SAFETY DATA SHEET
Acenocoumarol

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

1.1 Product Code: 10010569
Product Name: Acenocoumarol
Synonyms: 4-hydroxy-3-[1-(4-nitrophenyl)-3-oxobutyl]-2H-1-benzopyran-2-one; Acenocoumarin; Nicoumalone; G-23350; Sinthrome®; Sintrom®;

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 Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300
   CHEMTREC Outside USA and Canada: +1 (703)527-3887

1.4 Emergency telephone number:

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: Oral, Category 4
   Skin Corrosion/Irritation, Category 2
   Serious Eye Damage/Eye Irritation, Category 2
   Specific Target Organ Toxicity (single exposure), Category 3

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

   GHS Signal Word: Warning
   GHS Hazard Phrases:
   H302: Harmful if swallowed.
   H315: Causes skin irritation.
   H319: Causes serious eye irritation.
   H335: May cause respiratory irritation.
   GHS Precaution Phrases:
   P261: Avoid breathing (dust/fume/gas/mist/vapors/spray).
   P264: Wash (hands) thoroughly after handling.
   P280: Wear (protective gloves/protective clothing/eye protection/face protection).
   GHS Response Phrases:
   P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
   P302+352: IF ON SKIN: Wash with plenty of soap and water.
   P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
   P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy
to do. Continue rinsing.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P330: Rinse mouth.

P332+313: If skin irritation occurs, get medical advice/attention.

P337+313: If eye irritation persists, get medical advice/attention.

P362+364: Take off contaminated clothing and wash it before reuse.

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

2.3 Adverse Human Health: Causes serious eye irritation.

Effects and Symptoms:

Causes skin irritation.

Harmful if swallowed.

Material may be irritating to the mucous membranes and upper respiratory tract.

May be harmful by inhalation or skin absorption.

May cause respiratory system irritation.

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>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>152-72-7</td>
<td>Acenocoumarol</td>
<td>100.0 %</td>
<td>205-807-3 NA</td>
<td>Acute Tox.(O) 4: H302 Skin Corr. 2: H315 Eye Damage 2: H319 STOT (SE) 3: H335 H336</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.

## Section 5. Fire Fighting Measures

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

5.2 **Flammable Properties and Hazards:**

- **Flash Pt:** No data.
- **Explosive Limits:** LEL: No data. UEL: 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, Methods and Material For Containment and Cleaning
   Emergency Procedures: Transfer to a chemical waste container for disposal in accordance with local regulations.

   Methods and Material For Containment and Cleaning: Contain spill and collect, as appropriate.

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

   Methods and Material For Containment and Cleaning: Contain spill and collect, as appropriate.

Section 7. Handling and Storage

7.1 Precautions To Be Taken in Handling: Avoid raising and breathing dust, and provide adequate ventilation.
   Avoid raising and breathing dust, and provide adequate ventilation.

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

   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>
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</thead>
<tbody>
<tr>
<td>152-72-7</td>
<td>Acenocoumarol</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 (Ventilation etc.): 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.
   Work/Hygienic/Maintenance Practices: Do not take internally.
   Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
   Wash thoroughly after handling.
   No data available.
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 crystalline solid
- Melting Point: 196.00 °C - 199.00 °C
- 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.
- Solubility Notes: ~0.25 mg/ml 1:3 DMF:PBS (pH 7.2); ~0.2 mg/ml EtOH; 10 mg/ml in DMSO & DMF;
- Autoignition Pt: No data.
- Molecular Formula & Weight: C19H15NO6  353.3

9.2 Other Information

- Percent Volatile: No data.

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.

10.4 Conditions To Avoid: No data available.

10.5 Incompatibility - Materials strong oxidizing agents

10.6 Hazardous Decomposition Or Byproducts:
- carbon oxides
- nitrogen oxides

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

10.8 Stability Note(s): No data available.

10.9 Reactivity:

10.10 Chronic Toxicological Effects:

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: The toxicological effects of this product have not been thoroughly studied. Acenocoumarol Toxicity Data: Oral LD50 (rat): 513 mg/kg; Oral LD50 (mouse): 1470 mg/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.

Acenocoumarol RTECS Number: GN4900000

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>NTP</th>
<th>IARC</th>
<th>ACGIH</th>
<th>OSHA</th>
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<tr>
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<td>Acenocoumarol</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>
Section 12. Ecological Information

12.1 Toxicity: Runoff from fire control or dilution water may cause pollution.

12.2 Persistence and Degradability: No data available.

12.3 Bioaccumulative Potential: No data available.

12.4 Mobility in Soil: No data available.

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

12.6 Other adverse effects: No data available.

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: Not dangerous goods.
DOT Hazard Class:
UN/NA Number:

14.1 LAND TRANSPORT (European ADR/RID):
ADR/RID Shipping Name: Not dangerous goods.
UN Number:
Hazard Class:

14.3 AIR TRANSPORT (ICAO/IATA):
ICAO/IATA Shipping Name: Not dangerous goods.

Additional Transport Information: Transport in accordance with local, state, and federal regulations.

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>
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<tbody>
<tr>
<td>152-72-7</td>
<td>Acenocoumarol</td>
<td>No</td>
<td>No</td>
<td>No</td>
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CAS # Hazardous Components (Chemical Name) Other US EPA or State Lists

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<tbody>
<tr>
<td>152-72-7</td>
<td>Acenocoumarol</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No</td>
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</table>

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.
<table>
<thead>
<tr>
<th>Revision Date:</th>
<th>03/07/2015</th>
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<tbody>
<tr>
<td>Additional Information About This Product:</td>
<td>No data available.</td>
</tr>
<tr>
<td>Company Policy or Disclaimer:</td>
<td>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.</td>
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