

SAFETY DATA SHEET

Agrastim


Date Prepared: 3/6/2024

Replaces: All Previous

SECTION 1. IDENTIFICATION

Product Name: Agrastim
 Synonyms: None
 Use: Agricultural, Liquid Micronutrient Fertilizer
 Manufacturer: Chemical Dynamics, Inc.
 4206 Business Lane
 Plant City FL 33566
 Phone: 813-752-4950
 Chemtrec (Emergency) Phone: 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Pictogram	Signal Word	Hazard Class	Hazard Category	Hazard Statement
	WARNING	Skin Irritation Eye Irritation	Cat 2 Cat 2A	Causes skin and serious eye irritation.
Precautionary Statements:	<p>Prevention: Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear chemical splash proof goggles and chemical resistant gloves.</p> <p>Response: Get medical attention/advice if you feel unwell.</p> <p><u>If on skin:</u> Rinse skin with water/shower. Wash contaminated clothing separate from other laundry before reuse. If skin irritation occurs, get medical attention</p> <p><u>If in eyes:</u> Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.</p> <p><u>If Inhaled:</u> Remove person to fresh air and keep comfortable for breathing.</p> <p><u>If swallowed:</u> Rinse mouth, Do NOT induce vomiting. Drink 2 glasses of water.</p> <p>Storage: Keep container tightly closed when not in use. Store above 42°F.</p> <p>Disposal: Dispose of contents/containers in accordance with local/regional/national regulations (See Section 13 of SDS).</p>			

SECTION 3. COMPOSITION

Material	CAS #	EINECS #	%WT
Iron HEDTA	17084-02-5	241-142-5	5-7%
Iron Sulfate	7720-78-7	231-753-5	14-17%
Magnesium Sulfate	7487-88-9	231-298-2	Proprietary blend of materials not classified as hazardous or are below de minimus concentration classification limits
Manganese Sulfate	10034-96-5	232-089-9	
Zinc Sulfate	7733-02-0	231-793-3	
Water	7732-18-5	231-791-2	

See product label for guaranteed analysis.

SECTION 4. FIRST AID MEASURES

Ingestion:	Rinse mouth. Drink large amounts of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Obtain medical attention.
Skin Contact:	Remove contaminated clothing. Wash with soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.
Inhalation:	Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention for any breathing difficulty.
Eye Contact:	Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Acute Exposure Symptoms:	Irritation or burning sensation eyes. Prolonged or repeated contact with skin may cause skin irritation. Ingestion of product solution may cause irritation of the gastrointestinal tract to include nausea, vomiting and diarrhea. Large amounts of ferrous salts are toxic, but in adults fatalities are rare. Severe ferrous sulfate poisoning may cause coagulopathy, abdominal pain, severe shock, hematemesis, diarrhea, pallor or cyanosis. This product is astringent to blood vessels. In children, ingesting large quantities may cause vomiting, hematemesis, hepatic damage, tachycardia, peripheral vascular collapse and death.
Chronic Exposure Symptoms:	Not Available

SECTION 5. FIRE FIGHTING MEASURES

Extinguishing Media:	Not Flammable. Use extinguishing media appropriate to surrounding fire. Cool containers with water spray from a distance to avoid rupture from thermal expansion.
Specific Hazards:	This product is an aqueous mixture which will not burn. In a fire, this material may decompose and produce sulfur, sulfur oxides, magnesium oxides and oxides of iron, manganese, zinc and carbon (combustion products).
Protective Equipment and Precautions for Fire-Fighters:	Wear self-contained breathing apparatus (SCBA) and full protective gear. Avoid inhaling combustion products. Fire run-off should be contained to prevent possible environmental damage.
NFPA Rating:	Health: 1, Fire: 0, Reactivity: 0

SECTION 6. ACCIDENTAL RELEASE MEASURES

Precautions:	Isolate area. Keep unnecessary personnel away. Avoid splashing or spraying. Do no touch or walk through spilled material.
Protective Equipment:	Impervious gloves (rubber, neoprene or nitrile), chemical resistant suit, Chemical splash-proof goggles, face shield. Chemical resistant apron and/or rubber boots may be needed. Use NIOSH approved respirator if vapors or mists exceed applicable concentration limits. Clothing and equipment can be washed or laundered for reuse.

Containment:	Stop flow of material if safe to do so. Dike area with diatomaceous earth or sand and maximize recovery. Prevent spillage from entering drains or open bodies of water. Any release to the environment may be subject to reporting requirements.
Clean Up:	Pump into a suitable tank or absorb with diatomaceous earth or sand. Sweep up and place into suitable containers for agronomical land application at recommended rates or dispose of in accordance with local/regional/national regulations (See Section 13 of SDS).

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:	Open containers carefully. Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Do not eat, drink or use tobacco products when handling this material. Apply product in open areas. Keep away from children and pets. Do not contaminate feed, seed or any water sources. Launder work clothes frequently and separate from other laundry.
Conditions for safe storage:	Store in a well-ventilated, cool, dry place, away where freezing is possible. Keep away from any sources of heat or flame. Store totes and smaller containers out of direct sunlight at moderate temperatures. Keep containers tightly closed when not in use. Do not let product go below 42°F. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Store in fiberglass, polypropylene, stainless steel (316L) or HD polyethylene.
Incompatibilities:	Water reactive materials. Strong oxidizers

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits:	Iron Sulfate, Iron HEDTA	1 mg/m ³	PEL, OSHA (Iron Soluble Salts, as Fe)
		1 mg/m ³	TWA, ACGIH (Iron Soluble Salts, as Fe)
		Not Established	IDLH, NIOSH
		1 mg/m ³	REL, NIOSH (Iron Soluble Salts, as Fe)
		Not Established	STEL, NIOSH
	Manganese Sulfate	5 mg/m ³	PEL, OSHA (as Mn compounds)
		Not Established	STEL, OSHA
		0.2 mg/m ³	TLV, ACGIH (as Mn compounds)
		500 mg/m ³	IDLH, NIOSH (as Mn)
		1 mg/m ³	TWA, NIOSH (as Mn)
		3 mg/m ³	STEL, NIOSH (as Mn)
	Magnesium Sulphate, Zinc Sulfate	Not Established	PEL, OSHA
		Not Established	TWA, ACGIH
		Not Established	IDLH, NIOSH
		Not Established	REL, NIOSH
		Not Established	STEL, NIOSH
		Not Established	PEL, OSHA

Engineering Controls:	Provide local exhaust ventilation and wash facilities. Eye wash stations and safety showers required.
Personal Protective Equipment:	<u>Eyes</u> : chemical splash-proof goggles and face shield <u>Skin</u> : Impervious gloves (rubber, neoprene or nitrile), long sleeved clothing and Chemically resistant apron. <u>Respiratory</u> : None required for ambient air concentrations (i.e. in the open under normal agronomic conditions). Use NIOSH approved respirator when dusts, mists, or vapors are present.
General:	Good industrial hygiene practices should be followed, such as, washing thoroughly after handling and before eating or drinking.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Dark brown liquid		
Odor:	None	UEL / LEL:	Not Applicable
Odor Threshold:	Not Available	Vapor Pressure:	Similar to water
pH:	3.5 to 4.5	Density:	1.27 to 1.29 g/cm ³
Melting/Freezing Point:	< 0°C (32°F)	Solubility:	Water
Boiling Point:	>100°C (212°F)	Log_{ow}:	Not Available
Flash Point:	Not Applicable	Auto Ignition Temp:	Not Applicable
Evaporation Rate:	Not Available	Decomposition Temp:	Not Available
Flammability (Solid/Gas):	Not Applicable	Viscosity	Not Available

SECTION 10. STABILITY AND REACTIVITY

Reactivity:	Stable
Chemical Stability:	Stable under normal conditions
Possibility of Hazardous Reactions:	Hazardous polymerization will not occur.
Conditions to avoid:	Elevated temperatures may cause containers to rupture.
Incompatible Materials:	Strong oxidizing agents and water reactive substances.
Hazardous Decomposition Products:	Decomposition will produce sulfur, sulfur oxides, iron, magnesium, manganese and zinc oxides and oxides of carbon (combustion products).

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	ATE for all components >2000 mg/kg. oral, rat.
Likely Routes of Exposure:	Inhalation, ingestion or skin absorption
Symptoms and Signs of Exposure:	<u>Eyes</u> : Contact causes severe irritation and tissue damage; Eye burns, watering eyes. <u>Skin</u> : Prolonged or repeated contact with product mist or solution may cause skin irritation. Absorption is unlikely to occur. <u>Ingestion</u> : Ingestion of product solution may cause irritation of the gastrointestinal tract to include nausea, vomiting and diarrhea. <u>Inhalation</u> : Inhalation of product mist may cause irritation of the nose, throat and respiratory tract.
Chronic Effects:	None known
Carcinogenic:	None of this product's components are listed by ACGIH, OSHA, IARC, NIOSH or NTP as carcinogenic.

Mutagenicity:	Not Available
Reproductive Toxicity:	Not Available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity:	May be harmful to fish, livestock and wildlife due to low pH. This product is not bioaccumulative.
Other Adverse Effects:	Not harmful to ozone layer
Ecotoxicity:	<p>Iron Sulfate</p> <p>LC50 Cyprinus carpio (Common carp, juvenile) 0.56 mg/L/96 hr; renewal</p> <p>LC50 Salvelinus fontinalis (Brook Trout) 0.41 mg/L/96 hr; Fresh Water, Flow Through</p> <p>LC50 Gambusia affinis (Western Mosquito Fish) 20 mg/L/96 hrs; Freshwater, Static</p> <p>Iron HEDTA, Manganese Sulfate, Zinc Sulfate: Not available</p> <p>Magnesium Sulfate</p> <p>LC50 Ceriodaphnia dubia (Water Flea): 1770 mg/L/48 hrs; Freshwater, Static</p> <p>LC50 Pimephales promelas (Flathead Minnow): 7900 mg/L/48 hrs; Freshwater, Static</p>

SECTION 13. DISPOSAL CONSIDERATIONS

General Information:	None
Disposal Instructions:	Agronomical land application at recommended rates or dispose of in accordance with local/regional/national regulations. Containers may be triple rinsed and offered for recycling

SECTION 14. TRANSPORT INFORMATION

This material is not hazardous as defined by 49 CFR 172.101 by the US Department of Transportation	
Proper Shipping Name:	Not Applicable
Hazard Class:	Not Applicable
UN Identification #:	Not Applicable
Packing Group:	Not Applicable
Required Label(s):	Not Applicable
Emergency Response Guide Number:	Not Applicable
Marine Pollutant:	No

SECTION 15. REGULATORY INFORMATION

TSCA Inventory Status	All intentional ingredients listed on the TSCA inventory.
DSCL (EEC) Status	All intentional ingredients listed on the DSCL inventory.
United States – SARA Hazard Category:	This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (SARA) and is considered, under applicable definitions, to meet the following categories: Fire – No, Pressure – No, Acute – Yes, Chronic – No, Reactive – No

SARA Title III Information:	This product contains the following substances subject to the reporting requirements of Title III (EPCRA) of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:
Manganese Sulfate, Zinc Sulfate	CERCLA RQ (pounds): No RQ is assigned to these generic or broad classes, (Zinc and Manganese compounds) although the class is a CERCLA hazardous substance. See 50 Federal Register 13456 (April 4, 1985). SARA Reporting, 302: No SARA Reporting, 304: No SARA Reporting, 313: No (<1% in product)
Iron Sulfate, Iron HEDTA, Magnesium Sulfate	CERCLA RQ (pounds): No SARA Reporting, 302: No SARA Reporting, 304: No SARA Reporting, 313: No
Federal Insecticide, Fungicide, and Rodenticide Act	This product is not a pesticide.
State Regulations:	Other state regulations may apply. Check individual state requirements.

SECTION 16. OTHER INFORMATION	
Date of Revision:	3/6/2024, revision prepared in accordance with 29 CFR 1910.1200 Appendix D to meet Global Harmonization Standards.
Disclaimer:	The information contained in this SDS refers only to the specific material designated and does not relate to any process or use with any other materials. This information is based on data believed to be accurate and reliable as of the date hereof. It is intended for use by persons possessing technical knowledge at their own discretion and risk. Because safety standards and regulations are subject to change and because Chemical Dynamics, Inc. has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. No warranty, expressed or implied, and no liability is assumed by Chemical Dynamics, Inc. in conjunction with the use of this information. Nothing herein is to be construed as a recommendation to infringe any patents.