



SibEnzyme Ltd.

Ak. Timakov str., 2/12, Novosibirsk, 630117, Russia
E-mail: info@sibenzyme.com
<http://www.sibenzyme.com>

Tel.: +7 383 333 49 91
Tel/Fax: +7 383 333 68 53

MATERIAL SAFETY DATA SHEET

(The format of the MSDS complies with Commission Directive 2001/58/EC as amended.)

Revised: 01 December 2006

1. IDENTIFICATION OF THE PREPARATION/SUBSTANCE AND OF THE COMPANY

Preparation Name:

Acs I restriction endonuclease (nuclease, restriction endodeoxyribonuclease) - buffered aqueous glycerol solution.

(Supplied with: SE-buffer W, BSA-solution).

Source:

Isolated from *Arthrobacter citreus*.

Catalogue numbers of the product:

E013, E014, SE014, ME014, LE014 (depending on the quantity).

Use of the preparation:

For laboratory use.

Company identification:

SibEnzyme Ltd.
2/12 Timakova Str.
630117 Novosibirsk
Russia
Telephone: +7 383 333 4991
Telephone/Fax: +7 383 333 6853
Site: <http://www.sibenzyme.com>
E-mail: info@sibenzyme.com

Emergency telephone number:

+7 383 333 6853

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredients:

| | | | |
|--|---------------|------------------------------|-------------------------------|
| 1. Acs I | < 0.1% (w/v) | EC# | CAS# |
| 2. Glycerol | 50% (v/v) | EC#200-289-5 | CAS#56-81-5 |
| 3. Potassium Chloride | < 1% (w/v) | EC#231-211-8 | CAS#7447-40-7 |
| 4. Tris-HCl | < 1% (w/v) | | |
| (mix of Tris (Trometamol) and Hydrochloric acid | | EC#201-064-4 EC#231-595-7 | CAS#77-86-1 CAS#7647-01-0) |
| 5. EDTA (disodium salt) | < 0.01% (w/v) | EC#205-358-3 | CAS#139-33-3 |
| 6. 2-Mercaptoethanol | < 0.1% (w/v) | EC#200-464-6 | CAS#60-24-2 |
| 7. Water | ~ 48% (v/v) | EC#231-791-2 | CAS#7732-18-5 |

Ingredients indicated above do not present a health or environmental hazard within the meaning of Council Directive 67/548/EEC, or their concentrations do not exceed the limits specified in Council Directive 1999/45/EC, and in Commission Directive 2001/58/EC.

3. HAZARDS IDENTIFICATION

The preparation is not classified as dangerous according to Directive 1999/45/EC or Directive 67/548/EC, and is not labeled with danger symbols or indications of danger.

Hazards deriving from physical-chemical properties:

The data available do not support any physical or chemical hazard.

Human health hazards:

Aqueous glycerol enzyme solutions are aerosol-free preparations. However, inappropriate handling may cause formation of aerosols. Inhalation of enzyme aerosols may cause allergic type reactions in sensitized individuals. Prolonged skin contact may cause minor irritation.

Caution: Avoid inhalation, ingestion, and skin contacts.

Environmental hazards:

The data available do not support any environmental hazard.

4. FIRST-AID MEASURES

Ingestion:

If swallowed, rinse mouth and throat thoroughly with water. Consult a doctor in event of any complaints.

Inhalation:

If inhaled, remove victim from area of exposure. If symptoms of irritation or respiratory allergy occur, consult a doctor.

Skin contact:

Generally, the product does not irritate the skin. If symptoms of irritation after prolonged exposure occur, consult a doctor.

Eye contact:

In case of contact, wash out opened eyes with plenty of water for several minutes. Consult a doctor in event of any complaints.

5. FIRE-FIGHTING MEASURES

The preparation cannot cause fire.

Suitable extinguishing agents:

Water spray, Carbon Dioxide, dry chemical powder or appropriate foam.

Not suitable extinguishing agents:

None.

Special exposure hazards from decomposition products:

Not thoroughly investigated.

Protective equipment:

Wear self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Wear appropriate gloves (see Section 8), safety glasses to clean small releases/spillage. In case of vapour/aerosol formation, wear suitable respiratory protection means. Ventilate the area.

Environmental precautions:

No special measures required.

Methods for cleaning up:

Absorb spillages with liquid-binding material. Ventilate and wash the area after the spillage is completely removed.

Additional information:

No dangerous substances are released.

7. HANDLING AND STORAGE

Handling:

No further requirements.

Use appropriate personal protection measures (see Section 8). Avoid any contact with the liquid. Avoid the formation of aerosols. Ventilate area.

Storage:

Store at - 20°C.

None other specific requirements relating to the preparation.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that need to be monitored at the workplace.

General protective and hygienic measures:

The usual precautionary measures are the same as for chemicals handling.

Engineering measures:

None specific requirements relating to the preparation.

Personal protection:

- **Respiratory protection:** No special measures required.
- **Hand protection:** Wear rubber gloves. None special requirements to rubber.
- **Eye protection:** No need to wear glasses (goggles) when ordinary operations with the preparation. Safety glasses are recommended during certain operations when aerosol formation is possible.
- **Skin protection:** The usual precautionary measures accepted in research laboratories, e.g. protective clothes (gowns). None specific requirements.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid.

Colour: Colourless.

Odour: Odourless.

pH-value at 25°C: 7.5.

Boiling point: 182°C.

Melting Point: 20°C.

Flash Point: Not applicable.

Flammability/autoflammability: The preparation is not flammable/self-igniting.

Explosive properties: The preparation does not possess explosive properties.

Oxidizing properties: Not applicable.

Vapour pressure: Not applicable.

Relative density at 20°C: 1.13 g/cm³.

Solubility in/miscibility with water: Fully miscible.

Fat solubility: Not applicable.

Vapour density: Not applicable.

Evaporation rate: Not applicable.

Conductivity: Not applicable.

Viscosity: Viscous.

10. STABILITY AND REACTIVITY**Stability:**

Stable under storage conditions (see Section 7). Storage at room temperature may result in lowering of the specific activity, but not result in any hazardous reactions.

Conditions to avoid:

No conditions which may cause dangerous reactions.

Possibility of hazardous reactions:

No dangerous reactions known.

Materials to avoid:

No materials which may cause dangerous reactions.

Hazardous decomposition products:

No dangerous decomposition products known.

Hazardous polymerization:

Will not occur.

11. TOXICOLOGICAL INFORMATION**Routes of exposure:**

Inhalation: Inhalation of enzyme aerosols may cause allergic type reactions in sensitized individuals.

Ingestion: Repeated ingestion or excessive dosage may cause irritation of the gastrointestinal tract.

Skin and eye contact: Generally, the product does not irritate the skin and eyes. Prolonged skin or eye contact may cause minor irritation.

Additional toxicological information:

When used and handled according to specifications, the product does not have any harmful effects.

The product is not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93 on the evaluation and control of the risks of the existing substances.).

12. ECOLOGICAL INFORMATION**Ecotoxicity:**

The preparation is considered not dangerous to the environment with respect to mobility, persistence and degradability, bioaccumulation, aquatic toxicity and other data relating to ecotoxicity.

Persistence and degradability:

The preparation is readily biodegradable.

Bioaccumulative potential:

It is considered that the preparation does not accumulate in biota, and does not pass through the food chain.

Other adverse effects:

Not applicable.

13. DISPOSAL CONSIDERATIONS

The disposal of the product does not present a danger.

No special disposal methods required, except to be in accordance with current local environmental regulations.

14. TRANSPORT INFORMATION**Special precautions:**

None known.

Proper shipping name:

Not dangerous goods according to transport regulations.

National transport regulations:

No additional national transport regulations are known to the supplier.

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|--|
| IMDG: Non-hazardous for sea freight. |
| ADR: Non-hazardous for road transport. |
| RID: Non-hazardous for rail transport. |
| ICAO/IATA: Non-hazardous for air transport. |

Other information:

The preparation has to be stored in ice during the transportation not to lose its specific properties.

15. REGULATORY INFORMATION**US**

Labelling according to US Regulations: Caution: Avoid contact and inhalation.
US Regulatory information: SARA LISTED: No.

EU

Labelling according to EU Guidelines: The preparation is not dangerous within the meaning of Directives 67/548/EC, 1999/45/EC, and 88/379/ECC, and is not labelled with danger symbols or indications of danger.

Canada

WHMIS classification: 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.
DSL: No.
NDSL: No.

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. SibEnzyme shall not be held liable for any damage resulting from handling or from contact with the above product.