MATERIAL SAFETY DATA SHEET
BULKACTIVES

Section 1 - Identification of Substance and Company

Product Name: Idebenone
Generic Name: Idebenone
Supplier: BulkActives
P.O Box 38-76
Keelung City 20299
Taiwan
email: info@bulkactives.com

Emergency Phone Numbers: CHEMTREC (24HR Emergency Telephone), call:1-800-424-9300
International CHEMTREC, call:1-703-527-3887

Section 2 – Hazard Identification

Classification of the Substance or Mixture:
Classification according to Regulation (EC) No 1272/2008 [CLP]:
Label Elements:
Labeling according to Regulation (EC) No 1272/2008 [CLP]:

GHS Signal Word:
GHS Hazard Phrases:
Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.

GHS Precaution Phrases:
No phrases apply.

GHS Response Phrases:
No phrases apply.

GHS Storage and Disposal Phrases:
Please refer to Section 7 for Storage and Section 13 for Disposal information.

Adverse Human Health: Material may be irritating to the mucous membranes and upper respiratory tract.
Effects and Symptoms: May be harmful by inhalation, ingestion, or skin absorption.
May cause eye, skin, or respiratory system irritation.
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Section 3 – Information on Ingredients

INCI Name | CAS Number | RTECS
--------- | ---------- | -----
Idebenone  | 58186-27-9 | GU5290000

Section 4 - First Aid Measures

Description of First Aid Measures: No data available.
In Case of Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
**In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

**In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.

**In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

**Section 5 - Explosion and Fire-Fighting Measures**

**Suitable Extinguishing Media:**
- Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
- Use water spray to cool fire-exposed containers.

**Unsuitable Extinguishing Media:** A solid water stream may be inefficient.

**Flammable Properties and Hazards:**
- **Flammable Properties:** No data available.
- **Hazard:**
  - **Flash Pt:** No data.
  - **Explosive Limits:**
    - LEL: No data.
    - UEL: No data.
  - **Autoignition Pt:** No data.

**Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

**Section 6 - Accidental Release/Spill Procedures**

**Protective Precautions, Protective Equipment and Emergency Procedures:**
- Avoid raising and breathing dust, and provide adequate ventilation.
- As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

**Environmental Precautions:**
- Take steps to avoid release into the environment, if safe to do so.

**Methods and Material For Containment and Cleaning Up:**
- Contain spill and collect, as appropriate.
- Transfer to a chemical waste container for disposal in accordance with local regulations.

**Section 7 - Handling and Storage**

**Precautions To Be Taken in Handling:**
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Avoid prolonged or repeated exposure.

**Precautions To Be Taken in Storing:**
- Keep container tightly closed.
- Store in accordance with information listed on the product insert.

**Section 8 - Personal Protection**

**Exposure Controls:**

**Engineering Controls:**
- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**Personal protection equipment:**

**Eye Protection:** Safety glasses

**Protective Gloves:** Compatible chemical-resistant gloves

**Other Protective Clothing:** Lab coat
Respiratory Equipment: NIOSH approved respirator, as conditions warrant.

(Specify Type):

Work/Hygienic/Maintenance: Do not take internally.

Practices:
Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.
Wash thoroughly after handling. No data available.

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**Section 9 - Physical and Chemical Properties**

<table>
<thead>
<tr>
<th>Information on Basic Physical and Chemical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical States: [ ] Gas [ ] Liquid [X] Solid</td>
</tr>
<tr>
<td>Appearance and Odor: A crystalline solid</td>
</tr>
<tr>
<td>Melting Point: No data.</td>
</tr>
<tr>
<td>Boiling Point: No data.</td>
</tr>
<tr>
<td>Flash Pt: No data.</td>
</tr>
<tr>
<td>Evaporation Rate: No data.</td>
</tr>
<tr>
<td>Explosive Limits: LEL: No data. UEL: No data.</td>
</tr>
<tr>
<td>Vapor Pressure (vs. Air or mm Hg): No data.</td>
</tr>
<tr>
<td>Vapor Density (vs. Air = 1): No data.</td>
</tr>
<tr>
<td>Specific Gravity (Water = 1): No data.</td>
</tr>
<tr>
<td>Solubility in Water: No data.</td>
</tr>
<tr>
<td>Solubility Notes: ~0.5 mg/ml in 1:1 EtOH:PBS (pH 7.2); ~30 mg/ml in EtOH &amp; DMF; ~25 mg/ml in DMSO;</td>
</tr>
<tr>
<td>Autoignition Pt: No data.</td>
</tr>
<tr>
<td>Other Information</td>
</tr>
<tr>
<td>Percent Volatile: No data.</td>
</tr>
<tr>
<td>Molecular Formula &amp; Weight: C19H30O5 338.4</td>
</tr>
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</table>

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**Section 10 - Stability and Reactivity**

Reactivity: No data available.

Stability: Unstable [ ] Stable [X]

Stability Note(s): Stable if stored in accordance with information listed on the product insert.

Polymerization: Will occur [ ] Will not occur [X]

Conditions To Avoid: No data available.

Incompatibility - Materials To Avoid: strong oxidizing agents, carbon dioxide

Hazardous

Decomposition Or Byproducts: carbon monoxide
Section 11 - Toxicological Information

**Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.

**Idebenone - Toxicity Data:** Oral LD50 (rat): 10 g/kg; Subcutaneous LD50 (rat): >10 g/kg; Oral LD50 (mouse): >10 g/kg; Subcutaneous LD50 (mouse): >10 g/kg;

**Chronic Toxicological Effects:** Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.

**Idebenone RTECS Number:** GU5290000

**Carcinogenicity:**
- NTP? No
- IARC Monographs? No
- OSHA Regulated? No

Section 12 - Ecological Information

**Toxicity:** Avoid release into the environment.

- Runoff from fire control or dilution water may cause pollution.

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No data available.

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

**Results of PBT and vPvB assessment:** No data available.

Section 13 - Disposal Considerations

**Waste Disposal Methods:** Dispose in accordance with local, state, and federal regulations.

Section 14 - Transport Information

Not classified as hazardous according to the Department of Transportation.

Section 15 - Regulatory Information

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>S. 302 (EHS)</th>
<th>S. 304 RQ</th>
<th>S. 313 (TRI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>58186-27-9</td>
<td>Idebenone</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

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<tr>
<th>CAS #</th>
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<th>Other US EPA or State Lists</th>
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<tbody>
<tr>
<td>58186-27-9</td>
<td>Idebenone</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; PROP.65: No</td>
</tr>
</tbody>
</table>

**Regulatory Information Statement:** This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

Section 16 - Other Information

**Prepared By:** JS  
**Revision Date:** 05/14

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