



SIGMA-ALDRICH

Material Safety Data Sheet

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Version 1.0

Section 1 - Product and Company Information

Product Name	ETOPOSIDE		
Product Number	E1383		
Brand	Sigma Chemical		
Company	Sigma-Aldrich		
Street Address	3050 Spruce Street		
City, State, Zip, Country	St. Louis, MO, 63103, US		
Technical Phone:	314 771 5765	Emergency Phone:	414 273 3850 Ext.5996
Fax	800 325 5052		

Section 2 - Composition/Information on Ingredient

<u>Substance Name</u>	<u>CAS #</u>	<u>SARA 313</u>
ETOPOSIDE	33419-42-0	No
Formula	C29H32O13	
Synonyms	4'-Demethylepipodophyllotoxin 9-(4,6-O-ethylidene-beta-D-glucopyranoside), Demethyl-epipodophyllotoxin ethylidene glucoside, 4-Demethylepipodophyllotoxin beta-D-ethylidene-glucoside, 4'-Demethylepipodophyllotoxin ethylidene-beta-D-glucoside, 4'-O-Demethyl-1-O-(4,6-O-ethylidene-beta-D-glucopyranosyl)epipodophyllotoxin, EPE, Epipodophyllotoxin, 4'-demethyl-, 4,6-O-ethylidene-beta-D-glucopyranoside (8Cl), Epipodophyllotoxin, 4'-demethyl-, 9-(4,6-O-ethylidene-beta-D-glucopyranoside), Etoposide, NK 171, NSC 141540, Vepesid, Vepesid J, VP-16, VP 16213	

Section 3 - Hazards Identification

Emergency Overview

Toxic.

May cause heritable genetic damage. May cause harm to the unborn child. Toxic by inhalation, in contact with skin, and if swallowed. Teratogen. Mutagen. Possible carcinogen. Possible carcinogen. Target organ(s): Bone marrow.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

Dermal Exposure

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Autoignition Temp: N/A **Flammability:** N/A

Extinguishing Media
Suitable

Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting

Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)

Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure(s) of Personal Precaution(s)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Section 8 - Exposure Controls / PPE

Engineering Controls

Mechanical exhaust required.

Personal Protective Equipment

Other

Wear appropriate NIOSH/MSHA-approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

Section 9 - Physical/Chemical Properties

Appearance

Physical State

Solid

Molecular Weight: N/A

<u>Property</u>	<u>Value</u>
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pH	N/A
BP/BP Range	N/A
MP/MP Range	N/A
Freezing Point	N/A
Vapor Pressure	N/A
Vapor Density	N/A
Saturated Vapor Conc.	N/A
SG/Density	N/A
Bulk Density	N/A
Odor Threshold	N/A
Volatile%	N/A
VOC Content	N/A
Water Content	N/A
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity	N/A
Partition Coefficient	N/A

Decomposition Temp. N/A
Flash Point °F N/A
Flash Point °C N/A
Explosion Limits N/A
Autoignition Temp N/A
Solubility N/A

Section 10 - Stability and Reactivity

Stability

Stable

Stable.

Hazardous Decomposition Products

Hazardous Decomposition Products

Carbon monoxide, Carbon dioxide.

Hazardous Polymerization

Hazardous Polymerization

Will not occur.

Section 11 - Toxicological Information

Route of Exposure

Multiple Routes

Harmful if swallowed, inhaled, or absorbed through skin.

Target Organ(s) or System(s)

Bone marrow.

Signs and Symptoms of Exposure

Exposure can cause: Gastrointestinal disturbances.

RTECS Number: KC0190000

Toxicity Data

Oral - Rat: 1,784 mg/kg (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).

Gastrointestinal:Hypermotility, diarrhea.

Nutritional and Gross Metabolic:Changes in:Body temperature decrease.

Intraperitoneal - Rat: 39 MG/KG (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).

Gastrointestinal:Hypermotility, diarrhea.

Subcutaneous - Rat: >200 MG/KG (LD50)

Intravenous - Rat: 58 MG/KG (LD50)

Oral - Mouse: 215 mg/kg (LD50)

Intraperitoneal - Mouse: 64 MG/KG (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).

Gastrointestinal:Ulceration or bleeding from stomach.

Skin and Appendages: Other: Hair.

Subcutaneous - Mouse: 143 MG/KG (LD50)

Intravenous - Mouse: 15070 UG/KG (LD50)

Oral - Rabbit: 147 mg/kg (LD50)

Remarks: Gastrointestinal:Hypermotility, diarrhea.

Skin and Appendages: Other: Hair.

Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

Intravenous - Rabbit: 37 MG/KG (LD50)

Chronic Exposure - Teratogen

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	14630 UG/KG	Oral	(7-17D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system. Effects on Newborn: Behavioral.			
Rat	132 MG/KG	Oral	(7-17D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Embryo or Fetus: Fetal death.			
Rat	44 MG/KG	Oral	(MULTIGENERATION S)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).			
Mouse	2 MG/KG	Intraperitoneal	(6D PREG)
Result: Specific Developmental Abnormalities: Eye, ear. Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Embryo or Fetus: Fetal death.			
Mouse	1 MG/KG	Intraperitoneal	(7D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.			
Mouse	1 MG/KG	Intraperitoneal	(8D PREG)
Result: Specific Developmental Abnormalities: Central nervous system.			

Chronic Exposure - Mutagen

<u>Species</u>	<u>Dose</u>	<u>Route</u>	<u>Exposure Time</u>	<u>Cell Type</u>	<u>Mutation test</u>
Human	50 NMOL/L			lymphocyte	Micronucleus test
Human	1 UMOL/L			lymphocyte	DNA damage
Human	2 UMOL/L			Other cell types	DNA damage
Human	1 UMOL/L			HeLa cell	DNA damage
Human	500 NMOL/L			leukocyte	DNA damage
Human	24 UMOL/L			mammary gland	DNA damage
Human	100 NMOL/L		1H	Other cell types	DNA damage
Human	5 UMOL/L			Other cell types	DNA damage
Human	100 UMOL/L			lung	DNA damage
Human	10 UMOL/L			Other cell types	DNA inhibition
Human	25 UMOL/L			HeLa cell	DNA inhibition
Human	20 UMOL/L			HeLa cell	Other mutation test systems
Human	500 NMOL/L			leukocyte	DNA inhibition
Human	5 MG/L			lymphocyte	Other mutation test systems
Human	100 UG/L			lymphocyte	Cytogenetic analysis
Human	20 UMOL/L			Other cell types	Cytogenetic analysis
Human	25 UG/L			lymphocyte	Sister chromatid exchange
Human	20 UMOL/L			Other cell types	Sister chromatid exchange
Mouse	40 MG/KG			Human	Host-mediated assay
Rat	5 MG/KG	Intraperitoneal			Micronucleus test
Rat	50 UMOL/L			Other cell types	DNA damage
Rat	1 UMOL/L			liver	DNA damage
Rat	5 MG/KG	Intraperitoneal			Unscheduled DNA synthesis
Rat	5 MG/KG	Intraperitoneal			DNA inhibition
Mouse	750 UG/KG	Intraperitoneal			Micronucleus test
Mouse	1 MG/KG	Oral			Micronucleus test
Mouse	25 MG/KG	Intravenous			Micronucleus test
Mouse	75 MG/KG	Intraperitoneal			specific locus test
Mouse	4 MG/L			fibroblast	DNA damage
Mouse	1 MG/L			Other cell types	Other mutation test systems
Mouse	500 NMOL/L			leukocyte	DNA damage
Mouse	500 UG/L			lymphocyte	DNA damage
Mouse	15 MG/KG	Intraperitoneal			DNA damage
Mouse	5 MG/L			leukocyte	Other mutation test systems
Mouse	1 MG/L			Other cell types	DNA inhibition
Mouse	5 UMOL/L			leukocyte	DNA inhibition
Mouse	1 MG/L			Other cell types	Other mutation test systems
Mouse	5 MG/KG	Intraperitoneal			Cytogenetic analysis
Mouse	20 UG/L			lymphocyte	Cytogenetic analysis
Mouse	500 UG/KG	Intraperitoneal			Sister chromatid exchange
Mouse	500 UG/L			fibroblast	Mutation in mammalian somatic cells.
Mouse	400 UG/L			lymphocyte	Mutation in mammalian somatic cells.
Mouse	15 MG/KG			leukocyte	Host-mediated assay
Hamster	2 UMOL/L			lung	Micronucleus test
Hamster	5 UMOL/L			lung	DNA damage
Hamster	200 NMOL/L			ovary	DNA damage
Hamster	15 UMOL/L			lung	DNA inhibition
Hamster	20 UMOL/L			lung	Cytogenetic analysis
Hamster	15 UMOL/L			ovary	Cytogenetic analysis
Hamster	20 UMOL/L			lung	Sister chromatid exchange
Hamster	100 UG/L			ovary	Sister chromatid exchange
Hamster	800 UG/L			ovary	Mutation in mammalian somatic cells.
Mammal	50 UMOL/L			Ascites tumor	DNA inhibition

Chronic Exposure - Reproductive Hazard

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	312 MG/KG	Oral	(17-21D PREG/21D POST)
	Result: Maternal Effects: Ovaries, fallopian tubes. Effects on Newborn: Viability index (e.g., # alive at day 4 per # born alive). Effects on Newborn: Growth statistics (e.g., reduced weight gain).		
Rat	14 MG/KG	Intraperitoneal	(5W MALE)
	Result: Paternal Effects: Testes, epididymis, sperm duct.		
Rat	45 MG/KG	Intravenous	(90D MALE)
	Result: Paternal Effects: Testes, epididymis, sperm duct.		
Rat	1400 MG/KG	Unreported	(28D MALE)
	Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).		
Mouse	1500 UG/KG	Intraperitoneal	(6D PREG)
	Result: Maternal Effects: Oogenesis. Effects on Embryo or Fetus: Cytological changes (including somatic cell genetic material).		
Dog	70 MG/KG	Oral	(5W MALE)
	Result: Paternal Effects: Testes, epididymis, sperm duct.		
Dog	29120 UG/KG	Intravenous	(26W MALE)
	Result: Paternal Effects: Testes, epididymis, sperm duct.		

Section 12 - Ecological Information

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Toxic solids, organic, n.o.s.

UN#: 2811

Class: 6.1

Packing Group: Packing Group III

PIH: Not PIH

IATA

Proper Shipping Name: Toxic solid, organic, n.o.s.

IATA Number: 2811

Hazard Class: 6.1

Packing Group: III

Section 15 - Regulatory Information

US Classification and Label Text

Indication of Danger

Toxic.

Risk Statements

May cause heritable genetic damage. May cause harm to the unborn child. Toxic by inhalation, in contact with skin, and if swallowed.

Safety Statements

Do not breathe dust. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wear suitable protective clothing, gloves, and eye/face protection.

US Statements

Teratogen. Mutagen. Possible carcinogen. Possible carcinogen. Target organ(s): Bone marrow.

United States Regulatory Information

SARA 313 Listed: No

United States - State Regulatory Information

California Prop - 65

California Proposition 65: This product is or contains chemical(s) known to the state of California to cause developmental toxicity.

California Proposition 65: This product is or contains chemical(s) known to the state of California to cause developmental toxicity.

Section 16 - Other Information

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 1999 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

