SAFETY DATA SHEET
Date Revised: April 22, 2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: TPEN (tetrakis-(2-pyridylmethyl)ethylenediamine)
Catalog Number: 59003
Unit Size: 100mg
Manufacturer/Supplier: Biotium, Inc.
46117 Landing Parkway, Fremont, CA 94538, U.S.A.
Phone: 1-510-265-1027, Fax: 1-510-265-1352
Web: http://www.biotium.com

2. HAZARDS IDENTIFICATION

Classification according to Regulation (EC) No 1272/2008[CLP]
None
Classification according to Directive 1999/45/EC
None

Labeling according to Regulation (EC) No 1272/2008[CLP]

Hazard pictogram

!  

Signal word  Warning

Hazard statements
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statements
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.

HMIS Classification
Health hazard: 2
Flammability: 0
Physical hazards: 0

NFPA Rating
Health hazard: 2
Fire: 0
Reactivity Hazard: 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>Index No.</th>
<th>Weight %</th>
<th>Classification according to 67/548/EEC</th>
<th>Classification according to regulation (EC)No1278/2008</th>
</tr>
</thead>
</table>

SDS  
PSF008
4. FIRST-AID MEASURES

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Flush eyes with water as a precaution.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

**Suitable extinguishing media**
Carbon dioxide, dry chemical extinguishers, foam extinguishers or water.

**Special protective equipment for firefighters**
Wear self contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Avoid breathing vapors, mist or gas. Remove all sources of ignition.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods and materials for containment and cleaning up**
Contain spillage. Soak up spilled substance with inert absorbent material. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

**Precautions for safe handling**
Avoid inhalation of vapor or mist.
Avoid direct contact with substance.

**Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place.
Store at 4°C. Avoid long-term light exposure.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Substance</th>
<th>TPEN (tetrakis-(2-pyridylmethyl)ethylenediamine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS no.</td>
<td>16858-02-9</td>
</tr>
<tr>
<td>Control parameter</td>
<td>No information available</td>
</tr>
</tbody>
</table>

Personal protective equipment

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>TPEN (tetrakis-(2-pyridylmethyl)ethylenediamine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Off-white Solid</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point 110°C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporate rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water, DMSO or DMF</td>
</tr>
<tr>
<td>Partition coefficient:n-octanol/water</td>
<td>No information available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No information available</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
No data available

**Conditions to avoid**
Heat, flames and sparks.

**Materials to avoid**
No data available

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

<table>
<thead>
<tr>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>None</td>
</tr>
<tr>
<td>Inhalation LC50</td>
<td>None</td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>None</td>
</tr>
</tbody>
</table>

**Other information on acute toxicity**
no data available

- **Skin corrosion/irritation**
  no data available
- **Serious eye damage/eye irritation**
  no data available
- **Respiratory or skin sensitization**
  no data available
- **Germ cell mutagenicity**
  no data available

**Carcinogenicity**
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**
no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
Inhalation - May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
no data available

**Aspiration hazard**
no data available

**Potential health effects**
Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion May be harmful if swallowed.
Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.

**Additional Information**
RTECS: None
13. DISPOSAL CONSIDERATIONS

Do not dispose product directly into sewage. Consult local state or national regulation for proper disposal.

14. TRANSPORT INFORMATION

**IATA, IMDG, DOT(US)**
- not dangerous good during transportation

**UN number**
- none

**UN proper shipping name**
- none

**Transport hazard class**
- none

**Packing group**
- none

**Environmental hazards**
- none

**Special precaution for user**
- none

15. REGULATION INFORMATION

**US Federal Regulations**
- US Toxic Substances Control Act(TSCA): Not listed
- SARA 302: No chemicals were found.
- SARA 313: No chemicals were found.
- SARA 311/312 Hazards: Acute Health Hazard

16. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008

**Prepared by:**
- Regulatory Department
- Biotium Inc.

**Version no.**
- 2

**Reason for revision**
- Application of CLP labeling and corresponding requirements

The information provided above is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. Biotium shall not be held liable for any damage resulting from handling or contact with the above product.