Zevalin® (Ibritumomab Tiuxetan) Kit

Contents:

- **MSDS for Zevalin**
- **MSDS for Formulation buffer**
- **MSDS for Sodium Acetate Solution**

Section 1 – Identification of the Substance and Company/Undertaking

Product Name: Zevalin® (Ibritumomab Tiuxetan) (all formulations)

Chemical Name:

Synonyms: IDEC 128, IDEC-Y2B8, Ibritumomab Tiuxetan

Chemical Family: Monoclonal antibodies

Company: Spectrum Pharmaceuticals, Inc.

Address: 157 Technology Drive, Irvine, California 92618

Email: zevalinsupport@sppirx.com

In case of Emergency, contact: Zevalin Support Services
866-298-8433
zevalinsupport@sppirx.com

Section 2 – Hazards Identification

Hazard Overview: This material may be irritating to eyes, respiratory system and skin.

(This material is not readily absorbed through skin.)

NFPA Ratings: Health: 0 Fire: 0 Reactivity: 0

Section 3 – Composition / Information on Ingredients

Ingredient (s):	CAS #	EINECS/ELINCS #	Concentration
Active Pharmaceutical Ingredient:			
	none established	Not Identified	1.6 mg/mL
Sodium chloride	7647-14-5	203-740-4	9.0 mg/mL
Water for Injection	7732-18-5		q.s.

Section 4 – First Aid Measures

Eye Contact

Flush with copious amounts of cold water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician immediately.

Skin Contact

The components of this product are not known to be absorbed into the skin. Flush with copious amounts of water and soap for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Inhalation

Remove to fresh air. If breathing becomes difficult, call a physician. If not breathing give artificial respiration.

Ingestion

Wash out mouth with water provided person is conscious. Call a physician.

Section 5 – Fire Fighting Measures

Flammability/Explosivity

Not considered a fire hazard. No explosivity data available.

Extinguishing Media

This material is non-combustible. Use spray water, carbon dioxide, ABC dry chemical, or foam.

Special Fire Fighting Procedures

No special materials or procedures necessary.

Section 6 – Accidental Release Measures

Procedures to be Followed in Case of Leak or Spill

Wear appropriate protective equipment (refer to Section 8). Place spill materials in sealed container. Wash spill site after material pickup is complete. Dispose of spill cleanup materials in accordance with local requirements.

Section 7 – Handling and Storage

Storage

Solutions should be stored at 2º to 8ºC.

Antibody solutions should be protected from direct sunlight.

Discard any unused portion left in vial.

Section 8 – Exposure Controls / Personal Protection

Engineering Controls

Provide suitable local exhaust ventilation to minimize potential occupational exposure to airborne dust.

Personal Protective Equipment

Wear chemical resistant gloves, laboratory coat and safety glasses.

Section 9 – Physical and Chemical Properties

Molecular Weight	N/A
Boiling Point	Unknown
Specific Gravity	Unknown
pH:	6.5
Appearance	Zevalin solution is a clear, colorless liquid
Aqueous Solubility	Very soluble in Water

Section 10 – Stability and Reactivity

Stability	Stable under normal conditions
Incompatibility	Chemically stable
Hazardous Decomposition Products	No dangerous decomposition products known
Hazardous Polymerization	Will not occur.

Section 11 – Toxicological Information

Single dose toxicity:	No purely single toxicity studies have been performed in monkeys. However, single doses of zevalin with and without single doses of rituxan were administered to tumor bearing athymic mice. No significant toxicity was observed.
Repeat Dose Toxicity:	Monkeys were treated with multiple doses (IV injections on day 1 and day 8) of either vehicle alone (Group 1), or with non-radioactive ^{89}Y-2B8-MX-DTPA (1.5 mg/kg) alone or with rituximab (30 mg/kg) and ^{89}Y-2B8-MX-DTPA (1.5 mg/kg (Group 3). No unscheduled deaths occurred and no significant toxicological

	effects were noted in any of the groups. In group 2 animals, reversible treatment related reductions in B cell levels were noted in peripheral blood. In group 3 animals, reversible depletion of B cells occurred in spleen, lymph node and bone marrow tissues. No effects were observed on T cells.
Irritation/Sensitization:	No studies identified. Severe cutaneous and mucocutaneous reactions, some fatal, can occur with Zevalin therapeutic regimen.
Reproductive Toxicity	No animal studies have been conducted to determine the effects of Zevalin on fertility in males and females. In clinical studies, Zevalin therapeutic regimen results in a significant radiation dose to the testes. The radiation dose to the ovaries has not been established. There is a potential risk that Zevalin could cause toxic effects on the male and female gonads.
Developmental Toxicity:	No studies have been conducted. However, based on its radioactivity, Y-90 Zevalin may cause fetal harm when administered to a pregnant woman.
Genotoxicity:	No studies have been conducted. However, it should be noted that Zevalin is radiolabeled with Y-90 and radiation is a potential mutagen.
Carcinogenicity:	No studies have been conducted. However, it should be noted that Zevalin is radiolabeled with Y-90 and radiation is a potential carcinogen.

Section 12 – Ecological Information

No studies identified. However, because Zevalin is radiolabeled with Y-90, approaches to minimize material going down the drain or ways to deactivate the material should be considered.

Section 13 – Disposal Considerations

Zevalin is not a hazardous material as defined by the US EPS or OSHA. Dispose of in accordance with applicable federal, state and local regulation pertaining to investigational drugs.

This material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

Section 14 – Transport Information

Proper Shipping Name:	**Not applicable/not regulated**
Packing Group:	**Not applicable/ not regulated**
Hazard Class:	**Not regulated**
UN Number:	**Not applicable**

Section 15 – Regulatory Information

Zevalin is not subject to classification and labeling according to Article 2 of directive 67/548/EEC.

Section 16 – Other Information

The above information is based on data available to us and is believed to be correct. Since the information may be applied under conditions beyond our control and with which we may be unfamiliar, we do not assume any responsibility for the results of its use and all persons receiving it must make their own determination of the effects, properties and protections which pertain to their particular conditions.

No representation, warranty, or guarantee, express or implied (including a warranty of fitness or merchantability for a particular purpose), is made with respect to the materials, the accuracy of this information, the results to be obtained from the use thereof, or the hazards connected with the use of the material. Caution should be used in the handling and use of the material because it is a potent pharmaceutical product. The above information is offered in good faith and with the belief that it is accurate. As of the date of issuance, we are providing all

information relevant to the foreseeable handling of the material. However, in the event of an adverse incident associated with this product, this Material Safety Data Sheet is not, and is not intended to be, a substitute for consultation with appropriately trained personnel.

SPECTRUM PHARMACEUTICALS

MATERIAL SAFETY DATA SHEET

Section 1 – Identification of the Substance and Company/Undertaking

Product Name: Formulation Buffer (as a component of the Zevalin® (Ibritumomab Tiuxetan Kit))

Chemical Name:

Synonyms:

Company: Spectrum Pharmaceuticals, Inc.

Address: 157 Technology Drive, Irvine, California 92618

Email: zevalinsupport@sppirx.com

In case of Emergency, contact: Zevalin Support Services
866-298-8433
zevalinsupport@sppirx.com

Section 2 – Hazards Identification

Hazard Overview: This material may be irritating to eyes, respiratory system and skin.
(This material is not readily absorbed through skin.)

NFPA Ratings: Health: 0 Fire: 0 Reactivity: 0

Section 3 – Composition / Information on Ingredients

Ingredient (s):	CAS #	EINECS/ELINCS #	Concentration
Albumin (human) HAS	70024-90-7		75 mg/mL
DTPA	67-43-6		0.4 mg/mL
Phosphate buffered saline	N/A		Proprietary
Potassium chloride	744-40-7		0.2 mg/mL
Sodium chloride	7647-14-5		7.6 mg/mL
Water for Injection	7732-18-5		q.s.

Section 4 – First Aid Measures

Eye Contact

Flush with copious amounts of cold water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician immediately.

Skin Contact

Flush with copious amounts of water and soap for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Inhalation

Remove to fresh air. If breathing becomes difficult, call a physician. If not breathing give artificial respiration.

Ingestion

Wash out mouth with water provided person is conscious. Call a physician.

Section 5 – Fire Fighting Measures

Extinguishing Media

This material is non-combustible. Use extinguishing media appropriate to surrounding fire conditions.

Special Fire Fighting Procedures

No special materials or procedures necessary.

Section 6 – Accidental Release Measures

Procedures to be Followed in Case of Leak or Spill

Wear appropriate protective equipment (refer to Section 8). Place spill materials in sealed container. Wash spill site after material pickup is complete. Dispose of spill cleanup materials in accordance with local requirements.

Section 7 – Handling and Storage

Storage

Formulation buffer should be stored at 2º to 8ºC.

Product should be protected from direct sunlight.

Discard any unused portion left in vial.

Section 8 – Exposure Controls / Personal Protection

Engineering Controls

Provide suitable local exhaust ventilation to minimize potential occupational exposure to airborne dust.

Personal Protective Equipment

Wear chemical resistant gloves, laboratory coat and safety glasses.

Section 9 – Physical and Chemical Properties

Molecular Weight	N/A
Boiling Point	Unknown
Specific Gravity	Unknown
pH:	7.2
Appearance	Formulation buffer is a clear, yellow to amber liquid
Aqueous Solubility	Very soluble in Water

Section 10 – Stability and Reactivity

Stability	Stable under normal conditions
Incompatibility	Chemically stable
Hazardous Decomposition Products	No dangerous decomposition products known
Hazardous Polymerization	Will not occur.

Section 11 – Toxicological Information

Acute Effects

Formulation buffer is formulated for intravenous administration. The toxicological effects of this substance have not been thoroughly investigated.

Chronic Effects

No data available at this time.

Carcinogenesis, Mutagenesis, Impairment of Fertility

No long term studies have been performed to establish the carcinogenicity or mutagenic potential of the formulation buffer, or to determine its effects on fertility in males or females.

Information provided by SIGMA in their Material Safety Data Sheet for DTPA indicates that DTPA may contain trace amounts of nitrilotriacetic acid (CAS # 139-13-9), a chemical known to the state of California to cause cancer and/or birth defects or reproductive harm.

Section 12 – Ecological Information

Neither the formulation buffer nor any of its ingredients are listed as marine pollutants.

Section 13 – Disposal Considerations

Dispose of in accordance with applicable federal, state and local regulation pertaining to investigational drugs.

This material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

Section 14 – Transport Information

Proper Shipping Name: Not applicable/not regulated

Packing Group: Not applicable/ not regulated

Hazard Class: Not regulated

UN Number: Not applicable

Section 15 – Regulatory Information

Formulation buffer is not subject to classification and labeling according to Article 2 of directive 67/548/EEC.

Section 16 – Other Information

The above information is based on data available to us and is believed to be correct. Since the information may be applied under conditions beyond our control and with which we may be unfamiliar, we do not assume any responsibility for the results of its use and all persons receiving it must make their own determination of the effects, properties and protections which pertain to their particular conditions.

No representation, warranty, or guarantee, express or implied (including a warranty of fitness or merchantability for a particular purpose), is made with respect to the materials, the accuracy of this information, the results to be obtained from the use thereof, or the hazards connected with the use of the material. Caution should be used in the handling and use of the material because it is a potent pharmaceutical product. The above information is offered in good faith and with the belief that it is accurate. As of the date of issuance, we are providing all information relevant to the foreseeable handling of the material. However, in the event of an adverse incident associated with this product, this Material Safety Data Sheet is not, and is not intended to be, a substitute for consultation with appropriately trained personnel.

SPECTRUM PHARMACEUTICALS

MATERIAL SAFETY DATA SHEET

Section 1 – Identification of the Substance and Company/Undertaking

Product Name: Sodium Acetate Solution (as a component of the Zevalin® (IbritumomabTiuxetan Kit))

Chemical Name:

Synonyms:

Company: Spectrum Pharmaceuticals, Inc.

Address: 157 Technology Drive, Irvine, California 92618

Email: zevalinsupport@sppirx.com

In case of Emergency, contact: Zevalin Support Services
866-298-8433
zevalinsupport@sppirx.com

Section 2 – Hazards Identification

Hazard Overview: This material may be irritating to eyes, respiratory system and skin.
(This material is not readily absorbed through skin.)

NFPA Ratings: Health: 0 Fire: 0 Reactivity: 0

Section 3 – Composition / Information on Ingredients

Ingredient (s):	CAS #	EINECS/ELINCS #	Concentration
Sodium acetate	127-09-3		4.1 mg/mL
Water for Injection	7732-18-5		q.s.

Section 4 – First Aid Measures

Eye Contact

Flush with copious amounts of cold water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician immediately.

Skin Contact

Flush with copious amounts of water and soap for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Inhalation

Remove to fresh air. If breathing becomes difficult, call a physician. If not breathing give artificial respiration.

Ingestion

Wash out mouth with water provided person is conscious. Call a physician.

Section 5 – Fire Fighting Measures

Extinguishing Media

This material is non-combustible. Use extinguishing media appropriate to surrounding fire conditions.

Special Fire Fighting Procedures

No special materials or procedures necessary.

Section 6 – Accidental Release Measures

Procedures to be Followed in Case of Leak or Spill

Wear appropriate protective equipment (refer to Section 8). Place spill materials in sealed container. Wash spill site after material pickup is complete. Dispose of spill cleanup materials in accordance with local requirements.

Section 7 – Handling and Storage

Storage

Sodium acetate solution should be stored at 2º to 8ºC.

Product should be protected from direct sunlight.

Discard any unused portion left in vial.

Section 8 – Exposure Controls / Personal Protection

Engineering Controls

Provide suitable local exhaust ventilation to minimize potential occupational exposure to airborne dust.

Personal Protective Equipment

Wear chemical resistant gloves, laboratory coat and safety glasses.

Section 9 – Physical and Chemical Properties

Molecular Weight	N/A
Boiling Point	Unknown
Specific Gravity	Unknown
pH:	7.2
Appearance	Zevalin solution is a clear, colorless liquid
Aqueous Solubility	Very soluble in Water

Section 10 – Stability and Reactivity

Stability	Stable under normal conditions
Incompatibility	Chemically stable
Hazardous Decomposition Products	No dangerous decomposition products known
Hazardous Polymerization	Will not occur.

Section 11 – Toxicological Information

Acute Effects

Sodium Acetate solution is formulated for intravenous administration. The toxicological effects of this substance have not been thoroughly investigated.

Chronic Effects

No data available at this time.

Carcinogenesis, Mutagenesis, Impairment of Fertility

No long term studies have been performed to establish the carcinogenicity or mutagenic potential of the Sodium Acetate solution, or to determine its effects on fertility in males or females.

Section 12 – Ecological Information

Sodium acetate solution is not listed as a marine pollutant.

Section 13 – Disposal Considerations

Dispose of in accordance with applicable federal, state and local regulation pertaining to investigational drugs. This material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

Section 14 – Transport Information

Proper Shipping Name: Not applicable/not regulated
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No representation, warranty, or guarantee, express or implied (including a warranty of fitness or merchantability for a particular purpose), is made with respect to the materials, the accuracy of this information, the results to be obtained from the use thereof, or the hazards connected with the use of the material. Caution should be used in the handling and use of the material because it is a potent pharmaceutical product. The above information is offered in good faith and with the belief that it is accurate. As of the date of issuance, we are providing all information relevant to the foreseeable handling of the material. However, in the event of an adverse incident associated with this product, this Material Safety Data Sheet is not, and is not intended to be, a substitute for consultation with appropriately trained personnel.