



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
US OSHA Hazard Communication Standard (29 CFR 1910.1200)

Safety data sheet number SDS-VBS-1099

Revision Number 1

## SuperSede Small Grains

Revision date 07-Feb-2025

### 1. Identification

#### Product identifier

Product Name SuperSede Small Grains  
Product Code(s) 1186

#### Recommended use of the chemical and restrictions on use

Recommended use Fertilizer Seed Treatment

Restrictions on use Follow label instructions.

UN number or ID number UN3082

#### Other means of identification

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

##### Manufacturer Address

Valent BioSciences LLC  
1910 Innovation Way, Suite 100  
Libertyville, Illinois 60048

#### Emergency telephone number

Emergency Telephone Valent BioSciences LLC, Product Information: (800)323-9597  
Health Emergency (24 hr): 1-877-315-9819  
US Transportation (24 hr): CHEMTREC: 800-424-9300  
International Transportation (24 hr): 703-741-5970

### 2. Hazard(s) identification

#### Classification

Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (repeated exposure)	Category 2

#### Hazards not otherwise classified (HNOC)

Not applicable.

#### Label elements



Danger

**Hazard statements**

Causes serious eye irritation.  
May cause damage to organs through prolonged or repeated exposure.

**Precautionary Statements - Prevention**

Do not handle until all safety precautions have been read and understood.  
Wear protective gloves/clothing and eye/face protection.  
Wash face, hands and any exposed skin thoroughly after handling.  
Do not breathe dust/fume/gas/mist/vapors/spray.

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.

**Precautionary Statements - Storage**

Store locked up.

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant.

**Other information**

No information available.

### 3. Composition/information on ingredients

**Substance**

Not applicable.

**Mixture**

Chemical name	CAS No.	Weight-%	Trade secret
Manganese Sulfate	10034-96-5	1.0 - 3.5	*
Zinc Sulfate	7446-19-7	0.1 -2.0	*
Sodium Borate	1330-43-4	0.01 - 0.2	*

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

### 4. First-aid measures

**Description of first aid measures**

**General advice**

Show this safety data sheet to the doctor in attendance.

**Inhalation**

Remove to fresh air.

Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Skin contact	Wash skin with soap and water.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

**Most important symptoms and effects, both acute and delayed**

Symptoms	May cause redness and tearing of the eyes. Burning sensation.
Effects of Exposure	May cause damage to organs through prolonged or repeated exposure.

**Indication of any immediate medical attention and special treatment needed**

Note to physicians	Treat symptomatically.
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## 5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.
Specific hazards arising from the chemical	No information available.
Explosion data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Personal precautions	Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.
Other information	Refer to protective measures listed in Sections 7 and 8.

**Methods and material for containment and cleaning up**

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Pick up and transfer to properly labeled containers.

## 7. Handling and storage

### Precautions for safe handling

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes.

### Conditions for safe storage, including any incompatibilities

**Storage Conditions** Store locked up. Keep containers tightly closed in a dry, cool and well-ventilated place.

## 8. Exposure controls/personal protection

### Control parameters

**Exposure Limits** The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Manganese Sulfate 10034-96-5	TWA: 0.02 mg/m <sup>3</sup> Mn respirable particulate matter TWA: 0.1 mg/m <sup>3</sup> Mn inhalable particulate matter	(vacated) Ceiling: 5 mg/m <sup>3</sup> Ceiling: 5 mg/m <sup>3</sup> Mn	IDLH: 500 mg/m <sup>3</sup> Mn TWA: 1 mg/m <sup>3</sup> Mn STEL: 3 mg/m <sup>3</sup> Mn
Sodium Borate 1330-43-4	TWA: 2 mg/m <sup>3</sup> inhalable particulate matter STEL: 6 mg/m <sup>3</sup> inhalable particulate matter	(vacated) TWA: 10 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>

### Appropriate engineering controls

**Engineering controls** Showers  
Eyewash stations  
Ventilation systems.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** If splashes are likely to occur, wear safety glasses with side-shields.

**Hand protection** Wear suitable gloves.

**Skin and body protection** Wear suitable protective clothing.

**Respiratory protection** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations** Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

## 9. Physical and chemical properties

#### Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Color	Dark brown to black
Odor	Earth-like odor
Odor threshold	No information available

Property	Values	Remarks • Method
pH	No data available -	None known
pH (as aqueous solution)	3.5 - 4.5	None known
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	Non-flammable	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Relative vapor density	No data available	None known
Relative density	No data available	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

#### Other information

Explosive properties	No information available
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	No information available
VOC content	No information available
Liquid Density	1.12 - 1.15 g/ml
Bulk density	No information available

### 10. Stability and reactivity

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	None known based on information supplied.
Incompatible materials	None known based on information supplied.
Hazardous decomposition products	None known based on information supplied.

### 11. Toxicological information

#### Information on likely routes of exposure

## Product Information

Inhalation	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.
Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.
Skin contact	Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns.
Ingestion	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

## Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** May cause redness and tearing of the eyes.

## Acute toxicity

## Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

## Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Manganese Sulfate 10034-96-5	= 782 mg/kg ( Rat )	-	> 4.45 mg/L ( Rat ) 4 h
Sodium Borate 1330-43-4	= 2660 mg/kg ( Rat )	> 2000 mg/kg ( Rabbit )	> 2 mg/m <sup>3</sup> ( Rat ) 4 h

## Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.

**Carcinogenicity** No information available.

**Developmental toxicity** Do not ingest this product. Animal studies indicate that large amounts of boron (about 30grams of boric acid) over a short period of time can affect the stomach, intestines, liver, kidney, and brain. Animal studies also indicate that male reproductive organs especially the testes are affected. Although boron has been shown to adversely affect male reproduction in laboratory animals, male reproductive effects attributable to boron have not been

demonstrated in studies of highly exposed workers. Animal studies also indicate developmental affects in rib bone development in rib bones and body weight. The exposure levels of boron necessary to produce developmental and reproductive toxic effects in animals are not expected for humans under normal handling conditions for this product.

**STOT - repeated exposure** May cause damage to organs through prolonged or repeated exposure.

**Target organ effects** Kidney, Respiratory system, Central nervous system, Blood.

## 12. Ecological information

**Ecotoxicity** Toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Zinc Sulfate 7446-19-7	EC50: =0.056mg/L (72h, Pseudokirchneriella subcapitata)	LC50: =0.162mg/L (96h, Oncorhynchus mykiss) LC50: 0.03 - 0.05mg/L (96h, Oncorhynchus mykiss) LC50: 0.34 - 0.93mg/L (96h, Oncorhynchus mykiss) LC50: 0.218 - 0.42mg/L (96h, Pimephales promelas) LC50: =0.06mg/L (96h, Pimephales promelas) LC50: 0.23 - 0.48mg/L (96h, Pimephales promelas) LC50: 0.168 - 0.25mg/L (96h, Pimephales promelas) LC50: =0.15mg/L (96h, Cyprinus carpio) LC50: 16.85 - 27.18mg/L (96h, Cyprinus carpio) LC50: 3 - 4.6mg/L (96h, Lepomis macrochirus) LC50: 3.55 - 6.32mg/L (96h, Lepomis macrochirus) LC50: =0.63mg/L (96h, Poecilia reticulata) LC50: 49.23 - 64.16mg/L (96h, Poecilia reticulata) LC50: 0.48 - 1.72mg/L (96h, Poecilia reticulata)	-	EC50: =0.75mg/L (48h, Daphnia magna) EC50: 0.538 - 0.908mg/L (48h, Daphnia magna)
Sodium Borate 1330-43-4	EC50: =158mg/L (96h, Desmodesmus)	LC50: =340mg/L (96h, Limanda limanda)	-	LC50: 1085 - 1402mg/L (48h, Daphnia magna)

	subspicatus) EC50: 2.6 - 21.8mg/L (96h, Pseudokirchneriella subcapitata)			
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**Persistence and degradability** No information available.

#### Bioaccumulation

#### Component Information

Chemical name	Partition coefficient
Sodium Borate 1330-43-4	-1.53

**Other adverse effects** No information available.

### 13. Disposal considerations

#### Disposal methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

**California Hazardous Waste Status** This product contains one or more substances that are listed with the State of California as a hazardous waste.

### 14. Transport information

#### DOT

UN number or ID number UN3082  
 Proper shipping name Environmentally hazardous substance, liquid, n.o.s. (Manganese Sulfate)  
 Transport hazard class(es) 9  
 Packing group III  
 Technical Name Manganese Sulfate  
 Special Provisions 8, 146, 173, 335, 441, IB3, T4, TP1, TP29  
 DOT Marine Pollutant M  
 Marine pollutant Manganese Sulfate  
 Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (Manganese Sulfate), 9, III, Marine pollutant

#### ICAO (air)

UN number or ID number UN3082  
 UN proper shipping name Environmentally hazardous substance, liquid, n.o.s.  
 Transport hazard class(es) 9  
 Packing group III  
 Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (Manganese Sulfate), 9, III  
 Special Provisions A97, A158, A197, A215

#### IATA

UN number or ID number UN3082  
 UN proper shipping name Environmentally hazardous substance, liquid, n.o.s. (Manganese Sulfate)  
 Transport hazard class(es) 9



<b>Packing group</b>	III
<b>Technical Name</b>	Manganese Sulfate
<b>Description</b>	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Manganese Sulfate), 9, III
<b>Special Provisions</b>	A97, A158, A197, A215
<b>ERG Code</b>	9L

#### IMDG

<b>UN number or ID number</b>	UN3082
<b>UN proper shipping name</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>Transport hazard class(es)</b>	9
<b>Packing group</b>	III
<b>EmS-No.</b>	F-A, S-F
<b>Special Provisions</b>	274, 335, 969
<b>Description</b>	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Manganese Sulfate), 9, III, Marine pollutant

## 15. Regulatory information

### International Inventories

<b>TSCA</b>	Contact supplier for inventory compliance status.
<b>DSL/NDL</b>	Contact supplier for inventory compliance status.
<b>EINECS/ELINCS</b>	Contact supplier for inventory compliance status.
<b>ENCS</b>	Contact supplier for inventory compliance status.
<b>IECSC</b>	Contact supplier for inventory compliance status.
<b>KECI</b>	Contact supplier for inventory compliance status.
<b>PICCS</b>	Contact supplier for inventory compliance status.
<b>AIIC</b>	Contact supplier for inventory compliance status.
<b>NZIoC</b>	Contact supplier for inventory compliance status.

#### Legend:

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AIIC** - Australian Inventory of Industrial Chemicals  
**NZIoC** - New Zealand Inventory of Chemicals

### US Federal Regulations

#### SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	SARA 313 - Threshold Values %
Manganese Sulfate - 10034-96-5	1.0
Zinc Sulfate - 7446-19-7	1.0

#### SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

#### CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Zinc Sulfate 7446-19-7	1000 lb	X	-	X

#### **CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	Reportable Quantity (RQ)
Zinc Sulfate 7446-19-7	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ

#### **US State Regulations**

##### **California Proposition 65**

This product does not contain any Proposition 65 chemicals.

#### **U.S. State Right-to-Know Regulations**

Chemical name	New Jersey	Massachusetts	Pennsylvania
Manganese Sulfate 10034-96-5	X	-	X
Zinc Sulfate 7446-19-7	X	X	X
Sodium Borate 1330-43-4	X	X	X
Sodium Hydroxide 1310-73-2	X	X	X

#### **U.S. EPA Label Information**

EPA Pesticide Registration Number Not applicable

### **16. Other information**

<b>NFPA</b>	Health hazards 3	Flammability 0	Instability 0	Special hazards -
<b>HMIS</b>	Health hazards 3 *	Flammability 0	Physical hazards 0	Personal protection X
<i>Chronic Hazard Star Legend</i>		* = Chronic Health Hazard		

#### **Key or legend to abbreviations and acronyms used in the safety data sheet**

##### **Legend Section 8: Exposure controls/personal protection**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitizers		

#### **Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
Environmental Protection Agency  
Acute Exposure Guideline Level(s) (AELG(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal

Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
National Institute of Technology and Evaluation (NITE)  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
U.S. National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

**Revision date** 07-Feb-2025  
**Revision Note** No information available.

**Disclaimer**

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This Safety Data Sheet (SDS) may provide more information than the product label but does not replace or modify the product labeling (attached to and accompanying the product container). The product SDS and the product label both provide consistent and important health, safety, and environmental information as required by the Occupational Health and Safety Act (29 CFR 1910.1200, "Hazcom"). This requirement covers employers, employees, emergency responders, users and others handling the product. All necessary hazard classification and appropriate precautionary, use, storage, and disposal information is set forth on the labeling and the SDS.

**End of Safety Data Sheet**