Etoposide

5.9 mg

Background: An anti-tumor agent that is commonly used as an apoptosis inducer, etoposide (VP-16) is a topoisomerase II inhibitor with an IC\textsubscript{50} of 59.2 µM (1). Etoposide stabilizes a covalent topoisomerase II-cleaved DNA intermediate complex in the catalytic cycle of the enzyme, leading to genomic instability and cell death (2,3). This mechanism of action has been shown to delay progression of the cell cycle through the late S and early G2 phase (4,5).

Molecular Formula: C\textsubscript{29}H\textsubscript{32}O\textsubscript{13}

Molecular Weight: 588.56 g/mol

Solubility: Soluble in DMSO at 100 mg/ml; very poorly soluble in ethanol and water with maximum solubility in water ~20-50 µM.

Purity: >98%.

Directions for Use: Etoposide is supplied as a lyophilized powder. For a 50 mM stock, reconstitute the 5.9 mg in 200 µl DMSO. Working concentrations and length of treatments vary depending on the desired effect, but it is typically used at 5-50 µM for 4-24 hr.

Background References:

Storage: Store lyophilized or in solution at -20°C, desiccated.
In lyophilized form, the chemical is stable for 24 months. Once in solution, use within 3 months to prevent loss of potency. Aliquot to avoid multiple freeze/thaw cycles.
SECTION 1. Identification

Product identifier

Product number

Product name

Other names of identification

Identified uses

Uses advised against

Recommended use of the chemical and restrictions on use

Handle in accordance with good industrial hygiene and safety practice.

Precautions for safe handling

Methods and materials for containment and cleaning up

Do not flush into surface water or sanitary sewer system.

Environmental precautions

Personal protective equipment and emergency procedures

Specific target organs toxicity - repeated exposure (STOT RE)

Reproductive toxicity

Carcinogenicity

Specific hazards arising from the chemical

Extinguishing media

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be ineffective.

Specific hazards arising from the chemical

No information available.

Precautionary Statements

Signal Word

Changer

SECTION 2. Hazard identification

Classification

This substance/mixture is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity

Category 4

Genetic/Reproductive toxicity

Category 1B

Inhalation toxicity

Category 1B

GHS Label elements, including precautionary statements

SECTION 3. Composition/information on ingredients

Chemical Name

CAS No

Weight %

Etoposide

38711-19-0

100

SECTION 4. First-aid measures

Eye contact

Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.

Skin contact

Immediate medical attention is required. Wash off immediately with soap and plenty of water, while removing all contaminated clothes and shoes. Immediate medical attention is required. Move to fresh air if breathing, give artificial respiration.

Inhalation

Do NOT induce vomiting. Immediate medical attention is required. Never give anything by mouth to an unconscious person. Drink plenty of water, nothing by mouth.

Most important symptoms and effects, both acute and delayed

Abdominal pain, constipation, dysphagia, fever, transient cortical blindness, interstitial pneumonitis pulmonary fibrosis, optic neuritis, pigmentation, keratoconjunctivitis (occasionally associated with allergic reactions), Stevens-Johnson syndrome, toxic epidermal necrolysis, and hepatic toxicity.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5. Physical and chemical properties

Information on basic physical and chemical properties

Physical state

Solid

Appearance

Crystaline powder

Odor

No information available

Color

None

Flash point

258-272 °C

Melting point/freezing point

No information available

Initial boiling point and boiling range

No information available

Evaporation rate

No information available

Flammability (solid, gas)

No information available

Flammability limit

No information available

Upper flammability limit

No information available

Lower flammability limit

No information available

Water reaction

No information available

Vapor density

No information available

Residue density

No information available

Solubility

Practically insoluble

Partition coefficient: n-octanol/water

0.6

Autoignition temperature

No information available

Decomposition temperature

No information available

Explosive properties

No information available

Molecular Weight

588.56 g/mol

VOC content

No information available

Viscosity

No information available

Density

No information available

SECTION 6. Exposure controls/personal protection

Control parameters

SECTION 7. Handling and storage

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

Keep containers tightly closed in a dry, cool and well-ventilated place.

Packaging material

None known based on information supplied.
This product contains chemicals known to the State of California to cause cancer or reproductive toxicity.

**Chemical Name**

**California Prop. 65**

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<thead>
<tr>
<th>Chemical Name</th>
<th>Propagated</th>
<th>Initiating</th>
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<tbody>
<tr>
<td>Etoposide</td>
<td>Yes</td>
<td>No</td>
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