

1. Identification

Product identifier Manni-Plex Ultra Turf

Other means of identification

Product code 28130

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

Supplier Not available.

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2A
Reproductive toxicity Category 2

Environmental hazards Not classified.

Label elements



Signal word Warning

Hazard statement Causes skin irritation. Causes serious eye irritation. Suspected of damaging fertility or the unborn child.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Response IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

Storage Store locked up.

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

Other hazards None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

| Chemical name | Common name and synonyms | CAS number | % |
|--|--------------------------|------------|-----------|
| Ammonium Nitrate | | 6484-52-2 | 5 - < 10 |
| FERROUS SULFATE | | 7782-63-0 | 5 - < 10 |
| Potassium Nitrate | | 7757-79-1 | 3 - < 5 |
| Acetic Acid | | 64-19-7 | 1 - < 3 |
| Disodium Octaborate Tetrahydrate | | 12008-41-2 | 1 - < 3 |
| Manganese Sulfate, monohydrate | | 10034-96-5 | 1 - < 3 |
| Other components below reportable levels | | | 70 - < 80 |

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

| | |
|---|---|
| Inhalation | Move to fresh air. Call a physician if symptoms develop or persist. |
| Skin contact | Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. 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. Get medical attention if irritation develops and persists. |
| Ingestion | Rinse mouth. Get medical attention if symptoms occur. |
| Most important symptoms/effects, acute and delayed | Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. |
| 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 exposed or concerned: Get medical advice/attention. 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. Show this safety data sheet to the doctor in attendance. |

5. Fire-fighting measures

| | |
|--|---|
| Suitable extinguishing media | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂). |
| 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 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 | <p>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.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.</p> |

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage**Precautions for safe handling**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. 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 original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection**Occupational exposure limits****US. ACGIH Threshold Limit Values**

| Components | Type | Value | Form |
|---|------|------------|----------------------|
| Acetic Acid (CAS 64-19-7) | STEL | 15 ppm | |
| | TWA | 10 ppm | |
| Disodium Octaborate Tetrahydrate (CAS 12008-41-2) | STEL | 6 mg/m3 | Inhalable fraction. |
| | TWA | 2 mg/m3 | Inhalable fraction. |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | TWA | 0.1 mg/m3 | Inhalable fraction. |
| | | 0.02 mg/m3 | Respirable fraction. |

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

| Components | Type | Value |
|---|------|-----------|
| Acetic Acid (CAS 64-19-7) | STEL | 37 mg/m3 |
| | | 15 ppm |
| | TWA | 25 mg/m3 |
| Disodium Octaborate Tetrahydrate (CAS 12008-41-2) | STEL | 10 ppm |
| | | 3 ppm |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | TWA | 1 mg/m3 |
| | TWA | 0.2 mg/m3 |

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

| Components | Type | Value |
|---|------|-----------|
| Acetic Acid (CAS 64-19-7) | STEL | 15 ppm |
| | TWA | 10 ppm |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | TWA | 0.2 mg/m3 |

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

| Components | Type | Value | Form |
|---|------|------------|----------------------|
| Acetic Acid (CAS 64-19-7) | STEL | 15 ppm | |
| | TWA | 10 ppm | |
| Disodium Octaborate Tetrahydrate (CAS 12008-41-2) | STEL | 6 mg/m3 | Inhalable fraction. |
| | TWA | 2 mg/m3 | Inhalable fraction. |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | TWA | 0.1 mg/m3 | Inhalable fraction. |
| | | 0.02 mg/m3 | Respirable fraction. |

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

| Components | Type | Value | Form |
|---|------|-----------|---------------------|
| Acetic Acid (CAS 64-19-7) | STEL | 15 ppm | |
| | TWA | 10 ppm | |
| Disodium Octaborate Tetrahydrate (CAS 12008-41-2) | STEL | 6 mg/m3 | Inhalable fraction. |
| | TWA | 2 mg/m3 | Inhalable fraction. |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | TWA | 0.2 mg/m3 | |
| | TWA | 0.2 mg/m3 | |

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

| Components | Type | Value | Form |
|---|------|----------|-------|
| Acetic Acid (CAS 64-19-7) | STEL | 37 mg/m3 | |
| | | 15 ppm | |
| | TWA | 25 mg/m3 | |
| | | 10 ppm | |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | TWA | 5 mg/m3 | Dust. |
| | | | |

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**

Chemical respirator with organic vapor cartridge and full facepiece.

Skin protection**Hand protection**

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other

Wear appropriate chemical resistant 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

Observe any medical surveillance requirements. 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 to Amber.

Odor

Sweet.

Odor threshold

Not available.

pH

3 - 5

Melting point/freezing point

Not available.

Initial boiling point and boiling range

392 °F (200 °C) estimated

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. |
| Relative density | 1.2 g/cm ³ (typical) |
| Solubility(ies) | |
| Solubility (water) | 100 % |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| Other information | |
| Explosive properties | Not explosive. |
| Oxidizing properties | Not oxidizing. |
| Percent volatile | 65.02 % estimated |
| pH in aqueous solution | 5 - 7 (1% Solution) |
| Pounds per gallon | 10 lb/gal (typical) |
| VOC | 1.96 % estimated |

10. 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 | No dangerous reaction known under conditions of normal use. |
| Conditions to avoid | Contact with incompatible materials. |
| Incompatible materials | Strong oxidizing agents. |
| Hazardous decomposition products | No hazardous decomposition products are known. |

11. Toxicological information

Information on likely routes of exposure

| | |
|---|--|
| Inhalation | Prolonged inhalation may be harmful. |
| Skin contact | Causes skin irritation. |
| Eye contact | Causes serious eye irritation. |
| Ingestion | Expected to be a low ingestion hazard. |
| Symptoms related to the physical, chemical and toxicological characteristics | Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. |

Information on toxicological effects

Acute toxicity

| Product | Species | Test Results |
|-----------------------|--------------------|--------------------------------|
| Manni-Plex Ultra Turf | | |
| <u>Acute</u> | | |
| Dermal | | |
| LD50 | Rabbit | 40079 mg/kg estimated |
| | Sprague-Dawley rat | 19608 mg/kg, 14 days estimated |
| Inhalation | | |
| LC50 | Rat | 587 mg/l, 4 Hours estimated |

| Product | Species | Test Results |
|-------------|--------------------|--------------------------------|
| LD50 | Rat | 102 mg/l estimated |
| Oral | | |
| LD100 | Mouse | 18944 mg/kg estimated |
| LD50 | Mouse | 15875 mg/kg estimated |
| | Rabbit | 19961 mg/kg estimated |
| | Rat | 10484 mg/kg, 14 days estimated |
| | Sprague-Dawley rat | 19608 mg/kg, 14 days estimated |

| Components | Species | Test Results |
|---------------------------|------------|--------------------|
| Acetic Acid (CAS 64-19-7) | | |
| <u>Acute</u> | | |
| Dermal | | |
| LD50 | Rabbit | 1060 mg/kg |
| Inhalation | | |
| LC50 | Guinea pig | 5000 ppm, 1 Hours |
| | Mouse | 5620 ppm, 1 Hours |
| | Rat | 11.4 mg/l, 4 Hours |
| Oral | | |
| LD50 | Mouse | 4960 mg/kg |
| | Rabbit | 1200 mg/kg |
| | Rat | 3.31 g/kg |

Ammonium Nitrate (CAS 6484-52-2)

Acute

Inhalation

LC50 Rat > 88.8 mg/l, 4 Hours

Oral

LD50 Rat 2217 mg/kg

Disodium Octaborate Tetrahydrate (CAS 12008-41-2)

Acute

Dermal

LD50 Rabbit > 2000 mg/kg

Oral

LD50 Guinea pig 5300 mg/kg

Rat 2550 mg/kg

2 g/kg

Manganese Sulfate, monohydrate (CAS 10034-96-5)

Acute

Oral

LD100 Mouse 305 mg/kg

Potassium Nitrate (CAS 7757-79-1)

Acute

Oral

LD50 Rabbit 1166 mg/kg

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

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Canada - Alberta OELs: Irritant

Disodium Octaborate Tetrahydrate (CAS 12008-41-2) Irritant

| | |
|---|--|
| 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 | |
| ACGIH Carcinogens | |
| Disodium Octaborate Tetrahydrate (CAS 12008-41-2) | A4 Not classifiable as a human carcinogen. |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | A4 Not classifiable as a human carcinogen. |
| Canada - Manitoba OELs: carcinogenicity | |
| BORATE COMPOUNDS, INORGANIC, INHALABLE FRACTION (CAS 12008-41-2) | Not classifiable as a human carcinogen. |
| MANGANESE ELEMENTAL AND INORGANIC COMPOUNDS, AS MN, INHALABLE FRACTION (CAS 10034-96-5) | Not classifiable as a human carcinogen. |
| Reproductive toxicity | Suspected of damaging fertility or the unborn child. |
| Specific target organ toxicity - single exposure | Not classified. |
| Specific target organ toxicity - repeated exposure | Not classified. |
| Aspiration hazard | Not an aspiration hazard. |
| Chronic effects | Prolonged inhalation may be harmful. |

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

| Product | | | Species | Test Results |
|---|------|--------------------------------------|-----------------------------------|--------------|
| Manni-Plex Ultra Turf | | | | |
| Aquatic | | | | |
| Crustacea | EC50 | Daphnia | 920.1008 mg/l, 48 hours estimated | |
| Fish | LC50 | Fish | 427.9197 mg/l, 96 hours estimated | |
| Components | | | Species | Test Results |
| Acetic Acid (CAS 64-19-7) | | | | |
| Aquatic | | | | |
| Crustacea | EC50 | Water flea (Daphnia magna) | 65 mg/l, 48 hours | |
| Fish | LC50 | Bluegill (Lepomis macrochirus) | 75 mg/l, 96 hours | |
| Disodium Octaborate Tetrahydrate (CAS 12008-41-2) | | | | |
| Aquatic | | | | |
| Acute | | | | |
| Crustacea | LC50 | Daphnia magna | 619 mg/l | |
| Fish | LC50 | Pimephales promelas | 370 mg/l | |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | | | | |
| Aquatic | | | | |
| Crustacea | EC50 | Water flea (Daphnia obtusa) | 30.8 - 44.1 mg/l, 48 hours | |
| Fish | LC50 | Fathead minnow (Pimephales promelas) | 36.9 mg/l, 96 hours | |
| | | | 29.7 - 52.7 mg/l, 192 hours | |
| Potassium Nitrate (CAS 7757-79-1) | | | | |
| Aquatic | | | | |
| Fish | LC50 | Bluegill (Lepomis macrochirus) | 1200 mg/l, 96 hours | |
| Acute | | | | |
| Fish | LC50 | Fish | 1378 - 3000 mg/l | |

* 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

Partition coefficient n-octanol / water (log K_{ow})

Acetic Acid

-0.17

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. 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

TDG

UN number

UN3139

UN proper shipping name

OXIDIZING LIQUID, N.O.S. (Potassium Nitrate)

Transport hazard class(es)

Class

5.1

Subsidiary risk

-

Packing group

III

Environmental hazards

Not available.

Special precautions for user

Read safety instructions, SDS and emergency procedures before handling.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not established.

TDG



15. Regulatory information

Canadian regulations

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

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) | No |
| 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) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | No |
| Korea | Existing Chemicals List (ECL) | No |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | No |

*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

Issue date 05-24-2016

Revision date 05-24-2016

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.