

1. Identification

Product identifier	Manni-Plex Ni	
Other means of identification		
Product code	28148	
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	

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 1
	Sensitization, respiratory	Category 1B
	Sensitization, skin	Category 1B
	Germ cell mutagenicity	Category 2
	Carcinogenicity	Category 1A
	Reproductive toxicity	Category 1
	Specific target organ toxicity, repeated exposure	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2
OSHA defined hazards	Not classified.	

Label elements



Signal word Danger

Hazard statement Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing genetic defects. May cause cancer. May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Wear eye/face protection. In case of inadequate ventilation wear respiratory protection.

Response

If swallowed: Call a poison center/doctor if you feel unwell. If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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. Specific treatment (see this label). Rinse mouth. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. Collect spillage.

Storage

Store locked up.

Disposal

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

Hazard(s) not otherwise classified (HNOC)

None known.

Supplemental information

None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Nickel Nitrate		13138-45-9	30 - < 40*
Urea		57-13-6	10 - < 20*
Glycerine		56-81-5	5 - < 10*
Pentaerythritol		115-77-5	< 0.1*
Other components below reportable levels			50 - < 60

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Remove contaminated clothing. If skin irritation occurs: Get medical advice/attention. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention immediately. Continue rinsing.

Ingestion

Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dermatitis. Rash. May cause redness and pain. Severe eye irritation. Permanent eye damage including blindness could result. Difficulty in breathing. May cause an allergic skin reaction. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information

If exposed or concerned: Get medical advice/attention. 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. Wash contaminated clothing before reuse.

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. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not breathe mist or vapor. 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 Large Spills: This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. 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.

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. Contact local authorities in case of spillage to drain/aquatic environment. 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 Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not taste or swallow. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Pregnant or breastfeeding women must not handle this product. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container. Keep container tightly closed. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Glycerine (CAS 56-81-5)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.
Pentaerythritol (CAS 115-77-5)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value
Pentaerythritol (CAS 115-77-5)	TWA	10 mg/m ³

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Nickel Nitrate (CAS 13138-45-9)	TWA	0.015 mg/m ³	
Pentaerythritol (CAS 115-77-5)	TWA	5 mg/m ³	Respirable.
		10 mg/m ³	Total

US. AIHA Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
Urea (CAS 57-13-6)	TWA	10 mg/m3	Total particulate.
Biological limit values	No biological exposure limits noted for the ingredient(s).		
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) 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. Eye wash facilities and emergency shower must be available when handling this product.		
Individual protection measures, such as personal protective equipment			
Eye/face protection	Chemical respirator with organic vapor cartridge and full facepiece.		
Skin protection			
Hand protection	Wear appropriate chemical resistant gloves.		
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.		
Respiratory protection	Chemical respirator with organic vapor cartridge and full facepiece.		
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.		
General hygiene considerations	When using, do not eat, drink or smoke. 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. Contaminated work clothing should not be allowed out of the workplace.		

9. Physical and chemical properties

Appearance	Aqueous solution.
Physical state	Liquid.
Form	Liquid.
Color	Green
Odor	None.
Odor threshold	Not available.
pH	Not available.
Salt-Out / Crystallization Temp	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	350.6 °F (177.0 °C) estimated
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
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	0.00002 hPa estimated
Vapor density	Not available.
Relative density	1.23 g/cm3 (typical)
Solubility(ies)	
Solubility (water)	Not available.
Solubility (other)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.

Viscosity	Not available.
Other information	
Flammability class	Combustible IIIB estimated
Percent volatile	45.15 % estimated
pH in aqueous solution	5 - 7 (10% Solution)
Pounds per gallon	10.27 lb/gal (typical)
VOC (Weight %)	10.5 % 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	Hazardous polymerization does not occur.
Conditions to avoid	Avoid temperatures exceeding the flash point. 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

Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled. May cause damage to organs through prolonged or repeated exposure by inhalation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics Dermatitis. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. Rash. Severe eye irritation. Permanent eye damage including blindness could result. Difficulty in breathing. May cause redness and pain. May cause an allergic skin reaction.

Information on toxicological effects

Acute toxicity Harmful if inhaled. Harmful if swallowed. May cause an allergic skin reaction.

Product	Species	Test Results
Manni-Plex Ni (CAS Mixture)		
Acute		
<i>Oral</i>		
LD50	Rat	77644.3594 mg/kg estimated
<i>Other</i>		
LD50	Mouse	90285.7109 mg/kg estimated
	Rat	67619.0469 mg/kg estimated
Components	Species	Test Results
Pentaerythritol (CAS 115-77-5)		
Acute		
<i>Oral</i>		
LD50	Guinea pig	11300 mg/kg
	Mouse	25500 mg/kg
Urea (CAS 57-13-6)		
Acute		
<i>Oral</i>		
LD50	Rat	8471 mg/kg
	Sheep	28500 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation	Causes serious eye damage.
Respiratory or skin sensitization	
Respiratory sensitization	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization	May cause an allergic skin reaction.
Germ cell mutagenicity	Suspected of causing genetic defects.
Carcinogenicity	May cause cancer. Risk of cancer cannot be excluded with prolonged exposure.
IARC Monographs. Overall Evaluation of Carcinogenicity	
Nickel Nitrate (CAS 13138-45-9)	1 Carcinogenic to humans.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	
Not listed.	
US. National Toxicology Program (NTP) Report on Carcinogens	
Nickel Nitrate (CAS 13138-45-9)	Known To Be Human Carcinogen.
Reproductive toxicity	May damage fertility or the unborn child.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	Not available.
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects. Causes damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Product		Species	Test Results
Manni-Plex Ni (CAS Mixture)			
Aquatic			
Crustacea	EC50	Daphnia	1.3977 mg/l, 48 hours estimated
Fish	LC50	Fish	87.1691 mg/l, 96 hours estimated
Components		Species	Test Results
Glycerine (CAS 56-81-5)			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	51000 - 57000 mg/l, 96 hours
Nickel Nitrate (CAS 13138-45-9)			
Aquatic			
Crustacea	EC50	Brine shrimp (Artemia salina)	0.466 mg/l, 48 hours
Fish	LC50	Striped bass (Morone saxatilis)	6.2 mg/l, 96 hours
Pentaerythritol (CAS 115-77-5)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	30477 - 37043 mg/l, 48 hours
Urea (CAS 57-13-6)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	3910 mg/l, 48 hours
Fish	LC50	Carp (Leuciscus idus melanotus)	> 10000 mg/l, 48 hours
		Guppy (Poecilia reticulata)	16200 - 18300 mg/l, 96 hours
		Harlequinfish, red rasbora (Rasbora heteromorpha)	12000 mg/l, 96 hours
		Mozambique tilapia (Tilapia mossambica)	590 - 730 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

Glycerine	-1.76
Pentaerythritol	-1.69
Urea	-2.11

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 Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

Not DOT regulated in domestic (USA ground) transportation in package sizes less than 300 lbs (29 gallons); 136 kg (111 liters). The DOT transportation information below is for shipments with package sizes equal to or exceeding this value. IMDG Regulated Marine Pollutant.

DOT

UN number	UN3082
UN proper shipping name	Environmentally hazardous substances, liquid, n.o.s. (Nickel Nitrate RQ = 300 lbs)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
Packing group	III
Environmental hazards	
Marine pollutant	No
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	8, 146, 335, IB3, T4, TP1, TP29
Packaging exceptions	155
Packaging non bulk	203
Packaging bulk	241

DOT Shipping Notes: 40 CFR 172.504(f)(9) For Class 9, a CLASS 9 placard is not required for domestic (USA ground) transportation, however shipments with packaging exceeding the Reportable Quantity (RQ) or bulk packaging must be marked with the appropriate identification number on a CLASS 9 placard, an orange panel, or a white square-on-point display configuration as required. Since the Class 9 placard is not required (although it may be used) the hazardous material endorsement is also not required on a Commercial Drivers License.

IATA

UN number	UN3082
UN proper shipping name	Environmentally hazardous substances, liquid, n.o.s. (Nickel Nitrate)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
Packing group	III
Environmental hazards	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Forbidden.
Cargo aircraft only	Forbidden.

IMDG

UN number	UN3082
UN proper shipping name	Environmentally hazardous substances, liquid, n.o.s. (Nickel Nitrate)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

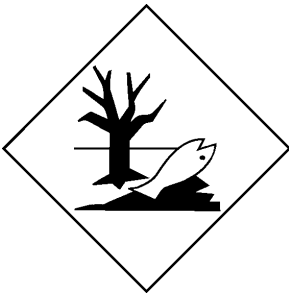
General information

Not DOT regulated in domestic (USA ground) transportation in package sizes less than 300 lbs (29 gallons); 136 kg (111 liters). The DOT transportation information below is for shipments with package sizes equal to or exceeding this value. IMDG Regulated Marine Pollutant.

DOT; IATA; IMDG



Marine pollutant



15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes
	Delayed Hazard - Yes
	Fire Hazard - No
	Pressure Hazard - No
	Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Nickel Nitrate	13138-45-9	30 - < 40

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Nickel Nitrate (CAS 13138-45-9)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Glycerine (CAS 56-81-5)

Nickel Nitrate (CAS 13138-45-9)

Pentaerythritol (CAS 115-77-5)

US. New Jersey Worker and Community Right-to-Know Act

Glycerine (CAS 56-81-5)

Nickel Nitrate (CAS 13138-45-9)

Pentaerythritol (CAS 115-77-5)

US. Pennsylvania Worker and Community Right-to-Know Law

Glycerine (CAS 56-81-5)

Nickel Nitrate (CAS 13138-45-9)

Pentaerythritol (CAS 115-77-5)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Nickel Nitrate (CAS 13138-45-9)

Listed: May 7, 2004

International Inventories

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

*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, including date of preparation or last revision

Issue date	03-12-2014
Revision date	04-01-2016
Version #	03

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

Composition / Information on Ingredients: Ingredients

Accidental release measures: Personal precautions, protective equipment and emergency procedures

Accidental release measures: Environmental precautions

Handling and storage: Precautions for safe handling

Physical & Chemical Properties: Multiple Properties

Toxicological information: Inhalation

Transport Information: Proper Shipping Name/Packing Group

Transport information: General information

Other information, including date of preparation or last revision: Disclaimer

GHS: Classification