



SAFETY DATA SHEET

SDS REVISIONS: ALL SECTIONS DATE OF ISSUE: 06/22/2018

MICRO MIX

SUPERSEDES: 06/19/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product Name MICRO MIX

Other means of identification

Product Code FRT-00115
Document 1000362560 6-2-0
Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Foliar Nutrient. Soil Nutrient.
Uses advised against No information available

Details of the supplier of the safety data sheet

Manufacturer Address
LOVELAND PRODUCTS, INC.
P.O. Box 1286
Greeley, CO 80632-1286

Emergency telephone number

Company Phone Number 1-888-LPI-CUST (574-2878)
Emergency Telephone Chemtrec 1-800-424-9300
Medical Emergencies: 1-866-944-8565
US regulations require reporting spills of this material that could reach any surface waters.
The toll-free phone number for the US Coast Guard National Response Center is 1-800-424-8802

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 1 - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)

Label elements



Signal word DANGER

Hazard statements H314 - Causes severe skin burns and eye damage

Precautionary Statements - Prevention
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection



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Precautionary Statements - Response

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
 P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 P310 - Immediately call a POISON CENTER or doctor/physician
 P363 - Wash contaminated clothing before reuse

Precautionary Statements - Storage

P405 - Store locked up

Precautionary Statements - Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical Name	CAS No	Weight-%	GHS Classification	Trade Secret
Zinc Sulfate	7733-02-0	7 - 13	Acute Tox. 4 (H302) Eye Dam. 1 (H318) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	*
Ferrous Sulfate, Hepta	7720-78-7	3 - 7	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)	*
Phosphoric acid	7664-38-2	1 - 5	Skin Corr. 1B (H314)	*
Manganese Sulfate	10034-96-5	1 - 5		*
Sodium Borate	12008-41-2	1 - 5		*
Copper Sulfate, Mono	7758-99-8	0.1 - 1		*

*The exact percentage (concentration) of composition has been withheld as a trade secret.
 OSHA Hazard Communication 29 CFR 1910.1200



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4. FIRST AID MEASURES

Description of first aid measures

General advice	Get medical attention if symptoms occur.
Eye contact	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Skin contact	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Inhalation	Remove to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferable by mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
Ingestion	Call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.
Self-protection of the first aider	Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed. Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also call 1-866-944-8565 for emergency medical treatment information.

Note to physicians No specific antidote. Treat symptomatically.

Antidotes No data available

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing agent suitable for type of surrounding fire, Use CO₂, dry chemical, or foam

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective gear should be worn in fighting large fires involving chemicals. Use water spray to keep fire exposed containers cool. Keep people away. Isolate fire and deny unnecessary entry.



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6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing. Keep people away from and upwind of spill/leak.

Environmental precautions

Environmental precautions Do not allow into any sewer, on the ground or into any body of water. Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Soak up with inert absorbent material. Clean contaminated surface thoroughly. Dike far ahead of liquid spill for later disposal. Take up mechanically, placing in appropriate containers for disposal. Prevent product from entering drains. Dam up. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use personal protective equipment as required. Ensure adequate ventilation, especially in confined areas. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

Incompatible materials Incompatible with strong acids and bases. Incompatible with oxidizing agents.



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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Appropriate engineering controls

Engineering Controls Showers
 Eyewash stations
 Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Tight sealing safety goggles. Face protection shield.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection Dependent on job function. If vapors or dusts exceed acceptable levels, wear a MSHA/NIOSH approved air-purifying respirator with any cartridges/filters approved for pesticides. If respirators are used, a program should be in place to assure compliance with 29 CFR 1910.134, the OSHA Respiratory Protection Standard. Wear a supplied air respirator if exposure concentrations are unknown.

General Hygiene Considerations When using do not eat, drink or smoke. Wash contaminated clothing before reuse. Keep away from food, drink and animal feeding stuffs. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Take off all contaminated clothing and wash it before reuse. Wear suitable gloves and eye/face protection.



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9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Viscous liquid
Appearance	Liquid
Color	Dark brown
Odor	Slight Lignin
Odor threshold	No data available

<u>Property</u>	<u>Values (Remarks - Method)</u>
pH	1.5 (NEAT)
Melting point / freezing point	No data available
Boiling point	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Flammability Limit in Air	
Upper flammability limit:	No data available
Lower flammability limit:	No data available
Vapor pressure	No data available
Vapor density	No data available
Specific Gravity	1.234 g/ml
Water solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Dynamic viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

Other Information

VOC Content (%)	No data available
Density	10.30lbs/gal

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.



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10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Exposure to air or moisture over prolonged periods.

Incompatible materials

Incompatible with strong acids and bases. Incompatible with oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapors.



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11. TOXICOLOGICAL INFORMATION

Acute toxicity of the formulated product:

Chemical Name	Oral LD ₅₀	Dermal LD ₅₀	Inhalation LC ₅₀
Zinc Sulfate	= 1710 mg/kg (Rat)		
Ferrous Sulfate, Hepta	= 319 mg/kg (Rat)		
Phosphoric acid	= 1530 mg/kg (Rat)	= 2740 mg/kg (Rabbit)	> 850 mg/m ³ (Rat) 1 h
Sodium Borate	= 1000 mg/kg (Rat) = 2 g/kg (Rat)		
Copper Sulfate, Mono	= 960 mg/kg (Rat) = 300 mg/kg (Rat)	> 2 g/kg (Rat)	

Chemical Name	Skin corrosion/irritation	Eye damage/irritation	Respiratory sensitization	Skin sensitization
Zinc Sulfate 7733-02-0		Category 1		
Ferrous Sulfate, Hepta 7720-78-7	Category 2	Category 2		
Phosphoric acid 7664-38-2	Category 1			

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Chronic toxicity	Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Avoid repeated exposure. Possible risk of irreversible effects. May cause adverse effects on the bone marrow and blood-forming system. May cause adverse liver effects.
Target Organ Effects	blood, Central nervous system, Eye damage/irritation, Gastrointestinal tract (GI), kidney, liver, Respiratory system, Skin.
Aspiration hazard	No information available.

Information on likely routes of exposure

Product Information	No data available
Inhalation	No data available.
Eye contact	No data available.
Skin contact	No data available.
Ingestion	No data available.



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12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Zinc Sulfate 7733-02-0	EC50 0.056 mg/L 72 h Pseudokirchneriella subcapitata EC50 64.8 mg/L 72 h Chlorella vulgaris EC50 2.4 mg/L 96 h Chlorella vulgaris	LC50 0.162 mg/L 96 h Oncorhynchus mykiss LC50 0.03 - 0.05 mg/L 96 h Oncorhynchus mykiss LC50 0.34 - 0.93 mg/L 96 h Oncorhynchus mykiss LC50 0.218 - 0.42 mg/L 96 h Pimephales promelas LC50 0.06 mg/L 96 h Pimephales promelas LC50 0.23 - 0.48 mg/L 96 h Pimephales promelas LC50 49.23 - 64.16 mg/L 96 h Poecilia reticulata LC50 0.48 - 1.72 mg/L 96 h Poecilia reticulata LC50 0.168 - 0.25 mg/L 96 h Pimephales promelas LC50 0.15 mg/L 96 h Cyprinus carpio LC50 16.85 - 27.18 mg/L 96 h Cyprinus carpio LC50 3 - 4.6 mg/L 96 h Lepomis macrochirus LC50 3.55 - 6.32 mg/L 96 h Lepomis macrochirus LC50 0.63 mg/L 96 h Poecilia reticulata	EC50 0.75 mg/L 48 h Daphnia magna EC50 0.538 - 0.908 mg/L 48 h Daphnia magna
Ferrous Sulfate, Hepta 7720-78-7	-	LC50 0.56 mg/L 96 h Cyprinus carpio LC50 925 mg/L 96 h Poecilia reticulata	EC50 6.15 - 9.26 mg/L 48 h Daphnia magna EC50 152 mg/L 48 h Daphnia magna
Phosphoric acid 7664-38-2	-	LC50 3 - 3.5 mg/L 96 h Gambusia affinis	EC50 4.6 mg/L 12 h Daphnia magna
Sodium Borate 12008-41-2	EC50 162 mg/L 96 h Desmodesmus subspicatus	LC50 350 mg/L 96 h Limanda limanda	EC50 2528 mg/L 48 h Daphnia magna
Copper Sulfate, Mono 7758-99-8	-	LC50 0.66 - 1.15 mg/L 96 h Lepomis macrochirus LC50 0.96 - 1.8 mg/L 96 h Lepomis macrochirus LC50 0.1478 - 0.165 mg/L 96 h Oncorhynchus mykiss LC50 0.09 - 0.19 mg/L 96 h Oncorhynchus mykiss LC50 0.6752 mg/L 96 h Pimephales promelas	EC50 0.147 - 0.227 mg/L 48 h Daphnia magna

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes

This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).

Contaminated packaging

Do not reuse container.



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14. TRANSPORT INFORMATION

DOT

UN/ID no

Proper shipping name

U.S. Surface Freight Classification:

Not regulated

Not regulated

FERTILIZING COMPOUNDS (MANUFACTURED
FERTILIZERS), NOI, LIQUID (NMFC 68140, SUB 6; CLASS 70)



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15. REGULATORY INFORMATION

<u>NFPA</u>	Health hazards 3	Flammability 0	Instability 0	Physical and Chemical Properties - Personal protection X	
<u>HMIS</u>	Health hazards 3	Flammability 0	Physical hazards 0		
	0 - Least	1 - Slight	2 - Moderate	3 - High	4 - Severe

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Zinc Sulfate - 7733-02-0	1.0
Manganese Sulfate - 10034-96-5	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Zinc Sulfate 7733-02-0	1000 lb	X	-	X
Ferrous Sulfate, Hepta 7720-78-7	1000 lb	-	-	X
Phosphoric acid 7664-38-2	5000 lb	-	-	X
Copper Sulfate, Mono 7758-99-8	-	X	-	-

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Zinc Sulfate 7733-02-0	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ
Ferrous Sulfate, Hepta 7720-78-7	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ
Phosphoric acid 7664-38-2	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

US EPA Waste Number

D002

U.S. EPA Label Information



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16. OTHER INFORMATION

Prepared By Registrations and Regulatory Affairs

Reviewed By Safety, Health and Environment

Issue Date 06/22/2018

Revision Date 06/22/2018

Revision Note

16 SDS sections updated

MICRO MIX is a trademark of Loveland Products, Inc.

Disclaimer

This data sheet was developed from information on the constituent materials identified herein and does not relate to the use of such materials in combination with any other material or process. No warranty is expressed or implied with respect to the completeness or ongoing accuracy of the information contained in this data sheet, and LOVELAND PRODUCTS, INC. disclaims all liability for reliance on such information. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.

End of Safety Data Sheet