

SDS DATE: May 29, 2023

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Glutathione Peroxidase Activity Assay
PRODUCT CODES: Cat# MA-0137
RESTRICTIONS ON USE: For laboratory research purposes. Not for drug or household use.
MANUFACTURER: AkrivisBio, Inc.
ADDRESS: 48511 Warm Springs Blvd., Suite 213, Fremont, CA 94539
EMERGENCY PHONE: 408-739-9315
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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Component	Description	Volume	Safety Information
GPx Assay Buffer	Proprietary buffer (contains Tergitol)	50 ml	See below
NADPH (lyophilized)	Lyophilized	1 vial	No hazards
Glutathione Reductase	Liquid	1 vial	No hazards
Glutathione (GSH; lyophilized)	Lyophilized	1 vial	No hazards
Cumene Hydroperoxide	Liquid	1 vial	See below
GPx Positive Control (lyophilized)	Lyophilized	1 vial	No hazards

Tergitol:

Emergency Overview

GHS Classification: Skin irritation (Category 2), H31
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

Potential Health Effects

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.

Ingestion: Harmful if swallowed.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated

Cumene hydroperoxide:

Emergency Overview

GHS Classification: Flammable liquids (Category 4), H227

Organic peroxides (Type F), H242

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 3), H331

Acute toxicity, Dermal (Category 4), H312

Skin corrosion (Category 1B), H314

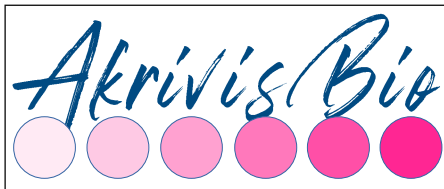
Serious eye damage (Category 1), H318

Carcinogenicity (Category 2), H351

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335


Specific target organ toxicity - repeated exposure, Inhalation (Category 2), Lungs, H373

Aspiration hazard (Category 1), H304



Short-term (acute) aquatic hazard (Category 2), H401
 Long-term (chronic) aquatic hazard (Category 2), H411

GHS Label elements, including precautionary statements

Pictogram: 

Signal word: Danger

Hazard statement(s): H227 Combustible liquid.
 H242 Heating may cause a fire.
 H302 + H312 Harmful if swallowed or in contact with skin.
 H304 May be fatal if swallowed and enters airways.
 H314 Causes severe skin burns and eye damage.
 H331 Toxic if inhaled. H335 May cause respiratory irritation.
 H351 Suspected of causing cancer. H373 May cause damage to organs (Lungs) through prolonged or repeated exposure if inhaled.
 H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s): P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
 P220 Keep/Store away from clothing/ combustible materials.
 P234 Keep only in original container.
 P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
 P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
 P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P363 Wash contaminated clothing before reuse.
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
 P391 Collect spillage.
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up.
 P410 Protect from sunlight.
 P420 Store away from other materials.
 P501 Dispose of contents/ container to an approved waste disposal plant.

HMS Classification
Health hazard:
Chronic Health Hazard:
Flammability:
Physical hazards:

NFPA Rating
Health hazard:
Fire:
Reactivity Hazard:

SECTION 3: HAZARDS IDENTIFICATION

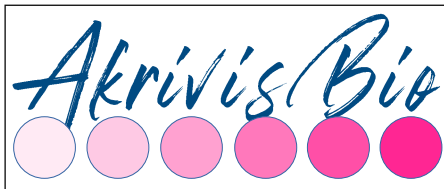
Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula	Concentration
Tergitol	84133-50-6	617-534-0	--	--	≤0.5%
Cumene hydroperoxide	80-15-9	201-254-7	152.19	C ₉ H ₁₂ O ₂	<90%

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: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
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

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

Cumene hydroperoxide:

Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Carbon oxides

Mixture with combustible ingredients.

Vapors are heavier than air and may spread along floors.

Risk of dust explosion.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

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 for cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. 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 vapor or mist. Use explosion-proof equipment. Keep away from sources of ignition (no smoking). Take measures to prevent the buildup of electrostatic charge.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: -20 °C

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Tergitol:

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Poly(ethylene oxide)	US WEEL	TWA aerosol	10 mg/m ³

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, Chlorinated 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

Cumene hydroperoxide:

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection

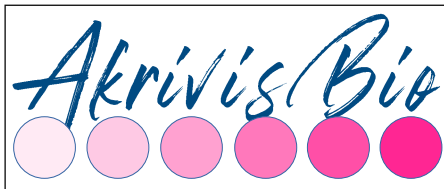
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin 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.

Body Protection

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.



Respiratory protection

Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

No special environmental precautions required

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	Tergitol	Cumene hydroperoxide
Appearance:	Liquid	liquid
pH:	7.2	No data available
Water Solubility:	< 0.5 %	soluble
Other Solubility:	No data available	No data available
Boiling Point (°C):	> 200 °C (> 392 °F)	100 - 101 °C
Melting Point (°C):	No data available	No data available
Flash Point (°C):	218 °C (424 °F) ASTM D 93 closed cup	79 °C (174 °F)
Ignition Temperature (°C):	No data available	No data available
Density:	1.027 at 20 °C (68 °F) / 20 °C	No data available

SECTION 10: STABILITY AND REACTIVITY

Property	Tergitol	Cumene hydroperoxide:
Chemical stability:	Stable under recommended storage conditions	
Conditions to avoid:	Strong heating	Heat, Flames, Sparks
Materials to avoid:	Strong acids, Strong bases, Strong oxidizing agents	Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents
Hazardous decomposition products:	Carbon oxides (fire condition)	Carbon oxides, sulfur oxides

SECTION 11: TOXICOLOGICAL INFORMATION

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

Cumene hydroperoxide:

Acute toxicity: LD50 Oral - Rat - 382 mg/kg Remarks: Kidney, Ureter, Bladder:Hematuria. (RTECS) LC50 Inhalation - Rat - male - 4 h - 1.37 mg/l Remarks: (ECHA) LD50 Dermal - Rat - male and female - 1,200 - 1,520 mg/kg Remarks: (ECHA)

Skin corrosion/irritation: Mixture causes burns.

Serious eye damage/eye irritation: Mixture causes serious eye damage. Risk of blindness!

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

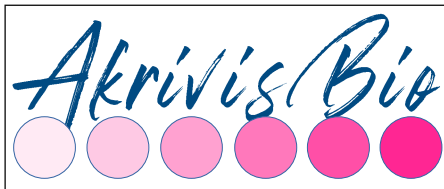
Carcinogenicity: Evidence of a carcinogenic effect.

- IARC: 2B - Group 2B: Possibly carcinogenic to humans (cumene)
- 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

Specific target organ toxicity – single exposure (GHS): Mixture may cause respiratory irritation.



Specific target organ toxicity – repeated exposure (GHS): Mixture may cause damage to organs through prolonged or repeated exposure. - Lungs

Inhalation: Causes respiratory tract irritation.

Skin: Causes skin irritation.

Eyes: Causes eye irritation.

Ingestion: Toxic if swallowed.

Signs and Symptoms of Exposure: no data available

Additional information: no data available

RTECS: MX2450000

SECTION 12: ECOLOGICAL INFORMATION

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

Cumene hydroperoxide:

Persistence and degradability: Easily biodegradable

Toxicity: Toxicity to fish semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - 3.9 mg/l - 96 h (OECD Test Guideline 203) Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 18.84 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae static test ErC50 - Desmodesmus subspicatus (green algae) - 3.1 mg/l - 72 h (OECD Test Guideline 201)

Bioaccumulative potential: Not bioaccumulative

Mobility in soil: Aqueous solution has high mobility in soil.

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: Waste material must be disposed of in accordance with the national and local regulations.

SECTION 14: TRANSPORT INFORMATION

Tergitol:

DOT (US): Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

Cumene hydroperoxide:

DOT (US): UN number: 3109 Class: 5.2 (8) Proper shipping name: Organic peroxide type F, liquid (Cumyl hydroperoxide, 80-90%)

Reportable Quantity (RQ): 11 lbs Poison Inhalation Hazard: No

IMDG: UN number: 3109 Class: 5.2 EMS-No: F-J, S-R Proper shipping name: ORGANIC PEROXIDE TYPE E, LIQUID (tert-BUTYL CUMYL PEROXIDE) Marine pollutant : yes

IATA: UN number: 3109 Class: 5.2 (HEAT, 8) Proper shipping name: Organic peroxide type F, liquid (Cumyl hydroperoxide) Special Provisions: "Keep away from heat" label required.

SECTION 15: REGULATORY INFORMATION

SARA 302 Components: SARA 302: The following components are subject to reporting levels established by SARA Title III, Section 302

SARA 313 Components: The following components are subject to reporting levels established by SARA Title II, Section 313:


Cumene hydroperoxide CAS-No. 80-15-9 Revision Date 1993-04-24

SARA 311/312 Hazards: Cumene hydroperoxide Fire Hazard, Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components: No data available

Pennsylvania Right To Know Components: No data available

New Jersey Right To Know Components: No data available

California Prop. 65 Components:  **WARNING:** This product can expose you to chemicals including Cumene which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

EU regulations:

Component	Risk Phrases	Safety Phrases
Tergitol	--	--
Cumene hydroperoxide	--	--

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.