SDS# 12345
Revision Date:
10/5/22

SECTION 1. IDENTIFICATION

Product Identifier	Turf Titan Lawn Advancer
Other Means of Identification	Fertilizer solution with chelated Zn, Mn & B micronutrients
Recommended Use	
Restrictions on Use	Fertilizing Compound
Distributor Information	None BW-Fusion
Emergency Phone Number	3850 Concept Court #101, Fort Wayne, IN 46808, & 55560 150th Ave, Fonda, IA 50540
SDS Number	Chemtrec - Day or Night at 800-424-9300
Date of Preparation	12345 7/1/20

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute oral toxicity 4, Skin corrosion/irritation 2, Serious eye damage/eye irritation 2B Reproductive toxicity 2, Acute inhalation toxicity 4, Acute dermal toxicity 4, STOT SE3 (irritation to respiratory system)

GHS Label Elements

Signal Word: Warning

Hazard Statement(s)

H302: Harmful if swallowed
H312: Harmful in contact with skin
H315: Causes skin irritation
H320: Causes eye irritation
H332: Harmful if inhaled
H335: May cause respiratory irritation
H336: May cause drowsiness or dizziness
H361: Suspected of damaging fertility or the unborn child

Precautionary Statement(s)

Precautionary Statements - Prevention, Response, Storage, Disposal

P202: Do not handle until all safety precautions have been read and understood
P261: Avoid breathing fume/mist/vapours/spray.
P264: Wash skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves / protective clothing / eye protection / face protection.
P301+P312+P330: IF SWALLOWED: Call a poison control center or doctor/physician if you feel unwell. Rinse mouth.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P332+P313: IF SKIN IRRITATION OCCURS: Get medical advice/attention
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.
P362+P364: Take off contaminated clothing and wash it before reuse.
P370+P378: In case of fire: Use water, dry powder, carbon dioxide foam to extinguish.
P403+P233: Store in a well-ventilated place. Keep container tightly closed.
P405: Store locked up.
P501: Dispose of contents/container to an approved waste disposal plant in accordance with local/regional/national regulations.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Identity: 3% N, 4% $P_2 0_5$, 7% $K_2 0$, 0.7% B, 0.2% Mn, 0.5% Zn

CAS#:	Common Name/ Synonyms:	% by Wt.
7778-77-0	Monopotassium Phosphate	8% - 10%
141-43-5	Monoethanolamine	4%-5%
10043-35-3	Boric Acid	3%-4%
60-00-4	Ethylenediaminetetraacetic acid	3%-4%
590-29-4	Potassium Formate	2% - 3%
1314-13-2	Zinc oxide	0.5%-1%
7773-01-5	Manganese (II) chloride	0.4%-0.5%

SECTION 4. FIRST AID MEASURES

Description of first aid measures

General Advice: Remove contaminated clothing and shoes. Seek medical advice immediately and show safety data sheet or label to the doctor, if possible.

If Inhaled: Remove person from contaminated area to fresh air. If not breathing, give artificial respiration. Seek medical attention if irritation or dizziness occurs.

In Case of Skin Contact: Remove contaminated clothing and wash before re-using. Flush skin with water and then wash with soap and water. Seek medical attention if irritation persists.

I**n Case of Eye Contact:** Flush eyes with clean water for at least 15 minutes. Lift eyelids to facilitate irrigation. If present, remove contact lenses after 5 minutes and continue rinsing. Seek medical attention immediately.

If Swallowed: Seek medical attention or call a poison control center immediately. Do not induce vomiting unless instructed to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: The most important knows symptoms an effects are described in section 2. Further symptoms are possible.

Indication of any immediate medical attention and special treatment needed: No additional information available.

SECTION 5. FIRE FIGHTING MEASURES

Extinguishing Media: Suitable extinguishing media; water, dry powder, carbon dioxide, foam.
Specific Hazards arising from the substances or mixture: Hydrogen chloride, manganese oxides, copper oxides, boron oxides may be formed in a fire situation. Carbon oxides and nitrogen oxides may form as well.
Advice for Firefighters: Fire fighters should wear appropriate protective equipment and self contained breathing apparatus (SCBA) with a full face piece operated in a positive pressure mode.
Further Information: Dispose of fire debris contaminated extinguishing water in accordance with official regulations.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: As outlined in section 8, wear appropriate respiratory, protection. Avoid breathing fume, vapors, spray, mist or gas. Use personal protective clothing. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental Precautions: Do not allow spilled product to enter water supplies. Discharge into the environment must be avoided

Methods and Materials for Containment and Cleaning Up: Spills should be contained by diking area with sand or soil. Cover contained spill with and inert absorbent material such as sand, vermiculite or other appropriate material. Vacuum, scoop, or sweep up material and place in a container for disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling: Do not eat, drink or smoke when using this product. Wash hands and other exposed areas thoroughly after handling. Provide adequate ventilation. Protect packages against physical damage. Reseal containers immediately after use. Immediately remove and dispose of any spilled material.

Conditions for Safe Storage, Including any Incompatibilities: Keep container tightly closed in a dry and well ventilated area.

SECTION 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Control Parameters:		**ACGIH Threshold Limit Values**		**OSHA PEL**		**NIOSH REL**	
Chemical Identity:	**CAS#:**	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**
Monopotassium Phosphate	7778-77-0	NDA	NDA	NDA	NDA	NDA	NDA
Monoethanolamine	141-43-5	2 mg/m^3	6 mg/m^3	6 mg/m^3	15 mg/m^3	8 mg/m^3	15 mg/m^3
Boric Acid	10043-35-3	2 mg/m^3	6 mg/m^3	NDA	NDA	NDA	NDA
Ethylenediaminetetraacetic acid	60-00-4	NDA	NDA	NDA	NDA	NDA	NDA
Potassium Formate	590-29-4	NDA	NDA	NDA	NDA	NDA	NDA
Zinc oxide	1314-13-2	2 mg/m^3	10 mg/m^3	5-15 mg/m^3	10 mg/m^3	5 mg/m^3	10 mg/m^3
Manganese (II) chloride	7773-01-5	0.2 mg/m^3	NDA	NDA	NDA	1 mg/m^3	3 mg/m^3

Appropriate Engineering Controls:

Provide sufficient ventilation to maintain airborne concentrations below the recommended exposure limits. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

Individual Protection Measures, Such as Personal Protective Equipment:

Eye Protection: Tightly fitting safety goggles or face shield if a splashing hazard exists. Use of equipment for eye protection tested and approved under appropriate government standards such as NIOSH.

Skin Protection: Handle with chemical resistant protective gloves. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Wash and dry hands.

SECTION 8. EXPOSURE CONTROL / PERSONAL PROTECTION (CONT.)

Body Protection: Body protection must be chosen depending on activity and possible exposure, i.e. apron, chemical resistant footwear plus socks, long sleeved shirt, long pants, chemical protection suit.

Respiratory Protection: Respiratory protection is not typically required if airborne concentrations are maintained below established exposure limits. Wear a NIOSH certified (or equivalent) organic vapor/particulate respirator. Do not exceed the maximum use concentration for the respirator face piece/cartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full face piece pressure demand self contained breathing apparatus (SCBA) or a full face piece pressure demand supplied air respirator (SAR) with escape provisions. Observe OSHA regulations for respirator use (29CFR 1910.134)

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc):	**Green liquid**
Odor:	**No data available**
Odor Threshold:	**None**
pH:	**7.5 - 8.0**
Melting point:	**No data available**
Freezing point:	**No data available**
Initial boiling point:	**No data available**
Boiling range:	**No data available**
Flash point:	
Evaporation rate:	**No data available**
Flammability (solid, gas):	**No data available**
Upper/lower flammability or explosive limits:	**No data available**
Vapor pressure:	**No data available**
Vapor density:	**No data available**
Relative density:	**No data available**
Solubility:	**Soluble**
Partition coefficient; n-octanol/water:	**No data available**
Auto-ignition temperature:	**No data available**
Decomposition temperature:	**No data available**
Viscosity:	**No data available**
Specific gravity:	**1.21**

SECTION 10. STABILITY AND REACTIVITY

Reactivity:

No Data Available

Chemical Stability:

Product is stable at ambient temperature and pressure, under normal storage and handling conditions.

Possibility of Hazardous Reactions:

No Data Available

Conditions to Avoid (i.e. static discharge, shock or vibration)

No Data Available

Incompatible Materials:

Strong oxidizing agents, strong bases and acids.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routs of Exposure:

Inhalation, ingestion, skin and eye contact

Symptoms Related to Physical, Chemical and Toxicological Characteristics and Delayed and Immediate Effects and Chronic Effects from Short and Long Term Exposure:

Acute Toxicity:

Acute oral - Ethanolamine: Est.LD50 = 1,515 mg/kg. Manganese chloride: Est. LD50 = 250 mg/kg. Zinc oxide: Est.LD50 = 7,950 mg/kg. EDTA: Est. LD50 = 4,500 mg/kg. Boric acid: Est. LD50 = 2,660 mg/kg. **Acute inhalation** - Ethanolamine: Estimated LC50 = >1.3 mg/l. Zinc oxide: Estimated LC50 = 2,500 mg/m^3. **Acute dermal** - Ethanolamine: Estimated LD50 = 2,504 mg/kg.

Skin Corrosion/Irritation:

Immediate contact may cause irritation. Repeated exposure may lead to itch, rash, dermatitis or other reaction.

Serious Eye Damage/Eye Irritation:

May cause eye irritation, including redness and inflammation based on component data.

Respiratory or Skin Sensitization:

No Data Available

Carcinogenicity:

No Data Available

SECTION 11. TOXICOLOGICAL INFORMATION (CONT.)

Germ Cell Mutagenicity:

No data available on the mixture.
Zinc Oxide: Hamster embryo - unscheduled DNA synthesis, morphological transformation, sister chromatid exchange.

Reproductive Toxicity:

No data available. Boric acid has been demonstrated to have an effect on male fertility and the development of an unborn child.

Specific target organ toxicity - single or repeated exposure:

No data available for this mixture. Single exposure: **Ethanolamine:** After repeated exposure, the prominent effect is local irritation. The substance may cause damage to the upper respiratory tract after repeated inhalation, as shown in animal studies.

Aspiration Hazard:

No data available

Symptoms After Inhalation:

Harmful if inhaled. Can cause irritation of the upper respiratory tract with potential effects on the central nervous system.

Symptoms After Skin Contact:

May cause skin irritation.

Symptoms After Eye Contact:

May cause eye irritation including redness and inflammation.

Symptoms After Ingestion:

Harmful if swallowed. Ingestion could have negative effects on the kidneys and liver.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity (Aquatic and Terrestrial, Where Available):

No data available for the mixture. Individual component data reported. **EDTA:** LC50: 41 mg/l, exposure time: 96 h, species: *Lepomis macrochirus* (Bluegill sunfish), test type: static test. **Manganese chloride:** LC50: 51 mg/l, exposure time: 96 h, species: *Orconectes limosus macrochirus (Bluegill sunfish).* **Ethanolamine:** LC50: 349 mg/l, exposure time: 96 h, species: *Cyprinus carpio* (Carp), test type: semi-static test. Literature data. Chronic: NOEC: 1.2 mg/l, exposure time: 30 d, species: *Oryzias latipes* (orange-red killifish), method: OECD test guideline 210. Literature data. **Zinc oxide:** LC50: 1.1 mg/l, exposure time: 96 h, species: *Oncorhynchus mykiss* (Rainbow Trout). **Boric acid:** LC50: 279 mg/l, exposure time: 96 h, species: *Ptychocheilus lucius.* LC50: >1,021 mg/l, exposure time: 96 h, species: *Lepomis macrochirus* (Bluegill).

SECTION 12. ECOLOGICAL INFORMATION (CONT.)

Toxicity to Daphnia and Other Aquatic Invertebrates (Acute and Chronic):

No data available for the mixture. Individual component data reported. **Boric acid:** EC50: 133 mg/l, exposure time: 48 h, species: *Daphnia magna* (water flea). **EDTA:** EC50: 625 mg/l, exposure time: 48 h, species: *Daphnia magna* (water flea). **Manganese chloride:** EC50: >11 mg/l, exposure time: 48 h, species: *Daphnia magna* (water flea). **Ethanolamine:** EC50: 65 mg/l, exposure time: 48 h, species: *Daphnia magna* (water flea), test type: static test, method: 84/449/EEC C.2, Literature data. Chronic: NOEC: 0.85 mg/l, exposure time: 21 d, species: *Daphnia magna* (water flea), method: OECD test guideline 211. Literature data. **Zinc oxide**: EC50: 0.098 mg/l, exposure time: 48 h, species: *Daphnia magna* (water flea).

Toxicity to Algae:

No data available for the mixture.

Ethanolamine: ErC50: 2.5 mg/l, exposure time: 72 h, species: *Pseudokirchneriella subcapitata* (green algae), test type: OECD test guideline 201.

Persistence and Degradability:

No data available

Bioaccumlative Potential:

No data available

Mobility in the Soil:

No data available

Other Adverse Effects:

No data available on the mixture: however, zinc oxide is very toxic to aquatic life. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods - Product:

Dispose in accordance with all local, state and federal regulations. In unused condition, this product is not considered to be a RCRA defined hazardous waste by character/listings. It is the responsibility of the waste generator to evaluate whether the waste is hazardous by characteristic/listing.

Waste Treatment Methods - Container:

Containers should be cleaned of residual product before disposal. Empty containers should be disposed of in accordance with all applicable laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented incomplete, inaccurate or otherwise inappropriate.

SECTION 14. TRANSPORT INFORMATION - US DOT, IATA, IMO, ADR:

Proper Shipping Name: Not regulated by D.O.T.
D.O.T. Hazard Class: Not regulated by D.O.T.
Label Requirement: None
Placard: None
Packing Group: N/A

UN#: N/A
RQ: N/A
CAS: Mixture
ERG Book Information: Guide# 171
Marine Pollutant: No
IATA: No

SECTION 15. REGULATORY INFORMATION

U.S. Federal - OSHA Status:

This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910,1200.

TSCA Status:
Listed/Reportable

SARA Title III Section 302 - EXTREMELY HAZARDOUS SUBSTANCES:
This product does NOT contain ingredients listed in Appendix A and B as extremely hazardous substances.

SARA Title III Sections 311/312:
Immediate (acute) health hazard, Delayed (chronic) health hazard

SARA Section 313 Toxic Chemicals:
This product contains the following toxic chemical subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right to Know Act:

CAS#:	Chemical Name:
	This material does NOT contain any chemical components with known CAS numbers that exceed the threshold reporting levels.

SARA Superfund Section 110:

This product does NOT contain ingredients listed as hazardous substances on the Priority List of CERCLA Hazardous substances.

CERCLE, 40 CFR 117,302:

This product does NOT contain ingredients specified in the List of Extremely Hazardous Substances.

CERCLA Listed Substance Are:

Ethylendiamine tetraacetic Acid RQ 5000lbs

SECTION 15. REGULATORY INFORMATION (CONT.)

Other Federal Reporting Requirements:

CAA: This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act

CWA: No chemicals in product are listed as Hazardous Substances, Priority Pollutants or Toxic Pollutants under the CWA.

RCRA: Not a hazardous waste under RCRA

CAS#	State RTK	Chemical Name
60-00-4	NJ, PA, MA, CA	Ethylenediamine tetraacetic Acid
141-43-5	CT, MA, MN, NJ, PA, RI	Monoethanolamine

CALIFORNIA PROPOSITION 65:

This product does NOT contain a chemical or chemicals subject to California Proposition 65.

Michigan Critical Materials:

This Product does NOT contain ingredients on the Michigan Critical Materials Register.

Global Lists/ International Inventories:

Canada CEPA: All components are listed on the Canadian DSL

Canada WHMIS: No Information Found

SECTION 16. OTHER INFORMATION

NOTE SECTION 3: Any concentration shown as a range is to protect confidentiality or is due to batch variation.

SAFETY DATA SHEET

SECTION 16. OTHER INFORMATION (CONT.)

NOTICE: OSHA STANDARD 29 CFR 1910.1200 requites that information be provided to employees regarding the hazards of chemicals by means of a Hazard Communication Program including training, labeling, Safety Data Sheets, and access to written records. We request that you , and it is your legal duty, to make all information in this Safety Data Sheet available to your employees

Key Legend Information:

N/A:	Not Applicable
N/R:	Not Rated
ACGI:	American Conference of Governmental Industrial Hygienists
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible Exposure Limit
STEL:	Short Term Exposure Limit
IARC:	International Agency for Research on Cancer
SARA Title III:	Superfund Amendments and Reauthorization Act
CAA:	Clean Air Act
RCRA:	Resource Conservation Recovery Act
IATA:	International Air Transport Association Shipping Information
DSL:	Domestic Substance List (Canada)
ND:	Not Determined
NDA:	No Data Available
TLV:	Threshold Limit Value
TWA:	Time Weighted Average
NTP:	National Toxicology Program
TSCA:	Toxic Substance Control Act
CERCLA:	Comprehensive Response, Compensation and Liability Act
CWA:	Clean Water Act
IMO:	International Maritime Organization Shipping Information