SAFETY DATA SHEET
TCS GrowStar Professional Turf Fertilizer (16-1-3)

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1. Product and Company Identification

Product Code: 904141

Product Name: TCS GrowStar Professional Turf Fertilizer (16-1-3)

Company Name: Turf Care Supply Corp.
50 Pearl Road
Suite 200
Brunswick, OH 44212

Phone Number: 1 (330)558-0910

Web site address: www.turfcaresupply.com

Email address: regaffairs@tcscusa.com

Emergency Contact: PERS — 1 (800)633-8253

Information: Turf Care Supply Corp. — 1 (330)558-0910

Synonyms: Granular Fertilizer

2. Hazards Identification

Acute Toxicity: Oral, Category 4

GHS Signal Word: **Warning**

GHS Hazard Phrases: Harmful if swallowed.
Causes skin irritation. Causes serious eye irritation. May cause repiratory irritation.
May cause damage to respiratory system and lungs through prolonged or repeated exposure.

GHS Precautionary Phrases: Avoid breathing dust.
Wear protective gloves, protective clothing, and eye protection.
Call a POISON CENTER or doctor/physician if you feel unwell.

GHS Response Phrases: If eye irritation persists, get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.

GHS Storage and Disposal Phrases: Store in a diked or contained area to prevent uncontrolled release to the environment.
Store in a closed container.
If material cannot be completely used according to label directions, dispose of container and contents according to section 13.

Potential Health Effects (Acute and Chronic): Chronic: Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated exposure may cause permanent eye damage. Chronic exposure may cause lung damage. Effects may be delayed.

Inhalation: May be harmful if inhaled. Low hazard for normal industrial handling. The toxicological properties of this substance have not been fully investigated. May cause systemic effects. Material may be irritating to mucous membranes and upper respiratory tract.

Skin Contact: May cause skin irritation. Dust causes mechanical irritation. Low hazard for usual industrial handling.

Eye Contact: May cause eye irritation. Dust may cause mechanical irritation.

Ingestion: May be harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Low hazard for normal industrial handling. The toxicological properties of this substance have not been fully investigated. May cause systemic effects.

3. Composition/Information on Ingredients

CAS #	Hazardous Components (Chemical Name)	Concentration
308066-19-5	Biosolids	50.0 %
57-13-6	Urea	23.8 %
7783-20-2	Ammonium sulfate	12.2 %
7778-80-5	Potassium sulfate	6.00 %
1317-65-3	Limestone	2.90 %
7704-34-9	Sulfur	2.67 %
68514-28-3	Humic acids, potassium salts	1.00 %
64742-65-0	Mineral Oil	0.750 %

4. First Aid Measures

Emergency and First Aid Procedures:

In Case of Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

In Case of Skin Contact: Get medical aid if irritation develops or persists. In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse. Wash off with soap and plenty of water.

In Case of Eye Contact: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid. Do NOT allow victim to rub eyes or keep eyes closed.

In Case of Ingestion: Get medical aid. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Call a poison control center. If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Signs and Symptoms Of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Note to Physician: Treat symptomatically and supportively.

5. Fire Fighting Measures

Flash Pt: No data.

Explosive Limits: LEL: No data. UEL: No data.

Autoignition Pt: No data.

Suitable Extinguishing Media: For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray.

Fire Fighting Instructions: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Substance is noncombustible. Decomposes at high temperatures, resulting in toxic and corrosive products. Runoff from fire control or dilution water may cause pollution.

Flammable Properties and Hazards: Most of the components of this product are non-combustible. However, a portion of them may support combustion at elevated temperatures.

Hazardous Combustion Products: Thermal decomposition may result in the production of ammonia, formaldehyde, biuret, chlorine, cyanic acid, and cyanide, and oxides of carbon, nitrogen, phosphorus, potassium, sulfur, and chlorine, and oxides of alkaline earth metals, and certain heavier metals used as nutrients in fertilizer products, such as copper, iron, manganese, and zinc, and other toxic and irritating fumes and gases.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled:

Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation. Avoid runoff into storm sewers and ditches which lead to waterways. Do not let this product enter the environment except as directed on product label. Clean up spills immediately, observing precautions in the Protective Equipment section.

Personal precautions.
Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

Environmental precautions.
Do not let product enter drains.

Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

PROCEDURES & PERSONAL PRECAUTIONS.
Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.

Methods for cleaning up.
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7. Handling and Storage

Precautions To Be Taken in Handling:

Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Wash thoroughly after handling. Use only in a well-ventilated area. Keep container tightly closed. Wash clothing before reuse.

Provide appropriate exhaust ventilation at places where dust is formed.

Precautions To Be Taken in Storing:

Store in a cool, dry place. Keep container closed when not in use.

8. Exposure Controls/Personal Protection

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
308066-19-5	Biosolids	No data.	No data.	No data.
57-13-6	Urea	No data.	No data.	No data.
7783-20-2	Ammonium sulfate	No data.	No data.	No data.
7778-80-5	Potassium sulfate	No data.	No data.	No data.
1317-65-3	Limestone	PEL: 15 (dust); 5 (resp.) mg/m3	No data.	No data.
7704-34-9	Sulfur	No data.	No data.	No data.
68514-28-3	Humic acids, potassium salts	No data.	No data.	No data.
64742-65-0	Mineral Oil	No data.	TLV: 5 mg/m3	No data.

Respiratory Equipment (Specify Type):	A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges.
Eye Protection:	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Protective Gloves:	Wear appropriate protective gloves to prevent skin exposure. Wash and dry hands.
Other Protective Clothing:	Wear appropriate protective clothing to prevent skin exposure. Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Engineering Controls (Ventilation etc.):	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Work/Hygienic/Maintenance Practices:	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States:	[ ] Gas [ ] Liquid [X] Solid
Appearance and Odor:	Multi-colored, granular solid. Slight ammonia-like odor.
pH:	No data.
Melting Point:	~ 133 C
Boiling Point:	No data.
Flash Pt:	No data.
Evaporation Rate:	No data.
Flammability (solid, gas):	No data available.
Explosive Limits:	LEL: No data. UEL: No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.
Specific Gravity (Water = 1):	No data.
Bulk density:	~ 45 - 65 LB/CF
Solubility in Water:	~ 1,079 G/L at 20.0 C
Solubility Notes:	The solubility cited is for the urea component of this product, if present. See section 3.
Octanol/Water Partition Coefficient:	No data.
Autoignition Pt:	No data.
Decomposition Temperature:	~ 135 C
Viscosity:	No data.
Additional Physical Information	The melting point and decomposition temperatures cited are for the urea component of this product, if present. See section 3. Urea decomposes before boiling. (UNEP Publication, OECD SIDS UREA, CAS No: 57-13-6)

10. Stability and Reactivity

Stability:	Unstable [ ] Stable [X]
Conditions To Avoid - Instability:	Incompatible materials, dust generation, heating to decomposition. High temperatures.
Incompatibility - Materials To Avoid:	Strong oxidizing agents, bases, acids, aluminum.
Hazardous Decomposition or Byproducts:	The decomposition of fertilizer products may result in the generation of some or all of the following: ammonia, formaldehyde, biuret, chlorine, cyanic acid, and cyanide, and oxides of carbon, nitrogen, phosphorus, potassium, sulfur, and chlorine, and oxides of alkaline earth metals, and certain heavier metals used as nutrients in fertilizer products, such as copper, iron, manganese, and zinc, and other irritating and toxic fumes and gases.
Possibility of Hazardous Reactions:	Will occur [ ] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	No data available.

11. Toxicological Information

Toxicological Information:

Epidemiology: No information found.
Teratogenicity: Teratogenic effects have occurred in experimental animals.
Neurotoxic effects have occurred in experimental animals.
Reproductive toxicity - no data available.
Inhalation: May cause damage to organs through prolonged or repeated exposure.

CAS# 57-13-6: Urea:
Other Studies:, TCLo, Inhalation, Rat, 288.0 MG/M3, 17 W; Gigiena Truda i Professional'nye Zabolevaniya.(Labor Hygiene and Occupational Disease), V/O Mezhdunarodnaya Kniga, Moscow 113095 Russia, Vol/p/yr: 30(3),43, 1986

Acute toxicity, LD50, Oral, Rat, 8471. MG/KG; Gigiena i Sanitariya, Mezhdunarodnaya Kniga, ul. B. Yakimanka, 39, 113095, Moscow 113095 Russia, Vol/p/yr: 51(6),8, 1986

Standard Draize Test, Skin, Human, 22.00 MG, 3 D; Cutaneous Toxicity, Proceedings of the 3rd Conference, 1976, D, V.A., and P. L, New York, Academic Press, Inc., London United Kingdom, Vol/p/yr: -,127, 1977

CAS# 7783-20-2: Ammonium sulfate:
Acute toxicity, TDLo, Oral, Human, 1500. MG/KG; Gigiena i Sanitariya, Mezhdunarodnaya Kniga, ul. B. Yakimanka, 39, 113095, Moscow 113095 Russia, Vol/p/yr: 42(2),100, 1977

CAS# 7778-80-5: Potassium sulfate:
Acute toxicity, LD50, Oral, Rat, 6600. MG/KG; Gigiena i Sanitariya, Mezhdunarodnaya Kniga, ul. B. Yakimanka, 39, 113095, Moscow 113095 Russia, Vol/p/yr: 50(7),24, 1985

CAS# 7704-34-9: Sulfur:
Acute toxicity, LC50, Inhalation, Species: unspecified., 1660. MG/M3; Gigiena Truda i

Professional'nye Zabolevaniya.(Labor Hygiene and Occupational Disease), V/O Mezhdunarodnaya Kniga, Moscow 113095 Russia, Vol/p/yr: 34(12),8, 1990

Standard Draize Test, Eyes, Human, 8.000 PPM; Analytical Chemistry., American Chemical Soc., Distribution Office Dept. 223, POB 57136, West End Stn., Washington, DC 20037, Vol/p/yr: 21,1411, 1949

Carcinogenicity/Other Information: This material may contain small amounts of respirable crystalline and amorphous silica. The International Agency for Cancer Research (IARC) has classified crystalline silica as a carcinogen to humans (Group 1), and amorphous silica as not classifiable as to its carcinogenicity to humans (Group 3). See "Silica, Some Silicates, Coal dust and para-Aramid Fibrils in IARC Monographs on the Evaluation of Carcinogenic Risks to Humans", (Vol. 68).

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
308066-19-5	Biosolids	n.a.	n.a.	n.a.	n.a.
57-13-6	Urea	n.a.	n.a.	n.a.	n.a.
7783-20-2	Ammonium sulfate	n.a.	n.a.	n.a.	n.a.
7778-80-5	Potassium sulfate	n.a.	n.a.	n.a.	n.a.
1317-65-3	Limestone	n.a.	n.a.	n.a.	n.a.
7704-34-9	Sulfur	n.a.	n.a.	n.a.	n.a.
68514-28-3	Humic acids, potassium salts	n.a.	n.a.	n.a.	n.a.
64742-65-0	Mineral Oil	n.a.	n.a.	n.a.	n.a.

12. Ecological Information

General Ecological Information: Environmental: If released to the atmosphere, urea will degrade rapidly in the vapor-phase by reaction with photochemically produced hydroxyl radicals (half-life of 9.6 hr). If released to soil, urea is hydrolyzed to ammonium through soil urease activity (the basis of its use as a fertilizer). The rate of hydrolysis can be fast (24 hr); however, a number of variables (such as increasing the pellet size of the fertilizer) can decrease the degradation rate.

Do not empty into drains.

Urea will dissolve and disperse in water, and will promote algae growth which may degrade water quality and taste. Notify downstream water users of any release that may affect water quality.
CAS# 57-13-6: Urea:
Lethal concentration to 0% of test organisms., Creek Chub (Semotilus atromaculatus), 16000000. UG/L, 24 H, Mortality, Water temperature: 15.0 C - 21.0 C C, pH: 8.30, Hardness: 98.00 MG/L; Appraisal of a Chemical Waste Problem by Fish Toxicity Tests, Gillette, L.A., D.L. Miller, and H.E. Redman, 1952

CAS# 7783-20-2: Ammonium sulfate:
Effective concentration to 50% of test organisms., Common Shrimp, Sand Shrimp (Crangon crangon), 85000. UG/L, 96 H, Intoxication,, Water temperature: 15.0 C C; Assessing the Toxicity of Industrial Wastes, with Particular Reference to Variations in Sensitivity of Test Animals, Franklin, F.L., 1980

CAS# 7778-80-5: Potassium sulfate:
LC50, Fathead Minnow (Pimephales promelas), 860000. UG/L, 48 H, Mortality, Water temperature: 25.0 C C, pH: 9.00; Statistical Models to Predict the Toxicity of Major Ions to Ceriodaphnia dubia, Daphnia magna and Pimephales promelas (Fathead Minnows), Mount, D.R., D.D. Gulley, J.R. Hockett, T.D. Garrison, and J.M. Evans, 1997

CAS# 7704-34-9: Sulfur:
LC50, Rainbow Trout (Oncorhynchus mykiss), 180.0 PPM, 96 H, Mortality; Pesticide Ecotoxicity Database (Formerly: Environmental Effects Database (EEDB)), Office of Pesticide Programs, 2000

Persistence and Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

13. Disposal Considerations

Waste Disposal Method: If material cannot be completely used according to label directions, dispose of container and contents according to this section.

Contact a licensed professional waste disposal service to dispose of this material.

Do not let product enter drains.

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.
RCRA U-Series: None listed.

Observe all federal, state, and local environmental regulations.

14. Transport Information

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not Regulated.
DOT Hazard Class:
UN/NA Number:

15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
308066-19-5	Biosolids	No	No	No
57-13-6	Urea	No	No	No
7783-20-2	Ammonium sulfate	No	No	No
7778-80-5	Potassium sulfate	No	No	No
1317-65-3	Limestone	No	No	No
7704-34-9	Sulfur	No	No	No
68514-28-3	Humic acids, potassium salts	No	No	No

64742-65-0	Mineral Oil	No	No	No

This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:

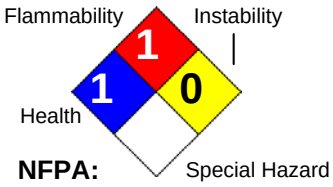
[ ] Yes [X] No	Explosive	[X] Yes [ ] No	Acute toxicity (any route of exposure)
[ ] Yes [X] No	Flammable (gases, aerosols, liquid, or solid)	[ ] Yes [X] No	Skin Corrosion or Irritation
[ ] Yes [X] No	Oxidizer (liquid, solid or gas)	[ ] Yes [X] No	Serious eye damage or eye irritation
[ ] Yes [X] No	Self-reactive	[ ] Yes [X] No	Respiratory or Skin Sensitization
[ ] Yes [X] No	Pyrophoric (liquid or solid)	[ ] Yes [X] No	Germ cell mutagenicity
[ ] Yes [X] No	Pyrophoric gas	[ ] Yes [X] No	Carcinogenicity
[ ] Yes [X] No	Self-heating	[ ] Yes [X] No	Reproductive toxicity
[ ] Yes [X] No	Organic peroxide	[ ] Yes [X] No	Specific target organ toxicity (single or repeated exposure)
[ ] Yes [X] No	Corrosive to metal	[ ] Yes [X] No	Aspiration Hazard
[ ] Yes [X] No	Gas under pressure (compressed gas)	[ ] Yes [X] No	Simple Asphyxiant
[ ] Yes [X] No	In contact with water emits flammable gas	[ ] Yes [X] No	(Health) Hazard Not Otherwise Classified (HNOC)
[ ] Yes [X] No	Combustible Dust		
[ ] Yes [X] No	(Physical) Hazard Not Otherwise Classified (HNOC)		

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
308066-19-5	Biosolids	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NJ EHS: No; NY Part 597: No; PA HSL: No
57-13-6	Urea	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 8A CAIR; CA PROP.65: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NJ EHS: No; NY Part 597: No; PA HSL: No
7783-20-2	Ammonium sulfate	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NJ EHS: No; NY Part 597: No; PA HSL: Yes - E
7778-80-5	Potassium sulfate	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NJ EHS: No; NY Part 597: No; PA HSL: No
1317-65-3	Limestone	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NJ EHS: No; NY Part 597: No; PA HSL: Yes - 1
7704-34-9	Sulfur	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NJ EHS: No; NY Part 597: No; PA HSL: Yes - 1
68514-28-3	Humic acids, potassium salts	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NJ EHS: No; NY Part 597: No; PA HSL: No
64742-65-0	Mineral Oil	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NJ EHS: No; NY Part 597: No; PA HSL: No

16. Other Information

Revision Date: 04/19/2019

Hazard Rating System:



NFPA:

Additional Information About This Product: No data available.

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