

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Harmful compound, minimize exposure. CARCINOGEN. MINIMIZE EXPOSURE. Light sensitive material.	

Section I. Chemical Product and Company Identification

Chemical Name	Etoposide		
Catalog Number	E0675	Supplier	TCI America 9211 N. Harbortgate St. Portland OR 1-800-423-8616
Synonym	4'-Demethylepipodophyllotoxin 9-(4,6-O-Ethylidene-beta-D-glucopyranoside)		
Chemical Formula	C ₂₉ H ₃₂ O ₁₃		
CAS Number	33419-42-0	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Etoposide	33419-42-0	Min. 98.0 (HPLC)	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.	Rat LD ₅₀ (oral) 1784 mg/kg Rat LD ₅₀ (intraperitoneal) 39 mg/kg Rat LD ₅₀ (intravenous) 58 mg/kg

Section III. Hazards Identification

Acute Health Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Reproductive effects. Rat TDLo Intraperitoneal 14 mg/kg, male 5 weeks prior to mating Toxic Effects: Paternal Effects - Testes, epididymis, sperm duct Rat TDLo Oral 312 mg/kg, female 17-21 days of pregnancy and 21 days after birth Toxic Effects: Maternal Effects - Ovaries, fallopian tubes Effects on Newborn - Viability index Effects on Newborn - Growth statistics Rat TDLo Oral 132 mg/kg, female 7-17 days of pregnancy Toxic Effects: Effects on Embryo or Fetus - Fetotoxicity Effects on Embryo or Fetus - Fetal death Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	Not available.		

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Emergency phone number (800) 424-9300

Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Harmful material. Carcinogenic material. Light sensitive material. Use a shovel to put the material into a convenient waste disposal container. Consult federal, state, and/or local authorities for assistance on disposal.
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Section VII. Handling and Storage

Handling and Storage Information	HARMFUL. CARCINOGEN. LIGHT SENSITIVE. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do not breathe dust. Always store away from incompatible compounds such as oxidizing agents.
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Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
	
Exposure Limits	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Solid. (Crystal ~ powder, white ~ almost white.)	Solubility	Very soluble in methanol, chloroform. Slightly soluble in ethanol. Very slightly soluble in water.
Specific Gravity	Not available.		
Molecular Weight	588.56	Partition Coefficient	LOG P _{ow} : -1.89
Boiling Point	Not available.	Vapor Pressure	Not applicable.
Melting Point	236 to 251 °C (456.8 to 483.8°F)	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light. Sensitive to light.
Incompatibilities	Reactive with oxidizing agents.

Section XI. Toxicological Information

RTECS Number	KC0190000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD ₅₀ (oral) 1784 mg/kg Rat LD ₅₀ (intraperitoneal) 39 mg/kg Rat LD ₅₀ (intravenous) 58 mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Reproductive effects. Rat TDLo Intraperitoneal 14 mg/kg, male 5 weeks prior to mating Toxic Effects: Paternal Effects - Testes, epididymis, sperm duct Rat TDLo Oral 312 mg/kg, female 17-21 days of pregnancy and 21 days after birth Toxic Effects: Maternal Effects - Ovaries, fallopian tubes Effects on Newborn - Viability index Effects on Newborn - Growth statistics Rat TDLo Oral 132 mg/kg, female 7-17 days of pregnancy Toxic Effects: Effects on Embryo or Fetus - Fetotoxicity Effects on Embryo or Fetus - Fetal death Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

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Acute Toxic Effects

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Section XII. Ecological Information

Ecotoxicity

Not available.

Environmental Fate

Etoposide's production and use as an antineoplastic chemotherapy agent may result in its release to the environment through various waste streams. It is primarily released to wastewater from the urinary excretions of patients using this medication. If released to air, an estimated vapor pressure of 5.4X10⁻²³ mm Hg at 25 deg C indicates etoposide will exist solely in the particulate phase in the ambient atmosphere. Particulate-phase etoposide will be removed from the atmosphere by wet and dry deposition. If released to soil, etoposide is expected to have high mobility based upon an estimated Koc of 51. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 1.7X10⁻³⁰ atm-cu m/mole. Volatilization from dry soil surfaces is not expected based on the vapor pressure of this compound. No biodegradation data were located for etoposide; however, other antineoplastic agents are generally slow to biodegrade, which suggests that etoposide may also degrade slowly in the environment. If released into water, etoposide is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is not expected to be an important fate process based upon this compound's estimated Henry's Law constant. An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low. Etoposide absorbs light in the environmental UV spectrum and may be susceptible to photolysis in sunlit surface water, but the rate of this reaction is not known. Etoposide contains a functional group that may be susceptible to hydrolysis; however, the rate of this reaction is not known. Occupational exposure to etoposide may occur dermally or through accidental pathways for hospital workers such as doctors or nurses that administer etoposide to patients receiving treatment with this antineoplastic agent. The general population is not expected to be exposed to etoposide directly unless they are receiving chemotherapy treatments using this compound.

Section XIII. Disposal Considerations

Waste Disposal

Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification

Not a DOT controlled material (United States).

PIN Number

Not applicable.

Proper Shipping Name

Not applicable.

Packing Group (PG)

Not applicable.

DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA)

This product is **NOT** on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those products not on the inventory list:

- (i) These products are supplied solely for use in research and development by or under the supervision of a technically qualified individual as defined in 40 CFR 720.0 et sec.
- (ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on an MSDS sheet.

WHMIS Classification (Canada)

CLASS D-2B: Material causing other toxic effects (TOXIC).
On DSL.

EINECS Number (EEC)

251-509-1

EEC Risk Statements

R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
R45- May cause cancer.

Japanese Regulatory Data

Not available.

Section XVI. Other Information**Version 1.0**

Validated on 7/18/2011.

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Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.