

Elabscience Biotechnology Co., Ltd
MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

| | |
|---------------|---|
| Product name: | Water-soluble Biotin Labeling Kit |
| Cat. No. | E-LK-B007C |
| Application | For research use only |
| Company: | Elabscience Biotechnology Co., Ltd |
| Address: | Building B18, Biomedical Park, # 858 Gaoxin Road, Donghu Hi-Tech Development Area, Wuhan, Hubei, China |
| Email: | techsupport@elabscience.com |
| Fax: | 86-27-87645690 |
| Emergency | 86-27-87385095 |

SECTION 2 HAZARDS IDENTIFICATION

| Items | Name | Hazardous Ingredient | Concentration | CAS No. |
|-----------|------------------------------|----------------------|---------------|---------|
| E-LK-B07L | Sulfo-NHS-Biotin (NHS ester) | No Hazards | - | - |
| E-LK-010 | Labeling Buffer I | No Hazards | - | - |
| E-LK-006 | DMF | DMF | 0.1-50% | 68-12-2 |
| E-LK-007 | 1×PBS(pH7.4) | No Hazards | - | - |
| E-LK-008 | 1M Tris(pH8.7) | No Hazards | - | - |

2.1 HAZARD STATEMENT

Classification according to GHS

2.1.1 DMF

- H226: Flammable liquid and vapor.
- H303: May be harmful if swallowed.
- H312+H332: Harmful in contact with skin or if inhaled.
- H319: Causes serious eye irritation.
- H360: May damage fertility or the unborn child.

2.2 PRECAUTION STATEMENT

Classification according to GHS

2.2.1 DMF

Prevention

- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P210: Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
- P233: Keep container tightly closed.
- P240: Ground/bond container and receiving equipment.

- P241: Use explosion-proof electrical/ ventilating/ lighting/ equipment.
 P242: Use only non-sparking tools.
 P243: Take precautionary measures against static discharge.
 P261: Avoid breathing mist or vapors.
 P264: Wash skin thoroughly after handling.
 P271: Use only outdoors or in a well-ventilated area.
 P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

- P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304+P340+P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P312: Call a POISON CENTER/ doctor if you feel unwell.
 P337+P313: If eye irritation persists: Get medical advice/ attention.
 P370+P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage

- P403+P235: Store in a well-ventilated place. Keep cool.
 P405: Store locked up.

Disposal

- P501: Dispose of contents/ container to an approved waste disposal plant.
 Restricted to professional users.

SECTION 3 INFORMATION ON INGREDIENTS

3.1 E-LK-B07L

| Ingredient | Concentration | CAS No. |
|--------------------|----------------------|----------------|
| H ₂ O | 96.975% | 7732-18-5 |
| Tris hydrochloride | 0.92 % | 1185-53-1 |
| EDTA disodium salt | 0.005 % | 6381-92-6 |
| Diglyme | 0.1% | 111-96-6 |
| Sulfo-NHS-Biotin | 2 % | - |

3.2 E-LK-010

| Ingredient | Concentration | CAS No. |
|--------------------------------|----------------------|----------------|
| H ₂ O | 98.39 % | 7732-18-5 |
| Potassium dihydrogen phosphate | 0.02 % | 7778-77-0 |
| Sodium chloride | 0.88 % | 7647-14-5 |
| Potassium chloride | 0.12 % | 7447-40-7 |
| Sodium hydrogen carbonate | 0.59 % | 144-55-8 |

3.3 E-LK-006

| Ingredient | Concentration | CAS No. |
|-----------------------------|----------------------|----------------|
| H ₂ O | 98.67 % | 7732-18-5 |
| Disodium hydrogen phosphate | 0.29 % | 7558-79-4 |

| | | |
|--------------------------------|--------|------------|
| Potassium dihydrogen phosphate | 0.02 % | 7778-77-0 |
| Sodium chloride | 0.80 % | 7647-14-5 |
| Potassium chloride | 0.02 % | 7447-40-7 |
| DMF | 0.20 % | 39450-01-6 |

3.4 E-LK-007

| Ingredient | Concentration | CAS No. |
|--------------------------------|---------------|-----------|
| H ₂ O | 98.69 % | 7732-18-5 |
| Disodium hydrogen phosphate | 0.29 % | 7558-79-4 |
| Potassium dihydrogen phosphate | 0.02 % | 7778-77-0 |
| Sodium chloride | 0.80 % | 7647-14-5 |
| Potassium chloride | 0.02 % | 7447-40-7 |

3.5 E-LK-008

| Ingredient | Concentration | CAS No. |
|------------------|---------------|-----------|
| H ₂ O | 87.9% | 7732-18-5 |
| Tris-base | 12.1% | 77-86-1 |

SECTION 4 FIRST-AID MEASURES

Classification according to GHS

4.1 General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

4.2 If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

4.3 In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

4.4 In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

4.5 If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION 5 FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media

Suitable: Water spray, alcohol-resistant foam, dry chemical, carbon dioxide or appropriate foam. For small fires, use media such as "alcohol" foam, dry chemical or carbon dioxide.

For large fires, apply water from as far as possible. Use large quantities of water applied as a mist or spray. Solid streams of water may be ineffective. Cool affected containers with flooding quantities of water.

5.2 Special precautions for fire-fighters

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

5.3 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NO_x), Sulphur oxides, Hydrogen chloride gas.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1 Person-related safety precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.2 Measures for environmental protection

Prevent further leakage or spillage if safe to do so. Do not let enter drains. Discharge into the environment must be avoided.

6.3 Measures for containment and cleaning

Contain spillage, and then collect with non-combustible absorbent material (eg. sand, diatomaceous earth, vermiculite). Place in a container for disposal according to local regulations. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7 HANDLING AND STORAGE

7.1 Handling

Wear appropriate protective clothing and safety gloves.

Avoid inhalation.

Avoid contact with eyes, skin and clothing.

Mechanical exhaust required.

Keep away from ignition sources, heat and flame.

No smoking at working site.

Incompatibilities: Strong oxidizing agents, Strong acids. Handling and unloading should be light, to prevent packaging broken, damp and cause losses.

Working place should be equipped with appropriate varieties and quantities of firefighting equipment and leakage emergency treatment equipment.

7.2 Storage

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Keep away from heat, sparks and flame.

Keep away from sources of ignition.

Incompatible: Strong oxidizing agents, Strong acids.

Storage place should be equipped with appropriate varieties and quantities of firefighting equipment and leakage emergency treatment equipment.

SECTION 8 EXPOSURE CONTROL/PPE

8.1 Engineering Controls

Mechanical exhaust required. Safety shower and eye bath.

8.2 Personal Protective Equipment

Respiratory: Government approved respirator if needed.

Eye/face: Chemical safety goggles if needed.

Clothing: Wear appropriate protective clothing.

Hand/skin: Protective gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body protection: Wear suitable protective clothing according to the concentration and amount of the substance at the workplace.

8.3 Other Protect

No smoking, drinking and eating at working site. Wash thoroughly after handling.

SECTION 9 PHYSICAL/CHEMICAL PROPERTIES

9.1 DMF

- a) Appearance: liquid, clear
- b) Odor: colorless
- c) Odor Threshold: amine-like
- d) pH: 7 at 200 g/l at 20 °C
- e) Melting point/freezing point: Melting point: -61 °C
- f) Initial boiling point and boiling range: 153 °C at 1,013 hPa
- g) Flash point: 57.5 °C - closed cup
- h) Evaporation rate: No data available
- i) Flammability (solid, gas): No data available
- j) Upper/lower flammability or explosive limits: Upper explosion limit: 16% (V), Lower explosion limit: 2.2% (V)
- k) Vapor pressure: 3.77 hPa at 20 °C
- l) Vapor density: No data available
- m) Relative density: No data available
- n) Water solubility: 1000 g/l at 20 °C completely miscible
- o) Partition coefficient: log pow: -0.85 at 25 °C - Bioaccumulation is not expected.
- p) Autoignition temperature: No data available
- q) Decomposition temperature: > 350 °C
- r) Viscosity: No data available
- s) Explosive properties: No data available
- t) Oxidizing properties: None.

SECTION 10 STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heat, flames and sparks

10.5 Incompatible materials

Strong oxidizing agent, Light sensitive, Alcohols, Organic materials, Heavy metals, Powdered

metals, Strong reducing agents, Amines, Mercaptans.

10.6 Hazardous decomposition products

Other decomposition products: No data available

Hazardous decomposition products formed under fire conditions: Carbon oxides, Nitrogen oxides (NO_x), Sulphur oxides, Hydrogen chloride gas.

SECTION 11 TOXICOLOGICAL INFORMATION

11.1 DMF

Acute toxicity

LD50 Oral - Rat - male and female - 3,010 mg/kg

Acute toxicity estimate Inhalation - 4 h - 11.1 mg/L - vapor

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 20 h

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irritating to eyes.

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

Germ cell mutagenicity

Test Type: sister chromatid exchange assay

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Result: negative

Test Type: unscheduled DNA synthesis assay

Test system: human diploid fibroblasts

Metabolic activation: with and without metabolic activation

Result: negative

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Result: negative

Test Type: Micronucleus test

Species: Mouse

Cell type: Bone marrow

Application Route: Intraperitoneal injection

Result: negative

Test Type: dominant lethal test

Species: Rat

Application Route: Inhalation

Result: negative

Test Type: dominant lethal test

Species: Mouse

Application Route: Intraperitoneal

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

May damage the unborn child.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

SECTION 12 ECOLOGICAL INFORMATION

12.1 DMF

Toxicity

Toxicity to fish: flow-through test LC50 - *Lepomis macrochirus* (Bluegill sunfish) -7,100 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates: static test EC50 - *Daphnia magna* (Water flea) - 13,100 mg/l - 48 h

Toxicity to algae: static test ErC50 - *Desmodesmus subspicatus* (green algae) ->1,000 mg/l -72h

Toxicity to bacteria: static test EC50 - *Vibrio fischeri* - 12,300 - 17,500 mg/l - 5 min

Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential

Biodegradability: aerobic - Exposure time 21 d. Result: 100 % - Readily biodegradable.

Biochemical Oxygen Demand (BOD): 900 mg/g

Theoretical oxygen demand: 1,863 mg/g

Mobility in soil

No data available

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Other adverse effects

Stability in water: ca.50 d

SECTION 13 DISPOSAL CONSIDERATION

13.1 Disposal methods

Dispose of waste in accordance to applicable national, regional, or local regulations. Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

13.2 Contaminated packaging

Dispose in the same manner as unused product.

SECTION 14 TRANSPORT INFORMATION

RID/ADR: Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA: Non-Hazardous for Air Transport.

IMO: Non-Hazardous for Sea Transport.

SECTION 15 REGULATORY INFORMATION

This material safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008 and its amendments.

SECTION 16 OTHER INFORMATION

IMPORTANT! Read the safety data sheets before the use and disposal of this product. Insure that this information is understood by the operators exposed to this product. Use this product for the intended purpose as indicated in the instruction manual.

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as guide. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from this use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising from using the above information.