



AKRONBIOTECH

# CryoSolutions™ 100%

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Date of Issue: 09/26/2018 Version: 2.0

## SECTION 1: IDENTIFICATION

### 1.1. Product Identifier

**Product Name:** CryoSolutions™ 100%

**Product Code:** AK8899

### 1.2. Recommended use of the chemical and restrictions on use

**Identified Uses:** For research and further manufacturing use only.

**Restricted Uses:** Not intended for direct use *in vivo* or for direct clinical use as drug, therapeutic, biologic or medical device.

### 1.3. Name, Address, and Telephone of the Responsible Party

Akron Biotechnology, LLC  
6353 W Rogers Circle, Suite 2  
Boca Raton, FL 33487  
561-750-6120

[www.akronbiotech.com](http://www.akronbiotech.com)

Email: [info@akronbiotech.com](mailto:info@akronbiotech.com)

### 1.4. Emergency Telephone Number

**Emergency Number :** 561-750-6120

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the Substance or Mixture

Flammable Liquids, Category 4

### 2.2. Label Elements

**Pictogram(s)** : None  
**Signal Word** : Warning  
**Hazard Statement** : Combustible liquid

Code	Precaution Statement
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection
P370 + P378	In case of fire: Use dry chemical, CO <sub>2</sub> , water spray or regular foam to extinguish
P403 + P233	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container in accordance with applicable regional, national, and local laws and regulations

### 2.3. Other Hazards

No data available.

### 2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available.

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### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1. Substance

Chemical Name	Common name and Synonyms	Product Identifier (CAS-No)
Methane, 1,1'-sulfinylbis-	Dimethyl Sulfoxide; DMSO	67-68-5

#### 3.2. Mixture

Not applicable

### SECTION 4: FIRST AID MEASURES

#### 4.1. Description of First-aid Measures

##### Inhalation:

Remove person to fresh air. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, give artificial respiration or provide oxygen and seek immediate medical assistance.

##### Skin Contact:

Remove contaminated clothing and wash before reuse. Wash the contaminated area with soap and water. If irritation develops, seek immediate medical attention.

##### Eye Contact:

Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Remove any contact lenses. Seek immediate medical attention.

##### Ingestion:

If swallowed, wash out mouth with water. Do NOT induce vomiting. Seek immediate medical attention.

#### 4.2. Most Important Symptoms and Effects Both Acute and Delayed

##### Inhalation:

May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Exposure to high concentrations of Dimethyl sulfoxide could cause lowering of consciousness. Repeated exposure to DMSO vapors did not cause any irritation to the respiratory tract; however the exposure to high concentrations in the form of an aerosol induced an irritation of the upper airways after a repeated exposure

##### Skin Contact:

May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching. Dimethyl sulfoxide may accelerate skin absorption of other materials. A skin irritation assay performed in rabbit (OECD 404) revealed no more than a very slight or well-defined erythema, which disappeared in 3 days.

##### Eye Contact:

May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision. DMSO is slightly irritating for the eye. In studies performed following the OECD 405 or the EEC method B.5, a slight to moderate conjunctival irritation, which cleared in 3 days, was observed in the eyes of rabbits. In humans, the instillation of solutions containing 50 to 100% DMSO has caused transient sensation of burning which was reversible within 24 hours.

##### Ingestion:

May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

#### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If direct contact with open wounds, wash out and seek medical attention. No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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### SECTION 5: FIRE-FIGHTING MEASURES

#### 5.1. Extinguishing Media

**Suitable extinguishing media:** Alcohol-resistant foam, dry chemical powder, carbon dioxide, water fog or spray.  
**Unsuitable extinguishing media:** Do not use water jet.

#### 5.2. Special Hazards Arising From the Substance or Mixture

No data available.

#### 5.3. Advice for Firefighters

Wear self-contained breathing apparatus. Do not inhale combustion gases.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment. Avoid handling product near open wounds. Avoid breathing dust, vapours, mist or gas. Ensure adequate ventilation. Stay away from heat/sparks/open flames/ hot surfaces. No eating or smoking.

#### 6.2. Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

#### 6.3. Methods and Materials for Containment and Cleaning Up

Stop leak if you can do it without risk. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material.

#### 6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

### SECTION 7: HANDLING AND STORAGE

#### 7.1. Precautions for Safe Handling

Avoid contact with skin and eyes. Do not ingest product. Avoid formation of dust and aerosols. Keep open containers upright to prevent leakage. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use non-sparking tools. Take action to prevent static discharges.

#### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

Keep container tightly closed in a dry, cool, well-ventilated place and avoid moisture. Store in a well-ventilated place. Keep cool. Store away from incompatible materials.

#### 7.3. Specific End Use(s)

Not available.

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control Parameters

The product contains no substances with occupational exposure limit values from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

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### 8.2. Exposure Controls

#### Appropriate Engineering Controls:

Use explosion-proof electrical, ventilating, and lighting equipment. Handle in accordance with good laboratory and safety practice. Wash hands before breaks and at the end of workday.

#### Personal Protective Equipment (PPE):

##### Hand Protection:

Handle with gloves. Butyl or nitrile rubber gloves are recommended. 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 face shield, chemical goggles or safety glasses tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

##### Skin and Body Protection:

The type of protective equipment must be selected according to the concentration, amount of the hazardous substance at the specific workplace and appropriate risk assessment.

##### Respiratory Protection:

Respiratory protection is not required under normal use. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respirators with organic vapor cartridge and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hygiene measures:

Handle in accordance with good industrial hygiene and safety practice.

#### Environmental Exposure Controls:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on Basic Physical and Chemical Properties

Appearance	: Clear, colorless liquid
Odor	: Odorless
Odor threshold	: Not available
pH	: Not available
Melting point/freezing point	: 18.5°C (65.3 °F)
Boiling point/boiling range	: Not available
Flash point	: 87 °C (188.6 °F) (Closed Cup)
Evaporation rate	: Not available
Flammability (solid, gas)	: Not available
Lower flammable limit	: 2.6 %
Upper flammable limit	: 42 %
Vapor pressure	: 59.4 Pa at 20 °C (68 °F)
Relative vapor density at 20°C	: Not available
Relative density	: 1.1 (Water = 1)
Solubility	: Miscible in water
Partition coefficient: N-Octanol/Water	: log Pow: -1.35 (calculated)
Auto-ignition temperature	: 215 °C (419 °F)
Viscosity	: Not available

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### SECTION 10: STABILITY AND REACTIVITY

#### 10.1. Reactivity

Contact with incompatible materials. Sources of ignition. Exposure to heat.

#### 10.2. Chemical Stability

Stable under recommended handling and storage conditions (see Section 7).

#### 10.3. Possibility of Hazardous Reactions

No data available.

#### 10.4. Conditions to Avoid

Contact with incompatible materials. Sources of ignition. Exposure to heat.

#### 10.5. Incompatible Materials

Strong oxidizers, Perchlorates.

#### 10.6. Hazardous Decomposition Products

No data available.

### SECTION 11: TOXICOLOGICAL INFORMATION

#### 11.1. Information on Toxicological Effects

Chemical Name	Toxicity estimate (LD50/LC50)	Species	Dose
Dimethyl sulfoxide	14,500 mg/kg	Rat	Oral
Dimethyl sulfoxide	40,000 mg/kg	Rat	Dermal
Dimethyl sulfoxide	>5330 mg/m <sup>3</sup> (4H)	Rat	Inhalation

Inhalation Exposure	: May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Exposure to high concentrations of DMSO could cause lowering of consciousness.
Ingestion Exposure	: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting, and diarrhea.
Skin Exposure	: May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching. Dimethyl sulfoxide may accelerate skin absorption of other materials. A skin irritation assay performed in rabbit (OECD 404) revealed no more than a very slight or well-defined erythema, which disappeared in 3 days.
Eye Exposure	: May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or lazy vision. In studies performed following the OECD 405 or the EEC method B.5, a slight to moderate conjunctival irritation, which cleared in 3 days, was observed in the eyes of rabbits. In humans, the instillation of solutions containing 50-100% DMSO caused transient sensation of burning which was reversible within 24 hours.
Germ Cell Mutagenicity	: No genotoxic activity was observed for DMSO in gene mutation assays in <i>Salmonella typhimurium</i> , an <i>in vitro</i> cytogenetics assay in CHO cells, and an <i>in vivo</i> micronucleus assay in rats.
Carcinogenicity	: 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 ACGIH, IARC, OSHA, or NTP.

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Reproductive Toxicity	:	In a Reproduction/Developmental Toxicity Screening Test performed following OECD 421, the NOAEL for parental toxicity, reproductive performance (mating and fertility) and toxic effects o the progeny was considered to be 100 mg/kg/day.
Specific Target Organ Toxicity (Single Exposure)	:	Not classified
Specific Target Organ Toxicity (Repeated Exposure)	:	Not classified
Aspiration Hazard	:	Not classified

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Ecotoxicity

Species	Type	Toxicity estimate	Exposure Time (hrs)	Condition
<i>Danio rerio</i>	LC50	>25 g/L	24	Freshwater, static
<i>Danio rerio</i>	LC50	>25 g/L	48	Freshwater, static
<i>Danio rerio</i>	LC50	>25 g/L	72	Freshwater, static
<i>Danio rerio</i>	LC50	>25 g/L	96	Freshwater, static
<i>Lepomis macrochirus</i>	LC50	>40 g/L	96	Freshwater, static
<i>Onchorhynchus mykiss</i>	LC50	33 – 37 g/L	96	Freshwater, static
<i>Onchorhynchus mykiss</i>	LC50	38 g/L	96	Freshwater
<i>Oryzias latipes</i>	LC50	33 g/L	96	Freshwater, static
<i>Pimephales promelas</i>	LC50	34 g/L	96	Freshwater, flow-through
<i>Artemia salina</i>	EC50	68.6 g/L	24	-
<i>Culex pipens molestus</i>	EC50	23.2 g/L	24	-
<i>Culex restuans</i>	EC50	25.9 – 30.7 g/L	18	-
<i>Daphnia magna</i>	EC50	24.6 g/L	48	Freshwater, static
<i>Daphnia magna</i>	EC50	58.2 g/L	24	-
<i>Daphnia magna</i>	EC50	19.25 g/L	24	-
<i>Daphnia pulex</i>	EC50	22.3 – 27.1 g/L	18	-
<i>Daphnia sp.</i>	EC50	7.0 g/L	24	-
<i>Hyalella Azteca</i>	EC50	31.9 – 58.0 g/L	18	-
<i>Palaemonetes kadiakensis</i>	EC50	22.1 – 45.0 g/l	18	-
<i>Pseudokirchnerella subcapitata</i>	EC50	17 g/L	72	Freshwater, static
<i>Pseudokirchnerella subcapitata</i>	EC50	12 g/L	72	Freshwater, static
<i>Chlamydomonas eugametos</i>	EC63	25 g/L	48	-
Green Algae	EC50	27448.309 mg/L	96	-
Green Algae	ChV	426.87 mg/L	96	-

### 12.2. Persistence and Degradability

DMSO is not considered as persistent in environment.

### 12.3. Bioaccumulative Potential

Chemical Name	Log Pow
Dimethyl sulfoxide	-1.35

Based on its log Kow value (-1.35) DMSO has a low potential for bioaccumulation.

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### 12.4. Mobility in Soil

#### Adsorption/desorption

Chemical Name	Log Koc
Dimethyl sulfoxide	0.64

This estimated Koc value suggests that DMSO is expected to have very high mobility in soil. Nevertheless, DMSO could adsorb chemically or physically on minerals contained in clay. It can be assumed that this weak adsorption would be due to DMSO polarity.

#### Volatilization from soil

The Henry's Law constant for DMSO indicates that DMSO is expected to be essentially non-volatile from moist soil. DMSO is expected to slowly volatilize from dry soil surfaces based upon a vapor pressure 0.56 hPa.

### 12.5. Other Adverse Effects

No data available.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

Treatment of waste per local authority regulations. Empty containers may retain product residues. Avoid disposal of material into untreated sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional, national and local authority requirements.

## SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

#### DOT Classification

Less than 119 gallons single container: Non-regulated.

Greater than 119 gallons single container:

UN number : NA1993  
UN proper shipping name : Combustible liquid, N.O.S. (Dimethyl sulfoxide)  
Transport hazard class : Combustible liquid  
Packing group : III

## SECTION 15: REGULATORY INFORMATION

### 15.1. US Federal Regulations

#### SARA 302 Components

This product does not contain any chemical components subject to the reporting requirements of SARA Title III, Section 302.

#### SARA 313 Components

This product does not contain any chemical components subject to the reporting requirements of SARA Title III, Section 313.

#### SARA 311/312 Hazardous Categorization

Acute Health Hazard : Not data available  
Chronic Health Hazard : Not data available  
Fire Hazard : Not data available  
Sudden Release of Pressure Hazard : Not data available  
Reactive Hazard : Not data available

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### 15.2. US Federal Regulations

#### State Right-to-Know Components

##### New Jersey

US New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

Component	CAS No.	RTK List
Dimethyl sulfoxide (DMSO)	67-68-5	Special Health Hazard Substance

##### California Prop. 65 Components

This product does not contain any chemical components subject to Proposition 65.

### SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

**Date of Preparation or Latest Revision** : 9/26/2018

**Other Information** : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

*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 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. Akron Biotechnology, LLC shall not be held liable for any damage resulting from handling or from contact with the above product.*

NA GHS SDS 2015 (Can, US, Mex)