



SDS DATE: August 20, 2023

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Cathepsin D/E Activity Assay
PRODUCT CODES: Cat. # MA-0154
RESTRICTIONS ON USE: For laboratory research purposes only. Not for drug or household use.
MANUFACTURER: AkrivisBio, Inc.
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SECTION 2: HAZARDS IDENTIFICATION

Components	Description	Volume	Safety Information
Cell Lysis Buffer	Proprietary buffer	25 ml	See below
Assay Buffer	Proprietary buffer	5 ml	No hazards
Cathepsin D/E Substrate (1 mM)	Liquid (contains DMSO)	0.2 ml	See below
Cathepsin D	Contains trehalose	lyophilized	See below
Cathepsin E	Contains trehalose	lyophilized	See below
AMC Standard	Contains DMSO	0.5 ml	See below

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

HMS 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 ₂ H ₆ 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.

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

SECTION 10: STABILITY AND REACTIVITY

Property	DMSO
Chemical stability:	Stable under recommended storage conditions
Conditions to avoid:	flash point. Contact with incompatible materials.
Materials to avoid:	Strong oxidizing agents. Alkaline metals. Isocyanates
Hazardous decomposition products:	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. 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

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

DMSO:

Product: Observe all federal, state, and local environmental regulations.

Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

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

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; Trehalose dihydrate CAS-No. 6138-23-4

New Jersey Right To Know Components: Dimethyl sulfoxide CAS-No. 67-68-5; Revision Date: 2007-03-01; Trehalose dihydrate CAS-No. 6138-23-4; sodium chloride CAS-No. 7647-14-5

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
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. 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.