



# Enzyme Material Safety Data Sheet

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Commercial Product Name: Savinase 16 L, Type EX  
Chemical characterization: Enzyme preparation  
Product Use: Novozymes' enzyme preparations are biocatalysts used in a variety of industrial processes and in certain consumer products.

Responsible Company: NOVOZYMES NORTH AMERICA, INC.  
77 Perry Chapel Church Rd., Box 576, Franklinton, NC 27525

Information Phone Number: (919) 494-3000 8 am - 4:30 pm EST M-F  
Chemtrec Phone Number: (800) 424-9300 24 hours everyday

## 2. INFORMATION ON INGREDIENTS

Active component: Enzyme protein  
Common name: Protease (Subtilisin)  
CAS Number: 9014-01-1  
Hazardous Ingredients: Protease enzyme protein (1 - 10%)  
Exposure Limit: 0.00006 mg/m<sup>3</sup> (as 100% pure protease)

## 3. HAZARDS IDENTIFICATION

### Emergency Overview

Description : Aqueous protease enzyme preparation

Appearance: Semi-transparent amber-coloured liquid      Odor: Slight fermentation odor

Liquid enzyme preparations are dustfree preparations. However, inappropriate handling may cause formation of dust or aerosols. For appropriate handling, see section 6 and 7. Inhalation of enzyme dust or aerosols resulting from handling may induce sensitization and may cause allergic reactions in sensitized individuals.

### Potential Health Effects:

INHALATION: Inhalation of dust/aerosols may induce sensitization in susceptible individuals. Subsequent exposures may cause allergic reactions in sensitized individuals. Avoid inappropriate handling which may result in aerosol/dust generation.

EYE CONTACT: Causes eye irritation. Avoid contact with the eyes.

SKIN CONTACT: Causes skin irritation. Avoid contact with the skin.

INGESTION: Irritating to mouth and throat.

#### **4. FIRST AID MEASURES**

|               |  |
|---------------|--|
| Skin Contact: | Wash skin with plenty of water.  |
| Eye Contact:  | Rinse eyes with plenty of water for at least 15 minutes and see an eye specialist.   |
| Ingestion:    | Rinse mouth and throat thoroughly with water. Drink water.   |
| Inhalation:   | Remove from exposure. If symptoms of irritation or sensitization occur (shortness of breath, wheezing or labored coughing), call a doctor. |

#### **5. FIRE-FIGHTING MEASURES**

|   |                         |              |                  |
|---|-------------------------|--------------|------------------|
| Protection against Fire and Explosions: | No special requirements | HMIS Rating: | Health = 1       |
| Suitable Fire Extinguishing Media:      | Water, foam             |              | Flammability = 1 |
| Non Suitable Media:                     | None                    |              | Reactivity = 0   |
| Special Exposure Hazards:               | None                    |              |                  |

#### **6. ACCIDENTAL RELEASE MEASURES**

Spilled preparation should be removed immediately to avoid formation of dust from dried preparation. Take up by mechanical means preferably by a vacuum cleaner equipped with a high efficiency filter. Flush remainder carefully with plenty of water. Avoid splashing and high pressure washing (avoid formation of aerosols). Ensure sufficient ventilation. Wash contaminated clothing.

#### **7. HANDLING AND STORAGE**

Avoid formation of aerosols and dust from drying out of spilled preparation. Avoid splashing and high pressure washing. Ensure good ventilation of the room, when handling this preparation.

STORAGE REQUIREMENTS : Store container in a cool place.

#### **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

##### ENGINEERING CONTROLS:

Maintain good conditions of industrial hygiene. Some processes may require enclosures, local exhaust ventilation, or other engineering controls to control airborne levels. Additional handling and health/safety information is available upon request.

##### RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT:

|                         |  |
|-------------------------|--|
| Respiratory Protection: | Not required under usual conditions of use. However, if exposure potential exists, refer to NIOSH Criteria Guides to determine appropriate unit. |
| Hand Protection:        | Impermeable gloves recommended.  |
| Eye Protection:         | Protective glasses or eye shield   |
| Protection:             | Wear suitable protective clothing  |

##### EXPOSURE GUIDELINES:

|                                 |   |
|---------------------------------|---|
| PEL (OSHA) for enzyme protein:  | Not established.                                  |
| TLV (ACGIH) for enzyme protein: | 0.00006 mg/m <sup>3</sup> (as 100% pure protease) |

#### **9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance: Semi-transparent amber-coloured liquid

Odor, pH, Boiling point, Melting point, Flash point, Ignition temperature, Vapour pressure, Density and Solubility are not relevant to safety.

For further information see the Product Specification and the Product Sheet for this preparation.

## **10. STABILITY AND REACTIVITY**

This material is stable under normal conditions of use.

Conditions to Avoid: None

Materials to Avoid: None

Hazardous Decomposition Products: None

## **11. TOXICOLOGICAL INFORMATION**

Inhalation of aerosols or dust resulting from inappropriate handling may induce sensitization and may cause allergic reactions in sensitized individuals. Oral rat LD-50 > 2g/kg b.w. classifies the preparation as "non-toxic".

## **12. ECOLOGICAL INFORMATION**

LC-50(fish) > 100 mg/l, 10 < EC-50(daphnia) < 100 mg/l and IC-50(algae) > 100 mg/l.

However, the preparation is biodegradable, which classifies the preparation as "non-dangerous" to the environment.

## **13. DISPOSAL CONSIDERATIONS**

### WASTE DISPOSAL

No special disposal method required, except that in accordance with current local authority regulations.

## **14. TRANSPORT INFORMATION**

SHIPPING INFORMATION: Sea: Not applicable

Road/Rail: Not applicable Air: Not applicable

## **15. REGULATORY INFORMATION**

The active ingredient and all components of the enzyme preparation are listed on the TSCA inventory.

Canadian WHMIS: Controlled Product Hazard Class D2 A (respiratory sensitizer).

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

## **16. OTHER INFORMATION**

The information contained in this Enzyme Material Safety Data Sheet, as of the issue date, is believed to be true and correct. However, the accuracy or completeness of this information and any recommendations or suggestions are made without warranty or guarantee.

Since the conditions of use are beyond the control of our company, it is the responsibility of the user to determine the conditions of safe use of this preparation. The information in this sheet does not represent analytical specifications, for which please refer to our Product Specification.



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