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

1.1 Product Code: 14328
Product Name: Tetracycline (hydrochloride)
Synonyms: (4S,4aS,5aS,6S,12aS)-
4-(dimethylamino)-1,4,4a,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamide, monohydrochloride;

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:
Acute Toxicity: Oral, Category 4
Skin Corrosion/Irritation, Category 2
Toxic To Reproduction, Category 2
Toxic To Reproduction, Effects on or via lactation
Aquatic Toxicity (Chronic), Category 4

2.2 Label Elements:
GHS Signal Word: Warning
GHS Hazard Phrases:
H302: Harmful if swallowed.
H315: Causes skin irritation.
H361: Suspected of damaging fertility or the unborn child.
H362: May cause harm to breast-fed children.
H413: May cause long lasting harmful effects to aquatic life.

GHS Precaution Phrases:
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P263: Avoid contact during pregnancy/while nursing.
P264: Wash hands thoroughly after handling.
P273: Avoid release to the environment.
P280: Wear protective gloves and eye protection.

GHS Response Phrases:
P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
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>64-75-5 QI9100000</td>
<td>Tetracycline hydrochloride</td>
<td>100.0 %</td>
<td>200-593-8 NA</td>
<td>Skin Corr. 2: H315, Eye Damage 2A: H319, STOT (SE) 3: H335</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.

Unsuitable Extinguishing 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 Multi-region format
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: 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:

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.
(Specify Type):

Work/Hygienic/Maintenance Practices: 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
pH: No data.
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.
SAFETY DATA SHEET
Tetracycline (hydrochloride)

Specific Gravity (Water = 1): No data.
Solubility in Water: No data.
Solubility Notes: ~3.3 mg/ml in PBS (pH 7.2); ~1 mg/ml in DMSO; ~1.4 mg/ml in DMF;
Octanol/Water Partition Coefficient: No data.
Autoignition Pt: No data.
Decomposition Temperature: No data.
Viscosity: No data.

9.2 Other Information
Percent Volatile: No data.
Molecular Formula & Weight: C22H24N2O8 • HCl 480.9

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 carbon dioxide
Byproducts: carbon monoxide
hydrogen chloride gas
nitrogen oxides

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: The toxicological effects of this product have not been thoroughly studied.
Tetracycline (hydrochloride) - Toxicity Data: Oral LD50 (rat): 6443 mg/kg; Intraperitoneal LD50 (rat): 318 mg/kg; Subcutaneous LD50 (rat): 700 mg/kg; Oral LD50 (mouse): 2759 mg/kg; Intraperitoneal LD50 (mouse): 368 mg/kg;
Chronic Toxicological Effects: Tetracycline (hydrochloride) - Investigated as a drug, mutagen, natural product, reproductive effector, and tumorigen.
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.
Tetracycline (hydrochloride) RTECS Number: QI9100000

<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>64-75-5</td>
<td>Tetracycline hydrochloride</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: 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.
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>
<tr>
<td>64-75-5</td>
<td>Tetracycline hydrochloride</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
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<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>Other US EPA or State Lists</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-75-5</td>
<td>Tetracycline hydrochloride</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: Yes: RDTox.</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

Revision Date: 12/03/2018

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.