



MATERIAL SAFETY DATA SHEET

Animate®

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	Animate® Mineral Supplement
Chemical Name:	Not applicable
Chemical Family:	Mixture of Mineral Salts and Nutritional Carrier
Synonyms/Brands:	Mineral Feed Supplement
Chemical Formula:	Not applicable
Primary Use:	Feed mineral supplement for non-lactating dairy cows
Responsible Party:	Granco Minerals, Inc. 4813 County Drive Disputanta, VA 23842
Non-Emergency Technical Contact:	8:00am – 4:00pm Central Time USA, Mon - Fri: 800-798-5605 or 804-732-7058

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Number:

For Chemical Emergencies:

Spill, Leak, Fire or Accident

Call CHEMTREC

North America: 800-424-9300

Others: 703-527-3887 (collect)

Health Hazards:	Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Ammonium chloride, magnesium sulfate, and calcium sulfate are generally recognized as safe (GRAS) when used in accordance with good manufacturing practice.		
Physical Hazards:	None expected		
Physical Form:	Solid granules		
Appearance:	Tan		
Odor:	Slight odor		
NFPA HAZARD CLASS		HMIS HAZARD CLASS	
Health:	2 (Moderate)	Health:	2 (Moderate)
Flammability:	0 (Least)	Flammability:	0 (Least)
Instability:	0 (Least)	Physical Hazard	0 (Least)
Special Hazard:	None		



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2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	% Weight	Exposure Guideline		
		Limits	Agency	Type
Distillers Dried Grains with Solubles	35 - 45	NE	OSHA ACGIH	All
Ammonium Chloride* CAS No. 12125-02-9	10 - 20	10 mg/m ³ 20 mg/m ³ NE	ACGIH ACGIH OSHA	TWA STEL All
Magnesium Sulfate CAS No. 7487-88-9	10 - 20	NE	OSHA ACGIH	All
Calcium Sulfate** CAS No. 7778-18-9	5 - 15	10 mg/m ³ NE	ACGIH OSHA	TWA All
Molasses	10 - 15	NE	OSHA ACGIH	All

*Exposure limits listed for fumes only.

**Inhalable (total) particulate matter containing no asbestos and <1% crystalline silica

NE= Not established



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3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Eye:	Contact may cause mild eye irritation including stinging, watering and redness.
Skin:	Contact may cause mild irritation including redness and a burning sensation. No data available for effects from skin absorption.
Inhalation (Breathing):	No information available on acute toxicity. See signs and symptoms.
Ingestion (Swallowing):	Moderate degree of toxicity by ingestion.
Signs and Symptoms:	Effects of overexposure may include irritation of the nose throat and digestive tract, nausea, vomiting, thirst, central nervous system depression, flushing, sweating and abdominal cramping. Ingestion of large doses may cause acidosis and hypokalemia (low blood potassium levels).
Cancer:	No data available.
Target Organs:	No data available.
Developmental:	Inadequate data available for this material.
Other Comments:	None
Pre-Existing Medical Conditions:	Conditions aggravated by exposure may include liver and kidney disorders.

4. FIRST AID MEASURES

Eye:	If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.
Skin:	Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops and persists, seek medical attention.
Inhalation (Breathing):	If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.
Ingestion (Swallowing):	If large amounts are swallowed, seek emergency medical attention. If possible, do not leave victim unattended and observe closely for adequacy of breathing.
Note to Physicians:	None known.

5. FIRE FIGHTING MEASURES

Flammable Properties:	Flash Point—Not available OSHA Flammability Class—Not available LEL/UEL—Not available Autoignition Temperature—Not available
Unusual Fire & Explosion Hazards:	Ammonium chloride may polymerize explosively when heated or involved in a fire. When this material is subjected to high temperatures, it may release chloride gas, ammonia, and hydrogen chloride.
Extinguishing Media:	Use extinguishing agent suitable for type of surrounding fire.
Fire Fighting Instructions:	Positive pressure, self-contained breathing apparatus is required for all fire fighting activities involving hazardous materials. Full structural fire fighting (bunker) gear is the minimum acceptable attire. The need for proximity, entry, flashover and/or special chemical protective clothing (see Section 8) needs to be determined for each incident by a competent fire fighting safety professional. Water used for fire suppression and cooling may become contaminated. Discharge to sewer system(s) or the environment may be restricted, requiring containment and proper disposal of water.

6. ACCIDENTAL RELEASE MEASURES

Animate® is a feed ingredient: large spills can harm or kill vegetation.

- Stay upwind and away from spill.
- Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8).
- Prevent spilled material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways.
- Notify appropriate federal, state, and local agencies as may be required (see Section 15).
- Sweep up and package appropriately for disposal.

7. HANDLING AND STORAGE

Handling:	The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8). Wash thoroughly after handling. Wash contaminated clothing or shoes. Use good personal hygiene practices.
Storage:	Stable under normal storage conditions. Should be stored away from sources of heat. Separate from acids and alkalis. Separate from silver salts.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:	If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required.
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Personal Protective Equipment (PPE)

Respiratory:	A NIOSH approved air purifying respirator with a type 95 (R or P) particulate filter may be used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2). Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is potential for uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed if workplace conditions warrant a respirator.
Skin:	The use of cloth or leather work gloves is advised to prevent skin contact, possible irritation and absorption (see glove manufacturer literature for information on permeability).

Eye/Face:	Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended.
Other PPE:	A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Flash Point:	Not available
Flammable/ Explosive Limits (%):	LEL/UEL: Not available
Autoignition Temperature:	Not available
Appearance:	Tan granules
Physical State:	Solid granules
Odor:	Slight
Molecular Weight of Pure Material:	Mixture, not applicable
pH:	4.5 in a 5% solution
Vapor Pressure (mm Hg):	Not applicable
Vapor Density (air=1):	Not applicable
Boiling Point:	Not available
Freezing / Melting Point:	Not available
Solubility in Water:	Not applicable
Specific Gravity:	Not available
Volatility:	Not applicable
Bulk Density:	Approximately 40 lbs/ft ³ (642 kg/m ³)

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal conditions of storage and handling.
Conditions to Avoid:	Extreme heat and moisture.
Incompatible Materials:	Ammonium chloride can react violently with ammonium nitrate and potassium chlorate. Avoid alkalis and acids. Separate from silver salts. Magnesium sulfate

	incompatible with ethoxy ethyl alcohols, arsenates, phosphates, tartrates, lead, barium, strontium, and calcium. Cotace of diazomethane vapor and calcium sulfate causes an exotherm which may lead to detonation.
Corrosivity:	Similar to salt. Mildly corrosive to metals in the presence of moisture.
Hazardous Decomposition Products:	Ammonia and hydrogen chloride gas; oxides of sulfur
Hazardous Polymerization:	Ammonium chloride may polymerize explosively when heated or involved in a fire.

11. TOXICOLOGICAL INFORMATION

Ammonium Chloride:	<p>Rabbit, Eye: 100mg, severe irritant No skin irritation data available LD50 (rat oral) – 1650 mg/kg LD50 (mouse oral) – 1300 mg/kg Rats given 51,660 mg/kg orally for 10 weeks experienced toxic effects on the kidney, ureter (part of the urine excretion system), and bladder. There was inconclusive data obtained from a cytogenetic analysis study using rodent and hamster fibroblasts, 400 mg/L Repeated doses of 75 grams of ammonium chloride have been used for therapeutic purposes in cattle without harm. Giving daily doses of 31 to 46 grams to calves or 8 grams to sheep had no noticeable toxic effect but cause a decrease in weight gain. 1/6 molar ammonium chloride was given to mice orally in the drinking water after day 7 during pregnancy and although the offspring were small sized, no congenital defects were found. Mice were given 600 mg/kg orally 4 times on day 10 of gestation and produced 7% ectrodactyly (malformation of the hands) in the offspring.</p>
Magnesium Sulfate	<p>Injection of 0.08 molar magnesium sulfate into rabbits' corneas cause no reaction. No skin irritation data available Mutagenicity studies with E. coli were inconclusive Weanling rats exhibited diarrhea, depressed growth rate, and intestinal distension when fed 1% magnesium sulfate.</p>
Calcium Sulfate	<p>Calcium sulfate applied experimentally to rabbit eyes has been found innocuous No skin irritation data available No LC50 / LD50 data available</p>
<p>No definitive information available for this product on skin irritation, carcinogenicity, mutagenicity, target organs or developmental toxicity.</p>	



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12. ECOLOGICAL INFORMATION

Ecotoxicity:	Calcium Sulfate: Water flea LC50 = 1910 – 1970 mg/L Fathead minnow LC50 = 1970 mg/L Blue gill LC50 >2,980 mg/L No data for ammonium chloride or magnesium sulfate.
BOD and COD:	No data found.

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, is not an RCRA "listed" or "characteristic" hazardous waste. Contamination may subject it to hazardous waste regulations. Properly characterize all waste materials. Consult state and local regulations regarding the proper disposal of this material.

14. TRANSPORT INFORMATION

Hazard Class or Division:	Not listed in the hazardous materials shipping regulations (49 CFR, Table 172.101) by the U.S. Department of Transportation, or in the Transport of Dangerous Goods (TDG) Regulations Canada.
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15. REGULATORY INFORMATION

FDA:	<ol style="list-style-type: none"> 1. Ammonium chloride added directly to human food affirmed as generally recognized as safe (GRAS) [21 CFR 184.1138]. 2. Magnesium chloride GRAS as a nutrient and/or dietary supplement [21 CFR 582.5446]. 3. Calcium sulfate used as a nutrient and/or dietary supplement in animal drugs, feeds, and related products is generally recognized as safe when used in accordance with good manufacturing or feeding practice [21 CFR 582.5230]. Calcium sulfate added directly to human food affirmed as generally recognized as safe [21 CFR 184.1230].
CERCLA:	Ammonium chloride CERCLA RQ = 5,000 pounds (2270 kg).
Clean Water Act:	Ammonium chloride designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharge of ammonium chloride [40 CFR 116.4; 7/1/88)
RCRA 261.33:	Not listed.
SARA Title III: (Exemptions at 40 CFR, Part 370 may apply for agricultural use, or quantities of less than 10,000 pounds on-site)	SARA 302: RQ: No; TPQ: No
	SARA 311/312: Acute: No; Chronic: No; Fire: No; Pressure: No; Reactivity: No
	SARA 313: No
TSCA:	All ingredients are listed in the TSCA Inventory
Proposition 65: (CA Health & Safety Code Section 25249.5)	Warning: This product contains substances that are known to the State of California to cause cancer and/or reproductive harm.
NTP, IARC, OSHA:	This material has not been identified as a carcinogen by NTP, IARC, or OSHA.
Canada DSL:	This product is registered in Canada under the Feeds Act and is thus exempt from the New Substances Notification Requirements in the Canadian Environmental Protection Act (CEPA) per subsection 26(3).
Canada NDSL:	No
WHMIS:	This MSDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. OTHER INFORMATION

The information in this document is believed to be correct as of the date issued. **HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER**



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