

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : HI-Control[®] BL21 (DE3) Chemically Competent Bacterial Cells.
 Product form : Mixture
 Product codes : 60435-1

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Laboratory reagent for *in vitro* research use only.

1.3. Details of the supplier of the safety data sheet

Lucigen Corporation
 2905 Parmenter Street
 Middleton, WI 53562
 U.S.A.
 Phone: (608) 831-9011
 Fax: (608) 831-9012
 E-mail: techserv@lucigen.com

1.4. Emergency telephone number

Emergency number : 1-888-575-9695 (Lucigen: Monday-Friday, 8:00AM-5:00PM)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Not classified

2.2. Label elements

GHS-US labeling

No labeling applicable

2.3. Other hazards

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Glycerol in aqueous solution.

3.2. Mixture

| Name | Product identifier | % |
|---|------------------------|----|
| Glycerol, CAS# 56-81-5 Contains no other hazardous ingredients at levels requiring disclosure by the OSHA Hazard Communication Standard (29 CFR 1910.1200). | Ingredient in product. | 15 |

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
 First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing.
 First-aid measures after skin contact : IF ON SKIN (or clothing), remove affected clothing and wash all exposed skin with water for at least 15 minutes. If irritation persists, call a physician.
 First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Obtain medical attention if pain, blinking or redness persist.
 First-aid measures after ingestion : IF SWALLOWED: Immediately give large amounts of water. Do NOT induce vomiting.

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4.2. Most important symptoms and effects, both acute and delayed

| | |
|--------------------------------------|--|
| Symptoms/injuries | : Not expected to present a significant hazard under anticipated conditions of normal use. |
| Symptoms/injuries after inhalation | : May cause respiratory irritation. |
| Symptoms/injuries after skin contact | : May cause skin irritation. |
| Symptoms/injuries after eye contact | : May cause slight temporary irritation. |
| Symptoms/injuries after ingestion | : May cause gastrointestinal irritation. |
| Chronic symptoms | : No data available. |

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray.

5.2. Special hazards arising from the substance or mixture

| | |
|------------------|--|
| Fire hazard | : Product is not flammable. |
| Explosion hazard | : Product is not explosive. |
| Reactivity | : No dangerous reactions known under normal conditions of use. |

5.3. Advice for firefighters

| | |
|--------------------------------|--|
| Firefighting instructions | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Do not dispose of fire-fighting water in the environment. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : No specific emergency measures are required other than good laboratory hygiene and safety practices.

6.1.1. For non-emergency personnel

| | |
|----------------------|--|
| Protective equipment | : Wear Protective equipment as described in Section 8. |
| Emergency procedures | : Evacuate unnecessary personnel. |

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves and eye or face protection. Approved supplied-air respirator, in case of emergency.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

| | |
|-------------------------|--|
| For containment | : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. |
| Methods for cleaning up | : Take up liquid spill into inert absorbent material, e.g.: sand, earth, vermiculite. Sweep or shovel spills into appropriate container for disposal. This material and its container must be disposed of in a safe way, and as per local legislation. |

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed in a cool, dry, and well-ventilated place.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Appropriate engineering controls : Ensure adequate ventilation, especially in confined areas.

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Personal protective equipment : Gloves. Protective goggles.



Hand protection : Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suggested glove materials are: Natural rubber ("latex"), Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, PVC or vinyl.

Eye protection : Chemical goggles or safety glasses.

Skin and body protection : Wear suitable protective clothing. Wear long sleeves.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties of pure Glycerol. Information on mixture not available.

| | |
|---|--|
| Physical state | : Viscous Liquid |
| Color | : Clear, colorless |
| Odor | : odorless |
| Odor Threshold | : No data available |
| pH | : 5 (100g/l aqueous solution at 25 °C) |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Melting point | : 18 °C |
| Freezing point | : 18 °C |
| Boiling point | : 290 °C |
| Flash point | : 160 °C |
| Auto-ignition temperature | : 400 °C |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapor pressure | : 0.003 mbar at 50 °C |
| Relative vapor density at 20 °C | : No data available |
| Relative density | : No data available |
| Solubility | : >500g/l at 20 °C |
| Log Pow | : No data available |
| Log Kow | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosive properties | : No data available |
| Oxidizing properties | : No data available |
| Explosive limits | : 0.9 Vol% lower limit; upper limit data not available |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

Strong oxidizing agents. Strong bases.

10.6. Hazardous decomposition products

Thermal decomposition generates : Carbon oxides (CO, CO₂).

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|--|--|
| Acute toxicity | : Not classified |
| Skin corrosion/irritation | : Not classified |
| Serious eye damage/irritation | : Not classified |
| Respiratory or skin sensitization | : Not classified |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Not classified |
| Reproductive toxicity | : Not classified |
| Specific target organ toxicity (single exposure) | : Not classified |
| Specific target organ toxicity (repeated exposure) | : Not classified |
| Aspiration hazard | : Not classified |
| Symptoms/injuries after inhalation | : May cause respiratory irritation. |
| Symptoms/injuries after skin contact | : May cause skin irritation. |
| Symptoms/injuries after eye contact | : May cause slight temporary irritation. |
| Symptoms/injuries after ingestion | : May cause gastrointestinal irritation. |
| Chronic symptoms | : No data available. |

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

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| | |
|-------------------------------|------------------|
| Persistence and degradability | Not established. |
|-------------------------------|------------------|

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Do not discharge to public wastewater systems without permit of pollution control authorities. No discharge to surface waters is allowed without an NPDES permit.

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with DOT, IATA, IMO, RID/ADR:

Not hazardous for transport

Additional information

Other information : No supplementary information available.

Transport by sea

No additional information available

Air transport

No additional information available

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SECTION 15: Regulatory information

15.1. US Federal regulations

Glycerol, CAS# 56-81-5

This chemical substance in this product is listed in the EPA (Environmental Protection Agency) TSCA (Toxic Substances Control Act) Inventory

15.2. International regulations

CANADA

CAS# 56-81-5 is listed on Canada's DSL List. No additional information available.

EUROPEAN REGULATIONS

European Labeling in accordance with EC Regulations :

Hazard Symbols : None

Risk Phrases : None

Safety Phrases : 24/25, Avoid contact with skin and eyes.

15.3. US State regulations

California Proposition 65

This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm

Glycerol (56-81-5)

U.S. - Massachusetts - Right To Know List

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : Revision 1.0: New SDS Created.

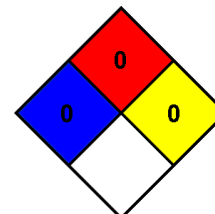
Revision date : 01/29/2016

Other information : None

NFPA health hazard : 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 0

Flammability : 0

Physical : 0

Personal Protection :

This information is disclosed to the best of Lucigen's knowledge. This document does not constitute a contractual relationship with product end users or handlers with respect to the possible presence of hazards in this item. Disposal should be in accordance with applicable regional, national and local laws and regulations.