1. Identification

Product identifier: Brandt Organics Desert Crop Mix

Other means of identification:
- Product code: 24063
- Recommended use: Agricultural/Horticultural Use- Micronutrient Fertilizer- Refer to product label.
- Recommended restrictions: Refer to product label.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer
- Company name: Brandt Consolidated, Inc.
- Address: 2935 South Koke Mill Road, Springfield, IL 62711, United States
- Telephone: Corporate Office 1-217-547-5800
- Website: www.brandt.co
- E-mail: msds@brandt.co
- Contact person: EH&S / Regulatory Department

Emergency phone number
- CHEMTREC (24 hours): USA, Canada, Puerto Rico 1-800-424-9300, Virgin Islands 1-800-424-9300, International Maritime +1 (703) 527-3887

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards:
- Serious eye damage/eye irritation: Category 2B
- Specific target organ toxicity, repeated exposure: Category 2

Environmental hazards:
- Hazardous to the aquatic environment, acute hazard: Category 2
- Hazardous to the aquatic environment, long-term hazard: Category 2

OSHA defined hazards: Not classified.

Label elements

Signal word: Warning

Hazard statement: Causes eye irritation. May cause damage to organs through prolonged or repeated exposure. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention: Do not breathe mist or vapor. Wash thoroughly after handling. Avoid release to the environment.

Response: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention if you feel unwell. If eye irritation persists: Get medical advice/attention. Collect spillage.

Storage: Store away from incompatible materials.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

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

Supplemental information: None.
3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc Sulfate</td>
<td></td>
<td>7733-02-0</td>
<td>10 - &lt; 20*</td>
</tr>
<tr>
<td>Manganese Sulfate, monohydrate</td>
<td></td>
<td>10034-96-5</td>
<td>5 - &lt; 10*</td>
</tr>
<tr>
<td>Other components below reportable levels</td>
<td></td>
<td></td>
<td>80 - &lt; 90</td>
</tr>
</tbody>
</table>

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

4. First-aid measures

Inhalation
Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact
Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion
Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed
Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information
If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

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.

Specific hazards arising from the chemical
During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
Move containers from fire area if you can do so without risk.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards
No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up
This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. 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.

Environmental precautions
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
7. Handling and storage

Precautions for safe handling
Avoid contact with eyes. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

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

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Sulfate, monohydrate (CAS 10034-96-5)</td>
<td>Ceiling</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

**US. ACGIH Threshold Limit Values**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Sulfate, monohydrate (CAS 10034-96-5)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.02 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>

**US. NIOSH: Pocket Guide to Chemical Hazards**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Sulfate, monohydrate (CAS 10034-96-5)</td>
<td>STEL</td>
<td>3 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 mg/m³</td>
<td>Fume.</td>
</tr>
</tbody>
</table>

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

Appropriate engineering controls
Good general ventilation (typically 10 air changes per hour) should be used. 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.

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.

General hygiene considerations
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

**Appearance**
Aqueous solution.

**Physical state**
Liquid.

**Form**
Liquid.

**Color**
Dark brown

**Odor**
Woody.

**Odor threshold**
Not available.

**pH**
Not available.

**Melting point/freezing point**
1256 °F (680 °C) estimated / 15 - 25 °F (-9.44 - -3.89 °C) estimated
### Stability and Reactivity

**Reactivity**

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

**Chemical stability**

Material is stable under normal conditions.

**Possibility of hazardous reactions**

Hazardous polymerization does not occur.

**Conditions to avoid**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.

**Incompatible materials**

Strong oxidizing agents.

**Hazardous decomposition products**

No hazardous decomposition products are known.

### Toxicological Information

**Information on likely routes of exposure**

- **Inhalation**: Prolonged inhalation may be harmful.
- **Skin contact**: No adverse effects due to skin contact are expected.
- **Eye contact**: Causes eye irritation.
- **Ingestion**: Expected to be a low ingestion hazard.

**Symptoms related to the physical, chemical and toxicological characteristics**

Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort.

**Information on toxicological effects**

No specific effects noted.
**Acute toxicity**

<table>
<thead>
<tr>
<th>Product</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brandt Organics Desert Crop Mix</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
</tr>
</tbody>
</table>

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</tr>
<tr>
<td><strong>Zinc Sulfate (CAS 7733-02-0)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>Rat</td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**
Prolonged skin contact may cause temporary irritation.

**Serious eye damage/eye irritation**
Causes eye irritation.

**Respiratory or skin sensitization**
- **Respiratory sensitization**: Not a respiratory sensitizer.
- **Skin sensitization**: This product is not expected to cause skin sensitization.
- **Germ cell mutagenicity**: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity**
- **IARC Monographs. Overall Evaluation of Carcinogenicity**: Not listed.
- **US. National Toxicology Program (NTP) Report on Carcinogens**: Not listed.

**Reproductive toxicity**
This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure**
- Not classified.

**Specific target organ toxicity - repeated exposure**
May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard**
Not an aspiration hazard.

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

### 12. Ecological information

**Ecotoxicity**
Toxic to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Product</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brandt Organics Desert Crop Mix</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
</tr>
</tbody>
</table>
### Components Test Results

<table>
<thead>
<tr>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manganese Sulfate, monohydrate (CAS 10034-96-5)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
</tr>
<tr>
<td><strong>Zinc Sulfate (CAS 7733-02-0)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
</tr>
<tr>
<td>Algae</td>
<td>LC50</td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
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<td></td>
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</tr>
</tbody>
</table>

### Persistence and degradability
No data is available on the degradability of any ingredients in the mixture.

### Bioaccumulative potential
No data available.

### Mobility in soil
No data available.

### Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

#### 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/international regulations.

#### Local disposal regulations
Dispose in accordance with all applicable regulations.

#### Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

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

#### Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

### 14. Transport information

#### DOT

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN3082</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Environmentally hazardous substances, liquid, n.o.s. (Zinc Sulfate RQ = 8873 LBS; FERROUS SULFATE), MARINE POLLUTANT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transport hazard class(es)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
</tr>
<tr>
<td>Subsidiary risk</td>
</tr>
<tr>
<td>Label(s)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine pollutant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special precautions for user</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>8, 146, 335, IB3, T4, TP1, TP29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Packaging exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>155</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Packaging non bulk</th>
</tr>
</thead>
<tbody>
<tr>
<td>203</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Packaging bulk</th>
</tr>
</thead>
<tbody>
<tr>
<td>241</td>
</tr>
</tbody>
</table>

IMDG Regulated Marine Pollutant. DOT Regulated Marine Pollutant. Not DOT regulated in domestic (USA ground) transportation in package sizes less than 8,837 lbs (823 gallons); 4,009 kg (3,116 liters). The DOT transportation information below is for shipments with package sizes equal to or exceeding this value.
DOT Shipping Notes: 40 CFR 172.504(f)(9) For Class 9, a CLASS 9 placard is not required for domestic (USA ground) transportation, however shipments with packaging exceeding the Reportable Quantity (RQ) or bulk packaging must be marked with the appropriate identification number on a CLASS 9 placard, an orange panel, or a white square-on-point display configuration as required. Since the Class 9 placard is not required (although it may be used) the hazardous material endorsement is also not required on a Commercial Drivers License.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

DOT

Marine pollutant

General information
IMDG Regulated Marine Pollutant. DOT Regulated Marine Pollutant. Not DOT regulated in domestic (USA ground) transportation in package sizes less than 8,837 lbs (823 gallons); 4,009 kg (3,116 liters). The DOT transportation information below is for shipments with package sizes equal to or exceeding this value.

15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
Manganese Sulfate, monohydrate (CAS 10034-96-5) Listed.
Zinc Sulfate (CAS 7733-02-0) Listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)
SARA 302 Extremely hazardous substance
Not listed.

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Sulfate, monohydrate</td>
<td>10034-96-5</td>
<td>5 - &lt; 10</td>
</tr>
<tr>
<td>Zinc Sulfate</td>
<td>7733-02-0</td>
<td>10 - &lt; 20</td>
</tr>
</tbody>
</table>

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Manganese Sulfate, monohydrate (CAS 10034-96-5)
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations
California Proposition 65
WARNING: This product can expose you to chemicals including arsenic, cadmium, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 02-15-2018
Revision date 04-08-2019
Version # 02

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of Manufacturer’s knowledge, information and belief at the date of its publication; however, it is provided only as a guidance for safe handling, use, processing, storage, transportation, disposal and release of the Product. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose, are made with respect to the Product or the information provided herein, or that the Product or information herein may be used without infringing the intellectual property rights of others. The information provided in this Safety Data Sheet relates only to the specific Product designated and may not be valid if the Product is used in combination with other materials or in any other process, unless specified herein. The user assumes all risk and liability for loss, injury, damage or expense due to any use, handling, storage or disposal of the Product, and Manufacturer recommends that the user conducts its own tests of the Product to determine suitability of the Product for user’s particular use.

Revision information
This document has undergone significant changes and should be reviewed in its entirety.