

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC - DAY OR NIGHT 1-800-424-9300

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 PRODUCT IDENTIFIER:

TRADE NAME: NITRAIN™

1.2 RECOMMENDED USE: NITROGEN STABILIZER

1.3 SUPPLIER DETAILS:

LOVELAND PRODUCTS, INC.
P.O. Box 1286 • Greeley, CO 80632-1286

1.4 24-Hour Emergency Phone: 1-800-424-9300 - **Medical Emergencies:** 1-866-944-8565 - **Product Information:** 1-888-574-2878 (LPI-CUST)
U.S. Coast Guard National Response Center: 1-800-424-8802

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to 29 CFR 1910.1200

Skin Corrosion/Irritation	Category 2	H315
Eye Damage/Irritation	Category 1	H318
Toxic To Reproduction	Category 1B	H360
Specific Target Organ Toxicity – Single Exposure	Category 3	H335

2.2 Label elements



Signal word: **DANGER**
 Hazard Statements: H315 – Causes skin irritation.
 H318 – Causes serious eye damage.
 H360 – May damage fertility or the unborn child.
 H336 – May cause respiratory irritation.

Precautionary Statement: (Prevention): P264 – Wash hands thoroughly after handling.
 P280 – Wear protective gloves/protective clothing/eye protection/face protection.
 P201 – Obtain special instructions before use.
 P202 – Do not handle until all safety precautions have been read and understood.

Precautionary Statement: (Response): P302+P352: IF ON SKIN: Wash with plenty of water.
 P321 – Specific treatment (see First Aid information on the product label).
 P332+P313 – If skin irritation occurs: Get medical advice/attention.
 P362 – Take off contaminated clothing and wash it before reuse.
 P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 – Immediately call a poison center or doctor/physician.
 P308+P313 – If exposed or concerned: Get medical advice/attention.
 P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P312 – Call a poison center or doctor/physician if you feel unwell.

Precautionary Statement: (Storage): P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
 P405 – Store locked up.

Precautionary Statement: (Disposal): P501 – Dispose of contents / container in accordance with local / national regulations.

2.3 Other hazards
None known



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3. COMPOSITION, INFORMATION ON INGREDIENTS

3.1 Substances

3.2 Mixtures

Chemical Name:	CAS No.	Concentration [%]
N-(n-butyl)-thiophosphoric triamide (NBPT)	94317-64-3	26
N-methyl-2-pyrrolidone	872-50-4	10 - 30
Propylene Glycol	57-55-6	40 - 70
Non-hazardous dye	Proprietary	1 - 5

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice : Get medical attention if symptoms occur.

- Inhalation:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferable by mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
- Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- Eye contact:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
- Ingestion:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

4.2 Most Important Symptoms and Effects, Acute and Delayed

Symptoms: Causes serious eye damage. Causes skin irritation. May cause respiratory tract irritation.

4.3 Immediate Medical Attention and Special Treatment

Treatment: Treat symptomatically. Symptoms may be delayed.

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-866-944-8565

Take container, label or product name with you when seeking medical attention.

NOTES TO PHYSICIAN: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA:

Suitable Extinguishing Media: Water fog, water spray, carbon dioxide (CO₂), foam. Do not use water jet as this will spread the fire.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE:

Specific Hazards During Firefighting: During a fire, irritating, corrosive and/or toxic gases may be produced.

5.3 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS

Special Protective Equipment for Firefighters: Self-contained breathing apparatus and full protective gear should be worn in fighting large fires involving chemicals. Use water spray to keep fire exposed containers cool. Keep people away. Isolate fire and deny unnecessary entry.



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6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Personal Precautions: Avoid inhalation of vapors and spray mist and contact with skin and eyes. Ensure adequate ventilation. Wear suitable protective clothing.

6.2 ENVIRONMENTAL PRECAUTIONS

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not contaminate water. Do not allow to enter drains, sewers, or watercourses.

6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN-UP

Methods for Clean-Up: 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. After removal flush contaminated area thoroughly 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.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:

Advice on Safe Handling: Avoid inhalation of vapors / spray and contact with eyes, skin and clothing. Do not breathe mist or vapor. Wear personal protective equipment. Do not use in areas without adequate ventilation. Avoid prolonged exposure. Wash thoroughly after handling. Do not empty into drains. Handle and open container with care. Use care in handling/storage. Wash before eating, drinking and/or smoking.

7.2 CONDITIONS FOR SAFE STORAGE:

Requirements for Storage Areas and Containers: Keep container tightly closed. Store in a cool, dry, well-ventilated area. Store away from incompatible materials. Long term storage at temperatures above 100 °F (37.8 °C), and long term storage of opened container will cause product to degrade. As the product degrades, it can release harmful gases. Store below 100 °F (37.8 °C) and use opened containers within 30 days. Always use oldest stock first. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 CONTROL PARAMETERS: OCCUPATIONAL EXPOSURE LIMITS

U.S. Workplace Exposure Level (WEEL) Guides

Components	Type	Value
N-methyl-2-pyrrolidone (CAS: 872-50-4)	TWA	40 mg/m ³
Propylene Glycol (CAS 57-55-6)	TWA	10 mg/m ³ (Vapor and aerosol, inhalable fraction)

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Specimen
N-methyl-2-pyrrolidone (CAS: 872-50-4)	100 mg/L	Urine

8.2 EXPOSURE CONTROLS:

Engineering Measures

Provide adequate general and local exhaust ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors and spray mists. Provide eyewash station and safety shower.

Individual Protection Measures:

Eye / Face Protection: Chemical goggles are recommended.
Skin Protection: Chemical resistant clothing is recommended. Routinely wash work clothing and protective equipment to remove contaminants. The use of neoprene gloves is recommended. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Respiratory Protection: In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment. Wear respiratory protection during operations where spraying or misting occurs. Wear air supplied respiratory protection. In the U.S.A., if respirators are used, a program should be in place to assure compliance with 29 CFR 1910.134, the OSHA Respiratory Protection standard. Wear air supplied respiratory protection if exposure concentrations are unknown.



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9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 APPEARANCE :	Red liquid
ODOR:	Ammonia-like.
ODOR THRESHOLD:	0.1 ppm.
COLOR:	Red.
pH:	No data available.
MELTING POINT / FREEZING POINT:	No data available
BOILING POINT:	No data available
FLASH POINT:	178.0 °F / 81.1 °C
FLAMMABILITY (solid, gas):	Does not support combustion at 187 °F.
UPPER / LOWER FLAMMABILITY OR EXPLOSIVE LIMITS:	Not applicable.
VAPOR PRESSURE:	No data available.
SOLUBILITY:	Soluble
PARTITION CO-EFFICIENT, n-OCTANOL / WATER:	log Kow: N-methyl-2-pyrrolidone = -0.54; Propylene Glycol: -0.92.
AUTO-IGNITION TEMPERATURE:	No data available.
DECOMPOSITION TEMPERATURE:	Not determined
VISCOSITY:	Not determined
SPECIFIC GRAVITY (Water = 1):	1.07 g/ml
DENSITY:	8.93 lbs/gal. / 1.07 kg/L

Note: These physical data are typical values based on material tested but may vary from sample to sample.
Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

10. STABILITY AND REACTIVITY

10.1 REACTIVITY

Stable

10.2 CHEMICAL STABILITY

Stable under normal temperature conditions

10.3 POSSIBILITY OF HAZARDOUS REACTIONS

No reactions known under normal use conditions. Will not polymerize.

10.4 CONDITIONS TO AVOID

Extreme temperatures.

10.5 INCOMPATIBLE MATERIALS

Acids. Strong reducing agents. Strong oxidizing agents.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Oxides of Carbon, oxides of Nitrogen. Oxides of Sulfur.

11. TOXICOLOGICAL INFORMATION

11.1 LIKELY ROUTES OF EXPOSURE

Skin contact, eye contact.

LC₅₀ (rat): > 5.10 mg/l (N-methyl-2-pyrrolidone).

LD₅₀ Oral (rat): >2,823 mg/kg (N-(n-butyl)-thiophosphoric triamide (NBPT)); 3,914 mg/kg (N-methyl-2-pyrrolidone); 30 g/kg (Propylene Glycol)

LD₅₀ Dermal (rat): >2,000 mg/kg (N-(n-butyl)-thiophosphoric triamide (NBPT)); 8,000 mg/kg (N-methyl-2-pyrrolidone)

Acute Toxicity Estimates: No data available

Skin Irritation (rabbit): Moderate irritant

Eye Irritation (rabbit): Causes severe eye damage

Specific Target Organ Toxicity: Single exposure: May cause respiratory irritation.

Aspiration: No data available

Skin Sensitization (guinea pig): Not a sensitizer

Carcinogenicity: No data available

Germ Cell Mutagenicity: No data available

Interactive Effects: None known



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12. ECOLOGICAL INFORMATION

12.1 ECOTOXICITY

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Ecotoxicological Data

Components		Species	Test Results
N-(n-butyl)-thiophosphoric triamide (CAS: 94317-64-3)			
Aquatic			
Crustacea	EC ₅₀	Daphnia	290 mg/l, 48 hours
	NOEL	Daphnia	150 mg/l
Fish	LC ₅₀	Fish	1,140 mg/l, 96 hours
N-methyl-2-pyrrolidone (CAS: 872-50-4)			
Aquatic			
Crustacea	EC ₅₀	Daphnia magna	> 1,000 mg/l, 24 hours
Propylene Glycol (CAS: 57-55-6)			
Aquatic			
Crustacea	EC ₅₀	Daphnia magna	> 10,000 mg/l, 48 hours
Fish	LC ₅₀	Fathead minnow (Pimephales promelas)	710 mg/l, 96 hours

Drift or runoff may adversely affect non-target plants.
Do not apply directly to water.
Do not contaminate water when disposing of equipment wash water.
Do not apply when weather conditions favor drift from target area.

12.2 PERSISTENCE AND DEGRADABILITY

Biodegradability: The product is not readily biodegradable

12.3 BIOACCUMULATIVE POTENTIAL

Bioaccumulation: No data available.

12.4 MOBILITY IN SOIL

This product is water soluble and may disperse in soil.

12.5 OTHER ADVERSE EFFECTS

Assessment: No data available.

13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS

Wastes may be disposed of on site or at an approved waste disposal facility. Triple rinse (or equivalent), adding rinse water to spray tank. Offer container for recycling or dispose of in a sanitary landfill or by other procedures approved by appropriate authorities. Recycling decontaminated containers is the best option of container disposal. The Agricultural Container Recycling Council (ACRC) operates the national recycling program. To contact your state and local ACRC recycler visit the ACRC web page at <http://www.acrecycle.org/>. Do not contaminate water, food or feed by storage or disposal.

14. TRANSPORT INFORMATION

14.1 LAND TRANSPORT

DOT Shipping Description: NOT REGULATED

U.S. Surface Freight Classification: FERTILIZING COMPOUNDS (MANUFACTURED FERTILIZERS), NOI; LIQUID (NMFC 68140, SUB 6; CLASS 70)



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15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS

NFPA & HMIS Hazard Ratings:

NFPA		HMIS			
2	Health	0	Least	2	Health
1	Flammability	1	Slight	1	Flammability
0	Instability	2	Moderate	0	Reactivity
		3	High	X	PPE
		4	Severe		

SARA Hazard Notification/Reporting

SARA Title III Hazard Category: Immediate Y Fire N Sudden Release of Pressure N
 Delayed Y Reactive N

Reportable Quantity (RQ) under U.S. CERCLA: Not listed.

SARA, Title III, Section 313: N-methyl-2-pyrrolidone (CAS: 872-50-4)

RCRA Waste Code: Not listed

CA Proposition 65: WARNING: This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

16. OTHER INFORMATION

SDS STATUS: Sections 1, 2 and 3 revised

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental Health and Safety

Note: This Safety Data Sheet also applies to product marketed in California and Idaho under state-specific labeling.

Disclaimer and Limitation of Liability: This data sheet was developed from information on the constituent materials identified herein and does not relate to the use of such materials in combination with any other material or process. No warranty is expressed or implied with respect to the completeness or ongoing accuracy of the information contained in this data sheet, and LOVELAND PRODUCTS, INC. disclaims all liability for reliance on such information. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.