

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Cholesterol /Cholesterol Ester Assay

PRODUCT CODES: Cat. # MA-0119

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
Assay Buffer	Proprietary (contains cholic acid and CHAPS)	25 ml	See below
ADHP Solution	Liquid (contains DMSO)	200 µl	See below
Cholesterol Oxidase/HRP	lyophilized	1 vial	No hazards
Cholesterol Esterase	Lyophilized	1 vial	No hazards
Cholesterol Standard	Liquid	100 µl	No hazards

Cholic acid:

Emergency Overview (Classification according to Regulation (EC) No 1272/2008)

GHS Classification: Skin irritation (Category 2), H315 Eye irritation (Category 2), H319

GHS Label elements, including precautionary statements

Pictogram:

Signal word: Warning

H315 Causes skin irritation. Hazard statement(s): H319 Causes serious eye irritation.

Precautionary statement(s): P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

present and easy to do. Continue rinsing.

HMIS Classification

Health hazard:

Chronic Health Hazard:

Flammability: Physical hazards:

NFPA Rating

Health hazard:

Fire:

Reactivity Hazard: **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.

Emergency Overview

GHS Classification: Skin irritation (Category 2), H315

Skin sensitization (Sub-category 1A), H317 Short-term (acute) aquatic hazard (Category 1), H400 Long-term (chronic) aquatic hazard (Category 1), H410 GHS Label elements, including precautionary statements

Pictogram:

Signal word: Warning

Hazard statement(s): H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H410 Very toxic to aquatic life with long lasting effects. Precautionary statement(s): P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

P264 Wash skin thoroughly after handling.

P272 Contaminated work clothing must not be allowed out of the workplace. P273 Avoid release to the environment.

P280 Wear protective gloves.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P391 Collect spillage.

P501 Dispose of contents/ container to an approved waste disposal plant

HMIS Classification



Health hazard: 0 Chronic health hazard:

Flammability: 0 Physical hazards: 0

NFPA Rating Health hazard: 0 Fire: 0 Reactivity hazard: 0

Inhalation: May be harmful if inhaled. Material is irritating to the tissue of the mucous membranes and upper respiratory tract. Harmful; if

inhaled. May cause allergy or asthma symptoms or breathing difficulties.

Skin: May be harmful if absorbed through skin. May cause an allergic skin reaction.

Eyes: Causes eye irritation.

Potential Health Effects

Ingestion: Harmful if swallowed. To the best of our knowledge, the toxicological properties have not been thoroughly investigated

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
Cholic acid	81-25-4		408.57	C ₂₄ H ₄₀ O ₅	<0.2%
Tergitol	84133-50-6	617-534-0	-	-	≤10%
DMSO	67-68-5	200-664-3	78.13	C ₂ H ₆ OS	<99%

SECTION 4: FIRST AID MEASURES

Cholic acid:

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.

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

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



Cholic acid:

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture: Carbon oxides

Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Further information: No data available

Tergitol:

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable Extinguishing Media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Advice for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Further information: Keep people away. Isolate fire and deny unnecessary entry. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

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

Cholic acid:

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

Environmental precautions: Do not let product enter drains

Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Tergitol:

Personal precautions, protective equipment and emergency procedures: solate area. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Spilled material may cause a slipping hazard. Refer to section 7, Handling, for additional precautionary measures.

Environmental precautions: : Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Absorb with materials such as: Sand. Dirt. Collect in suitable and properly labeled containers. Do not use water for cleanup. See Section 13, Disposal Considerations, for additional information.

DMSO:

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

Cholic acid:

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, including any incompatibilities: Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Tergitol:

Handling: Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Spills of these organic materials on hot fibrous insulations may lead to lowering of the Autoignition temperatures possibly resulting in spontaneous combustion.

Storage: No specific requirements. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. The shelf life given is for unopened containers stored under moderate temperature conditions

DMSO:

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

Cholic acid:

Control parameters

Contains no substances with occupational exposure limit values.

Exposure controls

Appropriate engineering controls



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

Personal protective equipment

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. 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.

Eve 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

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, 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

Tergitol:

Control parameters

Exposure limits are listed below, if they exist.

ſ	Component	Regulation	Type of listing	Value/Notation
ŀ	5 1 () 1 1 1 1	HO WEEL	7,000	10 / 0
	Poly(ethylene oxide)	US WEEL	TWA aerosol	10 mg/m3

Engineering Controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Personal protective equipment:

Respiratory Protection

Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Hand protection

Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber, Chlorin ated polyethylene, Polyethylene.

Eye protection

Use chemical goggles.

Skin and body protection

Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

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	Cholic acid	Tergitol	DMSO
Appearance:	White powder	Liquid	Clear liquid
pH:	No data available	7.2	No data available
Water Solubility:	0,175 g/l at 25 °C	< 0.5 %	No data available
Other Solubility:	No data available	No data available	DMSO
Boiling Point (°C):	No data available	No data available	No data available
Melting Point (°C):	200 - 201 °C	> 200 °C (> 392 °F)	372.2 °F (189 °C)
Flash Point (°C):	No data available	No data available	64.4 °F (18 °C)
Ignition Temperature (°C):	No data available	218 °C (424 °F) ASTM D 93	188.6 °F (87.0 °C)
		closed cup	
Density:	No data available	No data available	No data available

SECTION 10: STABILITY AND REACTIVITY

Property	Cholic acid	Tergitol	DMSO
Chemical stability:	Stable under recommended storage conditions.		
Conditions to avoid:	No data available	Strong heatng	flash point. Contact with incompatible materials.
Materials to avoid:	Strong oxidizing agents, Strong acids and strong bases	Strong acids, Strong bases, Strong oxidizing agents	Strong oxidizing agents. Alkaline metals. Isocyanates



Hazardous decomposition products:

Carbon oxides (Fire condition) Carbon oxides(fire condition) None

SECTION 11: TOXICOLOGICAL INFORMATION

Cholic acid:

Acute toxicity: no data available

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available Respiratory/skin sensitization: no data available

Germ cell mutagenicity:

Carcinogenicty:

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

Signs and Symptoms of Exposure: no data available

Additional Information: no data available

Tergitol:

Acute toxicity: No data available

Skin corrosion/irritation: Mixture causes skin irritation. Serious eye damage/eye irritation: No data available

Respiratory or skin sensitization: Mixture may cause an allergic skin reaction.

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

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 Synergistic effects: No data available

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

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.

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

Additional Information: RTECS: PV6210000

SECTION 12: ECOLOGICAL INFORMATION

Cholic acid:

Persistence and degradability: no data available

Toxicity: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available Other adverse effects: no data available

Tergitol:

Toxicity: No data available

Persistence and degradability: Readily biodegradable

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

Cholic acid:

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. 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.

Tergitol:

Product: Waste material must be disposed of in accordance with the national and local regulations. No mixing with other waste.

DMSO

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

Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMTAION

Cholic acid:

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

Tergitol:

DOT (US): Not dangerous goods

IMDG: UN number: 3082 Class: 9 Packing group: III EMS-No: F-A, S-F

Proper shipping name: Environmentally hazardous substance, liquid.

Marine pollutant : yes

IATA: UN number: 3082 Class: 9 Packing group: III

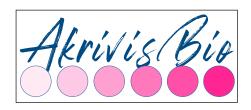
Proper shipping name: Environmentally hazardous substance, liquid.

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: <u>Dimethyl sulfoxide</u> CAS-No. 67-68-5; Revision Date: 2007-03-01; <u>CHAPS DETERGENT,10%</u>

SOLUTION, CAS-No. 75621-03-3

New Jersey Right To Know Components: <u>Dimethyl sulfoxide</u> CAS-No. 67-68-5; Revision Date: 2007-03-01; <u>CHAPS DETERGENT,10% SOLUTION</u>, CAS-No. 75621-03-3

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		
Cholic acid				
Tergitol	-	-		
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.