

Safety Data Sheet

Limus Nitrogen Management

Revision date : 2018/11/13
Version: 5.0

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(30648091/SDS_GEN_US/EN)

1. Identification

Product identifier used on the label

Limus Nitrogen Management

Recommended use of the chemical and restriction on use

Recommended use*: fertilizers

Recommended use*: Micronutrient; fertilizers; For commercial use only.

Unsuitable for use: consumer

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:

BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1, CANADA

Contact address:

BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932
USA
Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300

BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Flam. Liq.	4	Flammable liquids
Acute Tox.	4 (oral)	Acute toxicity
Acute Tox.	4 (Inhalation - mist)	Acute toxicity
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
Skin Sens.	1	Skin sensitization
Repr.	2 (fertility)	Reproductive toxicity

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Aquatic Acute	3	Hazardous to the aquatic environment - acute
Aquatic Chronic	3	Hazardous to the aquatic environment - chronic

Label elements

Pictogram:



Signal Word:

Danger

Hazard Statement:

H318	Causes serious eye damage.
H332	Harmful if inhaled.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H361	Suspected of damaging fertility.
H402	Harmful to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P271	Use only outdoors or in a well-ventilated area.
P260	Do not breathe mist or vapour.
P261	Avoid breathing mist.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273	Avoid release to the environment.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P272	Contaminated work clothing should not be allowed out of the workplace.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P352	IF ON SKIN (or hair): Wash with plenty of soap and water.
P330	Rinse mouth.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.

Precautionary Statements (Storage):

P405	Store locked up.
P403 + P235	Store in a well-ventilated place. Keep cool.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.
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Hazards not otherwise classified

Contains Phosphorothioic triamide, N-butyl- The repeated administration of high dose levels is suspected to cause reduction of Cholinesterase activity.

Labeling of special preparations (GHS):

The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 1 % dermal

The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 54 % Inhalation - vapour

The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 54 % Inhalation - mist

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
94317-64-3	<= 18.8%	Phosphorothioic triamide, N-butyl-
916809-14-8	<= 8.1%	N-propylphosphorothioic triamide (NPPT)
100-51-6	>= 25.0 - < 50.0%	Benzyl alcohol

4. First-Aid Measures

Description of first aid measures

General advice:

Remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

If on skin:

Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

If in eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., (Further) symptoms and / or effects are not known so far

Hazards: Risk of decrease in cholinesterase activity. If poisoning is probable, treat the patient immediately. Treatment should be given simultaneously with decontamination procedures in severe cases. Proceed concurrently with decontamination using proper protective gear; for example, chemical resistant gloves (neoprene or nitrile) rather than cotton or leather gloves.

Indication of any immediate medical attention and special treatment needed

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Note to physician

Antidote:

Administer atropine. Pralidoxime chloride (2-PAM) is antidotal when administered early, and in conjunction with antidote.

Treatment:

Give atropine intravenously (IV), or if not immediately possible IV, through an alternative route such as an endotracheal tube or intramuscularly (IM). Give atropine intramuscularly or intravenously, depending on severity of poisoning. Atropine may be administered through an alternative route such as an endotracheal tube. Avoid opiates, parasympthomimetic agents (e.g. succinylcholine), theophylline, reserpine and or phenothiazines. The dosage for atropine is as follows: 1 to 2 mg/kg initially IV in adults (or 0.05 mg/kg in children under 12 years) then give appropriate doses every 15 minutes until excessive secretions and sweating have been controlled. Clear airway and provide oxygen before administering atropine. Tissue oxygenation should be improved as much as possible before administering atropine, so as to minimize the risk of arrhythmia. Pralidoxime chloride (2-PAM, PROTOPAM chloride) may be effective as an adjunct to atropine. Use according to label directions. Before administering pralidoxime chloride, obtain a blood sample for cholinesterase analysis. Adjusting for age and weight, pralidoxime may be administered as a continuous infusion after a loading dose or using a bolus method. Use soap (preferably Tincture Green Soap) and water or dilute hypochlorite solution for decontaminating skin. Suction oral secretions and emesis to avoid aspiration. Artificial respiration or oxygen administration may be necessary. Observe patient continuously for at least 72 hours. Allow no further exposure to any cholinesterase inhibitor until cholinesterase regeneration has taken place as determined by blood tests.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:

water spray, dry powder, foam, carbon dioxide

Special hazards arising from the substance or mixture

Hazards during fire-fighting:

carbon monoxide, carbon dioxide, nitrogen oxides

The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Keep containers cool by spraying with water if exposed to fire. In case of fire and/or explosion do not breathe fumes. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

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Do not breathe vapour/spray. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

Environmental precautions

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).

For large amounts: Dike spillage. Pump off product.

Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labeled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations. Wear suitable protective equipment.

7. Handling and Storage

Precautions for safe handling

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:

Vapours may form ignitable mixture with air. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds.

Further information on storage conditions: Keep away from heat. Protect from direct sunlight.

Protect from temperatures below: -5 °C

Changes in the properties of the product may occur if substance/product is stored below indicated temperature for extended periods of time.

Protect from temperatures above: 40 °C

Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

8. Exposure Controls/Personal Protection

No occupational exposure limits known.

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator as needed.

Hand protection:

Wear impermeable chemical resistant protective gloves.

Eye protection:

Safety glasses with side-shields. Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

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General safety and hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is recommended. Store work clothing separately. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	moderate odour, ammonia-like	
Odour threshold:	Not determined since harmful by inhalation.	
Colour:	dark orange	
pH value:	approx. 9 - 11 (1 %(m), approx. 20 °C)	
Melting temperature:	< -10 °C	
boiling temperature:	approx. 182 °C	
Flash point:	approx. 70 °C	(Regulation 440/2008/EC, A.9)
Flammability:	not applicable	
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.	
Upper explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.	
Autoignition:	approx. 350 °C	(Regulation 440/2008/EC, A.15)
SADT:	> 75 °C	
Vapour pressure:	approx. 0.2 hPa (20 °C)	
Density:	Information applies to the solvent. approx. 1.09 g/cm ³ (approx. 20 °C)	
Vapour density:	not applicable	
Partitioning coefficient n-octanol/water (log Pow):	<i>Information on: N-propylphosphorothioic triamide (NPPT)</i> < 0.3 (24 °C)	(OECD Guideline 117)
Partitioning coefficient n-octanol/water (log Pow):	<i>Information on: N-butylphosphorothioic triamide (NBPT)</i> 0.444 (20 °C)	(OECD Guideline 107)
Thermal decomposition:	90 °C, 370 kJ/kg (DSC (OECD 113)) (onset temperature) Not a substance liable to self-decomposition according to UN transport regulations, class 4.1.	
Viscosity, dynamic:	approx. 139 mPa.s (approx. 20 °C)	
Solubility in water:	mainly soluble	
Evaporation rate:	not applicable	
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

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10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:

not fire-propagating (Regulation 440/2008/EC, A.21)

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid

See MSDS section 7 - Handling and storage.

Incompatible materials

strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

90 °C, 3 K/min (DSC (OECD 113))

(onset temperature)

Not a substance liable to self-decomposition according to UN transport regulations, class 4.1.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. Of moderate toxicity after single ingestion. Of moderate toxicity after short-term inhalation. Virtually nontoxic after a single skin contact.

Oral

Type of value: ATE

Value: 816.000000 mg/kg

Information on: Benzyl alcohol

Type of value: LD50

Species: rat (male)

Value: 1,620 mg/kg (Directive 84/449/EEC, B.1)

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Inhalation

Type of value: ATE
Value: > 20.0000 mg/l
Determined for vapor

Type of value: ATE
Value: 2.750000 mg/l
Determined for mist

Information on: Benzyl alcohol

Type of value: LC50

Species: rat

Value: > 4.1 mg/l (OECD Guideline 403)

Exposure time: 4 h

An aerosol was tested.

No mortality was observed.

Dermal

Type of value: ATE
Value: > 5,000 mg/kg

Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion

Assessment of irritating effects: The product has not been tested. The statement has been derived from the properties of the individual components. Not irritating to the skin. May cause severe damage to the eyes.

Information on: Phosphorothioic triamide, N-butyl-

Assessment of irritating effects: May cause severe damage to the eyes.

Sensitization

Assessment of sensitization: The product has not been tested. The statement has been derived from the properties of the individual components. Sensitization after skin contact possible.

Information on: N-butylphosphorothioic triamide (NBPT)

Assessment of sensitization:

After continuous contact with the skin, sensitization cannot be excluded.

Aspiration Hazard

The product has not been tested. The statement has been derived from the properties of the individual components. No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

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Information on: Phosphorothioic triamide, N-butyl-

Assessment of repeated dose toxicity: The repeated administration of high dose levels is suspected to cause reduction of Cholinesterase activity. The substance may cause damage to the liver after repeated ingestion of high doses, as shown in animal studies. The substance may cause damage to the kidney after repeated ingestion of high doses, as shown in animal studies.

Genetic toxicity

Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

Reproductive toxicity

Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Phosphorothioic triamide, N-butyl-

Assessment of reproduction toxicity: The results of animal studies suggest a fertility impairing effect.

Teratogenicity

Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Other Information

Misuse can be harmful to health.
The substance causes a decrease in cholinesterase activity.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., (Further) symptoms and / or effects are not known so far

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Harmful to aquatic life with long lasting effects.

The product has not been tested. The statement has been derived from the properties of the individual components.

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

The product has not been tested. The statement has been derived from the properties of the individual components.

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Bioaccumulative potential

Assessment bioaccumulation potential

The product has not been tested. The statement has been derived from the properties of the individual components.

Mobility in soil

Assessment transport between environmental compartments

The product has not been tested. The statement has been derived from the properties of the individual components.

Additional information

Other ecotoxicological advice:

Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:

Must be disposed of or incinerated in accordance with local regulations.

Container disposal:

Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

RCRA: D007

D010

The waste codes are manufacturer's recommendations based on the designated use of the product. Other use and special waste disposal treatment on customer's location may require different waste-code assignments.

14. Transport Information

Land transport

USDOT

Classified as combustible liquid in containers greater than 119 gallons.

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

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Registration status:

Fertilizer TSCA, US released; restriction on use / listed
TSCA § 5 commenced PMN

This product contains a substance subject to a Significant New Use Rule (SNUR) or consent order restriction.

40 CFR 721.10965

Chemical TSCA, US released; restriction on use / listed
TSCA § 5 commenced PMN

This product contains a substance subject to a Significant New Use Rule (SNUR) or consent order restriction.

40 CFR 721.10965

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

State regulations

State RTK

PA

CAS Number

100-51-6

75-09-2

Chemical name

Benzyl alcohol

dichloromethane

Safe Drinking Water & Toxic Enforcement Act, CA Prop. 65:

WARNING: This product can expose you to chemicals including ETHYLENEIMINE, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov.

16. Other Information

SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2018/11/13

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

END OF DATA SHEET