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

1.1 Product Code: 70602
Product Name: Caffeic Acid
Synonyms: 3,4-dihydroxy cinnamic acid;

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

1.4 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:
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2A
Carcinogenicity, Category 2
Toxic To Reproduction, Category 2
Specific Target Organ Toxicity (single exposure), Category 3

2.2 Label Elements:

GHS Signal Word: Warning

GHS Hazard Phrases:
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H351: Suspected of causing cancer.
H361: Suspected of damaging fertility or the unborn child.
H335: May cause respiratory irritation.

GHS Precaution Phrases:
P264: Wash (hands) thoroughly after handling.
P280: Wear (protective gloves/protective clothing/eye protection/face protection).
P362+364: Take off contaminated clothing and wash it before reuse.
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.
P261: Avoid breathing (dust/fume/gas/mist/vapours/spray).

GHS Response Phrases:
P302+352: IF ON SKIN: Wash with plenty of soap and water.
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Supersedes Revision: 10/28/2013

P332+313: If skin irritation occurs, get medical advice/attention.
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.
P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

2.3 Adverse Human Health Effects and Symptoms:
- Causes skin irritation.
- Causes serious eye irritation.
- Material is irritating to the mucous membranes and upper respiratory tract.
- May be harmful by inhalation, ingestion, or skin absorption.
- May cause respiratory irritation.
- Suspected of causing cancer.
- Suspected of damaging fertility or the unborn child.
- The toxicological properties of this product have not been fully evaluated.

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>331-39-5 GD8950000</td>
<td>3,4-Dihydroxycinnamic acid (Caffeic Acid)</td>
<td>100.0 %</td>
<td>206-361-2 NA</td>
<td>Skin Corr. 2: H315 Eye Damage 2: H319 STOT (SE) 3: H335 Carcinogen 2: H351 Toxic Repro. 2: H361</td>
</tr>
</tbody>
</table>

Section 4. First Aid Measures

4.1 Description of First Aid Measures:
- If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- If swallowed, 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.
- In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
- In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.
Section 5. Fire Fighting Measures

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

5.2 Flammable Properties and Hazards:
Flash Pt: No data available.
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: No data available.

6.2 Environmental Precautions: No data available.

6.3 Methods and Material For Containment and Cleaning Up: Avoid release into the environment.
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).
Transfer to a proper chemical waste container for disposal.

Section 7. Handling and Storage

7.1 Precautions To Be Taken in Handling: Avoid breathing (dust, vapor, mist, gas).
Avoid prolonged or repeated exposure.

7.2 Precautions To Be Taken in Storing: Keep tightly closed.
Store at correct temperature.

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>331-39-5</td>
<td>3,4-Dihydroxycinnamic acid (Caffeic Acid)</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 TWA</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>331-39-5</td>
<td>3,4-Dihydroxycinnamic acid (Caffeic Acid)</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 |

NIOSH approved respirator, as conditions warrant.

Respiratory Equipment
(Specify Type):

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 brown crystalline solid |
| Melting Point: | No data. |
| Boiling Point: | No data. |
| Flash Pt: | No data. |
| Evaporation Rate: | No data. |
| Flammability (solid, gas): | No data available. |
| 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: | ~0.65 mg/ml in PBS (pH 7.2); ~7 mg/ml in EtOH, DMF & DMSO; |
| Autoignition Pt: | No data. |

#### 9.2 Other Information

| Percent Volatile: | No data. |
| Molecular Formula & Weight: | C9H8O4         180.2 |

### Section 10. Stability and Reactivity

#### 10.1 Reactivity: | No data available. |

#### 10.2 Stability: Unstable [ ] Stable [ X ]

#### 10.3 Stability Note(s): No data available.

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

#### 10.4 Conditions To Avoid: No data available.

#### 10.5 Incompatibility - Materials strong bases

To Avoid: strong oxidizing agents

#### 10.6 Hazardous carbon dioxide

Decomposition or carbon monoxide

Byproducts:
Section 11. Toxicological Information

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

Toxicological Effects: Caffeic acid - Toxicity Data: Intraperitoneal TDLO (mouse): 4 mg/kg; Oral TDLO (rat): 50 mg/kg;
Chronic Toxicological Effects: Caffeic acid - Investigated as a mutagen, natural product, reproductive effector, and tumorigen.

Carcinogenicity/Other Information: California Prop. 65 carcinogen.
IARC: Group 2B: Possible human carcinogen (3,4-Dihydroxycinnamic acid (Caffeic Acid));

Caffeic acid RTECS Number: GD8950000

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>NTP</th>
<th>IARC</th>
<th>ACGIH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>331-39-5</td>
<td>3,4-Dihydroxycinnamic acid (Caffeic Acid)</td>
<td>n.a.</td>
<td>2B</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Section 12. Ecological Information

12.1 Toxicity: Avoid release into the environment.
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.
SAFETY DATA SHEET
Caffeic Acid

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>
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</thead>
<tbody>
<tr>
<td>331-39-5</td>
<td>3,4-Dihydroxycinnamic acid (Caffeic Acid)</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>331-39-5</td>
<td>3,4-Dihydroxycinnamic acid (Caffeic Acid)</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: Yes</td>
</tr>
</tbody>
</table>

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

Section 16. Other Information

Revision Date: 09/14/2016

Additional Information About This Product: No data available.

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