# Material Safety Data Sheet

## EZ-Link NHS-Biotin

### 1. Product and company identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>EZ-Link NHS-Biotin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonym</td>
<td>(+)-Biotin N-hydroxysuccinimide ester</td>
</tr>
<tr>
<td>Chemical formula</td>
<td>C₅H₁₀N₂O₃S</td>
</tr>
<tr>
<td>Supplier</td>
<td>Thermo Fisher Scientific</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Thermo Fisher Scientific</td>
</tr>
<tr>
<td>Address</td>
<td>P.O. Box 117, Rockford, IL 61015</td>
</tr>
<tr>
<td>United States</td>
<td>815.968.0747 or 800.874.3723</td>
</tr>
<tr>
<td>Code</td>
<td>0020217 0020217B 1870500</td>
</tr>
<tr>
<td>MSDS #</td>
<td>0066</td>
</tr>
<tr>
<td>Validation date</td>
<td>12/15/2010</td>
</tr>
<tr>
<td>Print date</td>
<td>12/17/2010</td>
</tr>
<tr>
<td>Responsible name</td>
<td>CHEMTREC</td>
</tr>
<tr>
<td>Material uses</td>
<td>Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.</td>
</tr>
</tbody>
</table>

### 2. Hazards identification

#### Emergency overview

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Solid. [Powdered solid.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>White/Off-White.</td>
</tr>
<tr>
<td>Hazard statements</td>
<td>NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.</td>
</tr>
<tr>
<td>OSHA/HCS status</td>
<td>While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.</td>
</tr>
</tbody>
</table>

#### Routes of entry

| Potential acute health effects | Dermal contact. Eye contact. Inhalation. Ingestion. |

#### Inhalation

| Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure. |

#### Ingestion

| No known significant effects or critical hazards. |

#### Skin

| No known significant effects or critical hazards. |

#### Eyes

| No known significant effects or critical hazards. |

#### Potential chronic health effects

| No known significant effects or critical hazards. |

### 3. Composition/information on ingredients

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

### 4. First aid measures

#### Eye contact

| Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if symptoms occur. |

#### Skin contact

| In contact with, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur. |

#### Inhalation

| Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms occur. |

#### Ingestion

| Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur. |

#### Protection of first-aiders

| No action shall be taken involving any personal risk or without suitable training. |

#### Notes to physician

| In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |

### 5. Fire-fighting measures

#### Flammability of the product

| No specific fire or explosion hazard. |

#### Extinguishing media

| Use an extinguishing agent suitable for the surrounding fire. |

#### Suitable

| None known. |

#### Not suitable

| None known. |

#### Special exposure hazards

| Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |

#### Hazardous thermal decomposition products

| Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides. |
5. Fire-fighting measures

Special protective equipment for fire-fighters
- Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- If the product contains hazardous decomposition products formed under fire conditions: carbon oxides, nitrogen oxides (NOx), sulfur oxides.

6. Accidental release measures

Personal precautions
- No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions
- Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill
- Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill
- Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

Handling
- Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Storage
- Do not store above the following temperature: -20°C (4° F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unsealed containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Hygiene measures
- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection
- Respiratory: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

9. Physical and chemical properties

Physical state
- Solid. [Powdered solid.]

Color
- White/Off-White.

Molecular weight
- 341.38 g/mole

Molecular formula
- C8H4N4O3S

Melting/freezing point
- 212°C (413.6°F)

10. Stability and reactivity

Chemical stability
- The product is stable.

Conditions to avoid
- No specific data.

Incompatible materials
- No specific data.

Hazardous decomposition products
- Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Possibility of hazardous reactions
- Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

Acute toxicity
- Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity
- Conclusion/Summary: Not available.

Irritation/Corrosion
- Conclusion/Summary: Not available.

Sensitizer
- Not available.
11. Toxicological information

**Conclusion/Summary**
- Not available.

**Carcinogenicity**
- Not available.

**Mutagenicity**
- Not available.

**Teratogenicity**
- Not available.

**Reproductive toxicity**
- Not available.

**Canada**

**Acute toxicity**
- Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

**Chronic toxicity**
- Conclusion/Summary: Not available.

**Irritation/Corrosion**
- Conclusion/Summary: Not available.

**Sensitizer**
- Conclusion/Summary: Not available.

**Carcinogenicity**
- Conclusion/Summary: Not available.

**Mutagenicity**
- Conclusion/Summary: Not available.

**Teratogenicity**
- Conclusion/Summary: Not available.

**Reproductive toxicity**
- Conclusion/Summary: Not available.

12. Ecological information

**Ecotoxicity**
- No known significant effects or critical hazards.

**United States**

**Aquatic ecotoxicity**
- Conclusion/Summary: Not available.

**Persistence/degradability**
- Conclusion/Summary: Not available.

**Canada**

**Aquatic ecotoxicity**
- Conclusion/Summary: Not available.

**Persistence/degradability**
- Conclusion/Summary: Not available.

**Other adverse effects**
- No known significant effects or critical hazards.

13. Disposal considerations

**Waste disposal**
- The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid disposal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

<table>
<thead>
<tr>
<th>Regulatory information</th>
<th>UN number</th>
<th>Proper shipping name</th>
<th>Classes</th>
<th>PG*</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT Classification</td>
<td>Not regulated.</td>
<td>.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IATA/DGR Class</td>
<td>Not regulated.</td>
<td>.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**PG* :** Packing group

15. Regulatory information

**United States**

**HCS Classification**
- Not regulated.

**U.S. Federal regulations**
- TSCA 8(a) IUR Exempt/Partial exemption: Partial exemption
- United States inventory (TSCA 8b): Not determined.
- SARA 302/304/313/312 extremely hazardous substances: No products were found.
- SARA 302/304 emergency planning and notification: No products were found.
- SARA 302/304/313/312 hazardous chemicals: No products were found.
- SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

**Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)**
- Not listed

**Clean Air Act Section 602 Class I Substances**
- Not listed

**Clean Air Act Section 602 Class II Substances**
- Not listed

**DEA List I Chemicals (Precursor Chemicals)**
- Not listed

**DEA List II Chemicals (Essential Chemicals)**
- Not listed

**State regulations**

**Massachusetts**
- This material is not listed.

**New York**
- This material is not listed.

**New Jersey**
- This material is not listed.
15. Regulatory information

- Pennsylvania: This material is not listed.
- United States inventory (TSCA 8b): Not determined.
- Canada WHMIS (Canada): Not controlled under WHMIS (Canada).
- Canadian lists: This material is not listed.
- Canadian NPR: This material is not listed.
- CEPA Toxic substances: This material is not listed.
- Canada inventory: Not determined.

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

International regulations

- International lists:
  - Australia inventory (AICS): Not determined.
  - China inventory (IECSC): This material is listed or exempted.
  - Japan inventory: Not determined.
  - Korea inventory: Not determined.
  - New Zealand Inventory of Chemicals (NZIoC): Not determined.
  - Philippines inventory (PICCS): Not determined.

16. Other information

Label requirements: NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

Hazardous Material Information System (U.S.A.)

- Health: 
- Flammability: 0
- Physical hazards: 0

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

- Health: 0
- Flammability: 0
- Instability/Reactivity: 0
- Special: 0

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Version: 1
Prepared by: MSDS (Regulatory Specialist)

Indicates information that has changed from previously issued version.

Notice to reader