Biolyse Pharma

SAFETY DATA SHEET
DOCETAXEL INJECTION, USP

Section 1: Identification

- **Product Name:** Docetaxel Injection, USP
- **CAS Number:** 114977-28-5
- **Trade name:** Docetaxel
- **Chemical Name:** (2R,3S)-N-carboxy-3-phenylisoserine, N-tert-butyl ester,13-ester with 5β-20-epoxy-1,2α,4,7β,10β,13α-hexahydroxytax-11-en-9-one 4-acetate 2-benzoate
- **Intended use:** Antineoplastic
- **Manufacturer:** Biolyse Pharma Corporation
  59 Welland Vale Rd,
  St. Catharines ON L2S 3Y2
  Canada
  Toll Free: 877-234-1880
  Fax: 905-687-4923
  Email: biolyse9@sympatico.ca
- **Emergency Contact:** 905-687-8008

Section 2: Hazard(s) Identification

- **Hazard Classification:** GHS-Classification
  Germ Cell Mutagenecity: Category 2
  Reproductive Toxicity: Category 1B
  Effects on or via lactation
  Flammable liquids: Category 2
- **Signal Word(s):** Danger
- **Hazard Statements:** H225- Highly flammable liquid and vapor
  H319- Causes serious eye irritation
  H341- suspected of causing genetic defects
  H360D- May damage the unborn child
  H362- May cause harm to breast-fed children
- **Precautionary Statements:** P202- Do not handle until all safety precautions have been read and understood
  P210- Keep away from heat/sparks/open flames/hot surfaces. No smoking
  P233- Keep container tightly closed
  P240- Ground/Bond container and receiving equipment
  P241- Use explosion-proof electrical/ventilating/lighting/equipment
  P242- Use only non-sparking tools
  P243- Take precautionary measures against static discharge
  P280- Wear protective gloves/protective clothing/eye protection/face protection
  P303 + P361 + P353- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
  P308 + P313- IF exposed or concerned: Get medical attention/advice
  P403 + P235- Store in a well-ventilated place. Keep cool
  P405- Store locked up
  P501- Dispose of contents/container in accordance with all local and national regulations
  P370 + P378- In case of fire: Use CO_2, extinguishing powder, foam, or water for extinction

- **Pictograms:**

- **Description of other hazards:** No data available.
  This document has been prepared in accordance with standards for workplace safety, which requires the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warning included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

Section 3: Composition/ Information on Ingredients

Chemical Name	Synonym	CAS#	Conc. (per ml)
(2R,3S)-N-carboxy-3-phenylisoserine, N-tert-butyl ester,13-ester with 5β-20-epoxy-1,2α,4,7β,10β,13α-hxahydroxytax-11-en-9-one 4-acetate-2-benzoate	Anhydrous Docetaxel	114977-28-5	20.0 mg
Polyoxyethylene(20) sorbitan monooleate. (x)-sorbitan mono-9-octadecenoate poly(oxy-1,2-ethanediyl)	Polysorbate 80	9005-65-6	0.5 mL
Dehydrated alcohol	Ethanol	64-17-5	0.5 mL
Anhydrous Citric Acid	Citric Acid	77-92-9	4.0 mg

Section 4: First-Aid Measures

- **Eye and Skin contact:** Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.
- **Inhalation and Ingestion:** Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

Section 5: Fire-Fighting Measures

- **Flammability:** Falshpoint 16°C/61°F
- **Fire & Explosion Hazard:** Flammable liquid and vapor. Keep away from flames, sparks, and other sources of ignition. This product will burn in a fire. Vapors may form an explosive mixture with air. In the event of a large spill, the vapors are heavier than air, and may travel along the ground or be moved by ventilation and ignited by heat or other flames/ignition. Containers may explode in the heat of a fire.
- **Extinguishing media:** Use carbon dioxide, dry chemical, or water spray
- **Special fire Fighting Procedures:** Firefighters should wear self-contained breathing apparatus. Protective equipment and clothing should be worn to minimize contact with the respiratory tract, skin and eyes.

Section 6: Accidental Release Measures

- **Spill Cleanup and Disposal:** Isolate the area around spill and remove all sources of ignition. Put on suitable protective clothing and equipment as specified by site spill procedures. Absorb the liquid with suitable inert material and clean affected area with soap and water. An undiluted solution of household bleach may be applied to the spill for ten minutes to inactivate docetaxel. Use care to avoid splashing when applying the bleach solution. Absorb the liquid with an inert absorbent material (e.g., absorbent pad). Clean again with soap and water. Dispose of spill materials according to applicable federal, state, or local regulations.

Section 7: Handling and Storage

- **Handling:** Flammable liquid and vapor- keep away from ignition sources and clean up spills promptly. Eliminate possible ignition sources (e.g., heat, sparks, flame, impact, friction, electricity), and follow appropriate grounding and bonding procedures. Avoid contact with eyes, skin, and clothing. Use appropriate personal protective equipment. Wash thoroughly after handling. Avoid breathing vapor or mist. Wash hands and any exposed skin after removal of PPE. Releases to the environment should be avoided. Review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure or environmental releases. Potential points of process emissions of this material to the atmosphere should be controlled with dust collectors, HEPA filtration systems or other equivalent controls.
- **Storage:** Store the unopened vials between 2-25°C. Retain in the original package to protect from bright light.

Section 8: Exposure Controls/Personal Protection

- **Eyes:** Safety glasses or goggles
- **Hands:** Impervious gloves are recommended
- **Respiratory protection:** If the applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEL.
- **Skin:** Impervious protective clothing is recommended if skin contact with drug product is possible and for bulk processing operations.

Section 9: Physical and Chemical Properties

- **Form:** Solution
- **Drug product appearance:** Clear to light yellow viscous non- aqueous solution
- **Odor:** No data available
- **Odor threshold:** No data available
- **pH:** 4-7
- **Melting point/melting range:** No data available
- **Boiling point/boiling range:** No data available
- **Flash point:** 61°F (16.1°C)
- **Evaporation rate:** Anhydrous Docetaxel, Polysorbate 80 and Anhydrous Citric acid do not evaporate; evaporation rate for dehydrated alcohol is 1.7.
- **Flammability:** No data available
- **Upper/lower flammability or explosive limits:** LEL: 3.3% based on ethanol
  UEL: 19% based on ethanol
- **Auto ignition temperature:** No data available
- **Danger of explosion:** No data available
- **Vapor pressure:** No data available
- **Vapor density:** No data available
- **Relative density:** No data available
- **Solubility in/Miscibility with water:** No data available
- **Partition coefficient: n-octane/water:** No data available
- **Auto ignition temperature:** No data available
- **Decomposition temperature:** No data available
- **Viscosity:** No data available

Section 10: Stability and Reactivity

- **Chemical stability**: Stable
- **Conditions to avoid:** Avoid acids and gases, heat and light
- **Incompatible materials:** As a precautionary measure, keep away from strong oxidizers
- **Hazardous decomposition products:** Thermal decomposition may produce toxic gases such as carbon monoxide and carbon dioxide.
- **Reactivity:** No data available
- **Hazardous reactions:** Not determined

Section 11: Toxicological Information

DOCETAXEL:

Information on likely routes of exposure	Not expected under normal handling conditions. Unintended spills or releases could result in exposure to eyes, skin and respiratory tract.
Symptoms related to the physical, chemical and toxicological characteristics	The most common symptoms and adverse reactions in clinical trials included infections, constipation, anorexia, nail fluid retention, asthenia, pain, nausea, diarrhea, vomiting, mucositis, alopecia, and skin reactions.
Effects of short-term (acute) exposure	The most common effect seen in clinical trials included neutropenia, anemia, febrile neutropenia, hypersensitivity, thrombocytopenia, neuropathy, dysgeusia, dyspnea, anorexia, nail disorders, asthenia, and myalgia.
Effects of long-term (chronic) exposure:	May be carcinogenic due to the pharmacological activity. If the compound is bioavailable via the route of exposure occurs for prolonged periods of time, due to the pharmacological activity it is presumed that potentially adverse and irreversible effects could occur, including limited carcinogenic and reprotoxic effects.
Acute toxicity (LD50)	Oral route, rat:>2,000 mg/kg Dermal routes, rat:>2,000 mg/kg
Skin corrosion/irritation	Not a skin irritant
Serious eye damage/irritation	Irritating to the eyes
Sensitization	Not a skin sensitizer
Specific target organ toxicity-single exposure (STOS-SE)	No data available
Specific target organ toxicity-	Causes damage to organs through prolonged or repeated exposure

repeated exposure (STOT-RE)	
Carcinogenicity	Carcinogenicity studies with docetaxel have not been performed. Not listed by NTP, not found to be a potential carcinogen by IARC or OSHA
Reproductive toxicity and teratogenicity	Docetaxel did not reduce fertility in rats when administered in multiple intravenous doses of up to 0.3 mg/kg (about 1/50th the recommended human dose on an mg/m^2 basis), but decreased testicular weights were reported. This correlates with findings of a 10-cycle toxicity study (dosing once every 21 days for 6 months) in rats and dogs in which testicular atrophy or degeneration was observed at intravenous doses of 5 mg/kg in rats and 0.375 mg/kg in dogs (about 1/3rd and 1/5th the recommended human dose on a mg/m^2 basis, respectively). An increased frequency of dosing in rats produced similar effects at lower dose levels. Based on its mechanism of action and findings in animals, docetaxel can cause fetal harm when administered to a pregnant woman. Studies in both rats and rabbits at doses ≥0.3 and 0.03 mg/kg/day, respectively (about 1/50 and 1/300 the daily maximum recommended human dose on a mg/m^2 basis), administered during the period of organogenesis, have shown that docetaxel is embryotoxic and fetotoxic (characterized by intrauterine mortality, increased resorption, reduced fetal weight, and fetal ossification delay). The doses indicated above also caused maternal toxicity.
Mutagenicity	Docetaxel was clastogenic in the in vitro chromosome aberration test in CHO-K1 cells and in the in vivo micronucleus test in mice administered doses of 0.39 to 1.56 mg/kg (about 1/60th to 1/15th recommended human doses on a mg/m^2 basis). Docetaxel was not mutagenic in the Ames test or the CHO/HGPRT gene mutation assays.
Aspiration hazard	No information available

POLYSORBATE 80:

Acute toxicity (LD50)	Oral route, rat: 25,000 mg/kg
Irritation	Mild eye irritant Mild skin irritant

ETHYL ALCOHOL:

Acute toxicity (LD50)	Oral route, rat: 7,060 mg/kg Inhalation route, rat: 95.6 mg/l Dermal route, rabbit:>20,000 mg/kg

Section 12: Ecological Information (non-mandatory)

Ecotoxicity: No information available
Mobility: No information available
Biodegradation: No information available
Bioaccumulation: No information available

Section 13: Disposal Considerations (non-mandatory)

- **Waste Disposal:** All waste materials must be properly characterized. Further, disposal should be performed in accordance with the federal, state or local regulatory requirements. Product is classified as hazardous waste (D001) based on ignitability.
- **Container handling and disposal:** Dispose of containers and unused contents in accordance with federal, state and local regulations.

Section 14: Transport Information (non-mandatory)

The following refers to all modes of transportation unless specified below.
This material is regulated for transportation as a hazardous material/dangerous good.
UN number: UN 1170
UN proper shipping name: Ethanol solution
Transport hazard class(es): 3
Packing group: III
Flash Point (°C): 24
IMDG
Flash Point (°C): 24

Section 15: Regulatory Information (non-mandatory)

Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

Polysorbate 80

CERCLA/SARA 313 Emission reporting: Not Listed
California Proposition 65: Not Listed
Inventory – United States TSCA – Sect. 8(b): Present
Australia (AICS): Present
EU EINECS/ELINCS List: Not Listed

Ethyl Alcohol (Ethanol)

CERCLA/SARA 313 Emission reporting: Not Listed
California Proposition 65: Carcinogen initial date 4/29/11 in alcoholic beverages
Developmental toxicity initial date 10/1/87 in alcoholic beverages
Inventory – United States TSCA – Sect. 8(b): Present
Australia (AICS): Present
EU EINECS/ELINCS List: 200-578-6

Citric acid, anhydrous

CERCLA/SARA 313 Emission reporting: Not Listed
California Proposition 65: Not Listed
Inventory – United States TSCA – Sect. 8(b): Present
Australia (AICS): Present
EU EINECS/ELINCS List: 201-069-1

Docetaxel anhydrous

CERCLA/SARA 313 Emission reporting: Not Listed
California Proposition 65: Not Listed
Standard for the Uniform Scheduling For Drugs and Poisons: Schedule 4
EU EINECS/ELINCS List: Not Listed

Section 16: Other Information

Document/Version No.: SDS/DOCE/DP-001
Effective date: Aug 3, 2021