

SAFETY DATA SHEET

Cat# 2639-1 EZSolution(TM) CHIR-98014

SDS DATE: Jun 20, 2014

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: EZSolution™ CHIR-98014
PRODUCT CODES: Cat# 2639-1
MANUFACTURER: BioVision, Inc.
ADDRESS: 155 S. Milpitas Boulevard, Milpitas, CA 95035
EMERGENCY PHONE: 858-373-8066
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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

| Product Name/Chemical Name | Description | Volume | Safety Information |
|----------------------------|-------------|--------------|--------------------|
| EZSolution™ CHIR-98014 | Liquid | 2639-1: 1 mg | See below |

SECTION 3: HAZARDS IDENTIFICATION

| Components | CAS Number | EC-No. | Molecular Weight | Chemical Formula |
|------------|-------------|-----------|------------------|---|
| CHIR-98014 | 556813-39-9 | -- | 486.31 | C ₂₀ H ₁₇ Cl ₂ N ₉ O ₂ |
| DMSO | 67-68-5 | 200-664-3 | 78.13 | C ₂ H ₆ OS |

CHIR-98014:

OSHA Hazards: No known OSHA hazards

GHS Classification: Not a dangerous substance or mixture according to the GHS

GHS Label elements, including precautionary statements

Pictogram: none

Signal word: none

Hazard statement(s): none

Precautionary statement(s): none

HMIS Classification

Health hazard: 0

Flammability: 0

Physical hazards: 0

NFPA Rating

Health Hazard: 0

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: 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.

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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

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Wash off with soap and plenty of water.

In case of eye contact: Flush eyes with water as a precaution.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water.

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 combustion products formed under fire conditions – no data available.

Further information: Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid dust formation. Avoid breathing vapors, mist, or gas.

Environmental precautions: Do not let product enter drains.

Methods for cleaning up: Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

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

DMSO:

| Components | CAS-No. | Value | Control parameters | Basis |
|--------------------|---------|-------|--------------------|---|
| Dimethyl sulfoxide | 67-68-5 | TWA | 250 ppm | USA. Workplace Environmental Exposure Levels (WEEL) |

Personal protective equipment

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. 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

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substance, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

General industrial hygiene practice.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

| Property | CHIR-98014 | DMSO |
|--------------------------|-------------------|---------------------|
| Appearance: | Crystalline solid | Clear liquid |
| pH: | No data available | No data available |
| Water Solubility: | No data available | Completely miscible |
| Other Solubility: | DMSO (~ 4 mg/ml) | No data available |

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| | | |
|-----------------------------------|-------------------|-----------------------------|
| Boiling Point (°C): | No data available | No data available |
| Melting Point (°C): | No data available | 189 °C (372 °F) |
| Flash Point (°C): | No data available | 16-19 °C (61-66 °F) |
| Ignition Temperature (°C): | No data available | 87 °C (189 °F) |
| Density: | No data available | 301 °C (574 °F) 1.1 g/ml |

SECTION 10: STABILITY AND REACTIVITY

| Property | CHIR-98014 | DMSO |
|--|---|---|
| Chemical stability | Stable under recommended storage conditions | Stable under recommended storage conditions |
| Conditions to avoid: | No data available | Heat, flames, sparks |
| Materials to avoid: | Strong oxidizing agents | Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents |
| Hazardous decomposition products: | Carbon oxides, nitrogen oxides, hydrogen chloride gas | Carbon oxides, sulfur oxides |

SECTION 11: TOXICOLOGICAL INFORMATION

CHIR-98014:

Acute toxicity: no data available

Primary irritant effect

On the skin no data available

On the eye may be an irritant

Additional information: RTECS: no data available

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

Carcinogenicity: Carcinogenicity – rat – Oral → Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin & Appendages: Other: Tumors.

Carcinogenicity – 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.

Signs and Symptoms of Exposure: Exposure via ingestion may cause nausea, fatigue, headache.

Additional Information: RTECS: PV6210000

SECTION 12: ECOLOGICAL INFORMATION

CHIR-98014:

Persistence and degradability: no data available

Toxicity: no data available

Bioaccumulative potential: no data available

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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: Observe all federal, state, and local environmental regulations.
Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

CHIR-98014:

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

DMSO:

DOT (US): UN-Number: 1993, Class: CBL, Packing group: III; Proper shipping name: Combustible liquid, n.o.s. (Dimethyl sulfoxide); Marine pollutant: No; Poison Inhalation Hazard: No
IMDG: Not dangerous goods.
IATA: Not dangerous goods.

SECTION 15: REGULATORY INFORMATION

OSHA Hazards: 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: 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: CHIR-98014, CAS-No. 556813-39-9
Dimethyl sulfoxide, CAS-No. 67-68-5; Revision Date: 2007-03-01
New Jersey Right To Know Components: CHIR-98014, CAS-No. 556813-39-9
Dimethyl sulfoxide, CAS-No. 67-68-5; Revision Date: 2007-03-01
California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

EU regulations

| Component | Risk Phrases | Safety Phrases |
|------------|------------------------|-------------------------|
| CHIR-98014 | R28,R38,R41,R48,R62/63 | S24/25/26,S28,S36/37/38 |
| DMSO | R10, R36/37/38 | S24/25, S36/37/39, S45 |

SECTION 16: OTHER 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.