

# Safety Data Sheet

## TourTurf (FS) Autumn Zero

Issued: 14/01/2021  
Version: 1.0.0

### SECTION 1: Identification of the substance/preparation and of the company/undertaking

#### 1.1. Product identifier

Trade name: TourTurf (FS) Autumn Zero

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended uses: Fertiliser.

#### 1.3. Details of the supplier of the safety data sheet

##### Supplier

Company: E. Marker  
Address: Okslundvej 8, Bov  
Zip code: 6330  
City: Padborg  
Country: DENMARK  
Phone: 74 67 08 08  
Homepage: [www.emarker.dk](http://www.emarker.dk)

#### 1.4. Emergency Telephone Number

Members of the public: 111 (NHS 111 (Scotland: NHS 24))

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

CLP-classification: Skin Sens. 1;H317 Eye Dam. 1;H318 Aquatic Chronic 2;H411

Most serious harmful effects: May cause an allergic skin reaction. Causes serious eye damage. Toxic to aquatic life with long lasting effects.

#### 2.2. Label elements

##### Pictograms



Signal word: Danger

##### Contains

Substance: Iron (II) sulfate; Manganese sulphate, monohydrate; Copper(II) sulphate pentahydrate;

##### H-phrases

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H411 Toxic to aquatic life with long lasting effects.

##### P-phrases

P391 Collect spillage.

P280 Wear protective gloves/eye protection.

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P305+351+338+310	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.
P302+352	IF ON SKIN: Wash with plenty of water.
P273	Avoid release to the environment.
P501	Dispose of contents/container in accordance with local regulation.

#### 2.3. Other hazards

Assessment to determine PBT and vPvB has not been made.

## SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

Substance	CAS No	EC No	REACH Reg. No.	Concentration	Notes	CLP-classification
Iron (II) sulfate	7720-78-7	231-753-5	01-2119513203-57	5 - 10%		Acute Tox. 4;H302 Skin Irrit. 2;H315 Skin Sens. 1;H317 Eye Irrit. 2;H319
Manganese sulphate, monohydrate	10034-96-5	232-089-9	01-2119456624-35	1 - 5%		Eye Dam. 1;H318 STOT RE 2;H373 Aquatic Chronic 2;H411
Copper(II) sulphate pentahydrate	7758-99-8	231-847-6	01-2119520566-40	1 - 3%	21	Acute Tox. 4;H302 Skin Irrit. 2;H315 Eye Dam. 1;H318 Aquatic Acute 1;H400 Aquatic Chronic 1;H410

Please see section 16 for the full text of H-phrases.

21 = M (chronic) = 10

## SECTION 4: First aid measures

#### 4.1. Description of first aid measures

<b>Inhalation:</b>	Seek fresh air. Seek medical advice in case of persistent discomfort.
<b>Ingestion:</b>	Wash out mouth thoroughly and drink 1-2 glasses of water in small sips. Seek medical advice in case of persistent discomfort.
<b>Skin contact:</b>	Remove contaminated clothing. Seek medical advice in case of persistent discomfort. Wash the skin with water.
<b>Eye contact:</b>	Open eye wide, remove any contact lenses and flush immediately with water (preferably using eye wash equipment). Seek medical advice immediately. Continue flushing until medical attention is obtained.
<b>General:</b>	When obtaining medical advice, show the safety data sheet or label.

#### 4.2. Most important symptoms and effects, both acute and delayed

Eye contact may result in deep caustic burns, pain, tearing and cramping of the eyelids. Risk of serious eye injury and loss of sight. May cause sensitization by skin contact. Symptoms include reddening, swelling, blistering and ulceration - often slowly developing.

#### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptoms.

## SECTION 5: Fire-fighting measures

#### 5.1. Extinguishing media

**Suitable extinguishing media:** The product is not directly flammable. Choose extinguishing agents based on the surrounding fire.

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**Unsuitable extinguishing media:** Do not use water stream, as it may spread the fire.

### 5.2. Special hazards arising from the substance or mixture

The product decomposes when combusted and the following toxic gases can be formed: Sulphur oxides.

### 5.3. Advice for fire-fighters

Wear Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit only where personal (close) contact is likely.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel:** Stay upwind/keep distance from source. Stop leak if this can be done without risk. Wear gloves. Wear safety goggles.

**For emergency responders:** In addition to the above: Chemical protective suit equivalent to EN 943-2 is recommended.

### 6.2. Environmental precautions

Prevent spillage from entering drains and/or surface water.

### 6.3. Methods and material for containment and cleaning up

Contain and absorb spill with sand or other absorbent material and transfer to suitable waste containers.

### 6.4. Reference to other sections

See section 8 for type of protective equipment.

See section 13 for instructions on disposal.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

The product should be used outdoors. Running water and eye wash equipment must be available. Wash hands before breaks, before using restroom facilities, and at the end of work.

### 7.2. Conditions for safe storage, including any incompatibilities

Store safely, out of reach of children and away from food, animal feeding stuffs, medicines, etc. Store in a cool, dry place. Do not store with the following: Strong oxidisers/ Strong reducing agents.

### 7.3. Specific end use(s)

No special uses in addition to identified uses in 1.2.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Occupational exposure limit:** Contains no substances subject to reporting requirements

**Measuring methods:** Compliance with occupational exposure limits may be checked by occupational hygiene measurements.

**Legal basis:** EH40/2005 Workplace exposure limits. Last amended January 2020.

### PNEC

Iron (II) sulfate, cas-no 7720-78-7				
Exposure	Value	Assessment Factor	Extrapolation Method	Note

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PNEC soil	49500 mg/kg			
PNEC STP (wastewater-treatment facilities)	500 mg/l			
Manganese sulphate, monohydrate, cas-no 10034-96-5				
Exposure	Value	Assessment Factor	Extrapolation Method	Note
PNEC aqua (freshwater)	0,0128 mg/l			
PNEC aqua (marine water)	0,0004 mg/l			
PNEC aqua (intermittent releases)	0,03 mg/l			
PNEC sediment (freshwater)	0,0114 mg/kg dw			
PNEC sediment (marine water)	0,00114 mg/kg dw			
PNEC STP (wastewater-treatment facilities)	56 mg/l			
PNEC soil	25,1 mg/kg dw			
Copper(II) sulphate pentahydrate, cas-no 7758-99-8				
Exposure	Value	Assessment Factor	Extrapolation Method	Note
PNEC aqua (freshwater)	7,8 µg/l			
PNEC aqua (marine water)	5,2 µg/l			
PNEC STP (wastewater-treatment facilities)	230 µg/l			
PNEC sediment (freshwater)	87 mg/kg dw			
PNEC sediment (marine water)	676 mg/kg dw			
PNEC soil	65 mg/kg dw			

#### DNEL - workers

Iron (II) sulfate, cas-no 7720-78-7					
Exposure	Value	Assessment Factor	Dose Descriptor	Main Impact Parameter	Note
Dermal DNEL (acute/short-term exposure - systemic effects)	0,57 mg/kg				
Inhalation DNEL (acute/short-term exposure - systemic effects)	2 mg/m³				
Dermal DNEL (long-term exposure - systemic effects)	0,57 mg/kg				
Inhalation DNEL (long-term exposure - systemic effects)	2 mg/m³				
Manganese sulphate, monohydrate, cas-no 10034-96-5					
Exposure	Value	Assessment Factor	Dose Descriptor	Main Impact Parameter	Note
Dermal DMEL (long-term exposure - systemic effects)	0,00414 mg/kg bw/day				
Inhalation DNEL (long-term exposure - systemic effects)	0,2 mg/m³				

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### DNEL - general population

Iron (II) sulfate, cas-no 7720-78-7					
Exposure	Value	Assessment Factor	Dose Descriptor	Main Impact Parameter	Note
Dermal DNEL (acute/short-term exposure - systemic effects)	0,29 mg/kg				
Inhalation DNEL (acute/short-term exposure - systemic effects)	0,5 mg/m <sup>3</sup>				
Oral DNEL (acute/short-term exposure - systemic effects)	0,29 mg/kg				
Dermal DNEL (long-term exposure - systemic effects)	0,29 mg/kg				
Inhalation DNEL (long-term exposure - systemic effects)	0,5 mg/m <sup>3</sup>				
Oral DNEL (long-term exposure - systemic effects)	0,29 mg/kg				

### Manganese sulphate, monohydrate, cas-no 10034-96-5

Exposure	Value	Assessment Factor	Dose Descriptor	Main Impact Parameter	Note
Dermal DMEL (long-term exposure - systemic effects)	0,0021 g/kg bw/day				
Inhalation DNEL (long-term exposure - systemic effects)	0,043 mg/m <sup>3</sup>				

## 8.2. Exposure controls

**Appropriate engineering controls:** Wear the personal protective equipment specified below.

**Personal protective equipment, eye/face protection:** Wear safety goggles/face protection. Eye protection must conform to EN 166.

**Personal protective equipment, hand protection:** Wear gloves. Type of material: Rubber/ Plastic. Breakthrough time has not been determined for the product. Change gloves often. Gloves must conform to EN 374. The suitability and durability of a glove is dependant on usage, e.g. frequency and duration of contact, glove material thickness, functionality and chemical resistance. Always seek advice from the glove supplier.

**Personal protective equipment, respiratory protection:** In case of risk of formation of spray mist, wear respiratory protective equipment with P2 filter. Respiratory protection must conform to one of the following standards: EN 136/140/145.

**Environmental exposure controls:** Ensure compliance with local regulations for emissions.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Parameter	Value/unit
State	Liquid

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Colour	Blue
Odour	Citrus / Neutral
Solubility	Soluble in the following: Water.
Explosive properties	No data
Oxidising properties	No data

Parameter	Value/unit	Remarks
pH (solution for use)	No data	
pH (concentrate)	3.1	
Melting point	No data	
Freezing point	No data	
Initial boiling point and boiling range	No data	
Flash Point	No data	
Evaporation rate	No data	
Flammability (solid, gas)	No data	
Flammability limits	No data	
Explosion limits	No data	
Vapour pressure	No data	
Vapour density	No data	
Relative density	No data	
Partition coefficient n-octanol/water	No data	
Auto-ignition temperature	No data	
Decomposition temperature	No data	
Viscosity	No data	
Odour threshold	No data	

#### 9.2 Other information

Other Information: None.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Reacts with the following: Oxidisers/ Strong reducing agents.

#### 10.2. Chemical stability

The product is stable when used in accordance with the supplier's directions.

#### 10.3. Possibility of hazardous reactions

None known.

#### 10.4. Conditions to avoid

None known.

#### 10.5. Incompatible materials

Oxidisers/ Strong reducing agents.

#### 10.6. Hazardous decomposition products

The product decomposes when combusted or heated to high temperatures and the following toxic gases can be formed: Sulphur oxides.

### SECTION 11: Toxicological information

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#### 11.1. Information on toxicological effects

##### Acute toxicity - oral

###### Iron (II) sulfate, cas-no 7720-78-7

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
Rat	LD50		450mg/kg			

###### Copper(II) sulphate pentahydrate, cas-no 7758-99-8

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
Rat	LD50		482mg/kg		OECD 401	

The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met. Ingestion may cause discomfort.

##### Acute toxicity - dermal

###### Iron (II) sulfate, cas-no 7720-78-7

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
Unknown	LD50		> 2000			

###### Copper(II) sulphate pentahydrate, cas-no 7758-99-8

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
Rat	LD50		> 2000mg/kg		OECD 402	

The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met.

**Acute toxicity - inhalation:** The product does not have to be classified. Test data are not available.

**Skin corrosion/irritation:** The product does not have to be classified. Test data are not available. May irritate the skin - may cause reddening.

**Serious eye damage/eye irritation:** Eye contact may result in deep caustic burns, pain, tearing and cramping of the eyelids. Risk of serious eye injury and loss of sight.

**Respiratory sensitisation or skin sensitisation:** The product does not have to be classified. Test data are not available.

**Germ cell mutagenicity:** The product does not have to be classified. Test data are not available.

**Carcinogenic properties:** The product does not have to be classified. Test data are not available.

**Reproductive toxicity:** The product does not have to be classified. Test data are not available.

**Single STOT exposure:** The product does not have to be classified. Test data are not available.

**Repeated STOT exposure:** The product does not have to be classified. Test data are not available.

**Aspiration hazard:** The product does not have to be classified. Test data are not available.

**Other toxicological effects:** None known.

## SECTION 12: Ecological information

#### 12.1. Toxicity

###### Iron (II) sulfate, cas-no 7720-78-7

Organism	Species	Exposure time	Test Type	Value	Conclusion	Test method	Source
Fish	Oryzias latipes	96 h	96hLC50	> 67mg/l			
Fish	Oncorhynchus mykiss	96 h	96hLC50	17mg/l			

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Crustacea	Daphnia magna	48 h	48hEC50	1mg/l			
Algae	Pseudokirchneriella subcapitata	72 h	72hEC50	18mg/l			
Bacteria	Pseudomonas putida	24 h	EC0	100mg/l			

#### **Manganese sulphate, monohydrate, cas-no 10034-96-5**

Organism	Species	Exposure time	Test Type	Value	Conclusion	Test method	Source
Fish	Name of species not specified	96 h	96hLC50	14.5mg/l		OECD TG 203	
Crustacea	Hyalella azteca	96 h	96hLC50	3mg/l		Static	
Algae	Desmodesmus subspicatus	72 h	72hEC50	61mg/l		OECD 201, static	
Bacteria	Name of species not specified	3 h	3hEC50	> 1000mg/l		OECD 209	

#### **Copper(II) sulphate pentahydrate, cas-no 7758-99-8**

Organism	Species	Exposure time	Test Type	Value	Conclusion	Test method	Source
Fish	Oncorhynchus mykiss	96 h	96hLC50	0.75 - 0.84mg/l			
Crustacea	Daphnia magna	48 h	48hEC50	0.024mg/l			
Algae	Scenedesmus quadricauda	4 h	4hEC50	0.1mg/l			
Bacteria	Escherichia coli		LC50	0.08mg/l			

Toxic to aquatic life with long lasting effects.

#### **12.2. Persistence and degradability**

Test data are not available.

#### **12.3. Bioaccumulative potential**

Test data are not available.

#### **12.4. Mobility in soil**

Test data are not available.

#### **12.5. Results of PBT and vPvB assessment**

No assessment has been made.

#### **12.6. Other adverse effects**

None known.

### **SECTION 13: Disposal considerations**

#### **13.1. Waste treatment methods**

Avoid discharge to drain or surface water.

If this product as supplied becomes a waste, it meets the criteria of a hazardous waste (Dir. 2008/98/EU). Collect spills and waste in closed, leak-proof containers for disposal at the local hazardous waste site.

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Empty, cleansed packaging should be disposed of for recycling. Uncleansed packaging is to be disposed of via the local waste-removal scheme.

<b>Category of waste:</b>	EWC code: Depends on line of business and use, for instance 02 01 08* agrochemical waste containing hazardous substances Absorbent/cloth contaminated with the product: EWC code: 15 02 02 absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances.
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#### SECTION 14: Transport information

##### Land transport (ADR/RID)

<b>14.1. UN-No.:</b>	3082	<b>14.4. Packing group:</b>	III
<b>14.2. UN proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Manganese sulphate, monohydrate) (Copper(II) sulphate pentahydrate)	<b>14.5. Environmental hazards:</b>	The product must be labelled as an environmental hazard (symbol: fish and tree) in packaging sizes of more than 5 kg/l.
<b>14.3. Transport hazard class(es):</b>	9		
<b>Hazard label(s):</b>	9		
<b>Hazard identification number:</b>	90	<b>Tunnel restriction code:</b>	-

##### Inland water ways transport (ADN)

<b>14.1. UN-No.:</b>	3082	<b>14.4. Packing group:</b>	III
<b>14.2. UN proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Manganese sulphate, monohydrate) (Copper(II) sulphate pentahydrate)	<b>14.5. Environmental hazards:</b>	The product must be labelled as an environmental hazard (symbol: fish and tree) in packaging sizes of more than 5 kg/l.
<b>14.3. Transport hazard class(es):</b>	9		
<b>Hazard label(s):</b>	9		
<b>Transport in tank vessels:</b>			

##### Sea transport (IMDG)

<b>14.1. UN-No.:</b>	3082	<b>14.4. Packing group:</b>	III
<b>14.2. UN proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Manganese sulphate, monohydrate) (Copper(II) sulphate pentahydrate)	<b>14.5. Environmental hazards:</b>	The product must be labelled as a Marine Pollutant (MP) in packaging sizes of more than 5 kg/l.
<b>14.3. Transport hazard class(es):</b>	9	<b>Environmental Hazardous Substance Name(s):</b>	
<b>Hazard label(s):</b>	9		
<b>EmS:</b>	F-A, S-F	<b>IMDG Code segregation group:</b>	- None -

##### Air transport (ICAO-TI / IATA-DGR)

<b>14.1. UN-No.:</b>	3082	<b>14.4. Packing group:</b>	III
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### 14.2. UN proper shipping name:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(Manganese sulphate, monohydrate)  
(Copper(II) sulphate pentahydrate)

### 14.3. Transport hazard class(es):

9

### Hazard label(s):

9

### 14.6. Special precautions for user

None.

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

The product must be labelled as an environmental hazard (symbol: fish and tree) in packaging sizes of more than 5 kg/l.

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### Special Provisions:

Special care should be applied for employees under the age of 18. Young people under the age of 18 may not carry out any work causing harmful exposure to this product.  
Directive 2012/18/EU (Seveso), E2 Hazardous to the Aquatic Environment in Category Chronic 2: Column 2: 200 t, Column 3: 500 t.

Covered by:

Council Directive (EC) on the protection of young people at work.

### 15.2. Chemical Safety Assessment

REACH Reg. No.	Substance name
01-2119456624-35	Manganese sulphate, monohydrate
01-2119513203-57	Iron (II) sulfate
01-2119520566-40	Copper(II) sulphate pentahydrate

## SECTION 16: Other information

### Version history and indication of changes

Version	Revision date	Responsible	Changes
1.0.0	14/01/2021	Bureau Veritas HSE / MPE	New

#### Abbreviations:

PBT: Persistent, Bioaccumulative and Toxic  
STOT: Specific Target Organ Toxicity  
vPvB: Very Persistent and Very Bioaccumulative  
DNEL: Derived No Effect Level  
PNEC: Predicted No Effect Concentration

#### Other Information:

This safety data sheet has been prepared for and applies to this product only. It is based on our current knowledge and the information that the supplier was able to provide about the product at the time of preparation. The safety data sheet complies with applicable law on preparation of safety data sheets in accordance with 1907/2006/EC (REACH) as subsequently changed.

#### Training advice:

A thorough knowledge of this safety data sheet should be a prerequisite condition.

#### Classification method:

Calculation based on the hazards of the known components.

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#### List of relevant H-statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

#### SDS is prepared by

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