SAFETY DATA SHEET

DOCETAXEL INJECTION

1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifier	Docetaxel Injection
Synonyms	(2R,3S)-N-carboxy-3-phenylisoserine,N-tert-butylester,13-ester with 5b-20-epoxy-1,2a,4,7b,10b,13a-hexahydroxytax-11-en-9-one-4-acetate2-benzoate
1.2. Relevant identified uses of the substance or mixture and uses advised against intended use	Antineoplastic
1.3. Details of the supplier of the safety data sheet	Fresenius Kabi Oncology Ltd Echelon Institutional Area, Plot No-11 Sector-32, Gurgaon-122001, Haryana, India Telephone number: +911244885000 Contact E-Mail: kumar.sandeep@fresenius-kabi.com
1.4. Emergency Telephone number	+911244885472

2. SECTION 2: HAZARDS IDENTIFICATION

2.1.Classification of substance or mixture

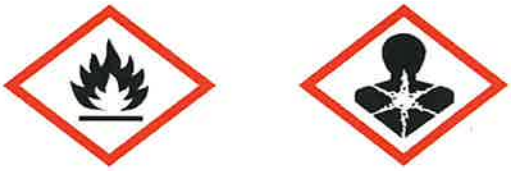
EU Classification

According to Article 1, item 5(a) of CLP Regulation (EC) 1272/2008, medicinal products in finished state for human use, as defined in 2001/83/EC, are excepted from classification and other criteria of 1272/2008.

GHS Classification

Germ Cell Mutagenicity	Category 2
Reproductive Toxicity	Category 1B
Flammable Liquids	Category 2

2.2. Label Elements

Signal Word	Danger
Pictogram	
Signal word	Danger
Hazards 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	P201 - Obtain special instructions before use 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 CO2, extinguishing powder, foam, or water for extinction
2.3. Other hazards	No data available for PBT and vPvB or any other hazard

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

3.2 Mixtures

Ingredients	Quantity in mg / ml	CAS No	EC No	Index No	Registration No	Classification according to Regulation (EC) No 1272/2008
Docetaxel anhydrous	20.0 mg	114977-28-5	-	-	-	Not a hazardous substance or mixture
Dehydrated alcohol	395.0 mg	64-17-5	200-578-6	603-002-00-5	-	Flam.Liq.2;Eye irrit.2;H225,H319
Anhydrous Citric acid	0.05 mg	77-92-9	201-069-1	-	-	Eye irrit.2; H319
Polysorbate 80	520.0mg	9005-65-6	-	-	-	Not a hazardous substance or mixture

4. SECTION-4 FIRST AID MEASURES

4.1 Description of first aid measures

Eye 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.
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	Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic /supportive care as necessary.
Ingestion	Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and Effects of Exposure: For information on potential signs and symptoms of exposure, See Section 2 – Hazards Identification and/or Section 11 - Toxicological Information.
Medical Conditions Aggravated by Exposure: None known

4.3. Indication of any immediate medical attention and special treatment needed

Victims of exposure must be taken for medical attention. Take a copy of the SDS to the physician or health professional with victim. Physicians should refer to Section 11 (Toxicological Information) as well as the Physicians' Desk Reference for additional treatment information.

5. SECTION 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

carbon dioxide, dry chemical extinguishing powder or foam.
Not recommended extinguishing media: no data available.

5.2. Special hazards arising from the substance or mixture

GHS Flammable liquid - Category 2. When heated, product may produce combustible vapors due to the alcohol content. Keep away from flames, sparks, and other sources of ignition.

5.3. Advise for fire fighters

No special provisions required beyond normal firefighting equipment such as flame and chemical resistant clothing and self-contained breathing apparatus.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Avoid contamination with the product. Notify the effected individuals of the emergency, to be aware of the issues associated. Avoid contact of the product with skin and eyes. Remove contaminated clothing and wash before reuse.
6.1.2. For emergency responders
Wear personal protective equipment. Ensure adequate ventilation. Never return spills in original containers for re-use.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Isolate the area around spill and remove all sources of ignition. Put on suitable protective clothing and equipment as specified by site spill control 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 national, state, or local regulations.

6.4. Reference to other sections

Use the control measures and personal protective equipment described in section 8 of this SDS. Refer to section 13 of this SDS for disposal considerations.

7. SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Docetaxel is a cytotoxic anti-neoplastic agent. Appropriate procedures should be implemented during the handling and disposal of cytotoxic anti-neoplastics agents to minimize potential exposures. Several guidelines on handling cytotoxic anti-neoplastic agents have been published. There is no general agreement that all of the procedures recommended in the guidelines are necessary or appropriate. Consult your hygienist or safety professional for your site requirements.

Avoid ingestion, inhalation, skin contact, and eye contact. When handling, precautions may include the use of a containment cabinet during the weighing, reconstitution and/or solubilization of this anti-neoplastic agent. The use of disposable gloves and respiratory protection is recommended. Proper disposal of contaminated vials, syringes, or other materials is recommended when working with this material..
No special precautions required for hazard control. Persons with known hypersensitivities to docetaxel or other taxanes, women who are pregnant, or women who want to become pregnant, should consult a health and/or safety professional prior to handling open containers of this material.

7.2. Conditions for safe storage, including any incompatibilities

No special storage is required for hazard control. However, employees should be trained on the proper storage procedures for anti-neoplastic agents. For product protection, follow storage recommendations noted on the product case label, the primary container label, or the product insert. Keep away from food, and drink. Advice on Segregation

7.3. Specific end use(s)

No data available.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

8.1. Control parameters

Components with workplace control parameters

	Exposure limits		
Component	**OSHA-PEL**	**ACGIH-TLV**	**AIHA WEEL**
Docetaxel Anhydrous	8-hrTWA:Not established	8-hrTWA:Not established	8-hrTWA:Not established
Polysorbate 80	8-hrTWA:Not established	8-hrTWA:Not established	8-hrTWA:Not established
Dehydrated alcohol	8-hrTWA:1000ppm; 1900 mg/m^3	8-hrTWA: 1000ppm	8-hrTWA:Not established

Notes

OSHA-PEL;	US Safety and Health Administration-Permissible Exposure Limit
ACGIH-TLV;	American Conference of Governmental Industrial Hygienists-Threshold Limit Value
AIHA WEEL;	Work Place Environmental Exposure Level
TWA;	8 hour Time weighted Average

Exposure Limits- Reference Safety data sheet of Hospira, Inc.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Local exhaust ventilation is recommended to minimize employee exposure. The use of an enclosure, such as an approved ventilated cabinet designed to minimize airborne exposures, is also recommended.

8.2.2. Individual protection measures, such as personal protective equipment

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.

a) Eye / Face protection: Approved eye protection to safeguard against potential eye contact, irritation or injury is recommended. Depending on conditions of use, a face shield may be necessary.

b) Skin protection: When handling this material, disposable gloves should be worn at all times. Further, the use of double gloves is recommended. Disposable gloves made from nitrile, neoprene, polyurethane or natural latex generally have low permeability to this material. Persons known to be allergic to latex rubber should select a non-latex glove. Gloves should be changed regularly, and removed immediately after known contamination. Care

should be taken to minimize inadvertent contamination when removing and/or disposing of gloves.

c) Respiratory protection: Respiratory protection is normally not needed during intended product use. However, if the generation of aerosols or vapors is likely, and engineering controls are not considered adequate to control potential airborne exposures, the use of an approved air-purifying respirator with a HEPA cartridge (N99 or equivalent) with an organic vapor cartridge is recommended under conditions where airborne aerosol or vapor concentrations are not expected to be excessive. For uncontrolled release events, or if exposure levels are not known, provide respirators that offer a high protection factor such as a powered air purifying respirator or supplied air. A respiratory protection program that meets OSHA's 29 CFR 191 0.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions require respirator use. Personnel who wear respirators should be fit tested and approved for respirator use as required.

d) Thermal hazards:

Not applicable.

8.2.3. Environmental exposure controls

No data available.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance/Physical state	A clear colorless to pale yellow solution
Odor	NA
Odor threshold	NA
PH	NA
Melting point/freezing point	NA
Initial boiling point /Boiling Point Range	NA
Flash point	61° F(16.1° C)
Evaporation rate	NA
Flammability (solid, gas)	NA
Upper/lower flammability or Explosive limits	LEL: 3.3% based on ethanol UEL: 19% based on ethanol
Vapor pressure	NA
Vapor density (Air=1)	NA
Relative density	NA
Solubility	Soluble in water at approximately 0.1mg/ml
Partition coefficient (n-octanol/water)	NA
Auto-ignition temperature	NA
Decomposition temperature	NA
Viscosity	NA

10. SECTION 10: STABILITY AND REACTIVITY

10.1.Reactivity

Not determined.

10.2. Chemical stability

Stable under standard use and storage conditions.

10.3.Possibilities of hazardous reactions

Not determined.

10.4.Conditions to avoid

Heat, flames, sparks or other sources of ignition.

10.5.Incompatible materials

Not determined.

10.6.Hazardous decomposition products

Not determined. During thermal decomposition, it may be possible to generate irritating vapors and/or toxic fumes of carbon oxides (COx) and nitrogen oxides (NOx).

11. SECTION 11:TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

a) Acute toxicity:

Acute Toxicity- Not determined for the product formulation. Information for the ingredients is as follows:

Ingredient(s)	Percent	Test Type	Route of Administration	Value	Units	Species
Docetaxel Anhydrous	100	LD50	Intravenous	156	Mg/kg	Mouse
Docetaxel Anhydrous	100	LD50	Intravenous	>20	Mg/kg	Rat
Docetaxel Anhydrous	100	LD50	Intravenous	2.5	Mg/kg	Dog
Polysorbate 80	100	LD50	Oral	- 36,570 25,000	Mg/kg Mg/kg	Rat Mouse
Polysorbate 80	100	LD50	Intravenous	1790	Mg/kg	Rat

				1790	Mg/kg	Mouse
Dehydrated alcohol	100	LD50	Oral	3450-11500	Mg/kg	Guinea Pig, Rat, Mouse, Dog
Dehydrated alcohol	100	LD50	Intravenous	1973-2209	Mg/kg	Mouse
Dehydrated alcohol	100	LC50(10h)	Inhalation	20,000	ppm	Rat
Dehydrated alcohol	100	LC50(4h)	Inhalation	39,000	Mg/m3	Mouse

LD50 is the dosage producing 50% mortality.

Acute Toxicity - Reference Safety data sheet of Hospira, Inc

b) Skin corrosion/irritation	None anticipated from normal handling of this product. However, inadvertent skin contact with this product may produce mild irritation with redness and discomfort. Ethanol may produce mild skin irritation with redness and dryness.
C) Serious eye damage/irritation	None anticipated from normal handling of this product. However, inadvertent eye contact of this product with eyes may produce irritation with stinging with redness, watering, and discomfort. Exposure to ethanol has produced severe eye irritation in studies in animals.
d)Respiratory or skin sensitisation	None anticipated from normal handling of this product. However, in clinical use, severe hypersensitivity reactions, characterized by hypotension and/or bronchospasm, or generalized rash/erythema, have occurred in about 2% of pre-medicated patients. The incidence of hypersensitivity reactions is higher in patients without pre-medication.
e) Mutagenicity	Docetaxel was clastogenic in an *in vitro* chromosome aberration assay in CHO-K_1cells, and in an *in vivo* micronucleus test in the mouse, but it did not induce mutagenicity in the Ames test or the CHO/HGPRT gene mutation assays.
f) Carcinogenicity	Long term studies in animals to assess the carcinogenic potential of docetaxel have not been conducted. Carcinogen Lists: IARC: Not listed ,NTP: Not listed, OSHA: Not listed
g) Reproductive toxicity	None anticipated from normal handling of this product. Docetaxel did not impair fertility in rats when administered

	in multiple intravenous dosages of up to 0.3 mglkg, but decreased testicular weights were reported. Similarly, in a 10-cycle toxicity study. in rats and dogs (dosing once every 21 days for 6 months), testicular atrophy or degeneration were observed at intravenous dosages of 5 mglkg in rats and 0.375 mglkg in dogs. In other studies in both rats and rabbits, administration of docetaxel at dosages >= 0.3 and 0.03 mglkg/day, respectively, during the period of organogenesis, produced embryotoxicity and fetotoxicity (as characterized by intrauterine mortality, increased resorption, reduced fetal weight, and fetal ossification delay). These dosages also caused maternal toxicity. Chronic prenatal exposure to ethanol has been associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome".
h) STOT - single exposure	NA
i) STOT - repeated exposure	Following an accidental over-exposure, possible target organs may include the bone marrow, peripheral nervous system, cardiovascular system, gastrointestinal system, liver, and testes
j) Aspiration toxicity	None anticipated from normal handling of this product. However, inadvertent inhalation of the product aerosol may produce respiratory irritation.
k) Further information	Information on the absorption of tills product via inhalation or skin contact is not available. There are scientific studies that suggest that personnel (e.g. nurses, pharmacists, etc.) who prepare and administer parenteral antineoplastics (e.g. in hospitals) may be at some risk due to potential mutagenicity, teratogenicity, and/or carcinogenicity of these materials if workplace exposures are not properly controlled.The actual risk in the workplace is not known. Avoid liquid aerosol generation and skin contact. A void sparks, flames, and other sources of ignition when working with open containers.

12.SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

Not determined for product. LC50(24 hr) = 12,900- 15,300 mg/L in rainbow trout for ethanol LC50 (24 hr) = II ,200 mg/L in fingerling trout for ethanol LC50(48 hr) = 9,268- 14,221 mg/L in Daphnia magna for ethanol EC50 = 9310 mg/L in Chlorella pyrenoidosa (green algae) for ethanol

12.2. Persistence and degradability

Not determined for product.
Ethanol was reported to be degraded between 45% and 74% in five days in two aqueous biodegradation assays.

12.3. Bioaccumulative potential

Not determined for product. Because of its low octanol:water partition coefficient, ethanol is not anticipated to bioaccumulate.

12.4. Mobility in soil

Not determined for product

12.5. Result of PBT and vPvB assessment

No data available

12.6. Other adverse effects

No data available

Notes:
I. LC50: Concentration in water that produces 50% mortality.
2. EC50: Concentration in water that produces 50% inhibition of growth in algae.

13. SECTION 13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment method

Waste Disposal	All waste materials must be properly characterized. Further, disposal should be performed in accordance with the national, 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 national, state and local regulations.

14. SECTION 14 TRANSPORT INFORMATION

14.1 UN number

UN 1170

14.2 UN proper shipping name

Ethanol solution

14.3 Transport hazard class(es)

3

14.4 Packing group

II

14.5 Environmental hazards

NA

14.6 Special precaution for user

NA

14.7 Transport in bulk according to Annex II of Marpol and the IBC code

NA

15. SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or Mixture

US TSCA Status	Exempt. However, ethyl alcohol is listed on the TSCA inventory.
US CERCLA Status	Not listed
US SARA 302 Status	Not listed
US SARA 313 Status	Not listed
US RCRA Status	Classified as DOOI hazardous waste based on ignitability
US PROP 65 (Calif.)	Ethyl alcohol in alcoholic beverages is known to the State of California to cause cancer and developmental toxicity.
Notes: TSCA, Toxic Substance Control Act; CERCLA. US EPA law, Comprehensive Environmental Response, Compensation, and Liability Act; SARA, Superfund Amendments and Reauthorization Act; RCRA, US EPA, Resource Conservation and Recovery Act; Prop	

65, California Proposition 65

15.2 Chemical safety assessment

No Chemical safety assessment has been carried out for the product.

SECTION 16: Other information

Sources of data	Information from published literature and Safety Data Sheet of the product Docetaxel Injection published by Hospira, Inc. 275 North Field Drive, Lake Forest, Illinois 60045, USA
Abbreviations	**ACGIH TLV** - American Conference of Governmental Industrial Hygienists-Threshold Limit Value, **CAS**-Chemical Abstracts Services Number; **CERCLA**- US EPA law, Comprehensive Environmental Response, Compensation, and Liability Act,; **LD5o**- Dosage producing 50% mortality, **NA**- Not applicable/Not available, **NE**- Not established, **OSHA PEL** - US Occupational Safety and Health Administration-Permissible Exposure Limit; **Prop 65**- California Proposition 65, **RCRA**- US EPA, Resource Conservation and Recovery Act, **SARA** - Superfund Amendments and Reauthorization Act; **STEL** -15-minute Short Term Exposure Limit; **STOT-SE**- Specific Target Organ Toxicity - Single Exposure, **STOT-RE**- Specific Target Organ Toxicity – Repeated Exposure, **TSCA** - Toxic Substances Control Act; **TWA** – 8-hour Time Weighted Average;
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