SAFETY DATA SHEET

1. Identification

Product identifier
Product name: Recombinant Human β2 Microglobulin

Product No.: 551089

Other means of identification
SDS number: 088100004441

Recommended use and restriction on use
Recommended use: Reserved for industrial and professional use.
Restrictions on use: None known.

Manufacturer/Importer/Supplier/Distributor Information

Manufacturer
Company Name: BD Biosciences, Pharmingen
Address: 10975 Torreyana Road
         92121 San Diego, CA USA
Telephone: 1 877 232 8995 or 1 800 424 9300
Fax: Contact Person: Technical Services
E-mail: ResearchApplications@bd.com

Emergency telephone number: ChemTrec 1 800 424 9300

2. Hazard(s) identification

Hazard Classification
Not classified

Label Elements

Hazard Symbol: No symbol
Signal Word: No signal word.
Hazard Statement: not applicable
Precautionary Statements

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients
Mixtures

4. First-aid measures

**General information:** Get medical attention if symptoms occur.

**Ingestion:** Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

**Inhalation:** Provide fresh air, warmth and rest, preferably in comfortable upright sitting position.

**Skin Contact:** Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

**Eye contact:** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses.

**Most important symptoms/effects, acute and delayed**

**Symptoms:** No data available.

**Indication of immediate medical attention and special treatment needed**

**Treatment:** No data available.

5. Fire-fighting measures

**General Fire Hazards:** Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Use water spray to keep fire-exposed containers cool.

**Suitable (and unsuitable) extinguishing media**

**Suitable extinguishing media:** Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media:** not applicable

**Specific hazards arising from the chemical:** Fire or excessive heat may produce hazardous decomposition products.

**Special protective equipment and precautions for firefighters**

**Special fire fighting procedures:** No unusual fire or explosion hazards noted.
Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Contact local authorities in case of spillage to drain/aquatic environment. Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area.

Methods and material for containment and cleaning up: Absorb spillage with suitable absorbent material. Prevent runoff from entering drains, sewers, or streams. See Section 8 of the SDS for Personal Protective Equipment. For waste disposal, see section 13 of the SDS.

Environmental Precautions: Avoid release to the environment.

7. Handling and storage

Precautions for safe handling: When using do not eat, drink or smoke. Read and follow manufacturer's recommendations. Use personal protective equipment as required.

Conditions for safe storage, including any incompatibilities: Store in a cool, dry place. Keep container tightly closed.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Appropriate Engineering Controls

No special requirements under ordinary conditions of use and with adequate ventilation.

Individual protection measures, such as personal protective equipment

General information: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

Eye/face protection: Wear safety glasses with side shields (or goggles).

Skin Protection

Hand Protection: Chemical resistant gloves Suitable gloves can be recommended by the glove supplier. Wash hands after contact.

Other: Wear a lab coat or similar protective clothing.
Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Hygiene measures: Observe good industrial hygiene practices.

9. Physical and chemical properties

Appearance

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form:</td>
<td>liquid</td>
</tr>
<tr>
<td>Color:</td>
<td>Various</td>
</tr>
<tr>
<td>Odor:</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor threshold:</td>
<td>No data available.</td>
</tr>
<tr>
<td>pH:</td>
<td>No data available.</td>
</tr>
<tr>
<td>Melting point/freezing point:</td>
<td>The physical-chemical properties of this material have not been fully investigated.</td>
</tr>
<tr>
<td>Initial boiling point and boiling range:</td>
<td>No data available.</td>
</tr>
<tr>
<td>Flash Point:</td>
<td>The physical-chemical properties of this material have not been fully investigated.</td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td>No data available.</td>
</tr>
<tr>
<td>Flammability (solid, gas):</td>
<td>No data available.</td>
</tr>
</tbody>
</table>

Upper/lower limit on flammability or explosive limits

| Flammability limit - upper (%) | No data available. |
| Flammability limit - lower (%) | No data available. |
| Explosive limit - upper (%) | No data available. |
| Explosive limit - lower (%) | No data available. |

Vapor pressure: No data available.
Vapor density: No data available.
Relative density: No data available.
Solubility(ies)

- Solubility in water: Soluble
- Solubility (other): The physical-chemical properties of this material have not been fully investigated.

Partition coefficient (n-octanol/water): No data available.
Auto-ignition temperature: No data available.
Decomposition temperature: No data available.
Viscosity: Not determined.

10. Stability and reactivity

Reactivity: Stable under normal temperature conditions and recommended use.
## Chemical Stability
Material is stable under normal conditions.

## Possibility of hazardous reactions
No data available.

## Conditions to avoid
Avoid exposure to high temperatures or direct sunlight.

## Incompatible Materials
Metals. Water reactive material.

## Hazardous Decomposition Products
Stable; however, may decompose if heated.

### 11. Toxicological information

#### General information
No data on possible toxicity effects have been found.

#### Information on likely routes of exposure

<table>
<thead>
<tr>
<th>Route</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>No harmful effects expected in amounts likely to be ingested by accident.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Limited inhalation hazard at normal work temperatures.</td>
</tr>
<tr>
<td>Skin Contact</td>
<td>Negligible irritation to skin at ambient temperatures.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.</td>
</tr>
</tbody>
</table>

#### Symptoms related to the physical, chemical and toxicological characteristics

<table>
<thead>
<tr>
<th>Route</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>No data available.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>No data available.</td>
</tr>
<tr>
<td>Skin Contact</td>
<td>No data available.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>No data available.</td>
</tr>
</tbody>
</table>

#### Information on toxicological effects

#### Acute toxicity (list all possible routes of exposure)

<table>
<thead>
<tr>
<th>Route</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Product</td>
<td>No data available.</td>
</tr>
<tr>
<td>Dermal Product</td>
<td>No data available.</td>
</tr>
<tr>
<td>Inhalation Product</td>
<td>No data available.</td>
</tr>
</tbody>
</table>
Repeated dose toxicity
Product: not applicable

Skin Corrosion/Irritation
Product: Based on available data, the classification criteria are not met.

Serious Eye Damage/Eye Irritation
Product: No data available.

Respiratory or Skin Sensitization
Product: Not a skin sensitizer.

Carcinogenicity
Product: Based on available data, the classification criteria are not met.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
US. National Toxicology Program (NTP) Report on Carcinogens:

Germ Cell Mutagenicity

- In vitro
  Product: not applicable

- In vivo
  Product: not applicable

Reproductive toxicity
Product: Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Single Exposure
Product: Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Repeated Exposure
Product: Based on available data, the classification criteria are not met.

Aspiration Hazard
Product: Based on available data, the classification criteria are not met.

Other effects: None known.

12. Ecological information

Ecotoxicity:

- Acute hazards to the aquatic environment:
  - Fish
    Product: No negative effects on the aquatic environment are known.
Aquatic Invertebrates
Product: No negative effects on the aquatic environment are known.

Chronic hazards to the aquatic environment:

Fish
Product: No negative effects on the aquatic environment are known.

Aquatic Invertebrates
Product: No negative effects on the aquatic environment are known.

Toxicity to Aquatic Plants
Product: No negative effects on the aquatic environment are known.

Persistence and Degradability

Biodegradation
Product: Expected to be readily biodegradable.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential
Bioconcentration Factor (BCF)
Product: No data available.

Partition Coefficient n-octanol / water (log Kow)
Product: Log Kow: No data available.

Mobility in soil: No data available.

Other adverse effects: The product is not expected to be hazardous to the environment.

13. Disposal considerations

General information: Dispose of waste and residues in accordance with local authority requirements.

Disposal instructions: Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Contaminated Packaging: No data available.

14. Transport information

DOT
Special precautions for user: Not regulated.
IMDG
Special precautions for user: Not regulated.

IATA
Special precautions for user: Not regulated.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

CERCLA Hazardous Substance List (40 CFR 302.4):
Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Not listed.

SARA 302 Extremely Hazardous Substance
SARA 304 Emergency Release Notification
SARA 311/312 Hazardous Chemical
SARA 313 (TRI Reporting)

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

US State Regulations

US. California Proposition 65
US. New Jersey Worker and Community Right-to-Know Act
US. Massachusetts RTK - Substance List
US. Pennsylvania RTK - Hazardous Substances
US. Rhode Island RTK

16. Other information, including date of preparation or last revision

Issue Date: 03/17/2017
Version #: 1.0

Revision Information:


Further Information: No data available.

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