

1. Identification

Product identifier Manni-Plex for Beans

Other means of identification

Product code 28120

Recommended use Agricultural/ Horticultural Use- Micronutrient Fertilizer- Refer to product label.

Recommended restrictions Refer to product label.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Brandt Consolidated, Inc.

Address 2935 South Koke Mill Road
Springfield, IL 62711
United States

Telephone Corporate Office 1-217-547-5800

Website www.brandt.co

E-mail msds@brandt.co

Contact person EH&S / Regulatory Department

Emergency phone number CHEMTREC (24 hours):
USA, Canada, Puerto Rico 1-800-424-9300
Virgin Islands 1-800-424-9300
International Maritime +1 (703) 527-3887

Supplier Not available.

2. Hazard identification

Physical hazards Not classified.

Health hazards Serious eye damage/eye irritation Category 2A

Environmental hazards Hazardous to the aquatic environment, acute hazard Category 2
Hazardous to the aquatic environment, long-term hazard Category 2

Label elements



Signal word Warning

Hazard statement Causes serious eye irritation. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Wash thoroughly after handling. Avoid release to the environment. Wear eye protection/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 advice/attention. Collect spillage.

Storage Store away from incompatible materials.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Zinc Nitrate		7779-88-6	5 - < 10
Iron, Water-soluble Salts, N.o.s.		10421-48-4	3 - < 5
Cupric Nitrate		3251-23-8	< 0.1
Other components below reportable levels			80 - < 90

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

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
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. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Prevent product from entering drains. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Avoid contact with eyes. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values Components

Type	Value	Form
Cupric Nitrate (CAS 3251-23-8)	TWA	1 mg/m3
		Dust and mist.
		0.2 mg/m3
		Fume.
Iron, Water-soluble Salts, N.o.s. (CAS 10421-48-4)	TWA	1 mg/m3

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

Type	Value
Iron, Water-soluble Salts, N.o.s. (CAS 10421-48-4)	TWA
	1 mg/m3

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

Type	Value
Iron, Water-soluble Salts, N.o.s. (CAS 10421-48-4)	STEL
	2 mg/m3
	TWA
	1 mg/m3

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

Type	Value	Form
Cupric Nitrate (CAS 3251-23-8)	TWA	1 mg/m3
		Dust and mist.
		0.2 mg/m3
		Fume.
Iron, Water-soluble Salts, N.o.s. (CAS 10421-48-4)	TWA	1 mg/m3

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

Type	Value
Iron, Water-soluble Salts, N.o.s. (CAS 10421-48-4)	TWA
	1 mg/m3

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

Type	Value
Iron, Water-soluble Salts, N.o.s. (CAS 10421-48-4)	TWA
	1 mg/m3

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

Type	Value
Iron, Water-soluble Salts, N.o.s. (CAS 10421-48-4)	15 minute
	3 mg/m3
	8 hour
	1 mg/m3

Biological limit values

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

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear appropriate chemical resistant gloves.

Other

Wear suitable protective clothing.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	Aqueous solution.
Physical state	Liquid.
Form	Liquid.
Color	Brown.
Odor	None.
Odor threshold	Not available.
pH	2.5 - 4.5
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
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.
Vapor pressure	0.00001 hPa estimated
Vapor density	Not available.
Relative density	1.21 g/cm ³ (typical)
Solubility(ies)	
Solubility (water)	100 %
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.
Oxidizing properties	Not oxidizing.
Percent volatile	70.33 % estimated
pH in aqueous solution	5.5 - 7.5
Pounds per gallon	10.1 lb/gal (typical)
Shelf life	> 2 years
VOC	0.94 % estimated

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	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	Knowledge about health hazard is incomplete.
Eye contact	Causes serious eye irritation.
Ingestion	Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
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Information on toxicological effects

Acute toxicity	Not known.
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Product	Species	Test Results
Manni-Plex for Beans		
<u>Acute</u>		
Dermal		
LD50	Rat	6.667e+006 mg/kg
Inhalation		
LC50	Rat	10660 mg/l, 6 hours
Oral		
LD50	Rat	17570 mg/kg

Components	Species	Test Results
Cupric Nitrate (CAS 3251-23-8)		
<u>Acute</u>		
Oral		
LD50	Rat	940 mg/kg

Iron, Water-soluble Salts, N.o.s. (CAS 10421-48-4)

<u>Acute</u>		
Oral		
LD50	Rat	3250 mg/kg

Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.
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Serious eye damage/eye irritation	Causes serious eye irritation.
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Respiratory or skin sensitization

Canada - Alberta OELs: Irritant

Iron, Water-soluble Salts, N.o.s. (CAS 10421-48-4)	Irritant
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Respiratory sensitization	Due to partial or complete lack of data the classification is not possible.
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Skin sensitization	Due to partial or complete lack of data the classification is not possible.
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Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.
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Carcinogenicity	Due to partial or complete lack of data the classification is not possible.
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IARC Monographs. Overall Evaluation of Carcinogenicity

Cupric Nitrate (CAS 3251-23-8)	2A Probably carcinogenic to humans.
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Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.
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Specific target organ toxicity - single exposure	Due to partial or complete lack of data the classification is not possible.
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Specific target organ toxicity - repeated exposure	Due to partial or complete lack of data the classification is not possible.
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Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
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Chronic effects	Prolonged inhalation may be harmful.
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12. Ecological information

Ecotoxicity	Toxic to aquatic life with long lasting effects.
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Product		Species	Test Results
Manni-Plex for Beans			
Aquatic			
Crustacea	EC50	Daphnia	2347.5569 mg/l, 48 hours estimated
Fish	LC50	Fish	204.4472 mg/l, 96 hours estimated
Components		Species	Test Results
Cupric Nitrate (CAS 3251-23-8)			
Aquatic			
Crustacea	EC50	Water flea (Moina dubia)	0.037 - 0.044 mg/l, 48 hours
Fish	LC50	Winter flounder (Pleuronectes americanus)	0.057 - 0.1061 mg/l, 96 hours
Zinc Nitrate (CAS 7779-88-6)			
Aquatic			
Crustacea	LC50	Brown mussel (Perna indica)	1.2858 - 1.5402 mg/l, 96 hours
Fish	LC50	Minnow (Phoxinus phoxinus)	2.7 - 3.7 mg/l, 96 hours
Persistence and degradability	No data is available on the degradability of any ingredients in the mixture.		
Bioaccumulative potential			
Mobility in soil	No data 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	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. 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	Dispose of in accordance with local regulations. 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

TDG

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

15. Regulatory information

Canadian 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.

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Ontario. Toxic Substances. Toxic Reduction Act, 2009. Regulation 455/09 (July 1, 2011)

Cupric Nitrate (CAS 3251-23-8)

Zinc Nitrate (CAS 7779-88-6)

Precursor Control Regulations

Not regulated.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

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

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 11-28-2023

Version # 01

Disclaimer The information provided in this Safety Data Sheet is correct to the best of Manufacturer's knowledge, information and belief at the date of its publication; however, it is provided only as a guidance for safe handling, use, processing, storage, transportation, disposal and release of the Product. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose, are made with respect to the Product or the information provided herein, or that the Product or information herein may be used without infringing the intellectual property rights of others. The information provided in this Safety Data Sheet relates only to the specific Product designated and may not be valid if the Product is used in combination with other materials or in any other process, unless specified herein. The user assumes all risk and liability for loss, injury, damage or expense due to any use, handling, storage or disposal of the Product, and Manufacturer recommends that the user conducts its own tests of the Product to determine suitability of the Product for user's particular use.

Revision information Product and Company Identification: Product and Company Identification
Hazards Identification: Shared US and Canadian Categories
Composition / Information on Ingredients: Ingredients
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Toxicological Data
Transport Information: Proper Shipping Name/Packing Group
Material Attributes & Uses; Experimental Data: Product Uses
GHS: Classification