

KEYLATE SUPER STARTER 4-1-1-1

Revision: 04/28/2020

Supersedes Revision: 10/31/2018

1. Product and Company Identification

| | | |
|---------------------------|--|---|
| Product Code: | Z-KEYSS | |
| Product Name: | KEYLATE SUPER STARTER 4-1-1-1 | |
| Trade Name: | KEYLATE SUPER STARTER 4-1-1-1 | |
| 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 CHEMTREC, From other countries call | 1 (800)424-9300 +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



| | |
|--|--|
| 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. |
| GHS Precautionary Phrases: | P264 - Wash hands thoroughly after handling. P270 - Do not eat, drink or smoke when using this product. |
| 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. |
| GHS Storage and Disposal Phrases: | P501 - Dispose of contents/container to permitted waste facility. |
| Potential Health Effects (Acute and Chronic): | 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. |
| Inhalation: | Prolonged exposure to low concentrations of vapors may cause irritation to throat and upper respiratory tract, headache, nausea, dizziness, and even unconsciousness. |
| Skin Contact: | May be harmful if absorbed through the skin. Prolonged and/or repeated contact may cause irritation and/or dermatitis. |
| Eye Contact: | Contact with product may cause redness, slight to severe eye irritation. |
| Ingestion: | Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and |

KEYLATE SUPER STARTER 4-1-1-1

Revision: 04/28/2020

Supersedes Revision: 10/31/2018

diarrhea. The toxicological properties of this substance have not been fully investigated.

3. Composition/Information on Ingredients

| CAS # | Components (Chemical Name) | Concentration | RTECS # |
|------------|---|---------------|-----------|
| 1344-43-0 | Manganese oxide | < 2.0 % | OP0900000 |
| 1314-13-2 | Zinc oxide | < 5.0 % | ZH4810000 |
| 1309-48-4 | Magnesium oxide (MgO) | < 2.0 % | OM3850000 |
| 17863-38-6 | ethanol, 2-amino-2-hydroxy-1,2,3-propanetricarboxylate | <35.0 % | NA |
| 7758-99-8 | Copper(II) sulfate | < 5.0 % | GL8900000 |

4. First Aid Measures

| | |
|--|--|
| Emergency and First Aid Procedures: | 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. |
| In Case of Inhalation: | 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. |
| In Case of Skin Contact: | 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. |
| In Case of Eye Contact: | Hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. |
| In Case of Ingestion: | 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. |
| Signs and Symptoms Of Exposure: | To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds. The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11 |
| Note to Physician: | Treat symptomatically and supportively. |

5. Fire Fighting Measures

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

KEYLATE SUPER STARTER 4-1-1-1

Revision: 04/28/2020

Supersedes Revision: 10/31/2018

Hazardous Combustion None known.**Products:****6. Accidental Release Measures****Protective Precautions, Protective Equipment and Emergency Procedures:** 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.

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.

Environmental Precautions: Do not allow to enter drains or waterways.**Steps To Be Taken In Case Material Is Released Or Spilled:** 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.

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.

7. Handling and Storage**Precautions To Be Taken in Handling:** 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.**Precautions To Be Taken in Storing:** 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 pails 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 |
|------------|---|---|--|--------------|
| 1344-43-0 | Manganese oxide | CEIL: 5 mg/m ³ | TLV: 5 mg/m ³ as Mn | No data. |
| 1314-13-2 | Zinc oxide | PEL: 5 mg/m ³ (fume); 15 mg/m ³ | TLV: 2 mg/m ³ (resp.) STEL: 10 mg/m ³ (resp.) | No data. |
| 1309-48-4 | Magnesium oxide (MgO) | PEL: 15 mg/m ³ (particulate) | TLV: 10 mg/m ³ (Inhalation) | No data. |
| 17863-38-6 | ethanol, 2-amino-2-hydroxy-1,2,3-propanetricarboxylate | No data. | No data. | No data. |
| 7758-99-8 | Copper(II) sulfate | No data. | TLV: 1 mg/m ³ as Cu | No data. |

Recommended Exposure Limits: No occupational exposure limits have been established for this mixture.

KEYLATE SUPER STARTER 4-1-1-1

Revision: 04/28/2020

Supersedes Revision: 10/31/2018

| | |
|---|--|
| 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. 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. |
| Other Protective Clothing: | 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. |

9. Physical and Chemical Properties

| | |
|---|---|
| Physical States: | [] Gas [X] Liquid [] Solid |
| Appearance and Odor: | Blue-green color. No perceptible odor. |
| pH: | 7.3 - 9.3 |
| Freezing Point: | N.E. |
| Boiling Point: | N.A. |
| Flash Pt: | N.A. |
| Evaporation Rate: | N.E. |
| Flammability (solid, gas): | Product is non-flammable. |
| Explosive Limits: | LEL: N.A. UEL: N.A. |
| Vapor Pressure (vs. Air or mm Hg): | N.E. |
| Vapor Density (vs. Air = 1): | N.E. |
| Specific Gravity (Water = 1): | 1.27 - 1.31 |
| Density: | ~ 10.8 LB/GA |
| Solubility in Water: | Soluble |
| Saturated Vapor Concentration: | N.E. |

KEYLATE SUPER STARTER 4-1-1-1

Revision: 04/28/2020

Supersedes Revision: 10/31/2018

| | |
|--------------------------------------|------|
| Octanol/Water Partition Coefficient: | N.E. |
| Percent Volatile: | N.A. |
| Autoignition Pt: | N.A. |
| Decomposition Temperature: | N.E. |
| Viscosity: | N.E. |

10. Stability and Reactivity

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

11. Toxicological Information

| | |
|---|---|
| Toxicological Information: | <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# 1344-43-0: Acute toxicity, LD50, Subcutaneous, Mouse, 1.000 GM/KG. Result: Kidney, Ureter, Bladder:Urine volume increased. Kidney, Ureter, Bladder:Other changes in urine composition. Nutritional and Gross Metabolic: Changes in: Sodium. ; Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva im. D.I. Mendeleeva. Journal of the D.I. Mendeleeva All-Union Chemical Society., V/O Mezhdunarodnaya Kniga, 113095, Moscow USSR, Vol/p/yr: 19,186, 1974</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> |
| Irritation or Corrosion: | No data available. |
| Symptoms related to Toxicological Characteristics: | No data available. |
| Sensitization: | The sensitizing properties of this product have not been thoroughly investigated. |

KEYLATE SUPER STARTER 4-1-1-1

Revision: 04/28/2020

Supersedes Revision: 10/31/2018

| | |
|---|--|
| Chronic Toxicological Effects: | No data available. |
| Carcinogenicity/Other Information: | The carcinogenic properties of this product have not been thoroughly investigated. |
| Carcinogenicity: | NTP? No IARC Monographs? No OSHA Regulated? No |

12. Ecological Information

| | |
|--|---|
| General Ecological Information: | 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." |
| Results of PBT and vPvB assessment: | No data available. |
| 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: Not Regulated. Trade Name: KEYLATE SUPER STARTER 4-1-1-1

DOT Hazard Class:

UN/NA Number:

MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Not Regulated. Trade Name: KEYLATE SUPER STARTER 4-1-1-1

UN Number:

Packing Group:

Hazard Class:

AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not Regulated. Trade Name: KEYLATE SUPER STARTER 4-1-1-1

UN Number:

Packing Group:

Hazard Class:

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

Emergency Response Guide Number: N.A.

Reportable Quantity: N.A.

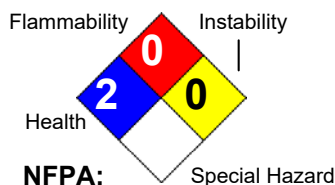
15. Regulatory Information

Regulatory Information: TSCA Inventory: In compliance with inventory requirements for commercial purposes.

16. Other Information

Revision Date: 04/28/2020

Hazard Rating System:



Additional Information About This Product: No data available.

Company Policy or Disclaimer:

Stoller believes the information contained in this Safety Data Sheet is accurate based on the information provided by reputable suppliers of our raw materials. However, Stoller does not guarantee their accuracy or completeness. The information contained herein is furnished without warranty of any kind, whether expressed or implied, as to the safety of the goods, the merchantability of the goods, or the fitness of the goods for any particular purpose. Users should consider these data only as a supplement to other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers. Stoller assumes no responsibility for results obtained or for incidental or consequential damages arising from the use of goods and data.