SAFETY DATA SHEET
SDS DATE: Mar 19, 2020

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **EZSolution™ Penicillin/Streptomycin/Amphotericin B, Sterile-Filtered (100X)**

PRODUCT CODES: **Cat# 2505-100**

RESTRICTIONS ON USE: **For laboratory research purposes. Not for drug or household use.**

MANUFACTURER: **BioVision, Inc.**

ADDRESS: **155 S. Milpitas Boulevard, Milpitas, CA 95035**

EMERGENCY PHONE: **858-373-8066**
OTHER CALLS: **408-493-1800**
FAX PHONE: **408-493-1801**

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Product Name/Chemical Name	Description	Volume	Safety Information
EZSolution™ Penicillin/Streptomycin/Amphotericin B, Sterile-Filtered (100X)	Liquid	100 ml	See below

SECTION 3: HAZARDS IDENTIFICATION

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula	Concentration
Streptomycin sulfate	3810-74-0	223-286-0	1457.40	$(C_{21}H_{39}N_7O_{12})_2 \cdot 3H_2SO_4$	<10%
Amphotericin B	1397-89-3	215-742-2	924.08	$C_{47}H_{73}NO_{17}$	<10%
DMSO	67-68-5	200-664-3	78.13	C_2H_6OS	<10%

Streptomycin sulfate:
Emergency Overview
OSHA Hazards: Target organ effect, Harmful by ingestion, Teratogen
Target Organs: Ears, Kidney
Other hazards which do not result in classification: Possible sensitizer
GHS Classification: Acute toxicity, Oral (Category 4)
Reproductive toxicity (Category 2)
GHS Label elements, including precautionary statements

Pictogram:
Signal word: Warning
Hazard statement(s): H302 Harmful if swallowed.
H361 Suspected of damaging fertility or the unborn child.
Precautionary statement(s): P201 Obtain special instructions before use.
P281 Use personal protective equipment as required.
P308+P313 IF exposed or concerned: Get medical advice/attention.

HMIS Classification
- **Health hazard**: 2
- **Chronic Health Hazard:** *
- **Flammability**: 0
- **Physical hazards**: 0

NFPA Rating
- **Health Hazard:** 2
- **Fire**: 0
- **Reactivity Hazard**: 0

Potential Health Effects
- **Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation.
- **Skin:** May be harmful if absorbed through skin. May cause skin irritation.
- **Eyes:** May cause eye irritation.
- **Ingestion:** Harmful if swallowed.

Amphotericin B:
Emergency Overview
OSHA Hazards: Target organ effect, Irritant
Target Organs: Kidney

GHS Classification: Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity – single exposure (Category 3)

GHS Label elements, including precautionary statements

Pictogram:

Signal word: Warning

Hazard statement(s): H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s): P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P280 Wear protective gloves.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P304_P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

HMIS Classification
- **Health hazard**: 2
- **Chronic Health Hazard:** *
- **Flammability**: 0
- **Physical hazards**: 0

NFPA Rating
- **Health Hazard:** 2
- **Fire**: 0
- **Reactivity Hazard**: 0

Potential Health Effects
- **Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.
- **Skin:** May be harmful if absorbed through skin. Causes skin irritation.
- **Eyes:** Causes eye irritation.
- **Ingestion:** May be harmful if swallowed.

DMSO:

Emergency Overview

OSHA Hazards: Combustible liquid, Target organ effect

Target Organs: Eyes, Skin

GHS Classification: Flammable liquids (Category 4)

GHS Label elements, including precautionary statements

Pictogram: none

Signal word: Warning

Hazard statement(s): H227 Combustible liquid

Precautionary statement(s): none

HMIS Classification
- **Health hazard**: 0
- **Chronic Health Hazard**: *
- **Flammability**: 2
- **Physical hazards**: 0

NFPA Rating
- **Health hazard**: 0
- **Fire**: 2
- **Reactivity Hazard**: 0

Potential Health Effects
- **Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation.
- **Skin:** May be harmful if absorbed through skin. May cause skin irritation.
- **Eyes:** May cause eye irritation.
- **Ingestion:** May be harmful if swallowed.
- **Aggravated Medical Condition:** Avoid contact w/DMSO solutions containing toxic materials or materials with unknown toxicological properties. DMSO is readily absorbed through skin and may carry such materials into the body.

SECTION 4: FIRST AID MEASURES

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact: Wash off with soap and plenty of water. Consult a physician.
In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5: FIRE-FIGHTING MEASURES

DMSO:
Suitable extinguishing media: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.
Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.
Hazardous combustion products: Hazardous decomposition products formed under fire conditions – see section 10.
Further information: Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods for cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.
Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature: -20 °C.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.
Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	Streptomycin sulfate	Amphotericin B	DMSO
Appearance:	White to off-white powder	Yellow or orange powder	Clear liquid
pH:	No data available	No data available	No data available
Water Solubility:	50 mg/ml	No data available	Completely miscible
Other Solubility:	No data available	DMF (~2-4 mg/ml) or DMSO (~30-40 mg/ml)	No data available
Boiling Point (°C):	No data available	No data available	189 ^{o}C (372 ^{o}F)
Melting Point (°C):	No data available	No data available	16-19 ^{o}C (61-66 ^{o}F)
Flash Point (°C):	No data available	No data available	87 ^{o}C (189 ^{o}F)
Ignition Temperature (°C):	No data available	No data available	301 ^{o}C (574 ^{o}F)
Density:	No data available	No data available	1.1 g/ml

SECTION 10: STABILITY AND REACTIVITY

Property	Streptomycin sulfate	Amphotericin B	DMSO
Chemical stability:	Stable under recommended storage conditions		
Conditions to avoid:	No data available	No data available	Heat, flames, sparks

Materials to avoid:	Strong oxidizing agents	No data available	Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents
Hazardous decomposition products:	Carbon oxides, nitrogen oxides, sulfur oxides	Carbon oxides, nitrogen oxides	Carbon oxides, sulfur oxides

SECTION 11: TOXICOLOGICAL INFORMATION

Streptomycin sulfate:
Acute toxicity: LD50 Oral – rat – 430 mg/kg
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.
Germ cell mutagenicity: no data available
Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available
Teratogenicity: Suspected human reproductive toxicant.
Specific target organ toxicity – single exposure (GHS): no data available
Specific target organ toxicity – repeated exposure (GHS): no data available
Aspiration hazard: no data available
Potential Health Effects
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May cause eye irritation.
Ingestion: Harmful if swallowed.
Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Synergistic effects: no data available
Additional information: RTECS: WK4990000

Amphotericin B:
Acute toxicity: LD50 Oral – rat – >5,000 mg/kg
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: Prolonged or repeated exposure may cause allergic reactions in sensitive individuals.
Germ cell mutagenicity: no data available
Carcinogenicity: no data available

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available
Teratogenicity: no data available
Specific target organ toxicity – single exposure (GHS): Inhalation – may cause respiratory irritation.
Specific target organ toxicity – repeated exposure (GHS): no data available
Potential Health Effects
Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: May be harmful if swallowed.
Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Synergistic effects: no data available
Additional information: RTECS: BU2625000

DMSO:
Acute toxicity: LD50 Oral - rat - 14,500 mg/kg
LC50 Inhalation - rat - 4 h - 40250 ppm
LD50 Dermal - rabbit - > 5,000 mg/kg

Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory/skin sensitization: no data available
Germ cell mutagenicity: Genotoxicity in vitro - mouse – lymphocyte→ Cytogenetic analysis
Genotoxicity in vitro - mouse – lymphocyte→ Mutation in mammalian somatic cells.
Genotoxicity in vivo - rat – Intraperitoneal→ Cytogenetic analysis
Genotoxicity in vivo - mouse – Intraperitoneal→ DNA damage
Carcinogenicty: Carcinogenicity – rat – Oral→ Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin & Appendages: Other: Tumors.
Carcinogenicty – mouse – Oral→ Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin & Appendages: Other: Tumors.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Reproductive toxicity – rat – Intraperitoneal→ Effects on Fertility: Abortion.
Reproductive toxicity – rat – Intraperitoneal→ Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Reproductive toxicity – rat – Subcutaneous→ Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).
Reproductive toxicity –mouse – Oral→ Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.
Teratogenicity: Developmental Toxicity – mouse – Intraperitoneal→ Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.
Specific target organ toxicity – single exposure (GHS): Inhalation – may cause respiratory irritation.
Specific target organ toxicity – repeated exposure (GHS): no data available
Potential Health Effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May cause eye irritation.
Ingestion: May be harmful if swallowed.
Aggravated Medical Condition: Avoid contact w/DMSO solutions containing toxic materials or materials with unknown toxicological properties. DMSO is readily absorbed through skin and may carry such materials into the body.

Signs and Symptoms of Exposure: Exposure via ingestion may cause nausea, fatigue, headache.
Additional Information: RTECS: PV6210000

SECTION 12: ECOLOGICAL INFORMATION

Streptomycin sulfate:
Persistence and degradability: no data available
Toxicity: Toxicity to fish: LC50 – Oncorhynchus mykiss (Rainbow trout) – >180 mg/l – 96 h
Toxicity to daphnia and other aquatic invertebrates: EC50 – Daphnia magna (Water flea) – 650 mg/l – 48 h
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

DMSO:
Persistence and degradability: no data available
Toxicity: Toxicity to fish: LC50 – Pimephales promelas (fathead minnow) – 34,000 mg/l – 96 h
LC50 – Oncorhynchus mykiss (rainbow trout) – 35,000 mg/l – 96 h
Toxicity to daphnia and other aquatic invertebrates: EC50 – Daphnia pulex (Water flea) – 27,500 mg/l
Toxicity to algae: EC50 – Lepomis macrochirus (Bluegill) – >400,000 mg/l – 96 h
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

SECTION 13: DISPOSAL CONSIDERATIONS

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

DOT (US): Not dangerous goods.
IMDG: Not dangerous goods.
IATA: Not dangerous goods.

SECTION 15: REGULATORY INFORMATION

OSHA Hazards: Streptomycin sulfate: Target organ effect, Harmful by ingestion, Teratogen
Amphotericin B: Target organ effect, Irritant
DMSO: Combustible liquid, Target organ effect
SARA 302 Components: SARA 302: No chemical in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components: SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title II, Section 313.
SARA 311/312 Hazards: Streptomycin sulfate & Amphotericin B: Acute Health Hazard, Chronic Health Hazard
DMSO: Fire Hazard, Chronic Health Hazard
Massachusetts Right To Know Components: No components are subject to the Massachusetts Right to Know Act.
Pennsylvania Right To Know Components: Streptomycin sulfate, CAS-No. 3810-74-0; Revision Date: 2009-07-17
Amphotericin B, CAS-No. 1397-89-3
Dimethyl sulfoxide CAS-No. 67-68-5; Revision Date: 2007-03-01
New Jersey Right To Know Components: Streptomycin sulfate, CAS-No. 3810-74-0; Revision Date: 2009-07-17
Amphotericin B, CAS-No. 1397-89-3
Dimethyl sulfoxide CAS-No. 67-68-5; Revision Date: 2007-03-01

California Prop. 65 Components: ⚠ WARNING: This product can expose you to chemicals including Streptomycin , which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

EU regulations

Component	Risk Phrases	Safety Phrases
Streptomycin sulfate	R22, R63	S36/37
Amphotericin B	R36/37/38	S26
DMSO	R10, R36/37/38	S24/25, S36/37/39, S45

SECTION 16: OTHER INFORMATION

OTHER INFORMATION:
PREPARATION INFORMATION:
DISCLAIMER:
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. BioVision, Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.