



SECTION 1: CHEMICAL PRODUCT - COMPANY IDENTIFICATION

Agri Business Technologies Inc.
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PRODUCT: Granular Spike Mix
SUBSTANCE: Inorganic Micronutrient
TRADE NAMES: Fertilizer Micronutrient
SYNONYMS: Micronutrient
CHEMICAL FAMILY: Inorganic Mineral

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS, OSHA HAZARDOUS COMPONENTS

<u>COMPONENTS</u>	<u>wt. %</u>	<u>CAS NUMBER</u>	<u>EXPOSURE LIMITS 8 hrs. TWA (mg/m3)</u>	
			<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Calcium Sulfate	>5.0	10101-41-4	15 mg/m3	10 mg/m3
Sodium Calcium Borate	>5.0	1319-33-1	None	None
Manganese Oxide	>5.0	1344-43-9	5.0 mg Mn/m3	5.0mg Zn/m3
Zinc Oxide	>3.0	1314-13-2	1.0mg Zn/m3	1.0mg Zn/m3
Zinc Sulfate	<0.5	7446-19-7	1.0mg Zn/m3	1.0mg Zn/m3
Iron Oxide	>2.5	1332372	15 mg/m3	15 mg/m3
Silicon Dioxide	<3.0	60676-86-0	0.1(fused)	0.1
Magnesium Oxide	< 1.2	1309-48-4	10	10
Alumina	<0.5	1344-28-1	15(total) 5(respirable)	0.1
Potassium Oxide	<0.90	12136-45-7	NA	NA
Barium Oxide	<0.25	1304-28-5	0.5	0.5

DESCRIPTION: Dark brown, gray, black, non uniform course granules

MELTING POINT: 1070°C to 1245°C

BOILING POINT: Not applicable

SPECIFIC GRAVITY: (H2O=1): Variable

WATER SOLUBILITY: insoluble

SECTION 3: HAZARDS IDENTIFICATION

NFPA RATINGS: (SCALE 0-4): HEALTH=2, FIRE=0, REACTIVITY=0

EMERGENCY OVERVIEW: Avoid breathing dust. Avoid contact with eyes and skin. Avoid prolonged or repeated contact with skin. Avoid ingestion. Use with adequate ventilation. Wash thoroughly after handling.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EFFECTS: May be harmful if inhaled. May cause irritation of the nasal passages. Additional effects may include shortness of breath and asthma.

LONG TERM EFFECTS: May cause digestive disorders, loss of voice, headaches, difficulty in walking, joint pain, twitching, hearing loss and visual disturbances.

SKIN CONTACT:

Short Term Effects: Prolonged or repeated contact may cause irritation.

Long Term Effects: No information available on significant adverse effects.

EYE CONTACT:

Short Term Effects: Dust may cause irritation.

Long Term Effects: May cause redness and swelling of the eyes.

INGESTION:

Short Term Effects: May cause digestive disorders.

Long Term Effects: May cause irregular heartbeat and kidney damage.

CARCINOGEN STATUS: OSHA: No NTP: No IARC: No

SECTION 4: FIRST AID MEASURES

INHALATION: Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial resuscitation. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.

SKIN CONTACT: Wash skin with soap and water. Wash clothing before reuse. If irritation persists seek medical attention.

EYE CONTACT: Flush eyes immediately with large amounts of water or normal saline solution, occasionally lifting upper and lower lids until no evidence of chemical remains. Get medical attention immediately.

INGESTION: Ingestion of small amounts of airborne material in a dusty atmosphere does not represent a significant acute hazard. If vomiting occurs, keep head lower than hips to prevent aspiration. Treat symptomatically and supportively. Get medical attention immediately.

NOTE TO PHYSICIAN: Antidote: The antidote recommended is as for manganese poisoning from Dreisbach, Handbook of Poisoning, 12th Edition. However, the decision as to whether the severity of poisoning requires administration of any antidote and actual dose required should be made by a qualified medical personnel.

SECTION 5: FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARD: Heavy concentrations of dust in the air can be ignited. Keep all surfaces clean and free of dust buildup.

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray or regular foam. For larger fires use water spray, fog or regular foam (1996 North American Emergency Response Guidebook, RSPA P5800.7).

FIREFIGHTING: Move product from fire area if you can without risk. Extinguish fire using agent suitable for type of surrounding fire and/or chemicals. Do not use water directly on material. Avoid breathing vapors; keep upwind. Dike area to prevent runoff and contamination of water sources, if possible. Avoid breathing vapors or dust.

FLASH POINT: No data available

LOWER FLAMMABLE LIMIT: No data available

UPPER FLAMMABLE LIMIT: No data available

AUTOIGNITION: No data available

HAZARDOUS COMBUSTION PRODUCTS: Thermal decomposition may release toxic oxides of manganese and sulfur.

SECTION 6: ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL SPILL: Pick-up dry spills by scooping, shoveling or vacuuming and place into containers for later disposal. Wear protective equipment. Wash thoroughly after handling. Maintain adequate ventilation.

WATER SPILL: Remove spilled product from water body by dipping or other appropriate means. Avoid packing in sealed containers.

SECTION 7: HANDLING AND STORAGE

Avoid handling methods that generate dust buildup. Avoid inhalation of dust. Avoid contact with hydrochloric and/or nitric acid. Observe all federal, state and local regulations when storing this product.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

VENTILATION: Provide local exhaust ventilation system to meet published exposure limits.

EYE PROTECTION: Wear safety glasses with splash shields or safety goggles/shield to prevent contact with this product.

EMERGENCY WASH FACILITIES: Where there is any possibility that an employee's eyes and/or skin may be exposed to this product; the employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

CLOTHING: Wear long sleeved shirts, long pants and gloves to prevent repeated or prolonged skin contact with this product.

RESPIRATOR: The respirator selected must be based on contamination levels found in the work place and comply with 29 CFR 1910.134 OR CSA Standard Z94.4-M1982 for dust exposure that may exceed exposure limits. Respirators must be NIOSH and MSHA approved.

SECTION 9: STABILITY AND REACTIVITY

REACTIVITY: Stable under normal temperature and pressures

CONDITIONS TO AVOID: None known

INCOMPATIBILITIES: Acids (Strong): Incompatible

HAZARDOUS DECOMPOSITION: Thermal decomposition may release toxic oxides of iron, manganese, zinc and sulfur.

POLYMERIZATION: Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

SECTION 10: TOXICOLOGICAL INFORMATION

TOXICITY DATA):

LD50 (anhydrous): 332 mg/kg, intraperitoneal, mouse; mutagenic, reproductive effects, tumorigenic data-see Registry of Toxic Effects of Chemical Substances (RTECS) file. (monohydrate): mutagenic, reproductive effects data (RTECS). **LD50 (tetrahydrate):** 534 mg/kg, intraperitoneal, mouse; mutagenic data (RTECS).

CARCINOGEN STATUS: None.

ACUTE TOXICITY LEVEL: Insufficient data.

TARGET EFFECTS: No data available

HEALTH EFFECTS:

INHALATION:

ACUTE EXPOSURE: Exposure to the dust of manganese compounds may cause irritation of the mucous membranes with symptoms of coughing and shortness of breath. This material may be absorbed into the blood stream and deposited into the liver, spleen, brain and other organs where it accumulates. Symptomatic treatment: Corticosteroids, prophylactic for edema of the lungs.

CHRONIC EXPOSURE: Repeated exposure to the dust of manganese compounds anywhere from 3 months to 2 years, may produce chronic manganese poisoning. The early stage of this disease is insidious with symptoms of apathy, anorexia, asthenia, headache, hypersomnia, spasms, weakness of the legs, arthralgias and irritability. As the disease progresses into the intermediate phase, psychosis develops with symptoms of visual hallucinations, double vision, impaired hearing, uncontrollable impulses, mental confusion, and euphoria. In the last stage of the disease, neurological disturbances develop that simulate Parkinson's disease. These disturbances include excessive salivation, muscle weakness, muscle rigidity, tremor of upper extremities and head, and impaired gait. The severity of chronic manganese poisoning depends upon the length of exposure and the stage of the disease when exposure is terminated. The prognosis is more favorable in the young and in those with only a few years exposure. Chronic manganese poisoning is not a fatal disease but it can be extremely disabling.

SKIN CONTACT: Frequent or prolonged contact may irritate the skin and cause a skin rash (dermatitis).

EYE CONTACT: May cause irritation and conjunctivitis.

SECTION 11: TRANSPORT INFORMATION

DOT Shipping Name-ID Number: Non-regulated.