1. Identification

Product identifier  Brandt Smart Zn

Other means of identification

Product code  29003BRN

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

Skin corrosion/irritation  Category 1

Serious eye damage/eye irritation  Category 1

Environmental hazards  Not classified.

OSHA defined hazards  Not classified.

Label elements

Signal word  Danger

Hazard statement  Causes severe skin burns and eye damage. Causes serious eye damage.

Precautionary statement

Prevention  Do not breathe mist or vapor. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Response  If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Wash contaminated clothing before reuse.

Storage  Store locked up.

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

Mixtures

Material name: Brandt Smart Zn
### Chemical Name and Composition

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urea</td>
<td></td>
<td>57-13-6</td>
<td>10 - &lt; 20*</td>
</tr>
<tr>
<td>Zinc Sulfate</td>
<td></td>
<td>7733-02-0</td>
<td>10 - &lt; 20*</td>
</tr>
<tr>
<td>Mineral Acid</td>
<td>Proprietary</td>
<td>Proprietary*</td>
<td></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
Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

#### 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. Call a physician or poison control center immediately.

#### Ingestion
Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn’t get into the lungs.

**Most important symptoms/effects, acute and delayed**
 Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

**Indication of immediate medical attention and special treatment needed**
Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

**General information**
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
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
Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.
7. Handling and storage

Precautions for safe handling: Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities: Store locked up. 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. Workplace Environmental Exposure Level (WEEL) Guides

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urea (CAS 57-13-6)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Total particulate.</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. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection:

Hand protection: Wear appropriate chemical resistant gloves.

Other: Wear appropriate chemical resistant clothing.

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment.

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: Clear colorless or nearly colorless

Odor: Not available.

Odor threshold: Not available.

pH: 1.5 - 2.5 (1% Solution)

Melting point/freezing point: Not available.

Initial boiling point and boiling range: Not available.

Flash point: Not available.

Evaporation rate: Not available.

Flammability (solid, gas): Not applicable.

Upper/lower flammability or explosive limits:

Flammability limit - lower (%): Not available.

Flammability limit - upper (%): Not available.

Explosive limit - lower (%): Not available.

Explosive limit - upper (%): Not available.

Vapor pressure: 0.00001 hPa estimated

Vapor density: Not available.
1.26 g/cm³ (typcial)

Solubility (water) 100 %

Not available.

Not available.

Not available.

Not available.

Not explosive.

Not oxidizing.

67.22 % estimated

10.5 lb/gal (typical)

> 4 years

1.23 - 1.29

4.35 %

Reacts violently with strong alkaline substances. This product may react with reducing agents.

Material is stable under normal conditions.

Hazardous polymerization does not occur.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials. Do not mix with other chemicals.

Bases. Reducing agents.

No hazardous decomposition products are known.

May cause irritation to the respiratory system. Prolonged inhalation may be harmful.

Causes severe skin burns.

Causes serious eye damage.

Causes digestive tract burns.

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Not known.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brandt Smart Zn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Dermal</td>
<td>Rat</td>
<td>6120 mg/kg</td>
</tr>
<tr>
<td>Oral Dermal</td>
<td>Rat</td>
<td>2642 mg/kg</td>
</tr>
</tbody>
</table>

| Urea (CAS 57-13-6) |         |              |
| Acute Oral        | Rat     | 8471 mg/kg   |
### Test Results

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc Sulfate (CAS 7733-02-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dermal</strong></td>
<td>Rat</td>
<td>&gt; 2000 mg/kg</td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td>Rat</td>
<td>920 mg/kg</td>
</tr>
<tr>
<td><strong>Skin corrosion/irritation</strong></td>
<td>Causes severe skin burns and eye damage.</td>
<td></td>
</tr>
<tr>
<td><strong>Serious eye damage/eye irritation</strong></td>
<td>Causes serious eye damage.</td>
<td></td>
</tr>
<tr>
<td><strong>Respiratory or skin sensitization</strong></td>
<td>Not a respiratory sensitizer.</td>
<td></td>
</tr>
<tr>
<td><strong>Respiratory sensitization</strong></td>
<td>This product is not expected to cause skin sensitization.</td>
<td></td>
</tr>
<tr>
<td><strong>Skin sensitization</strong></td>
<td>No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.</td>
<td></td>
</tr>
<tr>
<td><strong>Germ cell mutagenicity</strong></td>
<td>Not classifiable as to carcinogenicity to humans.</td>
<td></td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td>IARC Monographs. Overall Evaluation of Carcinogenicity</td>
<td>Not listed.</td>
</tr>
<tr>
<td><strong>US. National Toxicology Program (NTP) Report on Carcinogens</strong></td>
<td>Not listed.</td>
<td></td>
</tr>
<tr>
<td><strong>Reproductive toxicity</strong></td>
<td>This product is not expected to cause reproductive or developmental effects.</td>
<td></td>
</tr>
<tr>
<td><strong>Specific target organ toxicity - single exposure</strong></td>
<td>Not classified.</td>
<td></td>
</tr>
<tr>
<td><strong>Specific target organ toxicity - repeated exposure</strong></td>
<td>Not classified.</td>
<td></td>
</tr>
<tr>
<td><strong>Aspiration hazard</strong></td>
<td>Not an aspiration hazard.</td>
<td></td>
</tr>
<tr>
<td><strong>Chronic effects</strong></td>
<td>Prolonged inhalation may be harmful.</td>
<td></td>
</tr>
</tbody>
</table>

### 12. Ecological information

**Ecotoxicity**

Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brandt Smart Zn</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Daphnia</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Fish</td>
</tr>
<tr>
<td><strong>Components</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Species</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urea (CAS 57-13-6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Water flea (Daphnia magna)</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Carp (Leuciscus idus melanotus)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Guppy (Poecilia reticulata)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Harlequinfish, red rasbora (Rasbora heteromorpha)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mozambique tilapia (Tilapia mossambica)</td>
</tr>
<tr>
<td>Zinc Sulfate (CAS 7733-02-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algae</td>
<td>LC50</td>
<td>Green algae (Chlorella vulgaris)</td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Amphipod (Crangonyx pseudogracilis)</td>
</tr>
</tbody>
</table>
### Components Test Results

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Rotifer (Philodina acuticornis) 0.5 mg/l, 48 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fathead minnow (Pimephales promelas) 10.62 - 11.3 mg/l, 5 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.168 - 0.25 mg/l, 96 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fish (Lepidocephalichthyes guntea) 76 - 118.8 mg/l, 24 hours</td>
</tr>
</tbody>
</table>

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

### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Partition coefficient n-octanol / water (log Kow)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urea -2.11</td>
</tr>
</tbody>
</table>

### 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. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. 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
D002: Waste Corrosive material [pH <=2 or >=12.5, or corrosive to steel]  
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
- **UN number**: UN3264  
- **UN proper shipping name**: Corrosive liquid, acidic, inorganic, n.o.s. (Mineral Acid)  
- **Transport hazard class(es)**:  
  - Class: 8  
  - Subsidiary risk: -  
  - Label(s): 8  
  - Packing group: III  
  - Environmental hazards: No  
  - Marine pollutant: No  
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.  
- **Special provisions**: IB3, T7, TP1, TP28  
- **Packaging exceptions**: 154  
- **Packaging non bulk**: 203  
- **Packaging bulk**: 241  

**NOTE**: DOT Corrosive to aluminum and/or steel (not skin). Not regulated if transported by motor vehicle or rail car in a packaging that will not react dangerously or be degraded by this material [See 49 CFR Sect 173.154(d)].

#### IATA
- **UN number**: UN3264  
- **UN proper shipping name**: Corrosive liquid, acidic, inorganic, n.o.s. (Mineral Acid)  
- **Transport hazard class(es)**:  
  - Class: 8  
  - Subsidiary risk: -  
  - Packing group: III  
  - Environmental hazards: No  
  - ERG Code: 8L  
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.
Other information

Passenger and cargo aircraft
Allowed with restrictions.

Cargo aircraft only
Allowed with restrictions.

IMDG

UN number UN3264
UN proper shipping name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Mineral Acid)

Transport hazard class(es)

Class 8
Subsidiary risk -
Packing group III
Environmental hazards
Marine pollutant No
EmS F-A, S-B

Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.

DOT

General information
NOTE: DOT Corrosive to aluminum and/or steel (not skin). Not regulated if transported by motor vehicle or rail car in a packaging that will not react dangerously or be degraded by this material [See 49 CFR Sect 173.154(d)].

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)
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 311/312 Hazardous chemical
No (Exempt)
SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<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**
  
  Not regulated.

- **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>Yes</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).

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

- **Issue date**: 02-24-2015
- **Revision date**: 04-02-2019
- **Version #**: 09

**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.