

Safety Data Sheet

Classified as hazardous according to criteria OS NOHSC. Risk Phrase(s): R42 May cause sensitisation by inhalation.

| | | | |
|---------------|------------|---------------|-----------|
| Product Name: | Hi-Tempase | Product Code: | HITEMPASE |
|---------------|------------|---------------|-----------|

1. IDENTIFICATION

Description: Liquid enzyme preparation
Use: Processing aid in the food/ beverage/ feed industry. Carbohydrate Processing.

Contact Details of Supplier: Deltagen Australia Pty Ltd, Kilsyth VIC 3137
03 9728 3038

Emergency Contact No's: Poisons Information Centre 1800 251 525
Chemcall 1800 127 406

2. HAZARDS IDENTIFICATION

Potential Health Effects: Inhalation of enzyme mist/dust may cause allergic respiratory reactions, including asthma, in susceptible individuals on repeated exposure.

Eyes: May cause slight irritation.
Skin: May cause slight irritation.
Inhalation: May cause slight irritation.
Ingestion: Not expected to be toxic by ingestion.

Aggravated Medical Conditions: Atopy. Asthma.



Physical and chemical hazards: The data available do not support any physical or chemical hazard.
Environmental Hazard: See Section 12 for additional Ecological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS-No | Proportion |
|--------------------------------|-----------|------------|
| Alpha Amylase | 9000-90-2 | 1-5% |
| 1,2,3-Propanetriol (glycerine) | 56-81-5 | |

4. FIRST AID MEASURES

Eye Contact: Flush eyes with water at least 15 minutes. Get medical attention if eye irritation develops or persists.
Skin Contact: Flush skin with large amounts of water. If irritation develops and persists, get medical attention.
Inhalation: Remove person to fresh air. If signs/symptoms continue, get medical attention.
Ingestion: Rinse mouth with water. Get medical attention immediately if symptoms occur.
Notes to Physician: May cause allergic respiratory reaction.

5. FIRE FIGHTING MEASURES

General Measures: Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk.
Flammability Conditions: Product is a combustible liquid.
Extinguishing Media: In case of fire, appropriate extinguishing media include water, water fog, water spray, foam, dry powder, carbon dioxide (CO2) and alcohol resistant foam.

Fire and Explosion

Hazard: Contact of glycerine with strong oxidising agents such as nitric acid or other strong acids, chromium trioxide, potassium chlorate, or potassium permanganate may cause an explosion.

Hazardous products of combustion: During burning poisonous acrolein may be formed.

Special fire fighting instructions: Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire-fighting water for treatment.

Personal protective equipment: Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire-fighting clothing (incl. fire-fighting helmet, coat, trousers, boots and gloves) or chemical splash sheet.

Flash point: >198.99°C PMCC

Lower explosion limit: No data available

Upper explosion limit: No data available

Auto ignition temp: ~400°C

Hazchem Code: No data available

6. ACCIDENTAL RELEASE MEASURES

General response procedure: Eliminate all sources of ignition. Increase ventilation. Avoid walking through spilled product as it may be slippery. Use clean, non-sparking tools and equipment.

Clean up procedures: Large spills: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for reuse.

Containment: Stop leak if safe to do so.

Decontamination: Following product recovery, flush area with water.

Environmental precautionary procedures: Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local waste authority.

Evacuation Criteria: Evacuate all unnecessary personnel.

Personal Precaution measures: Personnel involved in the clean-up should wear full protective clothing as listed in section 8.

7. HANDLING AND STORAGE.

Handling: No special precautions required, but avoid eye and skin contact as part of normal industrial hygiene. Prevent formation of mist. Eye and skin contact should be avoided if handling at elevated temperatures. Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do NOT inhale product vapours.

Storage: Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 5. Avoid contact with strong oxidising agents such as Nitric Acid and other strong acids. This product is classified as a 'C2' Combustible Liquid for the purpose of storage and handling in accordance with the requirements of AS1940.

Container: Store in original packaging as approved by manufacturer. Store in clean tight containers to prevent moisture pickup from air. Can be stored in aluminium, stainless steel, fibreglass or resin lined steel vessels.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General: The following exposure standard has been established by The Australian Safety and Compensation Council (ASCC); Glycerine (mist) CAS no: 56-81-5
TWA = 10 mg/m³
NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5-day working week. These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Exposure Limits: No data available.

Biological Limits: No information available on biological limit values for this product.

Engineering Measures: A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Adequate ventilation should be provided so that exposure limits are not exceeded. Mechanical ventilation may be necessary if working at elevated temperatures or in enclosed areas.

Personal Protection Equipment:

RESPIRATOR: None required for ambient temperature, although an appropriate approved air-purifying respirator should be used if a mist, vapour or dust is generated. An approved self-contained breathing apparatus or air-supplied respirator is recommended if the concentration exceeds the capacity of a cartridge respirator.
WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres (AS1715/1716).
EYES: None required, although eye protection is recommended as part of good industrial hygiene (AS1336/1337).
HANDS: None required with normal use (AS2161).
CLOTHING: Normal work clothing and safety footwear (AS3765/2210).

Work Hygiene Practices: No data available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Colour/Physical state: Brown liquid

Odour: Typical odour of fermented product

pH: 6.0 -7.5

Vapour Pressure: <0.01 mmHg (@50°C)

Boiling Point: >=290°C

Melting Point: Not applicable

Solubility: Soluble

Flashpoint: >100°C

Specific Gravity: 1.15-1.26

10. STABILITY AND REACTIVITY

General: Combustible Liquid but stable under normal conditions.
Physical/Chemical Hazards: Contact of glycerine with strong oxidising agents such as Nitric Acid or other strong acids, Chromium Trioxide, Potassium Chlorate, or Potassium Permanganate may cause an explosion.

Chemical Stability: Stable at ambient temperature and under normal conditions of use.

Conditions to Avoid: Avoid temperatures exceeding 200°C as decomposition may occur.
Materials to Avoid: Contact of glycerine with strong oxidising agents (see 'General' in this section).
Hazardous Decomposition Products: Dangerous Decomposition product – Acrolein (>280°C)
Hazardous Polymerisation: Hazardous polymerisation does not occur.

11. TOXICOLOGICAL INFORMATION

General Information: Toxicity Data: Oral LD50 - >2000 mg/kg (rat)
Inhalation L(Ct)50 - >3.9 mg/min/litre (rat)
Dermal LD50 – 45 ml/kg (guinea pig)
Germ cell mutagenicity: Ames test result: Negative Species: Salmonella Typhimurium (Salmonella enterica).

Eye Irritant: Accidental exposure to the eyes will cause mild but transient irritation.
Ingestion: Unlikely to be harmful unless excessive amount.
Inhalation: Not applicable at ambient temperature. Glycerine mist may be irritative to respiratory tract.
Skin Irritant: Unlikely to be irritant. Healed product may cause thermal burns if contacted.
Mutagenic effects: Not mutagenic in bacterial assays in the presence and absence of metabolic activation up to 5,000 µg/plate. Negative in chromosome aberration using human lymphocytes with and without metabolic activation up to 5000 µg/ml.
Reproductive effects: Not expected to produce reproductive or developmental toxicity.
Carcinogen Category: Not classified as a carcinogen by IARC, OSHA or NTP.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Glycerine components (1,2,3PROPANETRIOL – 56815) have been identified as having potential environmental concerns. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence/Degradability: Readily biodegradable.
Mobility: Soluble. Calculation result on glycerine: 0.000000006 atm m³/mol@25°C
Bioaccumulation Potential: Unlikely. Glycerine component – Octanol/water partition coefficient log Kow = -1.75
Component Information: Component information below is as complete as possible. Any fields not shown indicate no data is presently available.

| Chemical | Toxicity to algae | Toxicity to fish | Toxicity to daphnia | Biodegradation |
|---------------|--|-------------------------------------|-----------------------------|---|
| Alpha Amylase | EC50/72h/algae >100 mg/l (Desmodesmus subspicatus) | 96 hr LC50 >100 mg/L Fathead minnow | EC50/48hr/daphnia >100 mg/L | Readily biodegradable (96% after 14 days) |

13. DISPOSAL INFORMATION

Product and contaminated packaging must be disposed of in accordance with local authority regulations.

Liquid enzymes:

Surplus liquid / enzyme spills may be disposed of in municipal / wastewater treatment plants as it is biodegradable, or in accordance with local authority regulations.

Liquid enzyme packaging:

Containers should be drained of excess enzyme residue and rinsed with water. The containers may then be recycled / reused or disposed of as in accordance with local authority regulations.

14. TRANSPORT INFORMATION

NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code).

Harmonised Tariff Code: 3507.90.7000 (for enzymes).

15. REGULATORY INFORMATION

Hazard Rating System (HMIS – Scale 0-4, where 4=severe hazard)
(Alpha Amylase) Health: 2 / Flammability: 1 / Reactivity: 0



16. OTHER INFORMATION

The information contained in this 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 recommendation 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 product. The information in this sheet does not represent analytical specifications, for which please refer to our technical data sheet. The content of this Safety Data Sheet complies with both the EC directive 2001/58/EC and ISO standard ISO11014-1 and is recommended by the Association of Manufacturers and Formulators of Enzyme Products. (AMFEP)

IMPORTANT FOR YOUR PROTECTION The information and recommendations contained herein are to the best of our knowledge reliable. However, nothing herein is to be construed as a warranty of representation in respect of safety in use, suitability, efficacy or otherwise including freedom from patent infringement. Users should make their own tests for their purpose. We cannot accept any liability for any loss, damage or infringement arising from the use of the information and recommendation contained herein.