

# SAFETY DATA SHEET

## KEYLATE MICRO MIX

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Revision: 10/31/2018  
Supersedes Revision: 03/15/2016

### 1. Product and Company Identification

**Product Code:** Z-KEYMICROMIX  
**Product Name:** KEYLATE MICRO MIX  
**Trade Name:** KEYLATE MICRO MIX  
**Company Name:** Stoller  
9090 Katy Freeway  
Suite 400  
Houston, TX 77024  
**Phone Number:**  
1 (713)461-1493  
**Web site address:** www.stollerusa.com  
**Email address:** compliance@stollerusa.com  
**Emergency Contact:** CHEMTREC, In the US and Canada call 1 (800)424-9300  
CHEMTREC, From other countries call +1 (703)527-3887  
**Information:** 1 (800)539-5283  
**Intended Use:** For agricultural use only  
**Synonyms:** Chelated micronutrient solution.

### 2. Hazards Identification

**Acute Toxicity: Inhalation, Category 5**

**Acute Toxicity: Oral, Category 4**

**Serious Eye Damage/Eye Irritation, Category 2B**

**Acute Toxicity: Skin, Category 5**

**Aquatic Toxicity (Acute), Category 1**



**GHS Signal Word:** **Warning**

**GHS Hazard Phrases:**

H302 - Harmful if swallowed.  
H313 - May be harmful in contact with skin.  
H320 - Causes eye irritation.  
H333 - May be harmful if inhaled.  
H400 - Very toxic to aquatic life.

**GHS Precautionary Phrases:** P264 - Wash hands thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P273 - Avoid release to the environment.

**GHS Response Phrases:** P301+312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  
P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.  
P330 - Rinse mouth.  
P337+313 - If eye irritation persists, get medical advice/attention.  
P391 - Collect spillage.

**GHS Storage and Disposal Phrases:** P501 - Dispose of contents/container to permitted waste facility.

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<b>Potential Health Effects (Acute and Chronic):</b>	Acute: Depending on the duration of contact, overexposure can irritate the eyes, skin, mucous membranes and any other exposed tissue. Chronic: Not known. Expected toxicity hazard: slight.
<b>Inhalation:</b>	Prolonged exposure to low concentrations of vapors may cause irritation to throat and upper respiratory tract, headache, nausea, dizziness, and even unconsciousness.
<b>Skin Contact:</b>	May be harmful if absorbed through the skin. Prolonged and/or repeated contact may cause irritation and/or dermatitis.
<b>Eye Contact:</b>	Contact with product may cause redness, slight to severe eye irritation.
<b>Ingestion:</b>	Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. The toxicological properties of this substance have not been fully investigated.

### 3. Composition/Information on Ingredients

CAS #	Components (Chemical Name)	Concentration	RTECS #
1314-13-2	Zinc oxide	< 5.0 %	ZH4810000
17863-38-6	ethanol, 2-amino-2-hydroxy-1,2,3-propanetricarboxylate	<35.0 %	NA
7758-99-8	Copper(II) sulfate	< 4.0 %	GL8900000
7758-94-3	Ferrous chloride	< 5.0 %	NO5400000
10026-24-1	Cobalt sulfate heptahydrate	1.0 %	GG3200000
10043-35-3	Boric acid	<10.0 %	ED4550000
7773-01-5	Manganese chloride	< 5.0 %	OO9625000
7447-39-4	Cupric chloride	< 0.2 %	GL7000000

### 4. First Aid Measures

<b>Emergency and First Aid Procedures:</b>	Victims of severe exposure to chemicals must be taken to health providing centers for medical attention. Always bring with victim a copy of label and SDS of product to health professional.
<b>In Case of Inhalation:</b>	Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
<b>In Case of Skin Contact:</b>	Wipe off product and immediately wash affected area with abundant soap and water. Remove contaminated clothing taking care not to impregnate eyes. Seek medical attention if irritation occurs. Wash clothing before reuse.
<b>In Case of Eye Contact:</b>	Hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
<b>In Case of Ingestion:</b>	Immediately contact a physician or poison control center for treatment advice. Victim should drink milk, egg whites or large quantities of water and be induced to vomiting. Never give anything by mouth to someone who is unconscious, having convulsions or unable to swallow.
<b>Signs and Symptoms Of Exposure:</b>	To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
<b>Note to Physician:</b>	Treat symptomatically and supportively.

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### 5. Fire Fighting Measures

<b>Flash Pt:</b>	N.A.
<b>Explosive Limits:</b>	LEL: N.A. UEL: N.A.
<b>Autoignition Pt:</b>	N.A.
<b>Suitable Extinguishing Media:</b>	Use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam. Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.
<b>Unsuitable Extinguishing Media:</b>	None known.
<b>Fire Fighting Instructions:</b>	As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
<b>Flammable Properties and Hazards:</b>	Toxic fumes may be generated under fire conditions.
<b>Hazardous Combustion Products:</b>	None known.

### 6. Accidental Release Measures

<b>Protective Precautions, Protective Equipment and Emergency Procedures:</b>	<p>In case of a large spill, clear the affected area and protect people. Such releases should be responded to by trained personnel using pre-planned procedures.</p> <p>In the event of an incidental release, minimum Personal Protective Equipment must be worn: latex or rubber gloves and rubber boots, goggles or full face-shield and coveralls or long-sleeved shirt and pants. In case of a large spill, protect people by clearing and isolating the affected area.</p>
<b>Environmental Precautions:</b>	Do not allow to enter drains or waterways.
<b>Steps To Be Taken In Case Material Is Released Or Spilled:</b>	<p>It is necessary to contain the spill into the smallest area possible by diking, scooping, etc., and place liquid into an appropriate container, labeling it accordingly. If product is clean, use it as intended, following original label directions; should it get dirty or contaminated, salvage for proper disposal as waste.</p> <p>Absorb residual product onto dry carrier such as dirt, sand or any other absorbent material, then put in covered, labeled containers and dispose of as dry waste in accordance with Federal, State and Local waste disposal regulations.</p>

### 7. Handling and Storage

<b>Precautions To Be Taken in Handling:</b>	Use with adequate ventilation. Avoid breathing dust, mist, or vapor. Avoid contact with eyes, skin, or clothing. Avoid ingestion and inhalation. Empty containers may contain residual liquid or vapors and therefore should be handled the same as full containers.
<b>Precautions To Be Taken in Storing:</b>	Inspect all incoming containers before storage to ensure all are properly labeled and not damaged. Keep containers tightly closed when not in use. Store in a cool, dry place, away from direct sunlight, sources of intense heat or where freezing is possible. Store away from food, feed, clothing materials and living quarters. Whenever possible, place chemicals on secondary containers or diked area. Store a maximum of three pallets high; do not stack pallets. Store Keylate Micronutrients in fiberglass, polyethylene or polyolefin.

### 8. Exposure Controls/Personal Protection

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
1314-13-2	Zinc oxide	PEL: 5 mg/m <sup>3</sup> (fume); 15 mg/m <sup>3</sup>	TLV: 2 mg/m <sup>3</sup> (resp.) STEL: 10 mg/m <sup>3</sup> (resp.)	No data.
17863-38-6	ethanol, 2-amino-2-hydroxy-1,2,3-propanetricarboxylate	No data.	No data.	No data.

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7758-99-8	Copper(II) sulfate	No data.	TLV: 1 mg/m <sup>3</sup> as Cu	No data.
7758-94-3	Ferrous chloride	No data.	TLV: 1 mg/m <sup>3</sup> as Fe	No data.
10026-24-1	Cobalt sulfate heptahydrate	No data.	TLV: 100 mg/m <sup>3</sup> as Co	No data.
10043-35-3	Boric acid	No data.	TLV: 2 mg/m <sup>3</sup> STEL: 6 mg/m <sup>3</sup>	No data.
7773-01-5	Manganese chloride	CEIL: 5 mg/m <sup>3</sup>	TLV: 0.2 mg/m <sup>3</sup> as Mn	No data.
7447-39-4	Cupric chloride	No data.	No data.	No data.

### Recommended Exposure Limits:

No occupational exposure limits have been established for this mixture.

### Respiratory Equipment (Specify Type):

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use. If the respirator is the sole means of protection, use a full-face supplied air respirator.

### Eye Protection:

Face shield and safety glasses. Safety glasses. Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Protective Gloves:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

### Other Protective Clothing:

This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers.

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear long sleeve shirt, long pants, and protective shoes with socks.

### Engineering Controls (Ventilation etc.):

General ventilation is usually adequate. Local exhaust should be used if needed for safe, comfortable working conditions. An eye bath and washing facilities should be readily available.

### Work/Hygienic/Maintenance Practices:

Handle in accordance with good industrial hygiene and safety practice. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove all dirty or contaminated clothing and wash it before reusing, as well as any other PPE.

### Environmental Exposure Controls:

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment wash water.

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### 9. Physical and Chemical Properties

<b>Physical States:</b>	[ ] Gas [ X ] Liquid [ ] Solid
<b>Appearance and Odor:</b>	Dark green color. No perceptible odor.
<b>pH:</b>	8 - 10
<b>Freezing Point:</b>	N.E.
<b>Boiling Point:</b>	N.A.
<b>Flash Pt:</b>	N.A.
<b>Evaporation Rate:</b>	N.E.
<b>Flammability (solid, gas):</b>	Product is non-flammable.
<b>Explosive Limits:</b>	LEL: N.A. UEL: N.A.
<b>Vapor Pressure (vs. Air or mm Hg):</b>	N.E.
<b>Vapor Density (vs. Air = 1):</b>	N.E.
<b>Specific Gravity (Water = 1):</b>	1.22 - 1.26
<b>Density:</b>	~ 10.4 LB/GA
<b>Solubility in Water:</b>	Soluble
<b>Saturated Vapor Concentration:</b>	N.E.
<b>Octanol/Water Partition Coefficient:</b>	N.E.
<b>Percent Volatile:</b>	N.A.
<b>Autoignition Pt:</b>	N.A.
<b>Decomposition Temperature:</b>	N.E.
<b>Viscosity:</b>	N.E.

### 10. Stability and Reactivity

<b>Reactivity:</b>	N.A.
<b>Stability:</b>	Unstable [ ] Stable [ X ]
<b>Conditions To Avoid - Instability:</b>	Stable under normal condition, but avoid extreme heat and contact with incompatible materials.
<b>Incompatibility - Materials To Avoid:</b>	Strong oxidizing agents.
<b>Hazardous Decomposition or Byproducts:</b>	Hazardous decomposition products formed under fire conditions. Carbon oxides, nitrogen oxides (NOx), toxic fumes of zinc oxide.
<b>Possibility of Hazardous Reactions:</b>	Will occur [ ] Will not occur [ X ]
<b>Conditions To Avoid - Hazardous Reactions:</b>	None known.

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### 11. Toxicological Information

<b>Toxicological Information:</b>	<p>Mutagenicity: This product has not been investigated for mutagenic effects.</p> <p>Embryotoxicity: This product has not been investigated for embryotoxic effects.</p> <p>Teratogenicity: This product has not been investigated for teratogenic effects.</p> <p>Reproductive Toxicity: This product has not been investigated for toxic reproductive effects.</p> <p>CAS# 1314-13-2: Acute toxicity, TCLo, Inhalation, Human, 600.0 MG/M3. Result: Lungs, Thorax, or Respiration: Cough. Lungs, Thorax, or Respiration:Dyspnea. Lungs, Thorax, or Respiration:Other changes. ; Journal of Industrial Hygiene., For publisher information, see AEHLAU, Cambridge, MA, Vol/p/yr: 9,88, 1927</p> <p>Acute toxicity, LD50, Oral, Mouse, 7950. MG/KG. Result: Kidney, Ureter, Bladder:Urine volume increased. Nutritional and Gross Metabolic: Changes in: Sodium. Nutritional and Gross Metabolic:Changes in:K. ; Gigiena i Sanitariya, Mezhdunarodnaya Kniga, ul. B. Yakimanka, 39, 113095, Moscow 113095 Russia, Vol/p/yr: 51(4),89, 1986</p> <p>CAS# 7758-99-8: Acute toxicity, LD50, Oral, Rat, 300.0 MG/KG. Result: Behavioral: Altered sleep time (including change in righting reflex). Behavioral: Change in motor activity (specific assay). Behavioral: Antipsychotic. ; "Agricultural Chemicals," 1976/77 revision, Thomson, W.T., 4 vols., Thomson Publications, Fresno, CA, Vol/p/yr: 2,182, 1977</p> <p>CAS# 7758-94-3: Acute toxicity, LD50, Intraperitoneal, Mouse, 59.00 MG/KG. Result: Behavioral: Changes in psychophysiological tests. ; Naunyn-Schmiedeberg's Archiv fuer Experimentelle Pathologie und Pharmakologie., Vol/p/yr: 244,17, 1962</p> <p>CAS# 10026-24-1: Acute toxicity, LD50, Oral, Rat, 582.0 MG/KG. Result: Behavioral: Somnolence (general depressed activity). Behavioral: Ataxia.</p> <p>Gastrointestinal:Hypermotility, diarrhea. ; Acute Toxicity Data. Journal of the American College of Toxicology, Part B., Mary Ann Liebert, Inc., 1651 Third Ave., New York, NY 10128, Vol/p/yr: 1,688, 1992</p> <p>CAS# 10043-35-3: Acute toxicity, LD50, Oral, Rat, 2660. MG/KG. Result: Gastrointestinal:Hypermotility, diarrhea. Gastrointestinal:Nausea or vomiting. ; Journal of the American Medical Association, American Medical Association, 535 N. Dearborn St., Chicago, IL 60610, Vol/p/yr: 128,266, 1945</p>
<b>Irritation or Corrosion:</b>	No data available.
<b>Symptoms related to Toxicological Characteristics:</b>	No data available.
<b>Sensitization:</b>	The sensitizing properties of this product have not been thoroughly investigated.
<b>Chronic Toxicological Effects:</b>	No data available.
<b>Carcinogenicity/Other Information:</b>	The carcinogenic properties of this product have not been thoroughly investigated.
<b>Carcinogenicity:</b>	NTP? No IARC Monographs? No OSHA Regulated? No

### 12. Ecological Information

<b>General Ecological Information:</b>	No environmental impact studies have been performed with this product. The available data on this plant nutrient material does not indicate any undue hazard to the environment under anticipated use and storage. All work practices must be aimed at preventing environmental contamination. Any waste due to spillage or leakage should be contained and disposed of accordingly, see above under Section 6 "Accidental Release Measures."
<b>Results of PBT and vPvB assessment:</b>	No data available.

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**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** No data available.

### 13. Disposal Considerations

**Waste Disposal Method:** This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local waste regulatory authority. Dispose of empty container in a sanitary landfill or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. Avoid contaminating water by disposal of equipment wash waters or other product wastes.

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

### 14. Transport Information

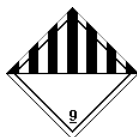
#### LAND TRANSPORT (US DOT):

**DOT Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N. O. S. (Contains Cupric Sulfate) CLASS 9, PG, III, Marine Pollutant, RQ.

**DOT Hazard Class:** 9 CLASS 9

**UN/NA Number:** UN3082

**Packing Group:** III



#### MARINE TRANSPORT (IMDG/IMO):

**IMDG/IMO Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N. O. S. (Contains Cupric Sulfate) CLASS 9, PG, III, Marine Pollutant, RQ.

**UN Number:** 3082

**Packing Group:** III

**Hazard Class:** 9 - CLASS 9

**IMDG MFAG Number:**

**IMDG EMS Page:**

**Marine Pollutant:** Yes - Serious

#### AIR TRANSPORT (ICAO/IATA):

**ICAO/IATA Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N. O. S. (Contains Cupric Sulfate) CLASS 9, PG, III, Marine Pollutant, RQ.

**UN Number:** 3082

**Packing Group:** III

**Hazard Class:** 9 - CLASS 9

**Additional Transport Information:** Placards / Markings: N.A.

Emergency Response Guide Number: N.A.

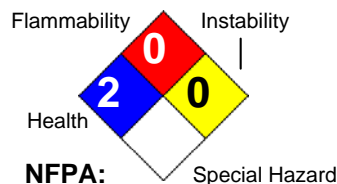
Reportable Quantity: N.A.

## 15. Regulatory Information

## 16. Other Information

**Revision Date:** 10/31/2018

**Hazard Rating System:**



**Additional Information About** No data available.

**This Product:**

**Company Policy or**

**Disclaimer:**

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