# SAFETY DATA SHEET



## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

**Product Identifier**

**Material Name: Inotuzumab Ozogamicin for Injection**

**Trade Name:** BESPONSA
**Chemical Family:** Monoclonal antibody

**Relevant Identified Uses of the Substance or Mixture and Uses Advised Against**

**Intended Use:** Pharmaceutical product for the treatment of cancer

**Details of the Supplier of the Safety Data Sheet**

**Pfizer Inc**
**Pfizer Pharmaceuticals Group**
**235 East 42nd Street**
**New York, New York 10017**
**1-800-879-3477**

**Emergency telephone number:**
**CHEMTREC (24 hours): 1-800-424-9300**
**Contact E-Mail:** pfizer-MSDS@pfizer.com

**Pfizer Ltd**
**Ramsgate Road**
**Sandwich, Kent**
**CT13 9NJ**
**United Kingdom**
**+00 44 (0)1304 616161**
**Emergency telephone number:**
**International CHEMTREC (24 hours): +1-703-527-3887**

## 2. HAZARDS IDENTIFICATION

**Classification of the Substance or Mixture**

**GHS - Classification**

Germ Cell Mutagenicity: Category 2
Reproductive Toxicity: Category 1B
Specific target organ systemic toxicity (repeated exposure): Category 2

**US OSHA Specific - Classification**

**Physical Hazard:** Combustible Dust

**Label Elements**

**Signal Word:** Danger

**Hazard Statements:**
H341 - Suspected of causing genetic defects
H360FD - May damage fertility. May damage the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure May form combustible dust concentrations in air

**Precautionary Statements:**
P201 - Obtain special instructions before use
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P281 - Use personal protective equipment as required
P308 + P313 - IF exposed or concerned: Get medical attention/advice
P405 - Store locked up
P501 - Dispose of contents/container in accordance with all local and national regulations

**Other Hazards** No data available

**Note:** 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.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous**

| Ingredient | CAS Number | EU EINECS/ELINCS List | GHS Classification | % |
|---|---|---|---|---|
| Inotuzumab Ozogamicin | 635715-01-4 | Not Listed | Repr.1B (H360FD)<br>Muta.2 (H341)<br>STOT RE.2 (H373) | 1.85 |
| Hydrochloric Acid | 7647-01-0 | 231-595-7 | Press. Gas<br>Skin Corr.1A (H314)<br>Acute Tox.3 (H331) | ** |

| Ingredient | CAS Number | EU EINECS/ELINCS List | GHS Classification | % |
|---|---|---|---|---|
| Sucrose | 57-50-1 | 200-334-9 | Not Listed | * |
| Polysorbate 80 | 9005-65-6 | Not Listed | Not Listed | * |
| SODIUM CHLORIDE | 7647-14-5 | 231-598-3 | Not Listed | * |
| Tromethamine | 77-86-1 | 201-064-4 | Not Listed | * |
| Water, purified | 7732-18-5 | 231-791-2 | Not Listed | * |

**Additional Information:**
* Proprietary
** to adjust pH
Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety. In accordance with 29 CFR 1910.1200, the exact percentage composition of this mixture has been withheld as a trade secret.

**For the full text of the CLP/GHS abbreviations mentioned in this Section, see Section 16**

## 4. FIRST AID MEASURES

**Description of First Aid Measures**

**Eye Contact:** Flush with water while holding eyelids open for at least 15 minutes. Seek medical attention immediately.

**Skin Contact:** Remove contaminated clothing. Flush area with large amounts of water. Use soap. Seek medical attention.

**Ingestion:** Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention immediately.

**Inhalation:** Remove to fresh air and keep patient at rest. Seek medical attention immediately.

**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

**Indication of the Immediate Medical Attention and Special Treatment Needed**

**Notes to Physician:** None

## 5. FIRE FIGHTING MEASURES

**Extinguishing Media:** Extinguish fires with CO2, extinguishing powder, foam, or water.

**Special Hazards Arising from the Substance or Mixture**

**Hazardous Combustion Products:** Formation of toxic gases is possible during heating or fire.

**Fire / Explosion Hazards:** Fine particles (such as dust and mists) may fuel fires/explosions.

**Advice for Fire-Fighters**

During all fire fighting activities, wear appropriate protective equipment, including self-contained breathing apparatus.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures**

Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure.

**Environmental Precautions**

Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.

**Methods and Material for Containment and Cleaning Up**

**Measures for Cleaning / Collecting:** Contain the source of spill if it is safe to do so. Collect spilled material by a method that controls dust generation. A damp cloth or a filtered vacuum should be used to clean spills of dry solids. Clean spill area thoroughly.

**Additional Consideration for Large Spills:** Non-essential personnel should be evacuated from affected area. Report emergency situations immediately. Clean up operations should only be undertaken by trained personnel.

## 7. HANDLING AND STORAGE

**Precautions for Safe Handling**

Avoid breathing dust. Avoid contact with eyes, skin and clothing. When handling, use appropriate personal protective equipment (see Section 8). Wash thoroughly after handling. 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.

**Conditions for Safe Storage, Including any Incompatibilities**

**Storage Conditions:** Store as directed by product packaging.

**Specific end use(s):** Pharmaceutical product for the treatment of cancer

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Control Parameters**

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Refer to available public information for specific member state Occupational Exposure Limits.**

**Sucrose**

| | |
|---|---|
| **ACGIH Threshold Limit Value (TWA)** | 10 mg/m$^3$ |
| **Australia TWA** | 10 mg/m$^3$ |
| **Belgium OEL - TWA** | 10 mg/m$^3$ |
| **Bulgaria OEL - TWA** | 10.0 mg/m$^3$ |
| **Estonia OEL - TWA** | 10 mg/m$^3$ |
| **France OEL - TWA** | 10 mg/m$^3$ |
| **Ireland OEL - TWAs** | 10 mg/m$^3$ |
| **Latvia OEL - TWA** | 5 mg/m$^3$ |
| **Lithuania OEL - TWA** | 10 mg/m$^3$ |
| **OSHA - Final PELS - TWAs:** | 15 mg/m$^3$ |
| **Portugal OEL - TWA** | 10 mg/m$^3$ |
| **Slovakia OEL - TWA** | 6 mg/m$^3$ |
| **Spain OEL - TWA** | 10 mg/m$^3$ |

**SODIUM CHLORIDE**

| | |
|---|---|
| **Latvia OEL - TWA** | 5 mg/m$^3$ |
| **Lithuania OEL - TWA** | 5 mg/m$^3$ |

**Hydrochloric Acid**

| | |
|---|---|
| **ACGIH Ceiling Threshold Limit:** | 2 ppm |
| **Australia PEAK** | 5 ppm<br>7.5 mg/m$^3$ |
| **Austria OEL - MAKs** | 5 ppm<br>8 mg/m$^3$ |
| **Belgium OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |
| **Bulgaria OEL - TWA** | 5 ppm<br>8.0 mg/m$^3$ |
| **Cyprus OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |
| **Czech Republic OEL - TWA** | 8 mg/m$^3$ |
| **Estonia OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |
| **Germany - TRGS 900 - TWAs** | 2 ppm<br>3 mg/m$^3$ |
| **Germany (DFG) - MAK** | 2 ppm<br>3.0 mg/m$^3$ |
| **Greece OEL - TWA** | 5 ppm<br>7 mg/m$^3$ |
| **Hungary OEL - TWA** | 8 mg/m$^3$ |
| **Ireland OEL - TWAs** | 5 ppm<br>8 mg/m$^3$ |
| **Italy OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |
| **Japan - OELs - Ceilings** | 5 ppm<br>7.5 mg/m$^3$ |
| **Latvia OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |
| **Lithuania OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | |
|---|---|
| **Luxembourg OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |
| **Malta OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |
| **Netherlands OEL - TWA** | 8 mg/m$^3$ |
| **Poland OEL - TWA** | 5 mg/m$^3$ |
| **Portugal OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |
| **Romania OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |
| **Slovakia OEL - TWA** | 5 ppm<br>8.0 mg/m$^3$ |
| **Slovenia OEL - TWA** | 5 ppm<br>8 mg/m$^3$ |
| **Spain OEL - TWA** | 5 ppm<br>7.6 mg/m$^3$ |
| **Switzerland OEL -TWAs** | 2 ppm<br>3.0 mg/m$^3$ |
| **Vietnam OEL - TWAs** | 5 mg/m$^3$ |

The Biotherapeutic Occupational Exposure Band (B-OEB) is an acceptable daily intake (ADI) range, based on available hazard data with appropriate safety factors applied. Engineering control measures should be utilized to bring exposures into the relevant B-OEB; supplementary administrative controls and personal protective equipment are to be used to achieve exposure control to the bottom of the band.

**Inotuzumab Ozogamicin**

**Pfizer Occupational Exposure Band (OEB):** B-OEB 5 (control exposure to <10 µg/day)

**Exposure Controls**

**Engineering Controls:** Engineering controls should be used as the primary means to control exposures. Use process containment, local exhaust ventilation, biosafety cabinet, or other engineering controls to maintain airborne levels within the B-OEB range. It is recommended that all large scale operations should be fully enclosed. Air recirculation is not recommended.

**Personal Protective Equipment:** Refer to applicable national standards and regulations in the selection and use of personal protective equipment (PPE).

**Hands:** Wear impervious, disposable gloves as minimum protection (double recommended).

**Eyes:** Wear safety glasses as minimum protection.

**Skin:** Wear impervious disposable protective clothing when handling this compound. Full body protection recommended (scale dependent).

**Respiratory protection:** If airborne exposures are within or exceed the Biotherapeutic Occupational Exposure Band (B-OEB) range, wear an appropriate respirator with a protection factor sufficient to control exposures to the bottom of the B-OEB range.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|---|---|---|---|
| **Physical State:** | Lyophilized powder or cake | **Color:** | White to off-white |
| **Odor:** | No data available. | **Odor Threshold:** | No data available. |
| **Molecular Formula:** | Mixture | **Molecular Weight:** | Mixture |

**Solvent Solubility:** No data available
**Water Solubility:** No data available
**pH:** No data available.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Melting/Freezing Point (°C):** No data available
**Boiling Point (°C):** No data available.
**Partition Coefficient: (Method, pH, Endpoint, Value)**
**Sucrose**
No data available
**Polysorbate 80**
No data available
**SODIUM CHLORIDE**
No data available
**Tromethamine**
No data available
**Water, purified**
No data available
**Hydrochloric Acid**
No data available
**Inotuzumab Ozogamicin**
No data available
**Decomposition Temperature (°C):** No data available.

**Evaporation Rate (Gram/s):** No data available
**Vapor Pressure (kPa):** No data available
**Vapor Density (g/ml):** No data available
**Relative Density:** No data available
**Viscosity:** No data available

**Flammablity:**
- **Autoignition Temperature (Solid) (°C):** No data available
- **Flammability (Solids):** No data available
- **Flash Point (Liquid) (°C):** No data available
- **Upper Explosive Limits (Liquid) (% by Vol.):** No data available
- **Lower Explosive Limits (Liquid) (% by Vol.):** No data available

## 10. STABILITY AND REACTIVITY

**Reactivity:** No data available
**Chemical Stability:** Stable under normal conditions of use.
**Possibility of Hazardous Reactions**
- **Oxidizing Properties:** No data available
- **Conditions to Avoid:** Fine particles (such as dust and mists) may fuel fires/explosions.
- **Incompatible Materials:** As a precautionary measure, keep away from strong oxidizers
- **Hazardous Decomposition Products:** No data available

## 11. TOXICOLOGICAL INFORMATION

**Information on Toxicological Effects**
**General Information:** Toxicological properties of the formulation have not been fully investigated. The information included in this section describes the potential hazards of the individual ingredients.
**Short Term:** As with any protein, the possibility of allergic reactions exists. May cause eye and skin irritation (based on components) .
**Known Clinical Effects:** Based on clinical trials in humans, possible adverse effects following intravenous exposure to this compound may include: changes in blood cell levels, abnormal liver function tests, and effects on gastrointestinal system.

## 11. TOXICOLOGICAL INFORMATION

**Acute Toxicity: (Species, Route, End Point, Dose)**

**Sucrose**
Rat Oral LD 50 29,700 mg/kg

**Polysorbate 80**
Rat Intravenous LD 50 1790 mg/kg
Mouse Oral LD 50 25 g/kg

**SODIUM CHLORIDE**
Rat Sub-tenon injection (eye) LC50/1hr > 42 $g/m^3$
Rat Oral LD 50 3g/kg
Mouse Oral LD 50 4g/kg
Rabbit Dermal LD 50 > 10g/kg

**Tromethamine**
Rat Oral LD50 5900 mg/kg

**Inotuzumab Ozogamicin**
Rat Intravenous LOAEL 0.89 mg protein/$m^2$
Rat IV LOAEL 8.09mg protein/$m^2$
Non-human Primate Intravenous LOAEL 4.16mg protein/$m^2$

**Irritation / Sensitization: (Study Type, Species, Severity)**

**SODIUM CHLORIDE**
Skin Irritation Rabbit Mild
Eye Irritation Rabbit Mild

**Hydrochloric Acid**
Skin Irritation Severe
Eye Irritation Severe

**Repeated Dose Toxicity: (Duration, Species, Route, Dose, End Point, Target Organ)**

**Inotuzumab Ozogamicin**
4 Week(s) Rat Intravenous 1.24 mg protein/$m^2$/wk LOAEL Central nervous system, Lymphoid tissue, Bone marrow, Liver, Reproductive system
26 Week(s) Rat Intravenous 0.073 mg protein/$m^2$/wk LOAEL Liver, Male reproductive system
4 Week(s) Monkey Intravenous 0.37 mg protein/$m^2$/wk LOAEL Gastrointestinal system
26 Week(s) Monkey Intravenous 0.732 mg protein/$m^2$/wk LOAEL Liver

**Reproduction & Development Toxicity: (Duration, Species, Route, Dose, End Point, Effect(s))**

**Inotuzumab Ozogamicin**
Reproductive & Fertility-Females Rat Intravenous 0.109 mg protein/$m^2$/day LOAEL Reproductive toxicity, Maternal toxicity

## 11. TOXICOLOGICAL INFORMATION

| | | | | | |
|---|---|---|---|---|---|
| Embryo / Fetal Development | Rat | Intravenous | 0.109 mg protein/m²/day | LOAEL | Maternal Toxicity, Developmental toxicity |
| Embryo / Fetal Development | Rabbit | Intravenous | 0.145 mg protein/m²/day | NOAEL | Maternal Toxicity, Developmental toxicity |

**Genetic Toxicity: (Study Type, Cell Type/Organism, Result)**

**Inotuzumab Ozogamicin**

| | | |
|---|---|---|
| Bacterial Mutagenicity (Ames) | *Salmonella* , *E. coli* | Negative |
| *In Vivo* Micronucleus | Mouse Bone Marrow | Positive |

**Carcinogen Status:** None of the components of this formulation are listed as a carcinogen by IARC, NTP or OSHA.

**Hydrochloric Acid**
**IARC:** Group 3 (Not Classifiable)

## 12. ECOLOGICAL INFORMATION

**Environmental Overview:** Environmental properties of the formulation have not been investigated. Releases to the environment should be avoided.

**Toxicity:** No data available

**Persistence and Degradability:** No data available

**Bio-accumulative Potential:** No data available

**Mobility in Soil:** No data available

## 13. DISPOSAL CONSIDERATIONS

**Waste Treatment Methods:** Dispose of waste in accordance with all applicable laws and regulations. Member State specific and Community specific provisions must be considered. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater.

## 14. TRANSPORT INFORMATION

**The following refers to all modes of transportation unless specified below.**

Not regulated for transport under USDOT, EUADR, IATA, or IMDG regulations.

## 15. REGULATORY INFORMATION

**Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture**
**Caution - Substance not fully tested (VIIA)**

**Sucrose**

| | |
|---|---|
| **CERCLA/SARA 313 Emission reporting** | Not Listed |
| **California Proposition 65** | Not Listed |
| **Inventory - United States TSCA - Sect. 8(b)** | Present |
| **Australia (AICS):** | Present |
| **REACH - Annex IV - Exemptions from the obligations of Register:** | Present |
| **EU EINECS/ELINCS List** | 200-334-9 |

**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 |

**SODIUM CHLORIDE**

| | |
|---|---|
| **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** | 231-598-3 |

**Tromethamine**

| | |
|---|---|
| **CERCLA/SARA 313 Emission reporting** | Not Listed |
| **California Proposition 65** | Not Listed |
| **Inventory - United States TSCA - Sect. 8(b)** | Present |
| **Australia (AICS):** | Present |
| **Standard for the Uniform Scheduling for Drugs and Poisons:** | Schedule 4 |
| **EU EINECS/ELINCS List** | 201-064-4 |

**Inotuzumab Ozogamicin**

| | |
|---|---|
| **CERCLA/SARA 313 Emission reporting** | Not Listed |
| **California Proposition 65** | Not Listed |
| **EU EINECS/ELINCS List** | Not Listed |

**Water, purified**

| | |
|---|---|
| **CERCLA/SARA 313 Emission reporting** | Not Listed |
| **California Proposition 65** | Not Listed |
| **Inventory - United States TSCA - Sect. 8(b)** | Present |
| **Australia (AICS):** | Present |
| **REACH - Annex IV - Exemptions from the obligations of Register:** | Present |

## 15. REGULATORY INFORMATION

| | |
|---|---|
| **EU EINECS/ELINCS List** | 231-791-2 |

**Hydrochloric Acid**

| | |
|---|---|
| **CERCLA/SARA 313 Emission reporting** | 1.0 % |
| **CERCLA/SARA Hazardous Substances and their Reportable Quantities:** | 5000 lb<br>2270 kg |
| **CERCLA/SARA - Section 302 Extremely Hazardous TPQs** | 500 lb |
| **CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs** | 5000 lb |
| **California Proposition 65** | Not Listed |
| **Inventory - United States TSCA - Sect. 8(b)** | Present |
| **Australia (AICS):** | Present |
| **Standard for the Uniform Scheduling for Drugs and Poisons:** | Schedule 5<br>Schedule 6 |
| **EU EINECS/ELINCS List** | 231-595-7 |

## 16. OTHER INFORMATION

**Text of CLP/GHS Classification abbreviations mentioned in Section 3**

Reproductive toxicity-Cat.1B; H360FD - May damage fertility. May damage the unborn child.
Germ cell mutagenicity-Cat.2; H341 - Suspected of causing genetic defects
Specific target organ toxicity, repeated exposure-Cat.2; H373 - May cause damage to organs through prolonged or repeated exposure
Skin corrosion/irritation-Cat.1A; H314 - Causes severe skin burns and eye damage
Acute toxicity, inhalation-Cat.3; H331 - Toxic if inhaled

| | |
|---|---|
| **Data Sources:** | Pfizer proprietary drug development information. Publicly available toxicity information. |
| **Revision date:** | 15-Mar-2016<br>Product Stewardship Hazard Communication |
| **Prepared by:** | Pfizer Global Environment, Health, and Safety Operations |

Pfizer Inc believes that the information contained in this Material Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time.

**End of Safety Data Sheet**