# Magruder 240341

## 12-40-0 MAP + Zn

*results due April 15, 2024*

Guaranteed Analysis

Total Nitrogen (N) ..... 12 %
12 % Ammoniacal Nitrogen (N)
Available Phosphate ($P_2O_5$) ..... 40 %
Total Sulfur (S) ..... 10 %
10% Sulfate Sulfur
Zinc (Zn) ..... 1 %

Derived from: Monoammonium Phosphate, Ammonium Sulfate, Sulfur, Zinc compounds

*Also analyze for:*

As (ppm), Cd (ppm), Cr (ppm), Co (ppm), Pb (ppm), Hg (ppm), Mo (ppm), Ni (ppm), Se (ppm), Cu (%)

*The units above are those required for reporting data from this Magruder sample. They may not be the units required on a commercial fertilizer label.*

*Note: This Magruder Check Sample material* is not to be used *in the manufacture of products nor applied to any crops or for other fertilizer uses. It is intended for analytical testing purposes only.*

**SDS for this product can be found at:**
http://www.magrudercheckssample.org/SDS/240341GuarSDS.pdf

# SDS for Magruder 240341

| SECTION 1 | PRODUCT AND COMPANY IDENTIFICATION |
|---|---|
| Trade Name: | MicroEssentials® SZ® / MESZ® |
| Chemical Name: | Monoammonium Phosphate with Ammonium Sulfate and Sulfur and Zinc |
| CAS Number: | 7722-76-1 |
| Chemical Family: | Ammonium Phosphates—Inorganic Salts |
| Synonyms: | Monoammonium Phosphate + Sulfur and Zinc<br>Monobasic Ammonium Phosphate + Sulfur and Zinc<br>Ammonium Dihydrogen Phosphate + Sulfur and Zinc<br>MAP + S + Z<br>Ammonium Dihydrogen Orthophosphate<br>MESZ®<br>MES® |
| Primary Use: | Crop nutrient |
| Company Information: | **The Mosaic Company**<br>101 East Kennedy Blvd, Ste 2500<br>Tampa, FL 33602<br>www.mosaicco.com<br>(800) 918-8270 or (813) 775-4200 8 AM to 5 PM Eastern Time USA |
| Emergency Telephone: | **EMERGENCY OVERVIEW**<br>**24 Hour Emergency Telephone Number:**<br>**For Chemical Emergencies:**<br>**Spill, Leak, Fire or Accident**<br>**Call CHEMTREC**<br>**North America: (800) 424-9300 (reference CCN201871)**<br>**Others: (703) 527-3887 (collect)** |

| SECTION 2 | HAZARD IDENTIFICATION | |
|---|---|---|
| GHS Classification: | Acute Toxicity Oral Category 5<br>Skin Irritant Category 2<br>Eye Irritant Category 2B<br>STOT SE Category 3 | Hazard Statement H303<br>Hazard Statement H315<br>Hazard Statement H320<br>Hazard Statement H335 |
|  | **Signal Word: WARNING**<br>**Hazard Statement(s)**<br>H303: May be harmful if swallowed<br>H315: Causes skin irritation<br>H320: Causes eye irritation<br>H335: May cause respiratory irritation | |
| Label Elements: | | |
| Prevention: | P264: Wash hands thoroughly after handling.<br>P280: Wear protective gloves<br>P261: Avoid breathing dust<br>P271: Use only outdoors or in a well-ventilated area. | |
| Response: | P302+ P352 | IF ON SKIN: Wash with plenty of water. |
| | P321 | Specific Treatment, see supplemental first aid information. |
| | P332+ P313 | If skin irritation occurs: Get medical advice/attention. |
| | P362+ P364 | Take off contaminated clothing and wash it before reused. |

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| | 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. |
| | P304+ P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| | P312 | Call a POISON CENTER. |
| Storage: | Not applicable | Not applicable |
| Disposal: | P501 | Disposal of content/containers to be in accordance with local/regional/national regulations. |

| SECTION 3 | COMPOSITION INFORMATION ON INGREDIENTS | | | |
|---|---|---|---|---|
| Formula: | Proprietary | | | |
| Composition: | Monobasic Ammonium Phosphate<br>Ammonium Sulfate<br>Sulfur<br>Zinc Compounds (Proprietary) | CAS 7722-76-1<br>CAS 7783-20-2<br>CAS 7704-34-9<br>Proprietary | 75-78%<br>12-15%<br>4-6%<br>1.2-2.0% | Acute Toxicity Oral Category 5<br>Skin Irritant Category 2<br>Eye Irritant Category 2B<br>STOT SE 3 (Lungs, Inhalation) |

| SECTION 4 | FIRST AID MEASURES | |
|---|---|---|
| First Aid Procedures: | Eyes: | Move victim away from exposure and into fresh air. Flush eyes with plenty of clean water for at least 15 minutes. If symptoms persist, seek medical attention. |
| | Skin: | Wash contaminated area thoroughly with mild soap and water. If chemical or solution soaks through clothing, remove clothing and wash contaminated skin. If irritation develops and persists after washing, seek medical attention. |
| | Inhaled: | If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. |
| | Ingestion: | If large amounts are swallowed, seek emergency medical attention. If possible, do not leave victim unattended and observe closely for adequacy of breathing. |
| Note to Physician: | If person has been exposed to concentrated decomposition products, treat symptomatically and watch for delayed symptoms of pulmonary edema. | |

| SECTION 5 | FIRE FIGHTING MEASURES |
|---|---|
| Extinguishing Media: | Use extinguishing agent suitable for type of surrounding fire. Avoid excessive water to minimize runoff. Prevent firefighter water from entering the environment.<br>Small fires: Water spray, foam, dry chemical or $CO_2$<br>Large fires: Water spray, fog or foam |
| Protection of Firefighters: | Positive pressure, self-contained breathing apparatus is required for all firefighting activities involving hazardous materials. |

| SECTION 6 | ACCIDENTAL RELEASE MEASURES |
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| Response Techniques: | Stay upwind and away from spill (dust hazard). Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). Prevent spilled material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways. Notify appropriate federal, state, and local agencies as may be required (see Section 15). Minimize dust generation. Sweep up and package appropriately for disposal. |

| SECTION 7 | HANDLING AND STORAGE |
|---|---|
| Handling: | The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Section 8). Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Wash contaminated clothing or shoes. Use good personal hygiene practices.<br><br>Avoid systems that would tend to segregate dust or any components of this product. Avoid accumulation of fugitive dust, as high concentrations of sulfur dust may present an explosion hazard. Follow standard safe-work practices, including hot-work procedures when working around this product. |
| Storage: | Use and store this material in dry, well-ventilated areas. Store only in approved containers. Keep container(s) tightly closed. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Material may absorb moisture from the air. |

| SECTION 8 | EXPOSURE CONTROLS / PERSONAL PROTECTION | |
|---|---|---|
| Engineering Controls: | Use process enclosure, general dilution ventilation or local exhaust systems where necessary to maintain airborne dust concentration below the OSHA standards or in accordance with applicable regulations. | |
| Personal Protective Equipment (PPE): | Eye/Face: | Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. |
| | Skin: | The use of cloth or leather work gloves is advised to prevent skin contact, possible irritation and absorption. |
| | Respiratory: | A NIOSH approved air purifying respirator with a type 95 (R or P) particulate filter may be used under conditions where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is potential for uncontrolled release, exposure levels are not known or any other circumstances where air purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed if workplace conditions warrant a respirator. |
| | Other: | A source of clean water should be available in the work area for flushing eyes and skin. |
| General Hygiene Considerations: | Wash thoroughly after handling<br>Use adequate ventilation | |

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| Exposure Guidelines: | OSHA Permissible Exposure Limits (PEL): | Particulates Not Otherwise Regulated:<br>5 mg/m$^3$ TWA (respirable);<br>15 mg/m$^3$ TWA (total)<br>Ammonia:<br>50 ppm (35 mg/m3) TWA<br>Sulfur: No Occupational Limits<br>Zinc:<br>5 mg/m$^3$ (respirable dust);<br>15 mg/m$^3$ (total dust) |
| | ACGIH Threshold Limit Value (TLV): | Particulates Not Otherwise Specified:<br>3 mg/m$^3$ TWA (respirable);<br>10 mg/m$^3$ TWA (inhalable)<br>Ammonia:<br>25 ppm (18 mg/m$^3$) TWA;<br>35 ppm (27 mg/m$^3$) STEL<br>Sulfur: No Occupational Limits<br>Zinc Oxide:<br>2 mg/m$^3$ (respirable);<br>10 mg/m$^3$ (respirable) |

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values in this section are determined at 20°C (68°F) and 760 mm Hg (1 atm).

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|---|---|---|---|
| Appearance: | Gray, tan, or brown granules | Vapor Pressure (mm Hg): | Not applicable |
| Odor: | Rotten egg-like or Slight ammonia odor | Vapor Density (air=1): | Not applicable |
| Odor Threshold: | No data available | Specific Gravity or Relative Density: | Not applicable |
| Physical state: | Solid | Bulk Density: | Loose 55 - 64 lbs/ft$^3$<br>(895 - 1025 kg/m$^3$) |
| pH: | 4.2 – 5.5 in a 1 w/v % | Solubility in Water: | 75% - 85% 300 g/L at 20°C |
| Melting Point/ Freezing Point: | Partial at 235°F (113°C) | Partition coefficient: | No data available |
| Boiling Point: | Not applicable | Auto-Ignition Temperature: | Not applicable |
| Flash Point: | Not applicable | Decomposition Temperature: | 374°F (190°C) |
| Evaporation Rate: | No data available | Viscosity: | No data available |
| Flammability: | Not applicable | Volatility: | Not applicable |
| Upper/Lower Flammability or explosive limits | Not applicable | | |

## SECTION 10 STABILITY AND REACTIVITY

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|---|---|
| Chemical Stability: | Stable under normal conditions of storage and handling. Decomposes at 374°F (190°C). |
| Conditions to Avoid: | Extreme temperatures, accumulation of dust. |
| Incompatible Materials: | Avoid contact with alkaline materials |
| Hazardous Decomposition Products: | If heated to the point of decomposition, oxides of phosphorus, nitrogen and/or sulfur (e.g., SO2) may be released, as well as ammonia vapor. |
| Corrosiveness: | May be corrosive to iron and mild steels, aluminum, zinc and copper |
| Hazardous Polymerization: | Will not occur |

| SECTION 11 | TOXICOLOGICAL INFORMATION | | |
|---|---|---|---|
| Substance: | Monoammonium Phosphate | | |
| Acute Oral Toxicity: | $LD_{50}$ (rat, oral) > 2000 mg/kg | | |
| Acute Inhalation Toxicity: | No data available | | |
| Acute Dermal Toxicity: | $LD_{50}$ (rat, dermal) > 5000 mg/kg | | |
| Substance: | Ammonium Sulfate | | |
| Acute Oral Toxicity: | $LD_{50}$ (rat, oral) > 2000 to 4250 mg/kg<br>$LD_{50}$ (mouse, oral) > 640 to 4250 mg/kg | | |
| Acute Inhalation Toxicity: | No data available | | |
| Acute Dermal Toxicity: | $LD_{50}$ (rat, mouse, dermal) > 2000 mg/kg | | |
| Substance: | Sulfur | | |
| Acute Oral Toxicity: | $LD_{50}$ (rat, oral) > 5000 mg/kg | | |
| Acute Inhalation Toxicity: | No data available | | |
| Acute Dermal Toxicity: | $LD_{50}$ (rat, dermal) > 2000 mg/kg | | |
| Substance: | Zinc Compounds | | |
| Acute Oral Toxicity: | $LD_{50}$ (mouse/rat, oral) 186 - 623 mg/kg | | |
| Acute Inhalation Toxicity: | No data available | | |
| Acute Dermal Toxicity: | No data available | | |
| Mutagenesis: | No data available | Target Organ | STOT SE Cat 3; may cause respiratory irritation. |
| Developmental Toxicity: | No data available | Carcinogenicity | The ingredients of this product are not classified as carcinogenic by NTP (National Toxicology Program), IARC, or OSHA |

| SECTION 12 | ECOLOGICAL INFORMATION |
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| Ecotoxicology: | Ammonium sulphate (CAS 7783-20-2)<br>**Aquatic**<br>Algae $EC_{50}$ Chlorella vulgaris 2700 mg/l, 18 days<br>Crustacea $EC_{50}$ Water flea (Daphnia magna) > 100 mg/l, 96 hours<br>Fish $LC_{50}$ Salmo gairdneri 173 mg/l, 96 hours<br><br>Sulfur (CAS 7704-34-9)<br>**Aquatic**<br>Fish $LC_{50}$ Western mosquitofish (Gambusia affinis) > 10000 mg/l, 96 hours<br>Crustacea $LC_{50}$ Water flea (Daphnia magna) 0.098 mg/l, 48 Hours<br><br>Zinc Compounds<br>**Aquatic** (very toxic to aquatic organisms)<br>Ceriodaphnia dubia $EC_{50}$ 0.413 mg/l, 48 hours<br>Selenastrum capricornutum $LC_{50}$ 0.136 mg/l, 72 hours<br><br>May release ammonium ions that are toxic to fish. Un-ionized ammonia concentrations above 0.02 mg/l are considered toxic in fresh water. May release phosphates which will result in algae growth, increased turbidity, and depleted oxygen. At high concentrations, this may be hazardous to fish or other marine organisms. Release to watercourses may cause effects downstream. Fish 96 hour $LC_{50}$, OECD Guidelines 203 (rainbow trout): > 86 mg/l. |

| SECTION 13 | DISPOSAL CONSIDERATIONS |
|---|---|
| | Recover or recycle if possible. Properly characterize all waste materials. Consult federal, state/provincial and local regulations regarding the proper disposal of this material. Prevent material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways. |

| SECTION 14 | TRANSPORT INFO |
|---|---|
| Regulatory Status: | Not regulated |
| Identification Number: | HTS 3105.59.0000 |
| Hazard Class: | Not applicable |
| Proper Shipping Name | Not applicable |
| Packing Group | Not applicable |
| DOT Emergency Response Guide Number: | Not applicable |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: | Not applicable |
| MARPOL Annex V: | Non-HME |
| IMO/IMDG: | Not applicable |

| SECTION 15 | REGULATORY INFORMATION |
|---|---|
| CERCLA: | Listed (Zinc compounds) 1000 lbs RQ; 454 kg RQ |

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|---|---|---|---|---|---|
| RCRA 261.33: | Not listed | | | | |
| SARA Title III: (Exemptions at 40 CFR, Part 370 may apply for agricultural use, or for quantities of less than 10,000 pounds on-site.) | Section 302/304: Listed (Zinc compounds) | | RQ: 1000 lbs (Zinc compounds) | | TPQ: No |
| | Section 311/312: | | | | |
| | Acute: Yes | Chronic: No | Fire: No | Pressure: No | Reactivity: No |
| | Section 313: Listed (Zinc compounds) | | | | |
| NTP, IARC, OSHA: | This material has not been identified as a carcinogen by NTP, IARC, or OSHA. | | | | |
| Canada DSL and NDSL: | DSL: Yes NDSL: Not listed | | | | |
| TSCA: | Listed on the TSCA Inventory | | | | |
| CA Proposition 65: (Health & Safety Code Section 25249.5) | ⚠ WARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov | | | | |
| WHMIS: | **WHMIS 2015**<br>This SDS has been prepared according to the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all of the information required by the HPR. | | | | |

| SECTION 16 | OTHER INFORMATION |
|---|---|
| Disclaimer: | The information in this document is believed to be correct as of the date issued. **HOWEVER, MOSAIC MAKES NO GUARANTEE, REPRESENTATION, OR WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO THE USE OF THIS PRODUCT.** User is responsible for determining whether this product is fit for a particular purpose and suitable for user's method of use or application and assumes the risk of use thereof. The conditions and use of this product are beyond the control of Mosaic, and Mosaic disclaims any liability for loss or damage incurred in connection with the use or misuse of this product. Each user should review the recommended industrial hygiene and safe handling procedures in the specific context of the intended use and determine whether they are appropriate. |
| Preparation: | The preparation of this SDS was in accordance with ANSI Z400.1-2010. |
| Revision Date: | March 24, 2020 |
| Sections Revised: | 1 |
| SDS Number: | MOS 100038 |
| References: | Globally Harmonized System of Classification and Labelling of Chemicals (GHS) – 4th Edition 2011<br>OSHA Hazard Communication Standard, 2012<br>MARPOL Annex V; The Fertilizer Institute (TFI), 2003; TOXNET |

Other Hazard Classifications:

| NFPA HAZARD CLASS | |
|---|---|
| Health: | **2** |
| Flammability: | **0** |
| Instability: | **0** |
| Special Hazard: | None |

| HMIS HAZARD CLASS | |
|---|---|
| Health: | **2** |
| Flammability: | **0** |
| Physical Hazard: | **0** |
| PPE: | Section 8 |

| WHMIS 2015 (HPR) HAZARD CLASS | |
|---|---|
| Signal Word | Warning |
| Symbol |  |
| Classification | Acute Toxicity Oral Category 5<br>Skin Irritant Category 2<br>Eye Irritant Category 2B<br>STOT SE Category 3 |
| Hazard Statements | H303: May be harmful if swallowed<br>H315: Causes skin irritation<br>H320: Causes eye irritation<br>H335: May cause respiratory irritation |