### Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

#### 1.1 Product Code:
14190  
**Product Name:** Gilvocarcin V  
**Synonyms:** 4-(6-deoxy-.alpha.-D-galactofuranosyl)-8-ethenyl-1-hydroxy-10,12-dimethoxy-6H-benzod[dnaphtho[1,2-b]pyran-6-one; Anandimycin A; Toromycin A; Antibiotic 1072B; DC-38-V; NSC 338943; NSC 348115;  

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against:
**Relevant identified uses:** For research use only, not for human or veterinary use.

#### 1.3 Details of the Supplier of the Safety Data Sheet:
**Company Name:** Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108  
**Web site address:** www.caymanchem.com  
**Information:** Cayman Chemical Company  
+1 (734)971-3335  
**Emergency telephone number:**  
**Emergency Contact:** CHEMTREC Within USA and Canada:  
+1 (800)424-9300  
CHEMTREC Outside USA and Canada:  
+1 (703)527-3887

### Section 2. Hazards Identification

#### 2.1 Classification of the Substance or Mixture:

**2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:**  
**Acute Toxicity:** Inhalation, Category 2  
**Acute Toxicity:** Oral, Category 2  
**Acute Toxicity:** Skin, Category 1  
**Serious Eye Damage/Eye Irritation:** Category 2  
**Carcinogenicity, Category 2:**

**2.1.2 Classification according to Directive 1999/45/EC:**  
**T+: Very Toxic**  
**Carcinogenic Hazard:** 3  
**Risk Phrases:** R23, R27/28, R36, R40  
For full text of R- phrases: see SECTION 15.

#### 2.2 Label Elements:

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

- **GHS Signal Word:** Danger  
- **GHS Hazard Phrases:**  
  - H330: Fatal if inhaled.  
  - H300: Fatal if swallowed.  
  - H310: Fatal in contact with skin.  
  - H319: Causes serious eye irritation.  
  - H351: Suspected of causing cancer.
GHS Precaution Phrases:
P260: Do not breathe {dust/fume/gas/mist/vapours/spray}.
P284: {In case of inadequate ventilation, }wear respiratory protection {}.
P264: Wash {hands} thoroughly after handling.
P262: Do not get in eyes, on skin, or on clothing.
P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.

GHS Response Phrases:
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310: Immediately call a {POISON CENTER/doctor/...}.
P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P330: Rinse mouth.
P361: Take off immediately all contaminated clothing.
P302+350: IF ON SKIN: Gently wash with plenty of soap and water.
P363: Wash contaminated clothing before reuse.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313: If eye irritation persists, get medical advice/attention.
P308+313: IF exposed or concerned: Get medical attention/advice.

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

2.2.2 Labeling according to Directive 1999/45/EC:

T+

Carcinogenic Hazard: 3

2.3 Adverse Human Health
Causes serious eye irritation.

Effects and Symptoms:
Fatal if inhaled.
Fatal if swallowed.
Fatal in contact with skin.
Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
May cause eye, skin, or respiratory system irritation.
Suspected of causing cancer.
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Section 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>CAS # / RTECS #</th>
<th>Hazardous Components (Chemical Name)/ REACH Registration No.</th>
<th>Concentration</th>
<th>EC No./ EC Index No.</th>
<th>Risk Phrases/ GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>77879-90-4</td>
<td>Gilvocarcin V</td>
<td>100.0 %</td>
<td>NA</td>
<td>T+; Ca:3, R23-27/28-36-40</td>
</tr>
<tr>
<td>DI22400000</td>
<td></td>
<td></td>
<td>NA</td>
<td>Acute Tox.(D) 1: H310</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute Tox.(O) 2: H300</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute Tox.(I) 2: H330</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Damage 2: H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Carcinogen 2: H351</td>
</tr>
</tbody>
</table>
Section 4. First Aid Measures

4.1 Description of First Aid Measures:

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.

4.2 Important Symptoms and Effects, Both Acute and Delayed:

Inhalation may result in coughing, tightness of the chest, and shortness of breath.

Section 5. Fire Fighting Measures

5.1 Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

Unsuitable Media: Use water spray to cool fire-exposed containers.

5.2 Flammable Properties and Hazards:

Flash Pt: No data.

Explosive Limits: LEL: No data. UEL: No data.

Autoignition Pt: No data.

5.3 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 Measures

6.1 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).

6.2 Environmental Precautions:

Take steps to avoid release into the environment, if safe to do so.

6.3 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

7.1 Precautions To Be Taken in Handling:

Avoid breathing dust/fume/gas/mist/vapours/spray.

Avoid prolonged or repeated exposure.

7.2 Precautions To Be Taken in Storing:

Keep container tightly closed.

Store in accordance with information listed on the product insert.
Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>Britain EH40</th>
<th>France VL</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>77879-90-4</td>
<td>Gilvocarcin V</td>
<td>No data.</td>
<td>No data.</td>
<td>No data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>OSHA TWA</th>
<th>ACGIH TWACAS #</th>
<th>Partial Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>77879-90-4</td>
<td>Gilvocarcin V</td>
<td>No data.</td>
<td>No data.</td>
<td>No data.</td>
</tr>
</tbody>
</table>

8.2 Exposure Controls:

8.2.1 Engineering Controls

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

8.2.2 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/Hygiene/Maintenance Practices:**
  - Do not take internally.
  - Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.
  - Wash thoroughly after handling.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

- **Physical States:** [ ] Gas [ ] Liquid [X] Solid
- **Appearance and Odor:** A yellow solid
- **Melting Point:** No data.
- **Boiling Point:** No data.
- **Flash Pt:** No data.
- **Evaporation Rate:** No data.
- **Explosive Limits:** LEL: No data. UEL: No data.
- **Vapor Pressure (vs. Air or mm Hg):** No data.
- **Vapor Density (vs. Air = 1):** No data.
- **Specific Gravity (Water = 1):** No data.
- **Solubility in Water:** No data.
- **Autoignition Pt:** No data.
9.2 Other Information
Percent Volatile: No data.
Molecular Formula & Weight: C27H26O9 494.5

Section 10. Stability and Reactivity
10.1 Reactivity: No data available.
10.2 Stability: Unstable [ ] Stable [ X ]
10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert.
Polymerization: Will occur [ ] Will not occur [ X ]
10.4 Conditions To Avoid: No data available.
10.5 Incompatibility - Materials To Avoid: No data available.
10.6 Hazardous Decomposition Or Byproducts: No data available.

Section 11. Toxicological Information
11.1 Information on Toxicological Effects: The toxicological effects of this product have not been thoroughly studied. Gilvocarcin V - Toxicity Data: Intravenous LD50 (mouse): 300 mg/kg; Oral LD (mouse): >1gm/kg;
Chronic Toxicological Effects: Gilvocarcin V - Investigated as a mutagen. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Gilvocarcin V RTECS Number: DI2240000
Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Section 12. Ecological Information
12.1 Toxicity: Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.

Section 13. Disposal Considerations
13.1 Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.

Section 14. Transport Information
14.1 LAND TRANSPORT (US DOT):
DOT Proper Shipping Name: Toxins, extracted from living sources, solid, n.o.s. (Gilvocarcin V)
DOT Hazard Class: 6.1 - POISON
UN/NA Number: 3462 Packing Group: III

14.1 LAND TRANSPORT (European ADR/RID):
ADR/RID Shipping Name: Toxins, extracted from living sources, solid, n.o.s. (Gilvocarcin V)
UN Number: 3462 Packing Group: III
Hazard Class: 6.1 - POISON
14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Toxins, extracted from living sources, solid, n.o.s. (Gilvocarcin V)
UN Number: 3462
Hazard Class: 6.1 - POISON
Additional Transport Information: Transport in accordance with local, state, and federal regulations.
When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

Section 15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

<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>77879-90-4</td>
<td>Gilvocarcin V</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>Other US EPA or State Lists</th>
</tr>
</thead>
<tbody>
<tr>
<td>77879-90-4</td>
<td>Gilvocarcin V</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No</td>
</tr>
</tbody>
</table>

European Community Hazard Symbol codes:

T+
Carcinogenic Hazard: 3

European Community Risk and Safety Phrases:

R23           Toxic by inhalation.
R27/28       Very toxic in contact with skin and if swallowed.
R36           Irritating to eyes.
R40           Limited evidence of a carcinogenic effect
S22           Do not breathe dust.
S24/25       Avoid contact with skin and eyes.
S26           In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39    Wear suitable protective clothing, gloves and eye/face protection.
S45           In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)

Regulatory Information Statement: This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

Section 16. Other Information

Revision Date: 01/14/2014
Additional Information About This Product: No data available.
Company Policy or Disclaimer: DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to
determine the suitability of the information for their particular purposes.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required