

Material Safety Data Sheet (MSDS) for Nivalenol Page 1 of 4

Section 1. Product and Company Information

Company identification
Fermentek Ltd.
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Name: Nivalenol

CAS Number: 23282-20-4

Catalog Code: NIV

Synonyms
Trichothec-9-en-8-one,12,13-epoxy-3a,4b,7a,15-tetrahydroxy- (8CI)
Spiro[2,5-methano-1-benzoxepin-10,2'-oxirane],trichothec-9-en-8-one deriv.
12,13-Epoxy-3a,4b,7a,15-tetrahydroxytrichothec-9-en-8-one
3a,4b,7a,15-Tetrahydroxyscrip-9-en-8-one
NSC 269143;

Section 2. Composition/Information on Ingredient

EINECS/ELINCS Not listed

Chemical Formula: C₁₅H₂₀O₆

Chemical Class: Trichothecene type B

RTECS YD0167000

Section 3. Hazards Identification

EMERGENCY OVERVIEW
Highly Toxic (USA) Toxic (EU).
Toxic if swallowed.
Target organ(s): Blood. G.I. System

HMIS RATING
HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 0

Section 4. First Aid Measures

Eye Contact Check for and remove contact lenses. Flush eyes with running water for at least 15 minutes separating eyelids. Seek medical attention immediately.

Skin Contact Wash with soap and water for 15 minutes. Remove contaminated clothing and shoes. Seek medical attention immediately

Inhalation Remove from exposure. If breathing is difficult, administer oxygen. If breathing stops, administer artificial respiration. Seek medical attention immediately. Provide chemical label and MSDS if possible.

Ingestion Remove dentures and clear mouth. If person is conscious, rinse mouth with water Call physician or poison control immediately. Provide chemical label and MSDS information if possible.

Section 5. Fire and Explosion Data

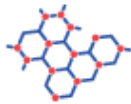
Flammability Not Available

Flash Point Not Available

Combustion products CO, CO₂, NO,NO₂,

Extinguishing Media Carbon Dioxide, Dry chemical powder, polymer foam, water spray

Special Firefighting Use self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.



Material Safety Data Sheet (MSDS) for Nivalenol Page 2 of 4

| | |
|---------------------------------------|------------|
| Procedures | |
| Unusual Fire/Explosion Hazards | None known |

Section 6 - Accidental Release Measures

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|------------------------------|--|
| Cleanup Procedures | Wearing appropriate protective gear as outlined under "Protective equipment" wipe up spill and place in sealed container and hold for disposal. Avoid raising dust. Ventilate the area and wash spill site after material has been removed |
| Waste Disposal Method | Observe all Federal, State and Local regulations concerning the disposal of this product. Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete |

Section 7 - Handling and Storage

| | |
|-----------------------------|--|
| Protective Equipment | For spill clean up, wear suitable protective clothing, chemical resistant rubber gloves, rubber boots, and chemical safety goggles. Self contained breathing apparatus or NIOSH/MSHA approved respirator is recommended. |
| Storage and Handling | This product should be kept in a tightly closed container. This product should be handled only by qualified experienced professionals. Wash thoroughly after handling this material Store at -18oC |

Section 8 - Exposure Controls / Personal protection

| | |
|--------------------------------------|--|
| General | Use only in a chemical fume hood. Safety shower and eye bath. Use adequate ventilation to keep airborne concentrations low |
| Personal protective equipment | Respiratory: Government approved respirator. Hand: Compatible chemical-resistant gloves. Eye: Chemical safety goggles. |

Section 9. Physical Data

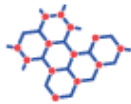
| | |
|-------------------------|---|
| Appearance | white crystalline powder |
| Molecular Weight | 296.35 |
| Melting | 147 to 148'c |
| Solubility | DMSO, Ethanol, petrol ether. Not soluble in water |

Section 10. Stability and Reactivity Data

| | |
|---------------------------------|---|
| Stability | This material is stable if stored as directed |
| Conditions to Avoid | Excess heat, incompatible materials, strong oxidizers |
| Incompatibles | Reactive with oxidizing agents, acids, alkalis. |
| Hazardous polymerization | Will not occur |

Section 11 - Toxicological Information

| | |
|---------------------------|---|
| RTECS#: | YD0167000 |
| Route of exposure | Skin Contact: May cause skin irritation. Skin Absorption: May be harmful if absorbed through the skin. Eye Contact: May cause eye irritation. Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled. Ingestion: Toxic if swallowed. |
| Target organ(s) or | Blood. G.I. System. Lymphatic system. Immune system. |



Material Safety Data Sheet (MSDS) for Nivalenol Page 3 of 4

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|---------------------------------------|--|--------------|---|
| system(s) | | | |
| Signs and symptoms of exposure | Exposure can cause: Gastrointestinal disturbances. Stomach pains, vomiting, diarrhea. Nausea, dizziness, and headache. Anorexia. | | |
| Toxity | Organism | Dose | Effect |
| | chicken LD50 oral | 140 mg/kg | Behavioral: somnolence (general depressed activity). Gastrointestinal: "hypermotility, diarrhea". |
| | mouse LD50 oral | 46 mg/kg | Gastrointestinal: ulceration or bleeding from small intestine; "hypermotility, diarrhea" |
| | | | Source |
| | | | Poultry Science. Vol. 60, Pg. 1412, 1981. |
| | | | Fundamental and Applied Toxicology. Vol. 4, Pg. S124, 1984. |

Section 12 - Ecological Data

| | |
|--------------------------------------|----------------|
| Ecotoxicological Information: | None Available |
|--------------------------------------|----------------|

Section 13 - Disposal Considerations

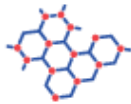
| | |
|---|---|
| Appropriate method of disposal of substance or preparation | Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification. |
|---|---|

Section 14 - Transport Information

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|---------------|---|
| US DOT | Proper Shipping Name: Toxic solids, organic, n.o.s. UN#: 2811 Class: 6.1 Packing Group: Packing Group II Hazard Label: Toxic substances. PIH: Not PIH |
| IATA | Proper Shipping Name: Toxic solid, organic, n.o.s. IATA UN Number: 2811 Hazard Class: 6.1 Packing Group: II |

Section 15-Regulatory Information

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|---|--|
| US classification and label text | Indication of danger: highly toxic (usa) toxic (eu). Risk statements: toxic if swallowed. Safety statements: wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Us statements: target organ(s): blood. G.i. system. |
| United states regulatory information SARA listed | No |
| EU additional | Symbol of danger: T |



Material Safety Data Sheet (MSDS) for Nivalenol Page 4 of 4

classification

Indication of danger: toxic.

Risk statements

R: 25 toxic if swallowed.

Safety statements

S: 36/37/39-45 : wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Section 16 -Other Information

Warranty

For R&D use only. Not for drug, household or other uses. For use only by trained personnel.

Disclaimer

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. The burden of safe use of this material rests entirely with the user. Fermentek shall not be held liable or any damage resulting from handling or from contact with the above product.

Review

This document has been reviewed on 27-apr-2015