## 1. Identification

### Product identifier used on the label

# Limus Pro

### Recommended use of the chemical and restriction on use

Recommended use*: fertilizers

* 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 CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

### Emergency telephone number

24 Hour Emergency Response Information
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

| | | |
|---|---|---|
| Skin Corr./Irrit. | 2 | Skin corrosion/irritation |
| Repr. | 2 (fertility) | Reproductive toxicity |
| Aquatic Acute | 3 | Hazardous to the aquatic environment - acute |
| Aquatic Chronic | 3 | Hazardous to the aquatic environment - chronic |
| Eye Dam./Irrit. | 2A | Serious eye damage/eye irritation |

### Label elements

Pictogram:

Signal Word:
Warning

Hazard Statement:

| | |
|---|---|
| H319 | Causes serious eye irritation. |
| H315 | Causes skin irritation. |
| 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 and eye protection or face protection. |
| P280 | Wear eye protection. |
| 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. |
| P264 | Wash contaminated body parts thoroughly after handling. |

Precautionary Statements (Response):

| | |
|---|---|
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P302 + P352 | IF ON SKIN: Wash with plenty of soap and water. |
| P308 + P313 | IF exposed or concerned: Get medical attention. |
| P332 + P313 | If skin irritation occurs: Get medical attention. |
| P337 + P313 | If eye irritation persists: Get medical attention. |
| P362 + P364 | Take off contaminated clothing and wash it before reuse. |

Precautionary Statements (Storage):

| | |
|---|---|
| P405 | Store locked up. |

Precautionary Statements (Disposal):

| | |
|---|---|
| P501 | Dispose of contents/container in accordance with local regulations. |

## 3. Composition / Information on Ingredients

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

Polyethyleneimine
CAS Number: 25987-06-8
Content (W/W): 5.0 - 7.0%
Synonym: No data available.

N-butylphosphorothioic triamide (NBPT)
CAS Number: 94317-64-3

Content (W/W): 15.0 - 20.0%
Synonym: No data available.

N-propylphosphorothioic triamide (NPPT)
CAS Number: 916809-14-8
Content (W/W): 5.0 - 7.0%
Synonym: No data available.

## 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.

**If on skin:**
Wash thoroughly with soap and water

**If in eyes:**
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: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available 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

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

## 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, ammonia, carbon dioxide, hydrogen sulphide, Phosphine, Hydrogen chloride, nitrogen oxides, sulfur oxides, halogenated compounds, phosphorus 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
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.

## 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: -10 °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 substance specific 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.

**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 due to potential health hazard by inhalation. | |
| Colour: | orange<br>clear | |
| pH value: | approx. 9.4 - 11.4<br>( 1 %(m), 20 °C) | |
| Melting point: | The product has not been tested. | |
| Boiling point: | approx. 167 °C | (OECD Guideline 103) |
| Flash point: | 103 °C | (Directive 92/69/EEC, A.9) |
| 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: | 275 °C | (Regulation 440/2008/EC, A.15) |
| SADT: | > 75 °C | |
| Vapour pressure: | approx. 0.2 hPa<br>( 25 °C)<br>Information applies to the solvent. | |
| Density: | approx. 1.09 g/cm3<br>( 20 °C) | (Directive 92/69/EEC, A.3) |
| Vapour density: | not applicable | |
| Partitioning coefficient n-octanol/water (log Pow): | The statements are based on the properties of the individual components. | |
| *Information on: N-propylphosphorothioic triamide (NPPT)* | | |
| Partitioning coefficient n-octanol/water (log Pow): | < 0.3<br>( 24 °C) | (OECD Guideline 117) |
| *Information on: N-butylphosphorothioic triamide (NBPT)* | | |
| Partitioning coefficient n-octanol/water (log Pow): | 0.444<br>( 20 °C) | (OECD Guideline 107) |
| --- | | |
| Thermal decomposition: | 150 °C, 640 kJ/kg (DSC (OECD 113))<br>(onset temperature)<br>Not a substance liable to self-decomposition according to UN transport regulations, class 4.1. | |
| Viscosity, dynamic: | approx. 51 mPa.s<br>( 20 °C) | |
| Solubility in water: | mainly soluble | |
| Evaporation rate: | not applicable | |

## 10. Stability and Reactivity

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

Oxidizing properties:
not fire-propagating (UN Test O.2 (oxidizing liquids))

### 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 SDS 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:

150 °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 substances/products of a similar structure or composition. Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact.

Oral
Species: rat (female)
Value: > 2,000 mg/kg (OECD Guideline 423)
No mortality was observed.

Inhalation

*Information on: N-butylphosphorothioic triamide (NBPT)*
*Type of value: LC50*
*Species: rat (male/female)*
*Value: > 2.1 mg/l (OECD Guideline 403)*
*Exposure time: 4 h*
*Tested as dust aerosol.*
---

Dermal
Species: rat (male/female)
Value: > 5,000 mg/kg (OECD Guideline 402)
No mortality was observed.

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 substances/products of a similar structure or composition. Eye contact causes irritation. Skin contact causes irritation.

Skin
Species: rabbit
Result: Irritant.

Eye
Species: rabbit
Result: Irritant.

Sensitization
Assessment of sensitization: The product has not been tested. The statement has been derived from the properties of the individual components. There is no evidence of a skin-sensitizing potential.

*Information on: N-propylphosphorothioic triamide (NPPT)*
*Mouse Local Lymph Node Assay (LLNA)*
*Species: mouse*
*Result: Non-sensitizing.*
*Method: OECD Guideline 429*
*Analogous: Assessment derived from products with similar chemical character.*
*The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.*

*Information on: N-butylphosphorothioic triamide (NBPT)*
*Guinea pig maximization test*
*Species: guinea pig*
*Result: Non-sensitizing.*
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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.

*Information on: N-butylphosphorothioic triamide (NBPT)*
*Assessment of repeated dose toxicity: 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.*
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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: N-butylphosphorothioic triamide (NBPT)*
*Assessment of reproduction toxicity: The results of animal studies suggest a fertility impairing effect.*

*Information on: N-propylphosphorothioic triamide (NPPT)*
*Assessment of reproduction toxicity: The potential to impair fertility cannot be excluded. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.*
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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.

## 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 substances/products of a similar structure or composition.

Aquatic invertebrates
EC50 (48 h) 60.2 mg/l, Daphnia magna

Toxicity to fish

*Information on: Polyethyleneimine*
*LC50 (96 h) > 10 - 100 mg/l, Leuciscus idus (OECD Guideline 203)*
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Aquatic plants

*Information on: Polyethyleneimine*
*EC50 (72 h) > 1 - 10 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201) acute Effect*
*EC10 (72 h) 1 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201) long-term effect*
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### 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.

Assessment biodegradation and elimination (H2O)

*Information on: N-butylphosphorothioic triamide (NBPT)*

*Not readily biodegradable (by OECD criteria).*

*Information on: N-propylphosphorothioic triamide (NPPT)*

*Not readily biodegradable (by OECD criteria).*
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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.

Assessment bioaccumulation potential

*Information on: N-butylphosphorothioic triamide (NBPT)*

*Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.*

*Information on: N-propylphosphorothioic triamide (NPPT)*

*Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.*
---

### 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.

*Information on: N-butylphosphorothioic triamide (NBPT)*

*The substance will slowly evaporate into the atmosphere from the water surface.*
*Adsorption to solid soil phase is not expected.*

*Information on: N-propylphosphorothioic triamide (NPPT)*

*The substance will not evaporate into the atmosphere from the water surface.*
*Adsorption to solid soil phase is not expected.*
---

### 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

Not classified as a dangerous good under transport regulations

**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**

**Registration status:**

| | | |
|---|---|---|
| Fertilizer | TSCA, US | released / listed |
| Chemical | TSCA, US | released / listed |

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

**State regulations**

| State RTK | CAS Number | Chemical name |
|---|---|---|
| NJ | 57-55-6 | Propylene glycol |
| | 67-68-5 | dimethyl sulfoxide |
| PA | 57-55-6 | Propylene glycol |
| | 75-09-2 | dichloromethane |

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

**WARNING:** This product can expose you to chemicals including DICHLOROMETHANE (METHYLENE CHLORIDE), 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: 2022/11/07

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.

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