SAFETY DATA SHEET
Tamoxifen

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

1.1 Product Code: 13258
Product Name: Tamoxifen
Synonyms: 2-[4-[(1Z)-1,2-diphenyl-1-buten-1-yl]phenoxy]-N,N-dimethyl-ethanamine;

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
Carcinogenicity, Category 1A
Toxic To Reproduction, Category 1A
Toxic To Reproduction, Effects on or via lactation

2.2 Label Elements:

GHS Signal Word: Danger

GHS Hazard Phrases:
H302: Harmful if swallowed.
H350: May cause cancer.
H360: May damage fertility or the unborn child.
H362: May cause harm to breast-fed children.

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/vapours/spray).
P263: Avoid contact during pregnancy/while nursing.
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.
P308+313: IF exposed or concerned: Get medical attention/advice.
P330: Rinse mouth.

GHS Storage and Disposal Phrases:
Please refer to Section 7 for Storage and Section 13 for Disposal information.
### Section 5. Fire Fighting Measures

<table>
<thead>
<tr>
<th>Flammable Properties and Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>No data available.</td>
</tr>
<tr>
<td>Flash Pt:</td>
</tr>
<tr>
<td>Explosive Limits:</td>
</tr>
<tr>
<td>Autoignition Pt:</td>
</tr>
</tbody>
</table>

#### 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:
- 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:
- 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 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
- 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.
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Specific Gravity (Water = 1): No data.
Solubility in Water: No data.
Solubility Notes: ~0.3 mg/ml in a 1:2 solution of EtOH:PBS (pH 7.2); ~20 mg/ml in EtOH & DMF; ~2 mg/ml in DMSO.
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: C26H29NO 371.5

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
nitrogen oxides

Section 11. Toxicological Information

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

Tamoxifen - Toxicity Data: Oral TDLO (woman): 5600 ug/kg/1W (intermittent); Oral LD50 (rat): 4,100 mg/kg; Intraperitoneal LD50 (rat): 700 mg/kg; Oral LD50 (mouse): 2,150 mg/kg; Intraperitoneal LD50 (mouse): 50 mg/kg; Subcutaneous TDLO (mouse): 0.3 mg/kg/5D (intermittent); Subcutaneous TDLO (rat): 178.5 ug/kg/5D (intermittent);

Chronic Toxicological Effects: Tamoxifen - Investigated as a drug, hormone, mutagen, 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.

Tamoxifen RTECS Number: KR5919600

Carcinogenicity/Other Information: IARC: 1 - Group 1: Carcinogenic to humans (Tamoxifen)
California Prop. 65 carcinogen (Tamoxifen)

Carcinogenicity: NTP? No IARC Monographs? Yes OSHA Regulated? No

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<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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<td>Tamoxifen</td>
<td>Known</td>
<td>1</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>
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<th>S. 304 RQ</th>
<th>S. 313 (TRI)</th>
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<tbody>
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<td>10540-29-1</td>
<td>Tamoxifen</td>
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<td>No</td>
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</table>

Other US EPA or State Lists

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<tbody>
<tr>
<td>10540-29-1</td>
<td>Tamoxifen</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: Yes; Canc.</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: 08/19/2018

Additional Information About This Product: No data available.

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