Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Product name: B-PER® Bacterial Protein Extraction Reagent

Product No.: 0078248 0078243 1900286

Supplier: In USA:
- Pierce
- P.O. Box 117
- Rockford, IL 61105
- USA
- 815.968.0747 or 1.800.874.3723

In Europe:
- Perbio Science
- Industriezone III
- 9200 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

Print Date: 11/8/2002
Validation Date: 11/6/2002
MSDS# 2673

In USA:  In Europe:
Pierce  Perbio Science
P.O. Box 117  Industriezone III
Industrielaan 27
USA  9320 Erembodegem-Aalst
BELGIUM
Tel:+32 53 83 44 04
Fax:+32 53 83 76 38

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

Section 2. Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>Substance/Preparation</th>
<th>CAS No.</th>
<th>%</th>
<th>EC Number</th>
<th>Symbol</th>
<th>R-Phrases</th>
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</table>

Section 3. Hazards Identification

United States
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.

Emergency Overview
WARNING!
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
LUNGS, RESPIRATORY TRACT, SKIN, EYES.

Routes of Entry
Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects
Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation (lung irritant). Non-hazardous in case of ingestion. Non-hazardous in case of inhalation.

Carcinogenic Effects Data
CARCINOGENIC EFFECTS: Not available.

Mutagenic Effects
MUTAGENIC EFFECTS: Not available.

Teratogenic Effects
TERATOGENIC EFFECTS: Not available.

Medical Conditions Aggravated by Overexposure
Repeated or prolonged exposure is not known to aggravate medical condition.

Overexposure /Signs/Symptoms
Not available.

Europe

Classification
Not controlled under dsd (Europe).

Physical/chemical hazards
Not applicable.

Human health hazards
Not applicable.

Environmental hazards
Not applicable.

See Toxicological Information (section 11)

Continued on Next Page
Section 4. First Aid Measures

Notice to Reader
Get immediate medical attention.

Effects and symptoms
- **Inhalation** Slightly hazardous in case of inhalation (lung irritant). Non-hazardous in case of inhalation.
- **Ingestion** Non-hazardous in case of ingestion.
- **Skin Contact** Sensitization of the product: Not available. Slightly hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
- **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 if symptoms appear.
- **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** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.
- **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. Cold water may be used. Get medical attention if irritation occurs.

Notes to Physician
Not available.

Protection of first-aiders
Not available.

Section 5. Fire Fighting Measures

Flammability of the Product
- Non-flammable.

Flash Points
- Not applicable.

Fire Hazards in Presence of Various Substances
- Not applicable.

Fire Fighting Media and Instructions
- Not applicable.

Protective Clothing (Fire)
- Not applicable.

Hazardous thermal (de)composition products
- Not applicable.

Section 6. Accidental Release Measures

Personal precautions
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Environmental Precautions and Clean-up Methods
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Small Spill and Leak
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate 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 breathing vapors or spray mists.

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

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Section 8. Exposure Controls/Personal Protection

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Exposure Limit Values

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>Occupational Exposure Limits</th>
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<tr>
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<td>Germany</td>
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<tr>
<td>2) B-PER Component 4</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.

Protective Clothing (Pictograms)

Section 9. Physical and Chemical Properties

**Physical State and Appearance**
Liquid.

**Odor**
Not available.

**Molecular Weight**
Not applicable.

**Taste**
Not available.

**pH (1% Soln/Water)**
Neutral.

**Color**
Not available.

**Boiling/Condensation Point**
The lowest known value is 100°C (212°F) (Milli-Q Water).

**Melting/Freezing Point**
May start to solidify at -0.1°C (31.8°F) based on data for: Milli-Q Water.

**Specific Gravity**
The only known value is 1 (Water = 1) (Milli-Q Water).

**Vapor Pressure**
The highest known value is 2.3 kPa (@ 20°C) (Milli-Q Water).

**Vapor Density**
The highest known value is 0.62 (Air = 1) (Milli-Q Water).

Continued on Next Page
Section 10. Stability and Reactivity

Stability and Reactivity
The product is stable.

Conditions to avoid
Keep away from heat and direct sunlight. Keep away from incompatibles.

Materials to avoid
Reactive with metals, alkalis.
Non-reactive with oxidizing agents.

Hazardous Polymerization
Will not occur.

Hazardous Decomposition Products
Not applicable.

Section 11. Toxicological Information

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

Chronic Effects on Humans
Not available.

Other Toxic Effects on Humans
Slightly hazardous in case of eye contact (irritant), of inhalation (lung irritant).
Non-hazardous in case of inhalation. Non-irritant for lungs.

Special Remarks on Toxicity to Animals
Not available.

Special Remarks on Chronic Effects on Humans
To the best of our knowledge, the toxicological properties of this substance have not been thoroughly investigated. May cause skin, eye and respiratory irritation.

Special Remarks on Other Toxic Effects on Humans
To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

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.

Continued on Next Page
Section 14. Transport Information

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

Section 15. Regulatory Information

Label Requirements (Europe)

This product is not classified according to the EU regulations.

HCS Classification

Irritating substance.

U.S. Federal Regulations

- TSCA 8(b) inventory: B-PER Component 4; Milli-Q Water
- SARA 302/304/313/312 extremely hazardous substances: No products were found.
- SARA 302/304 emergency planning and notification: No products were found.
- SARA 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)

CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

CEPA DSL: B-PER Component 4; Milli-Q Water

International Regulations

EINECS

- Not available.

DSCL (EEC)

This product is not classified according to the EU regulations.

International Lists

- Australia (NCPNAS): B-PER Component 4; Milli-Q Water
- VCI WGK: No products were found.
- Korea (TCCL): B-PER Component 4; Milli-Q Water
- Philippines (RA6969): B-PER Component 4; Milli-Q Water

State Regulations

- No products were found.
- California prop. 65: No products were found.

Section 16. Other Information

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

<table>
<thead>
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<th>Risk Group</th>
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<tr>
<td>Reactivity</td>
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</tr>
<tr>
<td>Personal Protection</td>
<td>g</td>
<td></td>
</tr>
</tbody>
</table>

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

- Health: 1
- Fire Hazard: 0
- Reactivity: 0
- Specific Hazard: 0

References

Not available.

History of Document Changes

Any information changes since last document version are marked with a triangle symbol.

Full text of R-Phrases referenced under headings 2 and 3:

Irritating to eyes, respiratory system and skin.

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

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.