

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

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

- 1.1 Product Code:** 11421
Product Name: Actinomycin D
Synonyms: 2-amino-N,N'-bis(hexadecahydro-6,13-diisopropyl-2,5,9-trimethyl-1,4,7,11,14-pentaox o-1H-pyrrolo[2,1-i][1,4,7,10,13]oxatetraazacyclohexadecin-10-yl)-4,6-dimethyl-3-oxo-3 H-phenoxazine-1,9-dicarboxamide; Cosmegen; Dactinomycin; Meractinomycin; NCI C04682; NSC 3053; Oncostatin K;
- 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:**
- 2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:**
Acute Toxicity: Oral, Category 2
Respiratory Sensitization, Category 1
Skin Sensitization, Category 1
Carcinogenicity, Category 1A
Toxic To Reproduction, Category 1A
- 2.1.2 Classification according to Directive 1999/45/EC:**
T+: Very Toxic
Carcinogenic Hazard: 3
Risk Phrases: R28, R40, R42/43
For full text of R- phrases: see SECTION 15.
- 2.2 Label Elements:**
- 2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**



GHS Signal Word: **Danger**

GHS Hazard Phrases:

- H300: Fatal if swallowed.
 H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H317: May cause an allergic skin reaction.
 H350: May cause cancer.
 H360: May damage fertility or the unborn child.

GHS Precaution Phrases:

P264: Wash {hands} thoroughly after handling.
 P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.
 P272: Contaminated work clothing should not be allowed out of the workplace.
 P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
 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.

GHS Response Phrases:

P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 P330: Rinse mouth.
 P304+341: IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
 P342+311: If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.
 P302+352: IF ON SKIN: Wash with plenty of soap and water.
 P333+313: If skin irritation or rash occurs, seek medical advice/attention.
 P363: Wash contaminated clothing before reuse.
 P308+313: IF exposed or concerned: Get medical attention/advice.

GHS Storage and Disposal Phrases:

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

2.2.2 Labeling according to Directive 1999/45/EC:


T+

Carcinogenic Hazard: 3

2.3 Adverse Human Health Fatal if swallowed.

Effects and Symptoms: Material may be irritating to the mucous membranes and upper respiratory tract.

May be harmful by inhalation skin absorption.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

May cause cancer.

May cause eye, skin, or respiratory system irritation.

May damage fertility or the unborn child.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
50-76-0 AU1575000	Actinomycin D	100.0 %	200-063-6 NA	T+; Ca:3, R28-40-42/43 Acute Tox.(O) 2: H300 Carcinogen 1A: H350 Toxic Repro. 1A: H360 Resp. Sens. 1: H334 Skin Sens. 1: H317

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.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:** Inhalation may result in: spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.
Exposure can cause: anemia, drowsiness, weakness.

Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Media: Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing Media: A solid water stream may be inefficient.
- 5.2 Flammable Properties and Hazards:** No data available.
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 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. 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:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
50-76-0	Actinomycin D	No data.	No data.	No data.
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
50-76-0	Actinomycin D	No data.	No data.	No data.

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 (Specify Type): NIOSH approved respirator, as conditions warrant.

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.

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.

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: ~0.5 mg/ml in 1:1 DMF:PBS (pH 7.2); ~10 mg/ml in DMSO; ~20 mg/ml in DMF;

Autoignition Pt: No data.

9.2 Other Information

Percent Volatile: No data.
Molecular Formula & Weight: C₆₂H₈₆N₁₂O₁₆ 1255.5

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 To Avoid: strong acids
strong bases
strong oxidizing agents
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.
Actinomycin D - Toxicity Data: Oral LD₅₀ (rat): 7.2 mg/kg; Oral LD₅₀ (mouse): 13 mg/kg;
Intraperitoneal LD₅₀ (rat): 0.1 mg/kg; Intraperitoneal LD₅₀ (mouse): 0.5 mg/kg;
Subcutaneous LD₅₀ (rat): 0.8 mg/kg; Subcutaneous LD₅₀ (mouse): 0.5 mg/kg;
Chronic Toxicological Effects: Actinomycin D - Investigated as a 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.
Actinomycin D RTECS Number: KQ6300000
Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Section 12. Ecological Information

12.1 Toxicity: Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.

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: Toxic solid, organic, n.o.s. (Actinomycin D)
DOT Hazard Class: 6.1 POISON
UN/NA Number: 2811 **Packing Group:** II



14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Toxic solid, organic, n.o.s. (Actinomycin D)
UN Number: 2811 **Packing Group:** II
Hazard Class: 6.1 - POISON

14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Toxic solid, organic, n.o.s. (Actinomycin D)
UN Number: 2811 **Packing Group:** II
Hazard Class: 6.1 - POISON **IATA Classification:** 6.1

Additional Transport Information: Transport in accordance with local, state, and federal regulations. When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

Section 15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
50-76-0	Actinomycin D	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
50-76-0	Actinomycin D	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: Yes

European Community Hazard Symbol codes:


T+

Carcinogenic Hazard: 3

European Community Risk and Safety Phrases:

R28 Very toxic if swallowed.
R40 Limited evidence of a carcinogenic effect
R42/43 May cause sensitization by inhalation and skin contact.
S22 Do not breathe dust.
S24/25 Avoid contact with skin and eyes.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)

Regulatory Information Statement: This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

Section 16. Other Information

Revision Date: 12/04/2013
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.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established,

N.R.=Not required