



*Rooted in Science*

## SAFETY DATA SHEET

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

#### 1.1 Product Identifier

**Trade Name** Volatex Urease Inhibitor

**SDS Date** March 31, 2017

#### 1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

**Product Use:** Soil Amendment

**Uses Advised Against:** To be used only where there is a recognized need. Do not exceed the appropriate dose rates.

#### 1.3 Details of the Supplier of the Substance or Mixture

**Manufacturer:** Floratine Products Group, Inc.  
355 East South Street  
Collierville, TN 38017  
+1 901-853-2898

#### 1.4 Emergency Telephone Number

**Emergency Spill Information** 1(800) 535-5053 for US and Canada (INFOTRAC)  
+1(352) 323-3500 for International Calls (call INFOTRAC collect)

**Other Product Information:** [cs@floratine.com](mailto:cs@floratine.com)

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1 Classification of the Substance or Mixture

##### CLP/GHS Classification (1272/2008):

Eye Damage Category 1 (H318)

Toxic to Reproduction Category 1B (H360)

#### 2.2 Label Elements

**Danger!**



Contains N-diaminophosphinothiylbutan-1-amine, N-methyl-2-pyrrolidone

##### Hazard Phrases

H318 Causes serious eye damage.

H360 May damage fertility or the unborn child.

## Precautionary Phrases

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P280 Wear protective gloves, protective clothing, eye protection or face protection.

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.

P308 + P313 IF exposed or concerned: Get medical attention.

P405 Store locked up.

P501 Dispose of contents and container in accordance with local and national regulations.

**2.3 Other Hazards:** None**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS****3.2 Mixtures**

Chemical Name	CAS Number / EINECS Number / REACH Reg. Number	% (w/w)	EU Classification (67/548/EEC)	CLP/GHS Classification (1272/2008)
Cyanoguanidine	461-58-5 / 207-312-8	60- 100%	Not dangerous	Not hazardous
N-diaminophosphinothiobutyl-1-amine	94317-64-3 / 435-740-7	1-5%	Repr Cat 3 Xn, Xi R41, R63	Eye Dam. 1 (H318) Repr 2 (H361)
N-methyl-2-pyrrolidone	872-50-4 / 212-828-1	1-5%	Repr Cat 2 T, Xi R36/37/38, R61	Skin Irrit 2 (H315) Eye Irrit 2 (H319) Repr 1B (H360) STOT SE 3 (H335)

See Section 16 for full text of GHS and EU Classifications.

**SECTION 4: FIRST AID MEASURES****4.1 Description of First Aid Measures****First Aid**

**Eye contact:** Immediately flush eye with water for at least 15 minutes while lifting the upper and lower lids. Get immediate medical attention.

**Skin contact:** Wash with soap and water. Get medical attention if irritation develops.

**Inhalation:** Remove victim to fresh air. Get medical attention if irritation persists.

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. If the person is alert, have them rinse their mouth with water and sip one glass of water. Immediately call a poison center or physician for advice. Never give anything by mouth to an unconscious or drowsy person.

**See Section 11 for more detailed information on health effects.**

**4.2 Most Important symptoms and effects, both acute and delayed:** Causes severe eye irritation or damage. May cause skin irritation on prolonged or repeated use. Dust may cause mucous membrane and upper respiratory tract irritation. Ingestion may cause gastrointestinal irritation with nausea and diarrhea. May cause reproductive effects based on animal data.

**4.3 Indication of any immediate medical attention and special treatment needed:** If eye contact occurs, get immediate medical attention.

## SECTION 5: FIREFIGHTING MEASURES

**5.1 Extinguishing Media:** Use water spray or fog, carbon dioxide or foam to extinguish fire.

**5.2 Special Hazards Arising from the Substance or Mixture**

**Unusual Fire and Explosion Hazards:** None

**Combustion Products:** Not combustible

**5.3 Advice for Fire-Fighters:** Self-contained breathing apparatus and protective clothing should be worn in fighting fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**6.1 Personal Precautions, Protective Equipment and Emergency Procedures:**

Wear appropriate protective equipment. Avoid contact with spilled material.

**6.2 Environmental Precautions:**

Prevent entry in storm sewers and waterways. Report spill as required by local and national regulations.

**6.3 Methods and Material for Containment and Cleaning Up:**

Avoid dust formation. Carefully sweep up or vacuum up spill and place into a suitable container for disposal. Flush spill site with thoroughly with water.

**6.4 Reference to Other Sections:**

Refer to Section 8 for personal protective equipment and Section 13 for disposal information.

## SECTION 7: HANDLING and STORAGE

**7.1 Precautions for Safe Handling:**

Avoid eye and prolonged skin contact. Avoid breathing dust. Use with adequate ventilation. Avoid generating dust. Do not eat, drink or smoke while using product. Wash thoroughly with soap and water after handling.

**7.2 Conditions for Safe Storage, Including any Incompatibilities:**

Store in a cool, well ventilated area. Protect containers from physical damage. Keep containers closed. Long term storage at temperatures above 100°F (36°C) may affect product quality.

Empty containers retain product residues. Follow all SDS precautions in handling empty containers. Store away from food and feed. Store away from oxidizing materials.

**7.3 Specific end use(s):**

**Industrial uses:** None identified

**Professional uses:** Soil Amendment

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**8.1 Control Parameters:**

Chemical Name	US OEL	EU IOEL	UK OEL	Biological Limit Value
Cyanoguanidine	None Established	None Established	None Established	None Established
N-diaminophosphinothioylbutan-1-amine	None Established	None Established	None Established	None Established
N-methyl-2-pyrrolidone	10 ppm TWA skin AIHA WEEL	10 ppm TWA 20 ppm STEL	25 ppm TWA	End of shift 100 mg/L

**8.2 Exposure Controls:**

**Recommended Monitoring Procedures:** None.

**Appropriate Engineering Controls:** Good outdoor ventilation should be adequate under normal conditions.

**Personal Protective Measures**

**Eye/face Protection:** Chemical goggles are recommended to prevent eye contact.

**Skin Protection:** Impervious clothing is recommended avoid skin contact.

**Hands:** Impervious gloves such as butyl rubber are recommended.

**Respiratory Protection:** None needed under normal use conditions with adequate ventilation. If exposure limits are exceeded, an approved respirator with organic vapor/particulate cartridges appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 and good industrial hygiene practice.

**Other protection:** Suitable washing facilities should be available in the work area.

<b>SECTION 9: PHYSICAL and CHEMICAL PROPERTIES</b>
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**9.1 Information on basic Physical and Chemical Properties**

**Appearance:** White granules with green specks

**Odor Threshold:** Not available

**Melting/Freezing Point:** Not applicable

**Flash Point:** Not applicable

**Lower Flammability Limit:** None

**Upper Flammability Limit:** None

**Vapor Density(Air=1):** Not applicable

**Solubility:** Soluble in water

**Autoignition Temperature:** None

**Viscosity:** Not applicable

**Oxidizing Properties:** None

**Molecular Formula:** Mixture

**Odor:** Slight ammonia odor

**pH:** 7.5 -8.2

**Boiling Point:** Not applicable

**Evaporation Rate:** Not applicable

**Vapor Pressure:** Not applicable

**Relative Density:** 29-34 lbs/ft<sup>3</sup>

**Octanol/Water Partition Coefficient:** Not applicable

**Decomposition Temperature:** Not applicable

**Explosive Properties:** None

**Specific Gravity (H<sub>2</sub>O= 1):** 29-34 lbs/ft<sup>3</sup>

**Molecular Weight:** Mixture

**9.2 Other Information:** None available

<b>SECTION 10: STABILITY and REACTIVITY</b>
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**10.1 Reactivity:** Not reactive under normal conditions

**10.2 Chemical Stability:** Stable.

**10.3 Possibility of Hazardous Reactions:** None known.

**10.4 Conditions to Avoid:** Avoid freezing.

**10.5 Incompatible Materials:** Incompatible with oxidizing agents.

**10.6 Hazardous Decomposition Products:** Decomposition may produce oxides of carbon and calcium.

<b>SECTION 11: TOXICOLOGICAL INFORMATION</b>
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**11.1 Information on Toxicological Effects:**

**Potential Health Effects:**

**Eye Contact:** Causes irritation with redness and tearing. Eye damage may occur.

**Skin contact:** Prolonged skin contact may cause irritation.

**Inhalation:** Excessive inhalation of mists may cause upper respiratory tract irritation.

**Ingestion:** Swallowing may cause gastrointestinal effects including nausea, diarrhea and stomach discomfort.

**Acute toxicity:**

Cyanoguanidine: Oral mouse LD50 >30 g/kg

N-diaminophosphinothiylbutan-1-amine: Oral rat LD50 >2000 mg/kg; Dermal rabbit LD50 > 2000 mg/kg

N-methyl-2-pyrrolidone: Oral rat LD50 4150 mg/kg; Inhalation rat LC50 > 5.1 mg/L/4 hr; Dermal rabbit LD50 > 5000 mg/kg

**Skin corrosion/irritation:** N-methyl-2-pyrrolidone and N-diaminophosphinothiylbutan-1-amine are not irritating to rabbit skin. Cyanoguanidine does not cause skin irritation based on studies in humans.

**Eye damage/ irritation:** N-methyl-2-pyrrolidone is not irritating to rabbit eyes. N-diaminophosphinothiylbutan-1-amine causes irreversible eye damage in rabbits.

**Respiratory Irritation:** No data available. Expected to cause only temporary irritation. Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.

**Respiratory Sensitization:** No data available.

**Skin Sensitization:** N-methyl-2-pyrrolidone was negative in a mouse local lymph node assay (based on structurally similar chemicals). N-diaminophosphinothiylbutan-1-amine does not cause sensitization in guinea pigs. Cyanoguanidine does not cause sensitization in a guinea pig maximization test.

**Germ Cell Mutagenicity:** N-methyl-2-pyrrolidone was negative in the AMES test, in vitro mammalian cell gene mutation assay and in an in vitro mammalian micronucleus assay. N-diaminophosphinothiylbutan-1-amine was negative in the AMES test and in an in vivo micronucleus assay. Cyanoguanidine was negative in the AMES test and in an in vitro chromosomal aberration test.

**Carcinogenicity:** None of the components of this product are listed as carcinogens by IARC, NTP, ACGIH OSHA or the EU Dangerous Substances Directive.

**Reproductive Toxicity:** N-methyl-2-pyrrolidone was shown to cause developmental effects in a dermal prenatal developmental study with rabbits. NOAEL for maternal toxicity and teratogenicity was 1000 mg/kg. NOAEL for fetotoxicity was 300 mg/kg. N-methyl-2-pyrrolidone also showed developmental effects in an oral prenatal developmental study with rats. NOAEL for maternal toxicity 250 mg/kg. Fetotoxicity 125 mg/kg.

**Specific Target Organ Toxicity:**

Single Exposure: No data available

Repeat Exposure: In a repeat oral dose toxicity study with Cyanoguanidine in rats, no adverse effects were seen at the highest dose administered. NOAEL 1,000 mg/kg

<b>SECTION 12: ECOLOGICAL INFORMATION</b>
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**12.1 Toxicity:**

Cyanoguanidine: 96 hr LC50 *Oryzias latipes* >100 mg/L; 48 hr EC50 *daphnia magna* >1000 mg/L; 72 hr EC50

*Selenastrum capricornutum* 935 mg/L

N-diaminophosphinothiylbutan-1-amine: 96 hr LC50 *Lepomis macrochirus* 1140 mg/L; 48 hr EC50 *daphnia magna* 290 mg/L; 96 hr EC50 *Pseudokirchnerella subcapitata* 280 mg/L

N-methyl-2-pyrrolidone: 96 hr EC50 *Oncorhynchus mykiss* > 500 mg/L; 48 hr EC50 *daphnia magna* 1107 mg/L; 72 hr EC50 *Desmodesmus subspicatus* 600.5 mg/L

**12.2 Persistence and degradability:** N-diaminophosphinothiylbutan-1-amine is inherently biodegradable.

Cyanoguanidine is not readily biodegradable.

**12.3 Bioaccumulative Potential:** Cyanoguanidine has a BCF of <3.1.

**12.4 Mobility in Soil:** Cyanoguanidine has a high mobility on soil.

**12.5 Results of PVT and vPvB assessment:** Not required.

**12.6 Other Adverse Effects:** No data available.

<b>SECTION 13: DISPOSAL CONSIDERATIONS</b>
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**13.1 Waste Treatment Methods:**

Dispose in accordance with local/ and national regulations. Not considered hazardous waste according to EU regulations.

<b>SECTION 14: TRANSPORTATION INFORMATION</b>
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	14.1 UN Number	14.2 UN Proper Shipping Name	14.3 Hazard Class(s)	14.4 Packing Group	14.5 Environmental Hazards
US DOT	None	Not Regulated			

**14.6 Special Precautions for User:** None

**14.7 Transport in Bulk According to Annex III MARPOL 73/78 and the IBC Code:** Not determined.

<b>SECTION 15: REGULATORY INFORMATION</b>
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**US Regulations**

**CERCLA Section 103:** The normal application of fertilizers is exempt from CERCLA reporting. If an accidental release occurs, contact Floratine Products Group for information.

**SARA Hazard Category (311/312):** Acute Health Hazard, Chronic Health Hazard

**SARA 313:** Products used in routine agricultural operations and fertilizers held for resale by retailers is excluded from SARA 313 reporting. Contact Floratine Products Group for additional information.

**California Proposition 65:** This product contains the following substances known to the State of California to cause cancer and/or reproductive harm (birth defects): N-methyl-2-pyrrolidone 872-50-4 1-5% developmental. This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

**International Chemical Inventories**

**US EPA Toxic Substances Control Act (TSCA) Status:** All of the components of this product are listed on the TSCA inventory or exempt.

<b>SECTION 16: OTHER INFORMATION</b>
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CLP/GHS Classification and H Phrases for Reference (See Section 3)

Skin Irrit 2 Skin Irritation Category 2  
Eye Dam 1 Eye Damage Category 1  
Eye Irrit 2 Eye Irritation Category 2  
Repr 1B Toxic to Reproduction Category 1B  
Repr 2 Toxic to Reproduction Category 2  
STOT SE 3 Specific Target Organ Toxicity Category 3  
H315 Causes skin irritation  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H360 May damage fertility or the unborn child  
H361 Suspected of damaging fertility or the unborn child.

This safety data sheet provides health and safety information. The product is to be used in applications consistent with best farming practice. Individuals handling this product should be informed under COSHH of the recommended safety precautions and should have access to this information. The product information data sheet is to the best of Floratine's knowledge correct as at the date of publication. Neither Floratine, importer or local supplier accepts liability for any loss or damage resulting from reliance on this information. Further information on this product may be obtained from the supplier whose name, address and telephone number will be found on the product container. The information provided herein is offered solely for your consideration, investigation and verification. This information herein is provided by Floratine in good faith as accurate at the time of writing but without guarantee. This information includes information which has been generated by other parties and provided to Floratine and which Floratine has not independently verified. The information provided herein relates only to the specific product designated and may not be valid if the product is used in combination with any other materials or in any process.