1.1 Product Code: 20383
Product Name: Folinic Acid (calcium salt)
Synonyms: N-[4-[[2-amino-5-formyl-1,4,5,6,7,8-hexahydro-4-oxo-6-pteridinyl)methyl]amino]benzoyl]-L-glutamic acid, monocalcium salt; Calcium folinate; NSC 3590;

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 2
Respiratory Sensitization, Category 1
Skin Sensitization, Category 1
Specific Target Organ Toxicity (single exposure), Category 3

2.2 Label Elements:

GHS Signal Word: Danger
GHS Hazard Phrases:
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335: May cause respiratory irritation.

GHS Precaution Phrases:
P261: Avoid breathing (dust/fume/gas/mist/vapors/spray).
P264: Wash [hands] thoroughly after handling.
P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear (protective gloves/protective clothing/eye protection/face protection).
P285: In case of inadequate ventilation wear respiratory protection.

GHS Response Phrases:
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.
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>
</table>
| 1492-18-8 MA0600500 | Glutamic acid, n-((2-amino-5-formyl-5,6,7,8-tetrahydro-4-hydroxy-6-pteridinyl)(methyl)amino)benzy | 100.0% | 216-082-8 NA | Skin Corr. 2: H315  
Skin Sens. 1: H317  
Eye Damage 2: H319  
Resp. Sens. 1: H334  
STOT (SE) 3: H335 |

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:** No data available.  

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.  

### Section 7. Handling and Storage

7.1 **Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.  

7.2 **Precautions To Be Taken in Storing:** Avoid prolonged or repeated exposure.  

### 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>1492-18-8</td>
<td>Glutamic acid, n-(p(((2-amino-5-formyl-5,6,7,8-tetrahydro-4-hydroxy-6-pteridinyl)methyl)amin o)benzy</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>1492-18-8</td>
<td>Glutamic acid, n-(p(((2-amino-5-formyl-5,6,7,8-tetrahydro-4-hydroxy-6-pteridinyl)methyl)amin o)benzy</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/Hygienic/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.

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:  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:  ~ 0.3 mg/ml
Autoignition Pt:  No data.

9.2 Other Information

Percent Volatile:  No data.
Molecular Formula & Weight:  C20H21N7O7 • Ca  511.5

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  strong oxidizing agents
To Avoid:
10.6 Hazardous Decomposition or Byproducts:
carbon dioxide
carbon monoxide
calcium oxide
nitrogen oxides
Section 11. Toxicological Information

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

Folinic Acid (calcium salt) - Toxicity Data:
- Oral LD50 (rat): >8 gm/kg; Intraperitoneal LD50 (rat): 1063 mg/kg;
- Oral LD50 (mouse): >7 gm/kg; Intraperitoneal LD50 (mouse): 1036 mg/kg;

Chronic Toxicological Effects:
Folinic Acid (calcium salt) - Investigated as a drug.

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

Folinic Acid (calcium salt) RTECS Number: MA0600500

<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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</thead>
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<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:
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.
## 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>
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<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### Other US EPA or State Lists

- CAA HAP, ODC: No
- CWA NPDES: No
- TSCA: No
- CA PROP.65: No

### Regulatory Information Statement:

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

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## Section 16. Other Information

### Revision Date:

10/01/2016

### 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.