

**1. Identification**

**Product identifier** Brandt Ligno 7% Zn  
**Other means of identification**  
**Product code** 24036  
**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** Acute toxicity, oral Category 5  
Serious eye damage/eye irritation Category 1  
**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** Danger  
**Hazard statement** Causes serious eye damage. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.  
**Precautionary statement**  
**Prevention** Avoid release to the environment. Wear eye/face protection.  
**Response** 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. 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** 5.3% of the mixture consists of component(s) of unknown acute oral toxicity. 5.3% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 5.3% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

### 3. Composition/information on ingredients

#### Mixtures

| Chemical name                            | Common name and synonyms | CAS number | %          |
|--|--------------------------|------------|------------|
| Zinc Sulfate                             |                          | 7733-02-0  | 10 - < 20* |
| Other components below reportable levels |                          |            | 80 - < 90  |

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

### 4. First-aid measures

|   |   |
|---|---|
| <b>Inhalation</b>   | Move to fresh air. Call a physician if symptoms develop or persist.   |
| <b>Skin contact</b>   | Wash off with soap and water. Get medical attention if irritation develops and persists.  |
| <b>Eye contact</b>  | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention immediately. Continue rinsing. |
| <b>Ingestion</b>  | Rinse mouth. Get medical attention if symptoms occur.   |
| <b>Most important symptoms/effects, acute and delayed</b>                     | Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Severe eye irritation. Permanent eye damage including blindness could result.                |
| <b>Indication of immediate medical attention and special treatment needed</b> | Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.  |
| <b>General information</b>  | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.  |

### 5. Fire-fighting measures

|  |   |
|--|---|
| <b>Suitable extinguishing media</b>                                  | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).                                   |
| <b>Unsuitable extinguishing media</b>                                | Do not use water jet as an extinguisher, as this will spread the fire.                        |
| <b>Specific hazards arising from the chemical</b>                    | During fire, gases hazardous to health may be formed.   |
| <b>Special protective equipment and precautions for firefighters</b> | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| <b>Fire-fighting equipment/instructions</b>                          | Move containers from fire area if you can do so without risk.                                 |
| <b>Specific methods</b>  | Use standard firefighting procedures and consider the hazards of other involved materials.    |
| <b>General fire hazards</b>  | No unusual fire or explosion hazards noted.   |

### 6. Accidental release measures

|  |   |
|--|---|
| <b>Personal precautions, protective equipment and emergency procedures</b> | Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. 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.   |
| <b>Methods and materials for containment and cleaning up</b>               | Large Spills: 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. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.<br><br>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. |
| <b>Environmental precautions</b>   | Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.  |

### 7. Handling and storage

|                                      |   |
|--------------------------------------|---|
| <b>Precautions for safe handling</b> | Do not get this material in contact with eyes. 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 original tightly closed container. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

**Occupational exposure limits** No exposure limits noted for ingredient(s).

**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** Wear safety glasses with side shields (or goggles) and a face shield.

**Skin protection**

**Hand protection** Wear appropriate chemical resistant gloves.

**Other** Wear suitable protective clothing.

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment. Respiratory protection not required.

**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.

**Salt-Out / Crystallization Temp** < 32 °F (< 0 °C) estimated

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

**Initial boiling point and boiling range** > 212 °F (> 100 °C) estimated

**Flash point** Not available.

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not available.

**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.

**Relative density** 1.21 - 1.26 g/cm<sup>3</sup> (typical)

**Solubility(ies)**

**Solubility (water)** 100 %

**Partition coefficient (n-octanol/water)** Not available.

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

|                               |                                |
|-------------------------------|--------------------------------|
| <b>Viscosity</b>              | Not available.                 |
| <b>Other information</b>      |                                |
| <b>Percent volatile</b>       | 74.99 % estimated              |
| <b>pH in aqueous solution</b> | 4.7 - 5.3 10% Solution         |
| <b>Pounds per gallon</b>      | 10.12 - 10.52 lb/gal (typical) |
| <b>Shelf life</b>             | > 2 years                      |

## 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.   |
| <b>Possibility of hazardous reactions</b> | Hazardous polymerization does not occur.  |
| <b>Conditions to avoid</b>                | Contact with incompatible materials.  |
| <b>Incompatible materials</b>             | Strong oxidizing agents.  |
| <b>Hazardous decomposition products</b>   | No hazardous decomposition products are known.  |

## 11. Toxicological information

### Information on likely routes of exposure

|                     |  |
|---------------------|--|
| <b>Ingestion</b>    | Expected to be a low ingestion hazard.               |
| <b>Inhalation</b>   | No adverse effects due to inhalation are expected.   |
| <b>Skin contact</b> | No adverse effects due to skin contact are expected. |
| <b>Eye contact</b>  | Causes serious eye damage.                           |

**Symptoms related to the physical, chemical and toxicological characteristics**  
Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Severe eye irritation. Permanent eye damage including blindness could result.

### Information on toxicological effects

#### Acute toxicity

| Components                   | Species | Test Results |
|------------------------------|---------|--------------|
| Zinc Sulfate (CAS 7733-02-0) |         |              |
| <b>Acute</b>                 |         |              |
| <i>Dermal</i>                |         |              |
| LD50                         | Rat     | > 2000 mg/kg |
| <i>Oral</i>                  |         |              |
| LD50                         | Rat     | 623 mg/kg    |

\* Estimates for product may be based on additional component data not shown.

|   |  |
|---|--|
| <b>Skin corrosion/irritation</b>                                      | Prolonged skin contact may cause temporary irritation.   |
| <b>Serious eye damage/eye irritation</b>                              | Causes serious eye damage.   |
| <b>Respiratory or skin sensitization</b>                              |  |
| <b>Respiratory sensitization</b>                                      | Not available.   |
| <b>Skin sensitization</b>   | This product is not expected to cause skin sensitization.  |
| <b>Germ cell mutagenicity</b>   | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. |
| <b>Carcinogenicity</b>  | This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.                                  |
| <b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b> |  |
| Not listed.   |  |
| <b>Reproductive toxicity</b>  | This product is not expected to cause reproductive or developmental effects.                                     |
| <b>Specific target organ toxicity - single exposure</b>               | Not classified.  |
| <b>Specific target organ toxicity - repeated exposure</b>             | Not classified.  |

Aspiration hazard Not available.

## 12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

| Components                   | Species | Test Results  |
|------------------------------|---------|---|
| Zinc Sulfate (CAS 7733-02-0) |         |   |
| <b>Aquatic</b>               |         |   |
| Algae                        | LC50    | Green algae ( <i>Chlorella vulgaris</i> ) 5 mg/l, 24 hours              |
| Crustacea                    | EC50    | Amphipod ( <i>Crangonyx pseudogracilis</i> ) 15.1 - 24.5 mg/l, 96 hours |
| Fish                         | LC50    | Fathead minnow ( <i>Pimephales promelas</i> ) 10.62 - 11.3 mg/l, 5 days |
|                              |         | Fish ( <i>Lepidocephalichthyes guntea</i> ) 76 - 118.8 mg/l, 24 hours   |

\* Estimates for product may be based on additional component data not shown.

**Persistence and degradability** No data is available on the degradability of this product.

**Bioaccumulative potential** Not 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** Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

Not DOT regulated in domestic (USA ground) transportation in package sizes less than 5,074 lbs (492 gallons); 2,302 kg (1,863 liters). The DOT transportation information below is for shipments with package sizes equal to or exceeding this value. DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

### DOT

|                                     |   |
|-------------------------------------|---|
| <b>UN number</b>                    | UN3082  |
| <b>UN proper shipping name</b>      | Environmentally hazardous substances, liquid, n.o.s. (Zinc Sulfate RQ = 5074 lbs) |
| <b>Transport hazard class(es)</b>   |   |
| <b>Class</b>                        | 9   |
| <b>Subsidiary risk</b>              | -   |
| <b>Label(s)</b>                     | 9   |
| <b>Packing group</b>                | III   |
| <b>Environmental hazards</b>        |   |
| <b>Marine pollutant</b>             | Yes   |
| <b>Special precautions for user</b> | Read safety instructions, SDS and emergency procedures before handling.           |
| <b>Special provisions</b>           | 8, 146, 335, IB3, T4, TP1, TP29   |
| <b>Packaging exceptions</b>         | 155   |
| <b>Packaging non bulk</b>           | 203   |
| <b>Packaging bulk</b>               | 241   |

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

|                                     |   |
|-------------------------------------|---|
| <b>UN number</b>                    | UN3082  |
| <b>UN proper shipping name</b>      | Environmentally hazardous substance, liquid, n.o.s. (Zinc Sulfate)      |
| <b>Transport hazard class(es)</b>   |   |
| <b>Class</b>                        | 9   |
| <b>Subsidiary risk</b>              | -   |
| <b>Packing group</b>                | III   |
| <b>Environmental hazards</b>        | Yes   |
| <b>ERG Code</b>                     | 9L  |
| <b>Special precautions for user</b> | Read safety instructions, SDS and emergency procedures before handling. |
| <b>Other information</b>            |   |
| <b>Passenger and cargo aircraft</b> | Allowed.  |
| <b>Cargo aircraft only</b>          | Allowed.  |

## IMDG

|                                     |   |
|-------------------------------------|---|
| <b>UN number</b>                    | UN3082  |
| <b>UN proper shipping name</b>      | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc Sulfate)      |
| <b>Transport hazard class(es)</b>   |   |
| <b>Class</b>                        | 9   |
| <b>Subsidiary risk</b>              | -   |
| <b>Packing group</b>                | III   |
| <b>Environmental hazards</b>        |   |
| <b>Marine pollutant</b>             | Yes   |
| <b>EmS</b>                          | F-A, S-F  |
| <b>Special precautions for user</b> | Read safety instructions, SDS and emergency procedures before handling. |

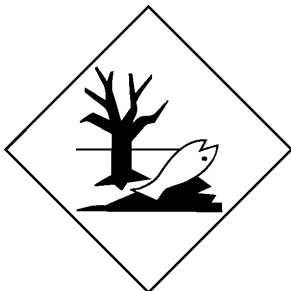
## General information

Not DOT regulated in domestic (USA ground) transportation in package sizes less than 5,074 lbs (492 gallons); 2,302 kg (1,863 liters). The DOT transportation information below is for shipments with package sizes equal to or exceeding this value. DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

## DOT; IATA; IMDG



## Marine pollutant



## 15. Regulatory information

### US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.  
This product is not known to be 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 1910.1001-1050)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - Yes  
 Delayed Hazard - No  
 Fire Hazard - No  
 Pressure Hazard - No  
 Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Not listed.

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

| Chemical name | CAS number | % by wt.  |
|---------------|------------|-----------|
| Zinc Sulfate  | 7733-02-0  | 10 - < 20 |

**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****US. Massachusetts RTK - Substance List**

Zinc Sulfate (CAS 7733-02-0)

**US. New Jersey Worker and Community Right-to-Know Act**

Zinc Sulfate (CAS 7733-02-0)

**US. Pennsylvania Worker and Community Right-to-Know Law**

Zinc Sulfate (CAS 7733-02-0)

**US. Rhode Island RTK**

Zinc Sulfate (CAS 7733-02-0)

**US. California Proposition 65**

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

**International Inventories**

| Country(s) or region | Inventory name   | On inventory (yes/no)* |
|----------------------|--|------------------------|
| Australia            | Australian Inventory of Chemical Substances (AICS)                     | Yes                    |
| Canada               | Domestic Substances List (DSL)   | Yes                    |
| Canada               | Non-Domestic Substances List (NDSL)                                    | No                     |
| China                | Inventory of Existing Chemical Substances in China (IECSC)             | Yes                    |
| Europe               | European Inventory of Existing Commercial Chemical Substances (EINECS) | No                     |
| Europe               | European List of Notified Chemical Substances (ELINCS)                 | No                     |
| Japan                | Inventory of Existing and New Chemical Substances (ENCS)               | Yes                    |
| Korea                | Existing Chemicals List (ECL)  | Yes                    |
| New Zealand          | New Zealand Inventory  | Yes                    |
| Philippines          | Philippine Inventory of Chemicals and Chemical Substances (PICCS)      | Yes                    |

| <b>Country(s) or region</b> | <b>Inventory name</b>                         | <b>On inventory (yes/no)*</b> |
|-----------------------------|---|-------------------------------|
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes                           |

\*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** 05-01-2014

**Revision date** 09-15-2015

**Version #** 05

**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** Product and Company Identification: Product and Company Identification  
Physical & Chemical Properties: Multiple Properties