

# MATERIAL SAFETY DATA SHEET

## bis(7)-Tacrine

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Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

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### 1. Product and Company Identification

**Product Code:** 10005836  
**Product Name:** bis(7)-Tacrine  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Chemical Family:** Inhibitors  
**CAS Number:** 224445-12-9  
**Synonyms:** N,N'-bis(1,2,3,4-tetrahydro-9-acridinyl)-1,7-heptanediamine, dihydrochloride;  
1,7-N-heptylene-bis-9,9'-amino-1,2,3,4-tetrahydro-acridine;

### 2. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS #       | Percentage | OSHA PEL | ACGIH TLV | Other Limits |
|--------------------------------------|-------------|------------|----------|-----------|--------------|
| 1. bis(7)-Tacrine                    | 224445-12-9 | 100.0 %    | No data. | No data.  | No data.     |

### 3. Hazards Identification

**Emergency Overview:** No data available.  
**Route(s) of Entry:** Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection  
**Potential Health Effects (Acute and Chronic):** Material may be irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation or skin absorption.  
Causes eye, skin, or respiratory system irritation.  
The toxicological properties of this compound have not been fully evaluated.  
Toxic.  
Toxic if swallowed.  
**Signs and Symptoms Of Exposure:** No data available.

### 4. First Aid Measures

**Emergency and First Aid Procedures:** 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. After initial flushings, remove any contact lenses and continue flushing 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. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Autoignition Pt:** No data.  
**Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
**Flammable Properties and Hazards:** Emits toxic fumes under fire conditions.  
**Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.

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**Unsuitable Extinguishing Media:** No data available.

### 6. Accidental Release Measures

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).  
Vacuum or sweep up material and place in disposal container.  
Avoid raising dust.  
After removal, ventilate contaminated area and flush thoroughly with water.

### 7. Handling and Storage

**Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.  
Wash thoroughly after handling.

**Precautions To Be Taken in Handling:** Avoid breathing (dust, vapor, mist, gas).  
Avoid contact with eyes, skin, and clothing.  
Avoid prolonged or repeated exposure.  
Do not reuse this container.  
Hygroscopic  
Use with adequate ventilation.  
Wash thoroughly after handling.

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

### 8. Exposure Controls/Personal Protection

**Protective Equipment Summary - Hazard Label Information:** Eye wash station in work area Lab coat Latex disposable gloves Safety glasses Safety shower in work area Vent Hood

**Respiratory Equipment (Specify Type):** Government approved respirator as conditions warrant.

**Eye Protection:** Safety glasses

**Protective Gloves:** Latex disposable gloves

**Other Protective Clothing:** Lab coat

**Engineering Controls (Ventilation etc.):** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**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.

### 9. Physical and Chemical Properties

**Physical States:** [ ] Gas [ ] Liquid [ X ] Solid

**Melting Point:** No data.

**Boiling Point:** No data.

**Autoignition Pt:** No data.

**Flash Pt:** No data. Method:

**Explosive Limits:** LEL: No data. UEL: No data.

**Specific Gravity (Water = 1):** No data.

**Vapor Pressure (vs. Air or mm Hg):** No data.

**Vapor Density (vs. Air = 1):** No data.

**Evaporation Rate (vs Butyl Acetate=1):** No data.

**Solubility in Water:** 0.5 mg/ml\* at 25.0 C

**Other Solubility Notes:** \*Ethanol:PBS (pH7.2)(1:6), sol. in EtOH, DMSO & DMF

**Percent Volatile:** No data.

**Corrosion Rate:** No data.

**Formula:** C<sub>33</sub>H<sub>40</sub>N<sub>4</sub> · 2HCl

**Molecular Weight:** 565.60

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**pH:** No data.  
**Appearance and Odor:** A crystalline solid

### 10. Stability and Reactivity

**Stability:** Unstable [ ] Stable [ X ]  
**Conditions To Avoid - Instability:** protect from moisture  
**Incompatibility - Materials To Avoid:** acid anhydrides  
acid chlorides  
strong oxidizing agents  
**Hazardous Decomposition Or Byproducts:** carbon dioxide  
carbon monoxide  
hydrogen chloride gas  
nitrogen oxides,  
**Hazardous Polymerization:** Will occur [ ] Will not occur [ X ]  
**Conditions To Avoid - Hazardous Polymerization:** No data available.

### 11. Toxicological Information

**Toxicological Information:** The toxicological effects of this compound have not been thoroughly studied.  
**Carcinogenicity/Other Information:** No data available.  
**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

### 12. Ecological Information

**Ecological Information:** Runoff from fire control or dilution water may cause pollution.

### 13. Disposal Considerations

**Waste Disposal Method:** Dispose in accordance with local, state and federal regulations.

### 14. Transport Information

**LAND TRANSPORT (US DOT)**  
**DOT Proper Shipping Name:** No data available.  
**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### 15. Regulatory Information

**US EPA SARA Title III**

| Hazardous Components (Chemical Name) | CAS #       | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-------------|---------------|------------|---------------|---------|
| 1. bis(7)-Tacrine                    | 224445-12-9 | No            | No         | No            | No      |

**US EPA CAA, CWA, TSCA**

| Hazardous Components (Chemical Name) | CAS #       | EPA CAA | EPA CWA NPDES | EPA TSCA | CA PROP 65 |
|--------------------------------------|-------------|---------|---------------|----------|------------|
| 1. bis(7)-Tacrine                    | 224445-12-9 | No      | No            | No       | No         |

**SARA (Superfund Amendments and Reauthorization Act of 1986) Lists:**

**Sec.302:** EPA SARA Title III Section 302 Extremely Hazardous Chemical with TPQ. \* indicates 10000 LB TPQ if not volatile.  
**Sec.304:** EPA SARA Title III Section 304: CERCLA Reportable + Sec.302 with Reportable Quantity. \*\* indicates statutory RQ.  
**Sec.313:** EPA SARA Title III Section 313 Toxic Release Inventory. Note: -Cat indicates a member of a chemical category.  
**Sec.110:** EPA SARA 110 Superfund Site Priority Contaminant List

**TSCA (Toxic Substances Control Act) Lists:**

**5A(2):** Chemical Subject to Significant New Rules (SNURS)  
**6A:** Commercial Chemical Control Rules  
**8A:** Toxic Substances Subject To Information Rules on Production  
**8A CAIR:** Comprehensive Assessment Information Rules - (CAIR)  
**8A PAIR:** Preliminary Assessment Information Rules - (PAIR)

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**8C:** Records of Allegations of Significant Adverse Reactions  
**8D:** Health and Safety Data Reporting Rules  
**8D TERM:** Health and Safety Data Reporting Rule Terminations

### Other Important Lists:

**CWA NPDES:** EPA Clean Water Act NPDES Permit Chemical  
**CAA HAP:** EPA Clean Air Act Hazardous Air Pollutant  
**CAA ODC:** EPA Clean Air Act Ozone Depleting Chemical (1=CFC, 2=HCFC)  
**CA PROP 65:** California Proposition 65

## 16. Other Information

### Company Policy or Disclaimer

For research use only, not for human or veterinary clinical use.

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