



Material Safety Data Sheet
Nulex® Root Growth Stimulator

Nutra-Flo Company
1919 Grand Avenue
Sioux City, Iowa 51106

MSDS Number: 3025
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Revision: 1
Replaces: March 6, 2001

SECTION I CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name/Trade Name: **Nulex® Root Growth Stimulator**
Synonyms: RGS 15-0-0; RGS

Material Uses: Agricultural industry: Fertilizer
Manufacture of specialty fertilizers

Supplier/Manufacturer: Nutra-Flo Company **Emergency Telephone Number: 1-800-424-9300**
Address: 1919 Grand Avenue **General Telephone Number: 1-712-277-2011**
City, State, and Zip Code: Sioux City, IA 51106

SECTION II COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	Percentage by Weight	CAS Number
Zinc Ammonia Complex	60 – 70%	Proprietary
Ammonium Hydroxide	0 – 3%	1336-21-6
Water	30 – 40%	7732-18-5

SECTION III HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

This material is a colorless to slight yellow liquid with a pungent ammonia odor. Downwind exposure to ammonia fumes is likely. Responders should be prepared to use suitable respiratory protection for exposures to ammonia.

NFPA Hazard Rating: *Least:0 Slight:1 Moderate:2 High:3 Extreme:4*
[Ammonium Hydroxide]

Health (Blue) 2 **Reactivity (Yellow) 1**
Flammability (Red) 0 **Other (White) 0**

Routes of Exposure:

- Swallowing
- Inhalation
- Skin Contact
- Eye Contact

Effects of Single (Acute) Overexposure:

Swallowing: Ammonium hydroxide is a human poison. May be corrosive to the esophagus and stomach.
Skin Absorption: There is no evidence of adverse effects from available information.
Inhalation: May cause nasal stuffiness, cough, sore throat. May aggravate pre-existing conditions. Avoid breathing vapors, mists.
Skin Contact: May cause moderate irritation. Avoid contact with open wounds.



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Eye Contact: May cause severe irritation with corneal injury. May result in blindness. If splashed in eyes, rinse immediately with water for a minimum of 15 minutes.

Effects of Repeated (Chronic) Overexposure: Abdominal pain, vomiting, diarrhea, lung irritation, chest pains and edema can occur. Animal studies of zinc compounds indicate that there are potential adverse effects on the reproductive system and developing fetuses.

SECTION IV: FIRST AID MEASURES

Inhalation: Move to fresh air immediately.
Ingestion: Call poison control center and follow instructions. Seek immediate medical attention.
Eye Contact: Flush with water for a minimum of 15 minutes. Seek immediate medical attention.
Skin: Remove clothing and wash with soap and water.

SECTION V: FIRE AND EXPLOSION HAZARDS

Flammability: Not considered a fire hazard.
Flash Point: Not applicable.
Auto ignition Temperature: 1204°F (NH₃)
Flammable Limits in Air % by Volume: Lower: 15% Upper: 28%
Extinguishing Means: Use media appropriate for surrounding materials. Use water vapor to control ammonia vapors.
Hazardous Combustion Products: When heated to decomposition, this material will emit toxic fumes containing ammonia, nitrogen oxides, sulfur oxides, chloride compounds, and zinc oxides. Ammonia vapors in the range 15 - 28% can explode on contact with a source of ignition. Use of welding or flame cutting equipment close to this material is not recommended.

SECTION VI: ACCIDENTAL RELEASE MEASURES

For small or incidental releases, the minimum personal protective equipment should be chemical resistant gloves and goggles. Mop up and rinse affected area with water.

In the event of a significant spill, uncontrolled releases should be responded to by trained personnel using preplanned procedures. Proper personal protective equipment should be used including respiratory protection for ammonia. Keep material out of sewers, storm drains, and surface waters.

SECTION VII: HANDLING AND STORAGE

Maximum Storage Temperature: Ambient. Do not store below 10°F.
Handling Practices: Wear gloves and goggles when handling this material. Avoid eye and skin contact.
Storage Practices: Store in a cool, dry, well-ventilated area away from incompatible materials. Aluminum or aluminum alloys should not be used to store this material. Bronze, brass and copper alloys are not compatible with this product. Valves and components containing Buna N, natural rubber, or polycarbonate should not be used. Label storage tanks with label **CAUTION TO WELDERS**. Vessels should be vented in accordance with manufacturer's recommendations.

SECTION VIII: EXPOSURE CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Not required if using the product outside in fresh air. If using product in an enclosed area, make sure the area is well-ventilated or wear a NIOSH approved respirator for ammonia exposures.
Protective Gloves: Wear chemical resistant gloves.



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Eye Protection: Chemical goggles and a full faceshield should be worn, particularly if spraying product.

SECTION IX PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	Evaporation Rate:	Not applicable
Odor:	Pungent ammonia odor	pH:	10.5 – 11.8
Odor Threshold:	5 ppm	Freezing Point:	< 0°F
Vapor Pressure:	Not applicable	Vapor Density:	0.60 (Ammonia)
Appearance:	Colorless to pale yellow	Specific Gravity:	1.26 – 1.28 @ 25°C

SECTION X: REACTIVITY DATA

Chemical Stability: Stable
Incompatibility with Other Substances: Strong acids or oxidizers
Hazardous Polymerization: Will not occur.
Conditions to Avoid: High temperatures

SECTION XI: TOXICOLOGICAL DATA
[Ammonium Hydroxide]

LD₅₀: 350 mg/kg (orl-rat)	TC_{Lo}: 700 ppm, EYE (ihl-hmn)
LD_{Lo}: 43 mg/kg (orl-hmn)	TC_{Lo}: 408 ppm, IRR (ihl-hmn)
LC_{Lo}: 5000 ppm (ihl-hmn)	

Suspected Carcinogen: No

SECTION XII: ECOLOGICAL INFORMATION

Stability: Material is stable.
Ecotoxicity: High concentrations of zinc have been shown to be detrimental to aquatic life. Zinc has been shown to bioaccumulate in animals although the amount of zinc in biota is small compared to that from the source soil, sediment or water.

SECTION XIII: DISPOSAL CONSIDERATIONS

Waste Disposal: Waste disposal must be in accordance with local, State, and Federal regulations.
EPA Waste Number: Material is not considered hazardous waste per 40 CFR Section 261, Subparts C and D.

SECTION XIV: TRANSPORT INFORMATION

This material is hazardous under 49 CFR Part 172.101 by the US Department of Transportation.

Proper Shipping Name:	RQ, Environmentally Hazardous Substance, Liquid, N.O.S., (Contains Ammonium Hydroxide, Zinc Compounds)
Hazardous Class Number & Description:	9
UN Identification Number:	UN3082
Packing Group:	III
DOT Label(s) Required:	Class 9
Emergency Response Guide Number:	154 (Ammonium Hydroxide) 171 (Zinc Compounds)
DOT RQ:	1000 lbs. (Ammonium Hydroxide)



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SECTION XV: REGULATORY INFORMATION

SARA Reporting Requirements: This material contains the following chemicals subject to the reporting requirements of SARA Section 313 and 40 CFR 372:

<u>Name</u>	<u>CAS No.</u>	<u>Weight %</u>
Zinc Compounds	None	17 – 26 as Zn
Ammonia (from ammonium hydroxide)	7664-41-7	0 – 1.46 as NH ₃
Ammonia (from zinc ammonia complex)	7664-41-7	19.33 – 22.45 as NH ₃

TSCA Inventory Status: The above chemicals are listed on the TSCA Inventory.
Marine Pollutant: Does not contain any material listed as a Marine Pollutant under 49 CFR 172.101
California Proposition 65: Unavailable
CERCLA Reportable Quantities: 1000 lbs as ammonium hydroxide
State Regulatory Information: Not applicable

SECTION XVI: OTHER INFORMATION

The information and recommendations herein are taken from data contained in independent, industry recognized references. This information is furnished free of charge and is based on data believed to be reliable. It is intended for use by persons possessing technical knowledge and should be used at their own discretion and risk. Since actual use is beyond our control, no guarantee, express or implied, and no liability is assumed by Nutra-Flo Company in conjunction with the use of this information. Nothing herein is to be construed as a recommendation to infringe on any patents.