

MATERIAL SAFETY DATA SHEET

GENERAL HYDROPONICS Chi™ FOLIAR SPRAY

4/2/03

SECTION 1. MATERIAL IDENTIFICATION

Product Name: Chi™ Foliar Spray

Chemical Family: A mixture of plant nutrition minerals in aqueous solution.

Product Use: Hydroponic plant nutrient.

Manufactured by: General Hydroponics, 3789 Vine Hill Road, Sebastopol CA 95472. (707) 824-9376 Fax: (707) 824-9377

SECTION 2. INGREDIENTS AND OCCUPATIONAL EXPOSURE LIMITS

Ingredients: Chi™ Foliar Spray is a specially formulated mixture of chemicals that are mixed in proportions to assure excellent plant nutrition. The chemical identity of the compounds and exact proportions used in the mixture are a trade secret, however, Chi™ Foliar Spray contains chitosan salts (2.5% Marinosan - poly-D-glucosamine), potassium nitrate, and urea.

Exposure Limits: No limits are established for exposure to the ingredients of Chi™ Foliar Spray

SECTION 3. HAZARDS IDENTIFICATION

*** Emergency Overview ***

General Hydroponics Chi™ Foliar Spray is a light brown aqueous solution of chemicals mixed in concentrations to assure plant nutrition in hydroponic cultivation. Ingredients in this mixture are of low toxicity, but might cause skin and eye irritation upon contact. It is also expected to be a low ingestion hazard.

Potential Health Effects

Primary Entry Routes: ingestion, inhalation, and skin contact

Ingestion: Ingestion may cause severe gastro-intestinal distress.

Eye: May cause mild irritation

Skin: May cause mild irritation

Inhalation: May cause mild irritation

Carcinogenicity: IARC, NTP, and OSHA do not list any ingredients as a carcinogen.

Medical Conditions Aggravated by Long- Term Exposure: Unknown.

Chronic Effects: Repeated or prolonged exposure to some ingredients might produce target organ damage.

Other: None

Section 4. FIRST AID MEASURES

Ingestion: If swallowed give several glasses of water to drink to dilute product. Never give anything by mouth to an unconscious person. Induce vomiting as directed by medical personnel. Call a physician.

Inhalation: Remove exposed person to fresh air and support breathing, if necessary. Consult a physician if respiratory distress continues.

Eye Contact: Do not allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 minutes. Consult a physician or ophthalmologist if pain or irritation develops.

Skin Contact: Wash exposed area with mild soap and water. For reddened or blistered skin, consult a physician.

After first aid: Get appropriate community medical support.

SECTION 5. FIRE AND EXPLOSION DATA

Flammability Classification: Chi™ Foliar Spray is not combustible. However, it contains a low concentration of a powerful oxidizer and could initiate and intensify combustion of flammable materials.

Flash Point: Unknown.

Auto-ignition Temperature: Unknown.

LEL: Unknown.

Burning Rate: Unknown.

Extinguishing Media: Use dry chemical, carbon dioxide, water spray, fog, or foam.

Unusual Fire or Explosion Hazards: Can accelerate burning. Container may explode in heat of fire.

Hazardous Combustion Products: Can decompose explosively in a fire.

Fire-Fighting Instructions: Contains oxidizing material. Do not use water jet. Keep fire exposed containers cool with water spray. Remove containers from the fire area, if it can be done safely. Avoid contact with organic materials. Do not release run-off from fire control methods to sewers or waterways.

Fire Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full-face piece.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill/Leak Procedures: Spills should be wiped up with absorbent materials, or mopped up carefully and held for reclamation or disposal.

Regulatory Requirements: Avoid infiltration of the undiluted product into drains, surface water, groundwater, and soil.

SECTION 7. HANDLING AND STORAGE

Storage: Avoid microbial contamination, and keep pH between 4.5 and 5

Handling Precautions: Avoid ingestion, skin contact, eye contact, and inhalation

Storage Requirements: Keep in tightly closed containers in a cool, dry, ventilated area.

Regulatory Requirements: Follow applicable OSHA regulations.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation: Provide general or local exhaust ventilation.

Administrative Controls: Avoid direct contact with the product.

Respiratory Protection: If this product is used as directed, respiratory protection is not required. Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. If respirators are used, OSHA requires a written respiratory protection program that includes, at least: medical certification, training, fit testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Eye Protection: When handling Chi™ Foliar Spray, protective eyewear or goggles should be worn per OSHA regulations (29 CFR 1910.134). Contact lenses pose a special hazard. Soft lenses may absorb irritants, and all contact lenses concentrate irritants. Particles may adhere to contact lenses and cause corneal damage.

Protective Clothing: Wear impervious protective clothing when the possibility of skin or clothing contamination may exist. Wear neoprene or nitrile gloves when directly handling the product.

Safety Stations: Eye wash stations, quick drench showers, and washing facilities should be readily accessible to workers handling large quantities of Chi™ Foliar Spray.

Contaminated Equipment: Remove this material from shoes and equipment. Launder contaminated clothing before wearing.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this product, especially before eating drinking, smoking, using the toilet, or applying cosmetics

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Aqueous solution

Density: 1.16

pH: 4.8-5.0

Appearance and Odor: Light Brown solution with an ocean smell

Odor Threshold Range: Unknown

Vapor Pressure: Unknown

Water Solubility: Soluble

Other Solubilities: Unknown

Viscosity: Unknown

SECTION 10. STABILITY AND REACTIVITY

Stability: Stable at room temperature in closed containers, under normal storage and handling conditions. Unstable at high temperatures.

Polymerization: Hazardous polymerization does not occur.

Chemical Incompatibilities: Chi™ Foliar Spray contains a low concentration of a strong oxidizing agent that could react with strong alkalis to liberate ammonia. May react vigorously with reducing materials, oil, and organic solvents.

Conditions to Avoid: Mixture with combustible materials, high temperatures.

Hazardous Decomposition Products: At extreme temperatures, CO, and harmful oxides may be evolved.

SECTION 11. TOXICOLOGICAL INFORMATION

Most of the chemicals in Chi™ Foliar Spray are slightly toxic by ingestion, inhalation, or dermal contact.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity: Unknown

Environmental Fate: Not expected to be significant

Environmental Degradation: Unknown

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal: Follow Federal, State, and local regulations.

SECTION 14. TRANSPORTATION INFORMATION

DOT Transportation Data (49 CFR 172.101): Mixed fertilizer.

SECTION 15. REGULATORY INFORMATION

EPA Regulations: Not listed

SECTION 16. OTHER INFORMATION

General Hydroponics Chi™ Foliar Spray is a plant nutrition product. Information assembled for this Material Safety Data Sheet is for the use of this product as intended by the manufacturer. Users should take all precautions recommended herein while working with this product.

General Hydroponics provides the information contained herein in good faith, but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in using this product.