Material Safety Data Sheet

**Section 1. Chemical Product and Company Identification**

**Product name**: N-Iodoacetyl-N'-Biotinylhexylenediamine

**Supplier**
- In USA: Pierce
  - P.O. Box 117
  - Rockford, IL 61105
  - USA
  - 815.968.0747 or 1.800.874.3723
- In Europe: Perbio Science
  - Industrizone III
  - 9320 Erembodegem-Aalst
  - Belgium
  - Tel:+32 53 83 44 04
  - Fax:+32 53 83 76 38

**Manufacturer**: Pierce Biotechnology
- P.O. Box 117
- Rockford, IL 61105
- USA
- 815.968.0747 or 1.800.874.3723

**In Case of Emergency**
- CALL CHEMTREC: 800.424.9300
- OUTSIDE US: 202.483.7616

**Product No.**: 0021333

**MSDS#**: 176

**Validation Date**: 11/4/2002

**Print Date**: 11/11/2002

**Intended Use**: Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

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**Section 2. Composition, Information on Ingredients**

**Substance/Preparation**: Substance

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS No.</th>
<th>%</th>
<th>EC Number</th>
<th>Symbol</th>
<th>R-Phrases</th>
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</thead>
<tbody>
<tr>
<td>1) N-Iodoacetyl-N'-Biotinylhexylenediamine</td>
<td>98-100</td>
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<td>Xi</td>
<td>R36</td>
<td></td>
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**Section 3. Hazards Identification**

**United States**

**Emergency Overview**: Review the most current and approved institutional guideline, protocol, standard operating procedure(s) and MSDS(s) for the proper handling of institutional materials/equipment associated with the use of this product.

**WARNING!**

- CAUSES DAMAGE TO THE FOLLOWING ORGANS: EYES.
- MAY CAUSE EYE IRRITATION.
- Avoid contact with eyes. Wash thoroughly after handling.

**Routes of Entry**: Eye contact.

**Potential Acute Health Effects**: Slightly hazardous in case of eye contact (irritant).

**Carcinogenic Effects Data**

- CARCINOGENIC EFFECTS: Not available.
- MUTAGENIC EFFECTS: Not available.
- TERATOGENIC EFFECTS: Not available.

**Medical Conditions Aggravated by Overexposure**

**Overexposure /Signs/Symptoms**: Repeated or prolonged exposure is not known to aggravate medical condition.

**Classification**

- **Physical/chemical hazards**: Not applicable.
- **Human health hazards**: Irritating to eyes.
- **Environmental hazards**: Not applicable.

See Toxicological Information (section 11)

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**Continued on Next Page**
Section 4. First Aid Measures

Notice to Reader

Get immediate medical attention.

Effects and symptoms

Inhalation
Not available.

Ingestion
Not available.

Skin Contact
Not available.

Eye Contact
Slightly hazardous in case of eye contact (irritant).

Aggravating conditions
Repeated or prolonged exposure is not known to aggravate medical condition.

First-Aid Measures

Inhalation
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin Contact
In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Eye Contact
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Notes to Physician
Not available.

Protection of first-aiders
Not available.

Section 5. Fire Fighting Measures

Flammability of the Product
May be combustible at high temperature.

Flash Points
Not available.

Fire Hazards in Presence of Various Substances
Not available.

Fire Fighting Media and Instructions
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Protective Clothing (Fire)
Be sure to use an approved/certified respirator or equivalent.

Section 6. Accidental Release Measures

Personal precautions
Safety glasses. Lab coat.

Environmental Precautions and Clean-up Methods
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Small Spill and Leak
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Section 7. Handling and Storage

Handling
Avoid contact with eyes. Wash thoroughly after handling.

Storage
Keep container tightly closed. Keep container in a cool, well-ventilated area.

Intended Use
Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Packaging materials
Suitable / Not suitable
Use original container.

Continued on Next Page
Section 8. Exposure Controls/Personal Protection

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Exposure Limit Values

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>Occupational Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
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<tr>
<td>1) N-iodoacetyl-N'-Biotinylhexylenediamine</td>
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<td>Sweden</td>
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<tr>
<td>1) N-iodoacetyl-N'-Biotinylhexylenediamine</td>
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<td>Denmark</td>
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<tr>
<td>1) N-iodoacetyl-N'-Biotinylhexylenediamine</td>
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<td>Norway</td>
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<tr>
<td>1) N-iodoacetyl-N'-Biotinylhexylenediamine</td>
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<td>France</td>
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<tr>
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<tr>
<td>Netherlands</td>
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<tr>
<td>1) N-iodoacetyl-N'-Biotinylhexylenediamine</td>
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<tr>
<td>Germany</td>
<td></td>
</tr>
<tr>
<td>1) N-iodoacetyl-N'-Biotinylhexylenediamine</td>
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</tr>
</tbody>
</table>

Personal Protection

- **Eyes**: Splash goggles.
- **Body**: Lab coat.
- **Hands**: Gloves.
- **Respiratory**: Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

Section 9. Physical and Chemical Properties

- **Physical State and Appearance**: Solid. (Solid powder.)
- **Molecular Weight**: Not available.
- **Dispersion Properties**: Not available.
- **Solubility**: Not available.
- **Odor**: Not available.
- **Taste**: Not available.
- **Color**: White. Off-white.

Continued on Next Page
Section 10. Stability and Reactivity

Stability and Reactivity  The product is stable.
Conditions to avoid  Not available.
Materials to avoid  Slightly reactive to reactive with moisture.

Hazardous Polymerization  Will not occur.
Hazardous Decomposition  Not available.

Section 11. Toxicological Information

Toxicity to Animals  LD50: Not available.
LC50: Not available.

Chronic Effects on Humans  Causes damage to the following organs: eyes.

Other Toxic Effects on Humans  Slightly hazardous in case of eye contact (irritant).

Special Remarks on Toxicity to Animals  Not available.
Special Remarks on Chronic Effects on Humans  Not available.
Special Remarks on Other Toxic Effects on Humans  Not available.

Section 12. Ecological Information

Mobility  Not available.
Persistence/degradability  Not available.
Bioaccumulative potential  Not available.
Ecotoxicity  Not available.
Germany water class  VCI WGK: No products were found.

Section 13. Disposal Considerations

Waste Information  Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste Stream  Not available.

Consult your local or regional authorities.

Section 14. Transport Information

Contact the supplier for all information regarding the proper transportation method for this material.

Section 15. Regulatory Information

Label Requirements

Continued on Next Page
**N-Iodoacetyl-N'-Biotinylhexylenediamine**

**HCS Classification** Irritating substance.

**U.S. Federal Regulations**
- TSCA: No products were found.
- SARA 302/304/311/312 extremely hazardous substances: No products were found.
- SARA 302/304 emergency planning and notification: No products were found.
- SARA 302/304/311/312 hazardous chemicals: No products were found.
- SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.
- SARA 313 toxic chemical notification and release reporting: No products were found.
- Clean Water Act (CWA) 307: No products were found.
- Clean Water Act (CWA) 311: No products were found.
- Clean air act (CAA) 112 accidental release prevention: No products were found.
- Clean air act (CAA) 112 regulated flammable substances: No products were found.
- Clean air act (CAA) 112 regulated toxic substances: No products were found.

**WHMIS (Canada)**
- Not controlled under WHMIS (Canada).

**State Regulations**
- No products were found.

**International Regulations**
- EINECS Not available.
- DSCL (EEC) R36- Irritating to eyes.
- International Lists VCI WGK: No products were found.
- State Regulations No products were found.
- California prop. 65: No products were found.

### Section 16. Other Information

<table>
<thead>
<tr>
<th>Hazardous Material Information System (U.S.A.)</th>
<th>National Fire Protection Association (U.S.A.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Fire Hazard</td>
</tr>
<tr>
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</table>

- **References** Not available.

- **History of Document Changes** Full text of R-Phrases referenced under headings 2 and 3:

- **Intended Use** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

- **Irritating to eyes.**

- **Avoid contact with eyes.**

- **In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.**

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Continued on Next Page
Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.