SECTION 1: Identification

1.1. Identification
Product form : Mixture
Product name : Apex Micronutrient Formulation
Product code : M74218

1.2. Recommended use and restrictions on use
Use of the substance/mixture : Fertilizer

1.3. Supplier
JR Simplot Company
P.O. Box 70013
Boise, ID 83707
T 1-208-336-2110

1.4. Emergency telephone number
Emergency number : CHEMTREC 1-800-424-9300

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification
Acute toxicity (oral), Category 4
Serious eye damage/eye irritation, Category 2
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation

H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labelling
Hazard pictograms (GHS US) :

Signal word (GHS US) : Warning
Hazard statements (GHS US) :
H302 - Harmful if swallowed.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.

Precautionary statements (GHS US) :
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 - If swallowed: Call a poison center/doctor/... if you feel unwell
P304+P340 - If inhaled: Remove person to fresh air and keep 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.
P312 - Call a poison center/doctor/... if you feel unwell
P330 - Rinse mouth.
P337+P313 - If eye irritation persists: Get medical attention
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to ...in accordance with local/regional/national regulations

2.3. Other hazards which do not result in classification
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable
SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous Sulfate Monohydrate</td>
<td>(CAS-No.) 17375-41-6</td>
<td>47</td>
<td>Acute Tox. 4 (Oral), H302 Eye Irrit. 2B, H320 STOT SE 3, H335</td>
</tr>
<tr>
<td>zinc sulfate, monohydrate</td>
<td>(CAS-No.) 7446-19-7</td>
<td>&lt;5</td>
<td>Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319 Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
</tr>
<tr>
<td>copper(II)sulfate</td>
<td>(CAS-No.) 7758-98-7</td>
<td>&lt;2</td>
<td>Acute Tox. 3 (Oral), H301 Skin Irrit. 2, H315</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general:
Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Call a poison center or a doctor if you feel unwell.

First-aid measures after inhalation:
Remove person to fresh air and keep comfortable for breathing. Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. Call a poison center or a doctor if you feel unwell.

First-aid measures after skin contact:
Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water.

First-aid measures after eye contact:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

First-aid measures after ingestion:
Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER/doctor if you feel unwell. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Potential adverse human health effects and symptoms:
Based on available data, the classification criteria are not met. Harmful if swallowed.

Symptoms/effects after inhalation:
May cause respiratory irritation.

Symptoms/effects after eye contact:
Causes eye irritation. Eye irritation.

Symptoms/effects after ingestion:
Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:

Unsuitable extinguishing media:
Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire:
Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions:
Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.

Protection during firefighting:
Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: “Exposure controls/personal protection”.
Emergency procedures: Ventilate area.

6.2. Environmental precautions
Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Mechanically recover the product. On land, sweep or shovel into suitable containers. Minimise generation of dust. Store away from other materials.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Avoid breathing dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures: Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Keep only in the original container in a cool, well ventilated place away from sources of ignition. Direct sunlight.
Incompatible products: Strong bases. Strong acids.
Incompatible materials: Sources of ignition. Direct sunlight.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Apex Micronutrient Formulation
No additional information available

copper(II)sulfate (7758-98-7)
No additional information available

Ferrous Sulfate Monohydrate (17375-41-6)
No additional information available

zinc sulfate, monohydrate (7446-19-7)
No additional information available

8.2. Appropriate engineering controls
Appropriate engineering controls: Ensure good ventilation of the work station.
Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment
Personal protective equipment: Avoid all unnecessary exposure.

Hand protection:
Wear protective gloves.

**Eye protection:**
Chemical goggles or safety glasses. Safety glasses

**Skin and body protection:**
Wear suitable protective clothing

**Respiratory protection:**
Wear appropriate mask

**Other information:**
Do not eat, drink or smoke during use.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Granules.</td>
</tr>
<tr>
<td>Colour</td>
<td>Multi-colored</td>
</tr>
<tr>
<td>Odour</td>
<td>There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure. Mixture contains one or more component(s) which have the following odour: Odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>soluble.</td>
</tr>
<tr>
<td>Partition coefficient n-octanol/water (Log Pow)</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
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<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

#### 10.2. Chemical stability

Not established.

#### 10.3. Possibility of hazardous reactions

Not established.
10.4. Conditions to avoid
Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials
Strong acids. Strong bases.

10.6. Hazardous decomposition products

SECTION 11: Toxicological information
11.1. Information on toxicological effects
Acute toxicity (oral): Harmful if swallowed.
Acute toxicity (dermal): Not classified
Acute toxicity (inhalation): Not classified

ATE US (oral) 656.925 mg/kg bodyweight

Copper(II)sulfate (7758-98-7)
LD50 oral rat 300 mg/kg (Rat)
LD50 dermal rabbit > 1000 mg/kg (Rabbit)

Ferrous Sulfate Monohydrate (17375-41-6)
LD50 oral rat 319 mg/kg

Zinc sulfate, monohydrate (7446-19-7)
LD50 oral rat 1710 mg/kg

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Causes serious eye irritation.
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

Reproductive toxicity: Not classified

STOT-single exposure: May cause respiratory irritation.

Ferrous Sulfate Monohydrate (17375-41-6)
STOT-single exposure May cause respiratory irritation.

STOT-repeated exposure: Not classified

Aspiration hazard: Not classified
Viscosity, kinematic: No data available

Potential adverse human health effects and symptoms: Based on available data, the classification criteria are not met. Harmful if swallowed.
Symptoms/effects after inhalation: May cause respiratory irritation.
Symptoms/effects after eye contact: Causes eye irritation. Eye irritation.
Symptoms/effects after ingestion: Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information
12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Copper(II)sulfate (7758-98-7)
LC50 fish 1 0.0199 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); Soft water)
EC50 Daphnia 1 0.01 mg/l (48 h; Daphnia magna; Soft water)
LC50 fish 2 0.298 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); Hard water)
EC50 Daphnia 2 0.2 mg/l (48 h; Daphnia magna; Hard water)
TLM fish 1 3.8 ppm 24 h; Salmo gairdneri (Oncorhynchus mykiss)
**Apex Micronutrient Formulation**

**Safety Data Sheet**

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Threshold limit algae 2</th>
<th>LC50 fish 1</th>
<th>EC50 Daphnia 1</th>
<th>LC50 fish 2</th>
<th>EC50 Daphnia 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>copper(II)sulfate (7758-98-7)</td>
<td>1.1 mg/l (Scenedesmus quadricauda)</td>
<td>1.7 mg/l (96 h; Poecilia reticulata; Anhydrous form)</td>
<td>0.56 mg/l (48 h; Daphnia magna; Anhydrous form)</td>
<td>2.4 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); Anhydrous form)</td>
<td>1 mg/l (24 h; Daphnia magna; Anhydrous form)</td>
</tr>
</tbody>
</table>

### 12.2. Persistence and degradability

#### Apex Micronutrient Formulation

<table>
<thead>
<tr>
<th>Persistence and degradability</th>
<th>copper(II)sulfate (7758-98-7)</th>
<th>Persistence and degradability</th>
<th>Biodegradability: not applicable. Not established.</th>
<th>Biochemical oxygen demand (BOD)</th>
<th>Chemical oxygen demand (COD)</th>
<th>ThOD</th>
<th>BOD (% of ThOD)</th>
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<tbody>
<tr>
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<td>Not established.</td>
<td></td>
<td>May cause long-term adverse effects in the environment.</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Biodegradability: not applicable. Not established.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Biochemical oxygen demand (BOD)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chemical oxygen demand (COD)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ThOD</td>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BOD (% of ThOD)</td>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Ferrous Sulfate Monohydrate (17375-41-6)

<table>
<thead>
<tr>
<th>Persistence and degradability</th>
<th>copper(II)sulfate (7758-98-7)</th>
<th>Persistence and degradability</th>
<th>Biodegradability: not applicable. Not established.</th>
<th>Biochemical oxygen demand (BOD)</th>
<th>Chemical oxygen demand (COD)</th>
<th>ThOD</th>
<th>BOD (% of ThOD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not established.</td>
<td></td>
<td>May cause long-term adverse effects in the environment.</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Biodegradability: not applicable. Not established.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Biochemical oxygen demand (BOD)</td>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chemical oxygen demand (COD)</td>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ThOD</td>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BOD (% of ThOD)</td>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 12.3. Bioaccumulative potential

#### Apex Micronutrient Formulation

<table>
<thead>
<tr>
<th>Bioaccumulative potential</th>
<th>copper(II)sulfate (7758-98-7)</th>
<th>Bioaccumulative potential</th>
<th>Ferrous Sulfate Monohydrate (17375-41-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not established.</td>
<td>Bioaccumulative</td>
<td>Not established.</td>
</tr>
</tbody>
</table>

#### zinc sulfate, monohydrate (7446-19-7)

<table>
<thead>
<tr>
<th>Bioaccumulative potential</th>
<th>copper(II)sulfate (7758-98-7)</th>
<th>Bioaccumulative potential</th>
<th>Ferrous Sulfate Monohydrate (17375-41-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bioaccumulative</td>
<td></td>
<td>Not established.</td>
</tr>
</tbody>
</table>

| BCF fish 1                | 59 – 242 (Cyprinus carpio; Anhydrous form) |
| BCF fish 2                | 59 – 242 (Cyprinus carpio; Test duration: 8 weeks) |
| Bioaccumulative potential | Bioaccumulative. Not established.          |

### 12.4. Mobility in soil

#### copper(II)sulfate (7758-98-7)

| Ecology - soil | Toxic to flora. |

### 12.5. Other adverse effects

Other information : Avoid unintentional release to the environment.

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector’s sorting instructions.
Product/Packaging disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Ecology - waste materials: Avoid unintentional release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT

Other information: No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Air transport

SECTION 15: Regulatory information

15.1. US Federal regulations

Apex Micronutrient Formulation

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous Sulfate Monohydrate</td>
<td>17375-41-6</td>
<td>47%</td>
</tr>
<tr>
<td>zinc sulfate, monohydrate</td>
<td>7446-19-7</td>
<td>&lt;5%</td>
</tr>
</tbody>
</table>

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>copper(II)sulfate</td>
<td>7758-98-7</td>
<td>10 lb</td>
</tr>
<tr>
<td>copper(II)sulfate (7758-98-7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15.2. International regulations

CANADA

copper(II)sulfate (7758-98-7)
Listed on the Canadian DSL (Domestic Substances List)

Ferrous Sulfate Monohydrate (17375-41-6)
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

zinc sulfate, monohydrate (7446-19-7)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
No additional information available

National regulations
No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

<table>
<thead>
<tr>
<th>Component</th>
<th>State or local regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>copper(II)sulfate(7758-98-7)</td>
<td>U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 11/29/2021
Other information: None.
Apex Micronutrient Formulation
Safety Data Sheet

Full text of H-statements:

| H301 | Toxic if swallowed. |
| H302 | Harmful if swallowed. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H320 | Causes eye irritation |
| H335 | May cause respiratory irritation. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.

NFPA specific hazard : None

SDS US (GHS HazCom 2012)

Disclaimer: This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE INFORMATION HEREIN PROVIDED. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.