SAFETY DATA SHEET

Section 1: Identification

Product identifier
Product name: X-BACS™ Reagent
Product No.: 60392

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: ThermoGenesis Corp.
Address: 2711 Citrus Road
Rancho Cordova, CA 95742
Telephone: 1 916 858 5100 or 1 800 783 8357
Fax:
Contact: Customer Service
E-mail: customerservice@thermogenesis.com
Emergency telephone number: 1 916 549 6362

Section 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
Not applicable.

Other hazards which do not result in GHS classification: None.
Section 3: Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streptavidin</td>
<td>Streptavidin</td>
<td>9013-20-1</td>
</tr>
<tr>
<td>Polyethylene Glycol 4000</td>
<td>Polyethylene Glycol 4000</td>
<td>25322-68-3</td>
</tr>
<tr>
<td>Palmitic Acid, Pure</td>
<td>Palmitic Acid, Pure</td>
<td>57-10-13</td>
</tr>
<tr>
<td>Perfluorobutane</td>
<td>Perfluorobutane</td>
<td>355-25-9</td>
</tr>
</tbody>
</table>

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 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.
Section 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 firefighting 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.

Section 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 data.

**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.
Section 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.

Section 8: Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Type</th>
<th>Exposure Limit Values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene glycol 4000</td>
<td>Ceiling</td>
<td>15 mg/m³</td>
<td>OSHA-PEL (USA)</td>
</tr>
<tr>
<td>Polyethylene glycol 4000</td>
<td>Ceiling</td>
<td>10 mg/m³</td>
<td>TLV-TWA (USA)</td>
</tr>
<tr>
<td>Polyethylene glycol 4000</td>
<td>Ceiling</td>
<td>10 mg/m³</td>
<td>WEEL (USA)</td>
</tr>
</tbody>
</table>

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.

### Section 9: Physical and chemical properties

#### Appearance
- **Physical state:** Solid
- **Form:** Powder
- **Color:** White
- **Odor:** Odorless
- **Odor threshold:** No data available.
- **pH:** 6 - 9
- **Melting point/freezing point:** The physical-chemical properties of this material have not been fully investigated.

#### Initial boiling point and boiling range:
- No data available.

#### Flash Point:
- No data available.

#### Evaporation rate:
- No data available.

#### Flammability (solid, gas):
- No data available.

#### 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.
### Section 10: Stability and reactivity

<table>
<thead>
<tr>
<th>Reactivity:</th>
<th>Stable under normal temperature conditions and recommended use.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Stability:</td>
<td>Material is stable under normal conditions.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Conditions to avoid:</td>
<td>Avoid exposure to high temperatures or direct sunlight.</td>
</tr>
<tr>
<td>Incompatible Materials:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Hazardous Decomposition Products:</td>
<td>Stable; however, may decompose if heated.</td>
</tr>
</tbody>
</table>

### Section 11: Toxicological information

<table>
<thead>
<tr>
<th>General information:</th>
<th>No data on possible toxicity effects have been found.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information on likely routes of exposure</td>
<td></td>
</tr>
<tr>
<td><strong>Ingestion:</strong></td>
<td>No harmful effects expected in amounts likely to be ingested by accident.</td>
</tr>
<tr>
<td><strong>Inhalation:</strong></td>
<td>Limited inhalation hazard at normal work temperatures.</td>
</tr>
<tr>
<td><strong>Skin Contact:</strong></td>
<td>Negligible irritation to skin at ambient temperatures.</td>
</tr>
<tr>
<td><strong>Eye contact:</strong></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**

| **Ingestion:** | No data available. |
| **Inhalation:** | No data available. |
| **Skin Contact:** | No data available. |
| **Eye contact:** | No data available. |

**Information on toxicological effects**
Acute toxicity (list all possible routes of exposure)

Oral
Product: No data available.

Dermal
Product: No data available.

Inhalation
Product: No data available.

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:
No carcinogenic components identified.

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified.

No carcinogenic components identified.

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.

Section 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)  
ThermoGenesis Corp.
Product: No data available.

**Partition Coefficient n-octanol / water (log Kow)**

**Product:** Log Kow: No data available.

**Mobility in soil:** No data available.

**Known or predicted distribution to environmental compartments**

No data available.

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

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**Section 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.

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**Section 14: Transport information**

| DOTUN Number: | Not regulated. |
| UN Proper Shipping Name: | Not regulated. |
| Transport Hazard Class(es): | Not regulated. |
| Class: | Not regulated. |
| Label(s): | Not regulated. |
| Packing Group: | Not regulated. |
| Marine Pollutant: | Not regulated. |
| Limited quantity | Not regulated. |
| Excepted quantity | Not regulated. |
| Special precautions for user: | Not regulated. |

**IMDG**

| UN Number: | Not regulated. |
| UN Proper Shipping Name: | Not regulated. |
| Transport Hazard Class(es): | Not regulated. |
| Class: | Not regulated. |
| Subsidiary risk: | Not regulated. |
ThermoGenesis Corp.  
2711 Citrus Road  
Rancho Cordova, CA 95742  
www.ThermoGenesis.com

EmS No.: Not regulated.  
Packing Group: Not regulated.

Environmental Hazards  
Marine Pollutant: Not regulated.  
Special precautions for user: Not regulated.

IATA  
UN Number: Not regulated.  
Proper Shipping Name: Not regulated.  
Transport Hazard Class(es): 
Class: Not regulated.  
Subsidiary risk: Not regulated.  
Packing Group: Not regulated.  
Environmental Hazards  
Marine pollutant: Not regulated.  
Special precautions for user: Not regulated.

Section 15: Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)  
None present, or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)  
None present, or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):  
None present, or none present in regulated quantities

Superfund Amendments and Reauthorization Act of 1986 (SARA)  
Hazard categories  
Not listed.

SARA 302 Extremely Hazardous Substance  
None present, or none present in regulated quantities.

SARA 304 Emergency Release Notification  
None present, or none present in regulated quantities.

SARA 311/312 Hazardous Chemical  
None present, or none present in regulated quantities.
SARA 313 (TRI Reporting)  
None present, or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)  
None present, or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):  
None present, or none present in regulated quantities.

US State Regulations  
US. California Proposition 65  
No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act  
No ingredient regulated by NJ Right-to-Know Law present.

US. Massachusetts RTK - Substance List  
No ingredient regulated by Massachusetts RTK Substance List

US. Pennsylvania RTK - Hazardous Substances  
No ingredient regulated by PA Right-to-Know Law present.

US. Rhode Island RTK  
No ingredient regulated by RI Right-to-Know Law present.
Section 16: Other information, including date of preparation or last revision

<table>
<thead>
<tr>
<th>Issue Date:</th>
<th>03/21/2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision:</td>
<td>A</td>
</tr>
<tr>
<td>Revision Information:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Further Information:</td>
<td>The above information is provided to customs services for assistance in bringing material for experimental research. It is considered SECRET and CONFIDENTIAL.</td>
</tr>
</tbody>
</table>

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