

SDS DATE: August 14, 2023

**SECTION 1: PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME:** Choline/Acetylcholine Assay  
**PRODUCT CODES:** Cat. # MA-0152  
**RESTRICTIONS ON USE:** For laboratory research purposes only. Not for drug or household use.  
**MANUFACTURER:** AkrivisBio, Inc.  
**ADDRESS:** 48511 Warm Springs Blvd., Suite 213, Fremont, CA 94539  
**EMERGENCY PHONE:** 408-739-9315  
**OTHER CALLS:**  
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**EMAIL:** [sds@akrivosbio.com](mailto:sds@akrivosbio.com)

**SECTION 2: HAZARDS IDENTIFICATION**

Components	Description	Volume	Safety Information
Choline Assay Buffer	Proprietary buffer	25 ml	No hazards
Choline Probe	Liquid (contains DMSO)	200 µl	See below
Choline Enzyme Mix	Lyophilized	1 Vial	No hazards
Acetylcholinesterase	Lyophilized	1 Vial	No hazards
Choline Standard (5 µmol)	Lyophilized	1 Vial	No hazards

**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:****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

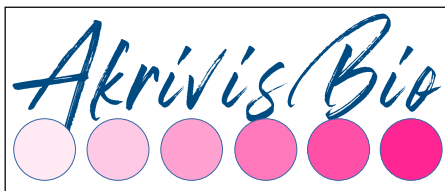
Fire: 2

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 3: COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula	Concentration
DMSO	67-68-5	200-664-3	78.13	C <sub>2</sub> H <sub>6</sub> OS	<100%

**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:** Flush eyes with water as a precaution.**If swallowed:** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.**SECTION 5: FIRE-FIGHTING MEASURES****DMSO:****Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.**Unsuitable extinguishing media:** Do NOT use water jet.**Special hazards arising from the substance or mixture:** Carbon oxides, Sulphur oxides**Advice for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.**Further information:** Use water spray to cool unopened containers.



## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

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.

**Methods and materials for containment and cleaning up:** Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

## SECTION 7: HANDLING AND STORAGE

**Precautions for safe handling:** Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. For precautions see section 2.

**Conditions for safe storage, including any incompatibilities:** Keep container tightly closed in a dry and well-ventilated place. Store in a cool, dry, well-ventilated area away from incompatible substances. Recommended storage temperature: 4°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)

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	DMSO
<b>Appearance:</b>	Clear liquid
<b>pH:</b>	No data available
<b>Water Solubility:</b>	No data available
<b>Other Solubility:</b>	DMSO
<b>Boiling Point (°C):</b>	372.2 °F (189 °C)
<b>Melting Point (°C):</b>	64.4 °F (18 °C)
<b>Flash Point (°C):</b>	188.6 °F (87.0 °C)
<b>Ignition Temperature (°C):</b>	No data available
<b>Density:</b>	No data available

## SECTION 10: STABILITY AND REACTIVITY

Property	DMSO
<b>Chemical stability:</b>	Stable under recommended storage conditions
<b>Conditions to avoid:</b>	flash point. Contact with incompatible materials.
<b>Materials to avoid:</b>	Strong oxidizing agents. Alkaline metals. Isocyanates
<b>Hazardous decomposition products:</b>	None

## SECTION 11: TOXICOLOGICAL INFORMATION

### 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. Leukemia 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).

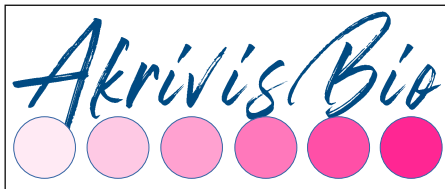
Reproductive toxicity – mouse – Oral→ Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental

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



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**SECTION 12: ECOLOGICAL INFORMATION**

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**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) – &gt;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

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**SECTION 13: DISPOSAL CONSIDERATIONS**

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

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**SECTION 14: TRANSPORT INFORMATION**

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**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.

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**SECTION 15: REGULATORY INFORMATION**

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**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: No chemical in this material are subject to the reporting requirements of SARA Title III, 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:** Dimethyl sulfoxide CAS-No. 67-68-5; Revision Date: 2007-03-01;**New Jersey Right To Know Components:** 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.

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**EU regulations**

Component	Risk Phrases	Safety Phrases
CHAPS	R21; R36; R38; R43	S22; S26; S28; S36/37/39
DMSO	R10, R36/37/38	S24/25, S36/37/39, S45

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**SECTION 16: OTHER INFORMATION**

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**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. AkrivisBio 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.