

Material Safety Data Sheet

FloraGro

1. Product and compagny identification:

Product name : FloraGro Advanced Nutrient System
Chemical Family : Nitrates, and inorganic minerals in aqueous solution.
Material uses: Hydroponic plant nutrient
Supplier/Manufacturer: GENERAL HYDROPONICS Europe
boulevard du Biopole
32500 Fleurance
Tel: 05 62 06 08 30

2. Hazards identification

Emergency overview

Physical state : Liquid (Aqueous solution)
Color: Green
Odor: Odorless

Hazard statements: OXIDIZER. CAUSES EYE AND SKIN IRRITATION. MAY CAUSE RESPIRATORY TRACT IRRITATION. CAN CAUSE TARGET ORGAN DAMAGE. SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

Precautionary measures: Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Do not breathe vapor or mist. Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep away from clothing and other combustible materials. Store in tightly-closed container. Keep container tightly closed. Use personal protective equipment as required. Wash thoroughly after handling.

Routes of entry: Dermal contact. Eye contact. Inhalation. Ingestion

Potential acute health effects

Inhalation: Slightly irritating to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion: Ingestion can cause severe gastro-intestinal distress, with abdominal pain, nausea, vomiting, and watery or bloody diarrhea.

Skin: No known significant effects or critical hazards

Eyes: Irritating to eyes.

Potential chronic health effects

Chronic effects: Can cause target organ damage.

Carcinogenicity: Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure

Mutagenicity: No known significant effects or critical hazards

Teratogenicity: No known significant effects or critical hazards

Developmental effects: No known significant effects or critical hazards

Fertility effects: No known significant effects or critical hazards

Target organs: Causes damage to the following organs: blood, mucous membranes, cardiovascular system, skin, eyes.

Contains material which may cause damage to the following organs: upper respiratory tract.

Over-exposure signs/symptoms

Inhalation: Adverse symptoms may include the following: respiratory tract irritation coughing

Ingestion: No specific data

Skin: Adverse symptoms may include the following: irritation redness

Eyes: Adverse symptoms may include the following: pain or irritation watering redness

Medical condition

aggravated by overexposure Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

3. Composition/information on ingredients

FloraGro™ is an especially 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, they are derived from : Potassium Nitrate, Magnesium Nitrate, Ammonium Nitrate, Potassium Phosphate, Magnesium Phosphate, Potassium Carbonate, Potassium Sulfate, Magnesium Carbonate and Magnesium Sulfate.

4. First aid measures

Eye contact: Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact: In case of contact, immediately flush skin with plenty of water for at least 20 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation: Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion: Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Notes to physician: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

Flammability of the product: This material increases the risk of fire and may aid combustion. In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media

Suitable: Use an extinguishing agent suitable for the surrounding fire.

Not suitable: None known.

Special exposure hazards: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Hazardous thermal decomposition products: Decomposition products may include the following materials:

nitrogen oxides

sulfur oxides

phosphorus oxides

metal oxide/oxides

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Ingredient	Exposure limits
Phosphoric acid, ammonium salt	ACGIH TLV (United States).

Recommended monitoring procedures: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory: Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Physical State: Liquid (Aqueous solution)

Color: Green

Odor: Odorless

pH: 3.5

Boiling/condensation point: 101°C (213.8°)

Melting/freezing point: -1°C (30.2°F)

Relative density: 1.108

Solubility: Easily soluble in the following materials: cold water and hot water.

10. Stability and reactivity

Chemical Stability: The product is stable.

Conditions to avoid: Evaporating to near dryness. Mixture with combustible materials. High temperatures and flame.

Incompatible material: Reactive or incompatible with the following materials: oxidizing materials, reducing materials, organic materials, acids and alkalis.

Slightly reactive or incompatible with the following materials: moisture.

Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Possibility of hazardous reactions: Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following:

contact with combustible materials

Reactions may include the following:

risk of causing or intensifying fire

11. Toxicological information

Acute toxicity:

Product/ingredient name	Result	Species	Dose	Exposure
Potassium nitrate Phosphoric acid, ammonium salt	LD50 Oral LD50 Dermal LD50 Oral	Rat Rabbit Rat	3540 mg/kg >5000 mg/kg >2000 mg/kg	

Chronic toxicity: There is no data available.

Irritation/Corrosion

Skin: There is no data available.

Eyes: There is no data available.

Respiratory: There is no data available.

Sensitizer

Skin: There is no data available.

Respiratory: There is no data available.

Carcinogenicity: There is no data available.

Mutagenicity: There is no data available.

Teratogenicity: There is no data available.

Reproductive toxicity

There is no data available.

12. Ecological information

Ecotoxicity: No known significant effects or critical hazards.

Aquatic ecotoxicity:

Product/ingredient name	Result	Species	Exposure
Potassium nitrate	Acute LC50 490 mg/L Fresh water Acute LC50 22500 ug/L Fresh water	Daphnia - Daphnia magna Fish - Gambusia affinis - Adult	48 hours 96 hours

Persistence/degradability: There is no data available.

13. Disposal considerations

Waste disposal: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

Regulatory information	Un number
DOT classification	Not regulated
IMDG Class	Nog regulated
DATA-DGR Class	Not regulated

15. Regulatory information

EPA Regulations: Not listed.

16. Other information

GHE's FloraGro is a plant nutrition product. Information assembled for this MSDS is for the use of this product as intended by the manufacturer. Users should take all precautions recommended herein while working with this product. GHE 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 judgement in using this product.