

1. Identification

1.1 Product identifier	Cavalier MIX
1.2 Synonym(s)	None
1.3 Relevant identified uses of the substance or mixture and uses advised against	
Intended use	Agriculture/Horticulture Use – Micronutrient Fertilizer
	Refer to product label.
Application Method	Refer to product label.
Restrictions on use	Refer to product label.
1.4 Details of the supplier of the safety data sheet	
Company Name	Chemurgic Agricultural Chemicals, Inc. P.O. Box 2106 Turlock, CA 95381
Company Phone Numbers	DAYS: (209) 634-2951; EVES: (209) 652-7260
EMERGENCY PHONE NUMBERS:	
24-Hour Emergency	INFOTRAC: 1-800-535-5053
Telephone Number	EPA National Response Center: (800) 424-8802

2. Hazard(s) identification

2.1 Classification of the substance or mixture

Physical Hazards	Not classified.	
Health Hazards	Eye damage/irritation:	Category 2A
	Acute Toxicity – Oral:	Category 4
	Specific Target Organ Toxicity (Repeated Exposure):	Category 2
Environmental Hazards	Hazardous to the aquatic environment, acute hazard:	Category 1
	Hazardous to the aquatic environment, long-term hazard:	Category 1
OSHA defined hazards	Not classified.	

2.2 GHS Label elements

Hazard symbols:



Signal word:

Warning

Hazard statements:

H319: Causes serious eye irritation.
H302: Harmful if swallowed.
H373: May cause damage to organs through prolonged or repeated exposure.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention:

P264: Wash thoroughly after handling.
P280: Wear eye/face protection.
P270: Do not eat, drink or smoke when using this product.
P260: Do not breathe mist or vapor.
P273: Avoid release to the environment.

Response: P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313: If eye irritation persists: Get medical advice/attention.
P301+P312: IF SWALLOWED: Call a Poison Center/doctor if you feel unwell.
P330: Rinse mouth.
P391: Collect Spillage.

Disposal: P501: Dispose of contents/container in accordance with local authority regulations.

2.3 Hazard(s) not otherwise classified (HNOC)
None known.

3. Composition/information on ingredients

Mixtures

Chemical Name	CAS Number	%
Zinc Sulfate, monohydrate	7446-19-7	20-30
Manganese Sulfate, monohydrate	10034-96-5	10-15
Ferrous Sulfate, heptahydrate	7782-63-0	5-10
Copper Sulfate, pentahydrate	7758-99-8	5-10
Magnesium Sulfate, heptahydrate	10034-99-8	20-25
Disodium Octaborate Tetrahydrate	12008-41-2	1-3

*Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First aid measures

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention.

Eyes Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Skin Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser. If skin irritation occurs, get medical advice/attention.

Ingestion Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Severe eye irritation. Prolonged exposure may cause chronic effects.

4.3 Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media:

Do not use water jet as an extinguisher, as this will spread the fire.

5.2 Specific hazards arising from the substance or mixture

During fire, gases hazardous to health may be formed.

5.3 Advice for fire-fighters

Firefighting instructions:

Move containers from fire area if you can do so without risk.

Protection during firefighting:

Wear self-contained breathing apparatus and full protective clothing.

Unusual Fire and Explosion Hazards:

None known.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate personal protective equipment and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Advise local authorities if significant spillage cannot be contained. For personal protective equipment, see section 8 of the SDS.

6.2. Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Large Spills: This material is classified as a water pollutant under the Clean Water Act. Prevent material from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Do not return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

7. Handling and storage

7.1. Precautions for safe handling

Do not breath mist or vapor. Do not get this material in contact with eyes. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Store in original container only. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS). Do not store near food or feeds.

8. Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	CAS #	Type	Value
Manganese Sulfate, monohydrate	10034-96-5	Ceiling	5 mg/m ³

US ACGIH Threshold Limit Values

Components	CAS #	Type	Value	Form
Disodium Octaborate, tetrahydrate	12008-41-2	STEL	6 mg/m ³	Inhalable fraction
Manganese Sulfate, monohydrate	10034-96-5	TWA	0.1 mg/m ³	Inhalable fraction
			0.02 mg/m ³	Respirable fraction

US NIOSH: Pocket Guide to Chemical Hazards

Components	CAS #	Type	Value	Form
Manganese Sulfate, monohydrate	10034-96-5	STEL	3 mg/m ³	Fume
		TWA	1 mg/m ³	Fume
Copper Sulfate, pentahydrate	7758-99-8	TWA	1 mg/m ³	Dust and mist

Biological limit values: No biological exposure limits noted for the ingredient(s).

8.2. Appropriate engineering control

Use good general ventilation (typically 10 air changes per hour). Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

8.3 Individual protection measures, such as personal protective equipment

Eye/face protection: Chemical respirator with organic vapor cartridge and full facepiece.

Skin protection:

Hand protection: Wear appropriate chemical resistant gloves.

Other: Wear suitable protective clothing. Use of an impervious apron is recommended.

Respiratory protection: Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards: Wear appropriate thermal protective clothing, when necessary.

Hygiene measures: Keep away from food and drink. Always observe good personal hygiene practices. Wash hands after handling the material and before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

9. Physical and chemical properties

Appearance	
Physical state	Solid.
Form	Solid. Crystal.
Color	Dark Brown Crystal.
Odor	Lignin Slightly Sweet
Odor threshold	N/A
pH	5.5 – 6.0, 1% solution at 23° C
Melting point/freezing point	Not available
Initial boiling point and boiling range	Not available
Flash point	Not available
Evaporation rate	Not available
Flammability (solid)	Not available
Upper/lower flammability or explosive limits	Not available
Vapor pressure	Not available
Vapor density	Not available
Relative density	Not available
Solubility(ies)	Not available
Partition coefficient n-octanol/water	Not available
Autoignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available

10. Stability and reactivity

- 10.1. Reactivity:** The product is stable and non-reactive under normal conditions of use, storage and transport.
- 10.2. Chemical stability:** Material is stable under normal conditions.
- 10.3. Possibility of hazardous reactions:** Hazardous polymerization does not occur.
- 10.4. Conditions to avoid:** Contact with incompatible materials.
- 10.5. Incompatible materials:** Brass or strong oxidizing agents.
- 10.6. Hazardous decomposition products:** No hazardous decomposition products are known.

11. Toxicological information

Information on toxicological effects

Acute Toxicity:	No data available.
Skin Corrosion/Irritation:	Prolonged skin contact may cause temporary irritation.
Serious Eye Damage/Irritation:	Causes serious eye irritation.
Respiratory Sensitization:	No data available.
Skin Sensitization:	No data available.
Germ cell mutagenicity:	No data available.
Carcinogenicity:	No data available.
Reproductive toxicity:	No data available.
Specific target organ toxicity (single exposure):	No data available.
Specific target organ toxicity	



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(repeated exposure):

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard:

No data available.

Likely routes of exposure

Ingestion:

Harmful if swallowed.

Inhalation:

Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure by inhalation.

Skin contact:

No data available.

Eye contact:

Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics:

Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Severe eye irritation.

12. Ecological information

12.1. Ecotoxicity: Very toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability: Data not available

12.3. Bio-accumulative potential: Data not available

12.4. Mobility in soil: Data not available

12.5. Other adverse effects: No other adverse environmental effects are expected from this component.

13. Disposal considerations

13.1. Waste treatment methods

Disposal instructions: Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national regulations.

Waste from residues/unused products: Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. Dispose of this material and its container in a safe manner (see "Disposal instructions").

Contaminated packaging: Take empty container to an approved waste handling site for recycling or disposal. Follow all label warnings even after container is emptied since it may retain product residue.

14. Transport information

Not DOT regulated in domestic (USA ground) transportation in package sizes not exceeding the Reportable Quantity (RQ) values. See DOT requirements.

15. Regulatory information

15.1 US Federal regulations

OSHA: This material is NOT known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard (29 CFR 1910.1200).



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TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

All components of this material are either listed or exempt from listing on the TSCA inventory.

CERCLA Hazardous Substance List (40 CFR 302.4)

Ferrous Sulfate (CAS No. 7782-63-0): Listed.

Manganese Sulfate, monohydrate (CAS No. 10034-96-5): Listed.

Zinc Sulfate (CASE No. 7446-19-7): Listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

SARA 304 Emergency release notification

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA) Hazard Categories:

Immediate Hazard - Yes

Delayed Hazard - Yes

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical: No

SARA 313 (TRI reporting)

Chemical name	CAS number
Zinc Sulfate	7446-19-7
Manganese Sulfate, monohydrate	10034-96-5

15.2 Other Federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Manganese Sulfate, monohydrate (CAS No. 10034-96-5)

15.3 US State regulations

U.S. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

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