

MATERIAL SAFETY DATA SHEET

Product Name: Docetaxel Injection

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Manufacturer Name And Address Hospira Inc.
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Lake Forest, Illinois USA
60045

ZHOPL Hospira Oncology Pvt. Ltd.
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Sarkhej - Bawla highway (NH No 8A), Village: Matada, Tal Sanand
Gujarat, India

Emergency Telephone CHEMTREC: North America: 800-424-9300;
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Hospira, Inc., Non-Emergency 224-212-2000

Product Name Docetaxel Injection

Synonyms (2R,3S)-N-carboxy-3-phenylisoserine,N-tert-butyl ester, 13-ester with 5b-20-epoxy-1,2a,4,7b,10b,13a-hexahydroxytax-11-en-9-one 4-acetate 2-benzoate

2. COMPOSITION/INFORMATION ON INGREDIENTS

Active Ingredient Name Docetaxel Anhydrous

Chemical Formula C₄₃H₅₃NO₁₄

Preparation Hazardous ingredients present at less than 1% include citric acid.

| Component | Approximate Percent by Weight | CAS Number | RTECS Number |
|-----------------------|-------------------------------|-------------|--|
| Docetaxel Anhydrous | 1 | 114977-28-5 | DA4172750 |
| Poly(ethylene glycol) | 55 | 25322-68-3 | TQ4100000/PEG6000; TQ3675000/PEG400 |
| Ethyl Alcohol | 18 | 64-17-5 | KQ6300000 |
| Polysorbate 80 | 26 | 9005-65-6 | WG2932500 |

3. HAZARD INFORMATION

Carcinogen List

| Substance | IARC | NTP | OSHA |
|-----------------------|------------|------------|------------|
| Docetaxel Anhydrous | Not Listed | Not Listed | Not Listed |
| Ethyl Alcohol | Not Listed | Not Listed | Not Listed |
| Poly(ethylene glycol) | Not Listed | Not Listed | Not Listed |
| Polysorbate 80 | Not Listed | Not Listed | Not Listed |

Emergency Overview Docetaxel Injection is a solution containing docetaxel, a semisynthetic taxane similar to paclitaxel. Docetaxel induces microtubule formation and stabilization of microtubules, thereby disrupting normal cell division in the G2 and M phases of the cell cycle. Clinically, docetaxel is used to treat some types of cancers. It is cytotoxic and neurotoxic. The formulated product is a

Product Name: Docetaxel Injection



flammable liquid. In the workplace, this product also should be considered a potential occupational reproductive hazard, harmful to the fetus, and a potential human carcinogen. Following an accidental over-exposure, possible target organs may include the bone marrow, gastrointestinal system, peripheral nervous system, cardiovascular system, liver, testes, skin and the fetus.

| | |
|--|---|
| Occupational Exposure Potential | Information on the absorption of this 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. Avoid sparks, flames, and other sources of ignition when working with open containers. |
| Signs and Symptoms | During occupational use, this material should be considered irritating to the skin, eyes and respiratory tract. In clinical use, adverse effects have included myelosuppression, fever, edema, fatigue, nausea, vomiting and diarrhea, hypotension and abnormal ECG, hepatotoxicity, peripheral neuropathy, hair loss, skin reactions, joint and muscle pain, and hypersensitivity reactions. |
| Medical Conditions Aggravated by Exposure | Pre-existing hypersensitivity to docetaxel or other taxanes. Pre-existing bone marrow, blood, gastrointestinal, cardiovascular, peripheral nervous system, liver, testes, or skin ailments; or pregnancy. |

4. FIRST AID MEASURES

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|---------------------|---|
| 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. |

5. FIRE FIGHTING MEASURES

| | |
|---|---|
| Flammability | Flashpoint 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 | As with any fire, use extinguishing media appropriate for primary cause of fire. |
| 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. |

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.

7. HANDLING AND STORAGE

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.

Storage 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.

Special Precautions 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

| Component | Type | Exposure limits | | | Note |
|-----------------------|------------------|-------------------|------|-------------------|------------------|
| | | mg/m ³ | ppm | µg/m ³ | |
| Ethyl Alcohol | ACGIH 8 Hr TLV | N/A | 1000 | N/A | |
| Ethyl Alcohol | US OSHA 8 Hr PEL | N/A | 1000 | 1900 | |
| Ethyl Alcohol | Australia NOHSC | N/A | 1000 | N/A | |
| Poly(ethylene glycol) | AIHA WEEL | 10 | N/A | N/A | 8-hr TWA |
| Polysorbate 80 | Not Applicable | N/A | N/A | N/A | None Established |
| Docetaxel Anhydrous | Not Applicable | N/A | N/A | N/A | None Established |

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 (P100 or equivalent) with an organic vapor cartridge is

Product Name: Docetaxel Injection



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 1910.134 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.

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| 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. |
| Eye protection | As a minimum, the use of chemical safety goggles is recommended when handling this material. |
| 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. |

9. PHYSICAL/CHEMICAL PROPERTIES

| | |
|--|--|
| Appearance/Physical State | Liquid |
| Color | Clear, colorless to pale yellow |
| Odor | NA |
| Odor Threshold: | NA |
| pH: | NA |
| Melting point/Freezing point: | NA |
| Initial Boiling Point/Boiling Point Range: | NA |
| Evaporation Rate: | NA |
| Flammability (solid, gas): | NA |
| Upper/Lower Flammability or Explosive Limits: | LEL: 3.3% UEL: 19% based on ethanol |
| Vapor Pressure: | NA |
| Vapor Density: | NA |
| Specific Gravity: | NA |
| Solubility: | Soluble in water at approximately 0.1 mg/ml. |
| Partition coefficient: n-octanol/water: | NA |
| Auto-ignition temperature: | NA |
| Decomposition temperature: | NA |

10. STABILITY AND REACTIVITY

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|---------------------------|--|
| Reactivity | NA |
| Chemical Stability | Consult package insert for product stability information |

Product Name: Docetaxel Injection

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|---|---|
| Hazardous Reactions | NA |
| Conditions to avoid | Heath, flames, sparks or other sources of ignition |
| Incompatibilities | Not determined |
| 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). |
| Hazardous Polymerization | Not anticipated to occur with this material. |

11. TOXICOLOGICAL INFORMATION

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 |
|-------------------------|---------|-------------|-------------------------|------------------------------------|-------------------------|-----------------------------|
| *Taxotere for Injection | 4 | LD50 | Oral | >2000 | mg/kg | Rat |
| Docetaxel (anhydrous) | 100 | LD50 | Intravenous | 156 | mg/kg | Mouse |
| Docetaxel (anhydrous) | 100 | LDLo | Intravenous | > 20 | mg/kg | Rat |
| Docetaxel (anhydrous) | 100 | LD50 | Intravenous | 2.5 | mg/kg | Dog |
| PEG 300 | 100 | LD50 | Oral | 27,500, 31,000 17,300 19,600 | mg/kg mg/kg mg/kg | Rat Rabbit Guinea Pig |
| PEG 300 | 100 | LD50 | Dermal | >20,000 | mg/kg | Rabbit |
| Polysorbate 80 | 100 | LD50 | Oral | ~36,570 25,000 | mg/kg mg/kg | Rat Mouse |
| Polysorbate 80 | 100 | LD50 | Intravenous | 1790 1790 | mg/kg mg/kg | Rat Mouse |
| Ethyl Alcohol | 100 | Oral | LD50 | 3450 – 11,500 | mg/kg | Guinea Pig, Rat, Mouse, Dog |
| Ethyl Alcohol | 100 | Intravenous | LD50 | 1973 | mg/kg | Mouse |
| Ethyl Alcohol | 100 | Inhalation | LC50 (10h) | 20,000 | ppm | Rat |
| Ethyl Alcohol | 100 | Inhalation | LC50 (4h) | 39,000 | mg/m3 | Mouse |

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| Aspiration Hazard | None anticipated from normal handling of this product. However, inadvertent inhalation of the product aerosol may produce respiratory irritation. |
| Dermal Irritation/Corrosion | 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. |
| Ocular Irritation/Corrosion | 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. |
| Dermal or Respiratory Sensitization | None anticipated from normal handling of this product. However, in clinical use, severe hypersensitivity reactions, characterized by hypotension and/or |

Product Name: Docetaxel Injection



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.

Reproductive Effects

*Docetaxel did not impair fertility in rats when administered in multiple intravenous dosages of up to 0.3 mg/kg, 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 mg/kg in rats and 0.375 mg/kg in dogs.

In other studies in both rats and rabbits, administration of docetaxel at dosages ≥ 0.3 and 0.03 mg/kg/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".

Mutagenicity

*Docetaxel was clastogenic in an in vitro chromosome aberration assay in CHO-K1 cells, 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.

Carcinogenicity

*Long term studies in animals to assess the carcinogenic potential of docetaxel have not been conducted.

Target Organ Effects

This material should be considered irritating to the skin, eyes and respiratory tract. Following an accidental over-exposure, possible target organs may include the bone marrow, peripheral nervous system, cardiovascular system, gastrointestinal system, liver, skin, testes and the fetus.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Not determined for product

LC50(24 hr) = 12,900 - 15,300 mg/L in rainbow trout for ethanol
LC50 (24 hr) = 11,200 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

Persistence/Biodegradability

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

Bioaccumulation

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

Mobility in Soil

Not determined for product.

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORTATION INFORMATION

ADR/ADG/ DOT STATUS: Regulated
Proper Shipping Name: Ethanol Solution
Hazard Class: 3
UN number: UN1170
Packing group: II
Reportable Quantity: N/A

IMDG STATUS: Regulated
Proper Shipping Name: Ethanol Solution
Hazard Class: 3
UN number: UN1170
Packing group: II
Reportable Quantity: N/A

ICAO/IATA STATUS: Regulated
Proper Shipping Name: Ethanol Solution
Hazard Class: 3
UN number: UN1170
Packing group: II
Reportable Quantity: N/A

Transport Comments: None

15. REGULATORY INFORMATION

USA Regulations

| Substance | TSCA Status | CERCLA Status | SARA 302 Status | SARA 313 Status | PROP 65 Status |
|-----------------------|-------------|---------------|-----------------|-----------------|----------------|
| Docetaxel Anhydrous | Not Listed | Not Listed | Not Listed | Not Listed | Not Listed |
| Ethyl Alcohol | Listed | Not Listed | Not Listed | Not Listed | Listed |
| Poly(ethylene glycol) | Listed | Not Listed | Not Listed | Not Listed | Not Listed |
| Polysorbate 80 | Listed | Not Listed | Not Listed | Not Listed | Not Listed |

RCRA Status Not Listed
U.S. OSHA Classification Possible Carcinogen
 Target Organ Toxin
 Reproductive Toxin
 Flammable Liquid
 Possible Irritant

GHS *In the EU, classification under GHS/CLP does not apply to certain substances and mixtures, such as

Product Name: Docetaxel Injection

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|------------------------------|---|
| <u>Classification</u> | medicinal products as defined in Directive 2001/83/EC, which are in the finished state, intended for the final user: |
| Hazard Class | Not Applicable |
| Hazard Category | Not Applicable |
| Signal Word | Not Applicable |
| Symbol | Not Applicable |
| Prevention | P260 - Do not breathe dust/fume/gas/mist/vapors/spray. |
| Hazard Statement | Not Applicable |
| Response: | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention. Wash hands after handling. Get medical attention if you feel unwell. |

EU Classification*

*Medicinal products are exempt from the requirements of the EU Dangerous Preparations Directive. Information provided below is for the pure drug substance Docetaxel Anhydrous

| | |
|------------------------------|---|
| Classification(s): | Not Applicable |
| Symbol: | Not Applicable |
| Indication of Danger: | Not Applicable |
| Risk Phrases: | Not Applicable |
| Safety Phrases: | S23 - Do not breathe vapor. S24/25 - Avoid contact with skin and eyes. S37/39 - Wear suitable gloves and eye/face protection. |

16. OTHER INFORMATION:

Notes:

| | |
|-----------|---|
| ACGIH TLV | American Conference of Governmental Industrial Hygienists – Threshold Limit Value |
| CAS | Chemical Abstracts Service Number |
| CERCLA | US EPA law, Comprehensive Environmental Response, Compensation, and Liability Act |
| DOT | US Department of Transportation Regulations |
| EEL | Employee Exposure Limit |
| IATA | International Air Transport Association |
| LD50 | Dosage producing 50% mortality |
| NA | Not applicable/Not available |
| NE | Not established |
| NIOSH | National Institute for Occupational Safety and Health |
| OSHA PEL | US Occupational Safety and Health Administration – Permissible Exposure Limit |
| Prop 65 | California Proposition 65 |
| RCRA | US EPA, Resource Conservation and Recovery Act |
| RTECS | Registry of Toxic Effects of Chemical Substances |
| SARA | Superfund Amendments and Reauthorization Act |



Product Name: Docetaxel Injection

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|------|-------------------------------------|
| STEL | 15-minute Short Term Exposure Limit |
| TSCA | Toxic Substance Control Act |
| TWA | 8-hour Time Weighted Average |

MSDS Coordinator: Hospira GEHS

Date Prepared: 10/17/2012

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Disclaimer:

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