

SAFETY DATA SHEET

HL - 22085

Issue Date: 01 Sept 2016

Revision Date: N/A

PRODUCT IDENTIFICATION

Company Product Name:	HL - 22085
Other/Generic Names:	Merlin-Garden Pro RO Membrane Element
Product Use and Restrictions on Use	Wet Membrane Preservative
Supplier:	Hydrologic Purification Systems 370 Encinal Street, Suite 150 Santa Cruz, CA 95060
For More Information Call: (Monday-Friday, 9:00am-5:00pm)	(888) 426-5644
For Emergency Call:	For Chemical Emergency, Spill Leak Fire Exposure or Accident - Call CHEMTREC Day or Night DOMESTIC NORTH AMERICA 800-424-9300 INTERNATIONAL, CALL 703-527-3887 (collect calls accepted)

HAZARDS IDENTIFICATION

GHS Classification

- Acute Toxicity Category 4 (Oral)
- Eye Damage Category 1

Label Element



Danger!

- Harmful if swallowed.
- Causes serious eye damage.
- Wash thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Wear eye protection and face protection.
- IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.



SAFETY DATA SHEET

HL - 22085

Issue Date: 01 Sept 2016

Revision Date: N/A

- 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.
- Dispose of contents and container in accordance with local, state, and federal regulations.

COMPOSITION/INFORMATION ON INGREDIENT

<u>Ingredient Name</u>	<u>CAS Number</u>	<u>Weight %</u>
HL - 22085	7681-57-4	>98

Trace impurities and additional material names not listed above may appear in Section 15 of this SDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons. The exact concentrations are a trade secret.

FIRST AID MEASURES

SKIN:	Immediately wash skin with plenty of soap and water. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists.
EYES:	Flush eyes immediately with water for at least 15 minutes. Remove contact lenses if present after the first 5 minutes if you can do so easily and continue flushing. Get immediate medical attention.
INHALATION:	Promptly remove to fresh air. Get immediate medical attention if signs of suffocation, irritation or other symptoms develop.
INGESTION:	If conscious, immediately rinse mouth with water and give 1 glass of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get immediate medical attention.
MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED:	May irritate the skin. May cause irritation and/or burns to the eyes. Harmful if swallowed or inhaled. May cause severe and possibly fatal allergic reactions if inhaled or swallowed by some asthmatics and other 'sulfite-sensitive' individuals. Reacts with acids to form toxic and irritating sulfur dioxide gas. Releases sulfur dioxide if heated above 150C.
INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT, IF NEEDED:	Treat symptomatically. Note potential for anaphylactic shock with allergic individuals.



SAFETY DATA SHEET

HL - 22085

Issue Date: 01 Sept 2016

Revision Date: N/A

FIRE FIGHTING MEASURES

Suitable (and unsuitable) Extinguishing Media: Material is not flammable. Use extinguishing media appropriate for material in surrounding fire.

Specific Hazards arising from the chemical: Releases toxic and irritating sulfur dioxide at fire temperatures.

Special Protective Equipment and Precautions for Firefighting: Wear NIOSH-approved self-contained breathing apparatus

ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Provide ventilation to clear sulfur dioxide fumes which may be generated by contact with water. Wear appropriate personal protective equipment.

Environmental precautions: Spills and releases may have to be reported to Federal and/or local authorities.

Methods and Materials for Containment and Cleaning up: Promptly sweep up material with minimum dusting and shovel into an empty container with a cover. Rinse spill area with plenty of water.

HANDLING AND STORAGE

Precautions for Safe Handling: Avoid contact with skin, eyes and clothing. Do not breathe dust. Do not eat or drink in the work area. Use normal personal hygiene and housekeeping. Keep away from water, ice, acids, heat and oxidizing agents. For Food Grade product, see precautions in section 16 regarding on-board use in preserving shrimp and fish.

Conditions for Safe Storage, including any Incompatibilities: Store in a cool, dry, well-ventilated area away from water, ice, acids, and oxidizing agents. Releases sulfur dioxide gas slowly at ambient temperatures.

EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINES

<u>Ingredient Name</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>Other Limit</u>
HL - 22085	5 mg/m ³ TWA	None	Non



SAFETY DATA SHEET

HL - 22085

Issue Date: 01 Sept 2016

Revision Date: N/A

Other Exposure Limits for Potential Decomposition Products: Sulfur dioxide: OSHA TWA = 5 ppm
ACGIH STEL = 0.25 ppm

Appropriate Engineering Controls: Local exhaust if dusty conditions exist or if there is a release of sulfur dioxide gas. Do not use in unventilated spaces, e.g., the holds of fishing boats, walk-in coolers or confined spaces.

Individual Protection Measures, Such as Personal Protective Equipment

SKIN PROTECTION: For handling dry material, wear rubber gloves and full work clothing, including long-sleeved shirt and trousers. When handling solutions and there is prolonged or repeated contact, wear impervious gloves, clothing and boots.

EYE PROTECTION: Wear chemical safety goggles.

RESPIRATORY PROTECTION: Where required, use a NIOSH-approved respirator for dust, mist and/or sulfur dioxide gas, as conditions indicate. Some exposures may require a NIOSH- approved self-contained breathing apparatus or supplied-air respirator. Equipment selection depends on contaminant type and concentration. Select in accordance with 29 CFR 1910.134 and good industrial hygiene practice.

ADDITIONAL RECOMMENDATIONS: Eyewash and safety shower are recommended.

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Fine, white granular material.
PHYSICAL STATE:	Solid
ODOR:	Pungent sulfur dioxide odor
ODOR THRESHOLD:	Not determined
MOLECULAR WEIGHT:	190.11
CHEMICAL FORMULA:	Na ₂ S ₂ O ₅
RELATIVE DENSITY(water=1.0)	1.48
SOLUBILITY IN WATER (weight%)	39% at 16°C
pH	1% solution – 4.3
INITIAL BOILING POINT/RANGE:	Begins to rapidly decompose above 150°C
MELTING/FREEZING POINT:	Not Applicable
VAPOUR PRESSURE:	Not Applicable
VAPOUR DENSITY (air=1.0)	Not Applicable
EVAPORATION RATE:	Not Applicable



SAFETY DATA SHEET

HL - 22085

Issue Date: 01 Sept 2016

Revision Date: N/A

% VOLATILES:	Not Applicable
PARTITION COEFFICIENT (N-OCTANOL/WATER):	Not Applicable
VISCOSITY:	Not Applicable
FLASH POINT:	Not Applicable
FLASH POINT METHOD:	Not Applicable
AUTOIGNITION TEMPERATURE:	Not Applicable
UPPER FLAME LIMIT(volume % in air):	Not Applicable
LOWER FLAME LIMIT (volume % in air):	Not Applicable
DECOMPOSITION TEMPERATURE:	Not Applicable
FLAMMABILITY:	Not Applicable
OSHA FLAMMABILITY CLASS:	Not Applicable

STABILITY AND REACTIVITY

REACTIVITY: Not normally reactive.

CHEMICAL STABILITY: Normally stable.

POSSIBILITY OF HAZARDOUS RECTIONS: Reacts with acids to form toxic and irritating sulfur dioxide gas.

CONDITIONS TO AVOID: Avoid elevated temperatures. Temperatures above 150C cause the rapid evolution of toxic and corrosive sulfur dioxide gas.

INCOMPATIBILITIES: Oxidizers: may cause strong exothermic reactions.

Acids, water and ice: releases sulfur dioxide gas which is toxic, corrosive, and potentially deadly. Water and/or ice speeds the production of sulfur dioxide gas.

HAZARDOUS DECOMPOSITION PRODUCTS: Sulfur dioxide and sodium sulfide residue. Sodium sulfide is flammable, a dangerous fire risk, a strong irritant to skin and tissue, and is incompatible with acids.

TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH HAZARDS

ACUTE EFFECTS OF EXPOSURE



SAFETY DATA SHEET

HL - 22085

Issue Date: 01 Sept 2016

Revision Date: N/A

- SKIN:** Repeated or prolonged contact with dust may cause irritation. Contact with solutions will cause skin irritation and possibly burns.
- EYES:** Dust or mist may irritate or burn the eyes. Solutions will irritate or burn. Permanent eye injury is possible.
- INHALATION:** Inhalation of dust or mist can irritate the respiratory tract. May cause severe or deadly allergic reactions in some asthmatics and sulfite sensitive individuals. Possible signs and symptoms of allergic reactions include bronchoconstriction, sweating, flushing, hives, rapid heart rate, decreased blood pressure, and anaphylaxis. Contact with acids, water and/or ice, releases sulfur dioxide gas which may be harmful or deadly if inhaled.
- INGESTION:** May irritate the gastrointestinal tract. May cause severe or deadly allergic reactions in some asthmatics and sulfite sensitive individuals. Very large doses may cause violent colic, diarrhea, depression, and even death.
- CHRONIC EFFECTS:** None known.

Ingredients found on one of the three OSHA designated carcinogen lists are listed below.

<u>Ingredient Name</u>	<u>NTP Status</u>	<u>IARC Status</u>	<u>OSHA List</u>
No ingredient listed in this section	----	----	----

NUMERICAL MEASURES OF TOXICITY:

Immediate (Acute) Effects: HL - 22085 – LD50 (oral, rat) = 1131 – 3200 mg/kg

Delayed (Subchronic and Chronic) Effects: AM-88 is not mutagenic in microbial systems or in rat bone marrow metaphase assay or dominant lethal test in rats. A 2 year feeding study in rats was negative for carcinogenicity. In a three generation feeding study in rats, no adverse effects on reproduction was observed.

Other Data: None

ECOLOGICAL INFORMATION

Ecotoxicity: The following ecotoxicity data is available for HL- 22085.

Daphnia EC50 48h → 89 mg/L
Fish LC50 96h → 32 mg/L
Algae EC50 72h → 48 mg/L

Persistence and Degradability: Chemical Oxygen Demand (COD) 168 mg/g.



SAFETY DATA SHEET

HL - 22085

Issue Date: 01 Sept 2016

Revision Date: N/A

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other Adverse Effects: No data available.

DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? No

If yes, the RCRA ID number is: Not applicable.

Other Disposal Considerations: Dispose of in accordance with applicable Federal, State and Local regulations.

The information offered in this section is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

TRANSPORT INFORMATION

US DOT HAZARD CLASS: Not regulated.
US DOT ID NUMBER: Not applicable.
PROPER SHIPPING NAME: Not applicable.

For additional information on shipping regulations affecting this material, contact the information number found in Product Identification.

REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: All components are listed on TSCA Inventory of Chemical Substances.

OTHER TSCA ISSUES: None.

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>Ingredient Name</u>	<u>SARA/CERCLA RQ (lb)</u>	<u>SARA EHS TPO (lb)</u>
No ingredients listed in this section	----	----



SAFETY DATA SHEET

HL - 22085

Issue Date: 01 Sept 2016

Revision Date: N/A

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee. Many states have more stringent regulations. Report all spills in accordance with local, state and federal regulations.

SECTION 311 HAZARD CLASS: Acute Health

SARA 313 TOXIC CHEMICALS: The following ingredients are SARA 313 "Toxic Chemicals" and may be subject to annual reporting requirements. CAS numbers and weight percent's are found in Hazard Identification.

<u>Ingredient Name</u>	<u>Comment</u>
------------------------	----------------

No Ingredients listed in this section	----
---------------------------------------	------

STATE RIGHT-TO-KNOW: In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

<u>Ingredient Name</u>	<u>Weight %</u>	<u>Comment</u>
------------------------	-----------------	----------------

No ingredients listed in this section	----	----
---------------------------------------	------	------

CALIFORNIA PROPOSITION 65: This product does not contain any ingredients known to the State of California to cause cancer and/or reproductive harm.

ADDITIONAL REGULATORY INFORMATION: None

WHMIS CLASSIFICATION (CANADA): D2B

FOREIGN CHEMICAL CONTROL INVENTORY STATUS: Listed on Canadian DSL, Australian AICS, Philippines PICCS, Chinese IECSC, Japanese MITI, Korean KECL, and EU EINECS.

OTHER INFORMATION

Current Issue Date: 01 Sept 2016

Previous Issue date: 25 Oct 2002

Changes to SDS from Previous Issue Date are Due to the following: No Changes

Other Information: Only NF grade is for use in drug formulation. Only Food Grade material is for use as a food additive.



SAFETY DATA SHEET

HL - 22085

Issue Date: 01 Sept 2016

Revision Date: N/A

On-board ship use of Food Grade material to preserve shrimp and fish:

NEVER apply dry material to shrimp or fish. ALWAYS prepare and use a solution in a well-ventilated area.

NEVER use below deck or in any confined space such as a hold or cooler. Injury or death may occur.

ALWAYS use on deck with plenty of ventilation. Follow mixing and use directions printed on bag