:

DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR CONTACTED WITH SKIN. HARMFUL IF INHALED. AFFECTS TEETH. CANCER HAZARD. STRONG INORGANIC ACID MISTS CONTAINING SULFURIC ACID CAN CAUSE CANCER. Risk of cancer depends on duration and level of exposure.

Label Precautions:  
Do not get in eyes, on skin, or on clothing.  
Do not breathe mist.  
Keep container closed.  
Use only with adequate ventilation.  
Wash thoroughly after handling.

Label First Aid:  
In all cases call a physician immediately. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before re-use. Excess acid on skin can be neutralized with a 2% bicarbonate of soda solution. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

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OTHER INFORMATION

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The information contained in this safety data sheet is given in good faith. It is accurate to the best of our knowledge and belief and represents the most up to date information. The information given in this data sheet does not constitute or replace the users own assessment of workplace risk as required by other health and safety legislation.

