


SAFETY DATA SHEET

1. Identification

Product identifier	NutriRoot
Other means of identification	Not available.
Recommended use	Fertilizer
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Manufacturer	
Company name	Arborjet Inc.
Address	99 Blueberry Hill Road Woburn, MA 01801 United States
Telephone	781.935.9070 781.935.9080 (Fax)
E-mail	Not available.
Emergency phone number	1-800-255-3924
Supplier	See above.

2. Hazard identification

Physical hazards	Not classified.	
Health hazards	Serious eye damage/eye irritation	Category 2
	Specific target organ toxicity following repeated exposure	Category 2
Environmental hazards	Not classified.	
Label elements		
Signal word	Warning	
Hazard statement	Causes serious eye irritation. May cause damage to organs through prolonged or repeated exposure.	
Precautionary statement		
Prevention	Wash thoroughly after handling. Do not breathe mist or vapour. Wear eye protection. Wear face protection.	
Response	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 attention. Get medical attention if you feel unwell.	
Storage	Store away from incompatible materials.	
Disposal	Dispose of container in accordance with local, regional, national and international regulations.	
Other hazards	None known.	
Supplemental information	None.	

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Manganese (II) sulfate		7785-87-7	1 - 5 *
Sulphuric Acid, Iron Salt		10124-49-9	1 - 5 *
Zinc sulfate, monohydrate		7446-19-7	1 - 5 *

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

Composition comments *CANADA GHS: The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.
Skin contact	Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.
Eye contact	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 attention.
Ingestion	Rinse mouth. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious or is convulsing. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Causes serious eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Symptoms may be delayed.
General information	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. Avoid contact with eyes and skin. Keep out of reach of children.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide.
Unsuitable extinguishing media	Not available.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Hazardous combustion products	May include and are not limited to: Oxides of carbon. Oxides of nitrogen. Oxides of phosphorus. Oxides of sulphur.
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. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapour. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination. Prevent entry into waterways, sewer, basements or confined areas.
Environmental precautions	Do not discharge into lakes, streams, ponds or public waters.

7. Handling and storage

Precautions for safe handling	Do not get this material in contact with eyes. Wear appropriate personal protective equipment. Do not breathe mist or vapour. Provide adequate ventilation. Observe good industrial hygiene practices. Wash thoroughly after handling. When using do not eat or drink.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Keep out of reach of children.

8. Exposure controls/Personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Manganese (II) sulfate (CAS 7785-87-7)	TWA	0.1 mg/m3	Inhalable fraction.
		0.02 mg/m3	Respirable fraction.
Sulphuric Acid, Iron Salt (CAS 10124-49-9)	TWA	1 mg/m3	

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

Components	Type	Value
Manganese (II) sulfate (CAS 7785-87-7)	TWA	0.2 mg/m ³
Sulphuric Acid, Iron Salt (CAS 10124-49-9)	TWA	1 mg/m ³

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

Components	Type	Value	Form
Manganese (II) sulfate (CAS 7785-87-7)	TWA	0.2 mg/m ³	Total
		0.02 mg/m ³	Respirable.
Sulphuric Acid, Iron Salt (CAS 10124-49-9)	STEL	2 mg/m ³	
	TWA	1 mg/m ³	

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

Components	Type	Value	Form
Manganese (II) sulfate (CAS 7785-87-7)	TWA	0.1 mg/m ³	Inhalable fraction.
		0.02 mg/m ³	Respirable fraction.
Sulphuric Acid, Iron Salt (CAS 10124-49-9)	TWA	1 mg/m ³	

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

Components	Type	Value	Form
Manganese (II) sulfate (CAS 7785-87-7)	TWA	0.1 mg/m ³	Inhalable fraction.
Sulphuric Acid, Iron Salt (CAS 10124-49-9)	TWA	1 mg/m ³	

Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety)

Components	Type	Value	Form
Manganese (II) sulfate (CAS 7785-87-7)	TWA	0.2 mg/m ³	Fume, total dust.
Sulphuric Acid, Iron Salt (CAS 10124-49-9)	TWA	1 mg/m ³	

Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)

Components	Type	Value
Manganese (II) sulfate (CAS 7785-87-7)	15 minute	0.6 mg/m ³
	8 hour	0.2 mg/m ³
Sulphuric Acid, Iron Salt (CAS 10124-49-9)	15 minute	3 mg/m ³
	8 hour	1 mg/m ³

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Safety goggles or glasses. Use a face shield if splashing is possible.

Skin protection**Hand protection**

Rubber gloves. Confirm with a reputable supplier first.

Other

As required by employer code.

Respiratory protection

Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).

Thermal hazards

Not applicable.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practices. Wash hands before breaks and immediately after handling the product. When using do not eat or drink.

9. Physical and chemical properties

Appearance	Liquid
Physical state	Liquid.
Form	Liquid.
Colour	Brown
Odour	Slight aromatic
Odour threshold	Not available.
pH	3.9
Melting point/freezing point	Not available.
Initial boiling point and boiling range	100 °C (212 °F)
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.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
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.
Oxidising properties	Not oxidising.

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	Hazardous polymerisation does not occur.
Conditions to avoid	Do not mix with other chemicals.
Incompatible materials	Strong oxidising agents. Alkalis.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon. Oxides of nitrogen. Oxides of sulphur. Oxides of phosphorus.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause damage to organs through prolonged or repeated exposure by inhalation.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Causes serious eye irritation.
Ingestion	May cause stomach distress, nausea or vomiting.
Symptoms related to the physical, chemical and toxicological characteristics	Causes eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
Manganese (II) sulfate (CAS 7785-87-7)		
Acute		
<i>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC50	Rat	> 4.5 mg/L, 4 Hours, ECHA
<i>Oral</i>		
LD50	Rat	1470 mg/kg, ECHA
Sulphuric Acid, Iron Salt (CAS 10124-49-9)		
Acute		
<i>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Not available	
Zinc sulfate, monohydrate (CAS 7446-19-7)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg, 24 Hours, ECHA
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Mouse	926 mg/kg, ECHA
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.	
Exposure minutes	Not available.	
Erythema value	Not available.	
Oedema value	Not available.	
Serious eye damage/eye irritation	Causes serious eye irritation.	
Corneal opacity value	Not available.	
Iris lesion value	Not available.	
Conjunctival reddening value	Not available.	
Conjunctival oedema value	Not available.	
Recover days	Not available.	
Respiratory or skin sensitisation		
Respiratory sensitisation	Not a respiratory sensitizer.	
Skin sensitisation	This product is not expected to cause skin sensitisation.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Not classified.	
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	May cause damage to organs through prolonged or repeated exposure.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Prolonged inhalation may be harmful.	
Further information	Not available.	

12. Ecological information

Ecotoxicity	See below
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Ecotoxicological data

Components	Species	Test Results
Manganese (II) sulfate (CAS 7785-87-7)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna) 7.09 - 9.36 mg/L, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas) 24.3 - 38.9 mg/L, 96 hours
Zinc sulfate, monohydrate (CAS 7446-19-7)		
Algae	IC50	Algae 64.8 mg/L, 72 Hours
Crustacea	EC50	Daphnia 0.75 mg/L, 48 Hours
Aquatic		
Crustacea	EC50	Rotifer (Philodina acuticornis) 0.3 mg/L, 48 hours
Fish	LC50	Rainbow trout, donaldson trout (Oncorhynchus mykiss) 0.162 mg/L, 96 hours
Persistence and degradability	No data is available on the degradability of this product.	
Bioaccumulative potential		
Mobility in soil	No data available.	
Mobility in general	Not 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	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	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.

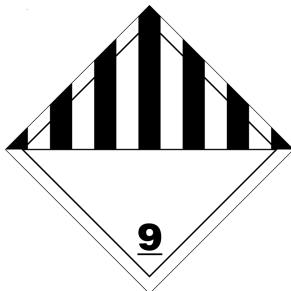
14. Transport information

General	Canada: TDG Proof of Classification: Classification Method: Classified as per Part 2, Sections 2.1 – 2.8 of the Transportation of Dangerous Goods Regulations. If applicable, the technical name and the classification of the product will appear below.
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Transportation of Dangerous Goods (TDG - Canada)**Basic shipping requirements:**

UN number	UN3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical name	Manganese (II) sulfate
Technical name	Zinc sulfate, monohydrate
Hazard class	9
Packing group	III
Marine pollutant	Yes
Special provisions	16, 99

TDG

**15. Regulatory information**

Canadian federal regulations	This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.
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Canada Priority Substances List (Second List): Listed substance

Zinc sulfate, monohydrate (CAS 7446-19-7) Listed.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

WHMIS status Hazardous**International regulations****Inventory status**

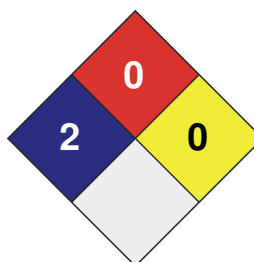
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	/ 2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	X

**Issue date** 26-October-2021**Revision date** 26-October-2021**Version No.** 02**Other information** For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.**Disclaimer** Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.**Prepared by** Dell Tech Laboratories Ltd. Phone: (519) 858-5021