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## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Alanine Aminotransferase (ALT) Assay  
**PRODUCT CODES:** Cat# MA-0116  
**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:**  
**FAX PHONE:**  
**EMAIL:** [sds@akrivisbio.com](mailto:sds@akrivisbio.com)

## SECTION 2: HAZARDS IDENTIFICATION

Component	Description	Volume	Safety Information
Assay Buffer	Proprietary (contains Tergitol)	25 ml	See Below
ADHP Solution	Proprietary (contains DMSO)	200 µl	See below
Pyruvate Oxidase/Peroxidase	Lyophilized (Contains HRP)	1 vial	See Below
Alanine/α-ketoglutarate	Lyophilized	1 vial	No hazards
Pyruvate Standard (100 nmol/µl)	Liquid (contains sodium pyruvate)	100 µl	See below
ALT Positive Control (lyophilized)	Lyophilized (contains BSA)	1 vial	See below

### Tergitol:

#### 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

#### 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

### DMSO:

#### Emergency Overview

**OSHA Hazards:** Combustible liquid, Target organ effect

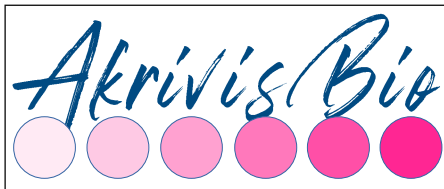
**Target Organs:** Eyes, Skin

**GHS Classification:** Flammable liquids (Category 4)

#### GHS Label elements, including precautionary statements

**Pictogram:**





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**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.

**Horseradish Peroxidase (HRP):**

**Emergency Overview**

**Classification according to Regulation (EC) No 1272/2008 [CLP]:**

**GHS Classification:** Respiratory Sensitization, Category 1

**GHS Label elements, including precautionary statements**

**Pictogram:**



**Signal word:** Danger  
**Hazard statement(s):** H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled  
**Precautionary statement(s):** P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.  
P284: {In case of inadequate ventilation, }wear respiratory protection { }.  
P304+341: IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.  
P342+311: If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.

**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.

**Sodium pyruvate:**

**Emergency Overview**

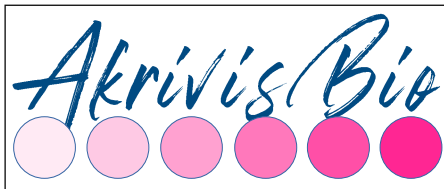
**GHS Classification:** Eye irritation (Category 2A), H319  
Skin sensitization (Sub-category 1B), H317

**GHS Label elements, including precautionary statements**

**Pictogram:**



**Signal word:** Warning  
**Hazard statement(s):** H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
**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.  
P280 Wear protective gloves/ eye protection/ face protection.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.



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P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P363 Wash contaminated clothing before reuse.  
P501 Dispose of contents/ container to an approved waste disposal plant.

#### 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.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC.No.	Molecular weight	Chemical Formula	Concentration
Tergitol	84133-50-6	617-534-0	--	--	≤0.5%
DMSO	67-68-5	200-664-3	78.13	C <sub>2</sub> H <sub>6</sub> OS	≤99%
HRP	9003-99-0	232-668-6	--	--	<5%
Sodium pyruvate	113-24-6	204-024-4	110.04	C <sub>3</sub> H <sub>3</sub> NaO <sub>3</sub>	<2%

### SECTION 4: FIRST AID MEASURES

**General advice:** : First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**If inhaled:** Move person to fresh air; if effects occur, consult a physician.

**In case of skin contact:** Immediately flush skin with water while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Contaminated leather items such as shoes should be disposed of properly. Safety shower should be located in immediate work area.

**In case of eye contact:** : Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Eye wash fountain should be located in immediate work area.

**If swallowed:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Notes to physician:** Maintain adequate ventilation and oxygenation of the patient. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient

### 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 fire fighting clothing (includes fire fighting 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.

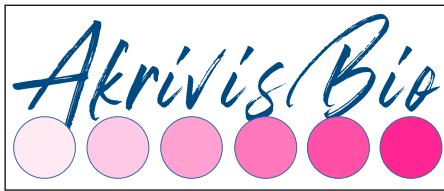
#### **Sodium pyruvate:**

**Suitable extinguishing media:** Water Foam Carbon dioxide (CO<sub>2</sub>) 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, Sodium oxides Combustible. Development of hazardous combustion gases or vapors 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.



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**Further information:** Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**Horseradish Peroxidase (HRP):**

**Suitable extinguishing media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.

**Unsuitable extinguishing media:** A solid water stream may be inefficient.

**Special protective equipment for fire fighters:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

**Further information:** No data available

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**SECTION 6: ACCIDENTAL RELEASE MEASURES**

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**Tergitol:**

**Personal precautions, protective equipment and emergency procedures:** isolate 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.

**Horseradish Peroxidase (HRP), Sodium pyruvate:**

**Personal precautions, Protective equipment and emergency procedures:** Avoid raising and breathing dust, and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

**Environmental precautions:** Take steps to avoid release into the environment, if safe to do so.

**Methods for cleaning up:** Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations

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**SECTION 7: HANDLING AND STORAGE**

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**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

**Sodium pyruvate:**

**Handling:** Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid prolonged or repeated exposure.

**Storage:** Recommended storage temperature 2 - 8 °C Storage class (TRGS 510): 13: Non Combustible Solids

**Horseradish Peroxidase (HRP):**

**Precautions for safe handling:** Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid prolonged or repeated exposure.

**Conditions for safe storage:** Keep container tightly closed. Store in accordance with information listed on the product insert

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**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

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**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/m3

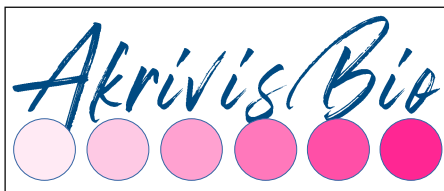
**Engineering Controls:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

**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**



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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

**DMSO:**

Components	CAS-No.	Value	Control parameters	Basis
Dimethyl sulfoxide	67-68-5	TWA	250 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

**Horseradish Peroxidase (HRP):**

**Personal protective equipment:**

**Respiratory Protection**

NIOSH approved respirator, as conditions warrant

**Hand protection**

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

**Eye protection**

Compatible chemical-resistant gloves

**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

**Sodium pyruvate:**

**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**

**Eye/face 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 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

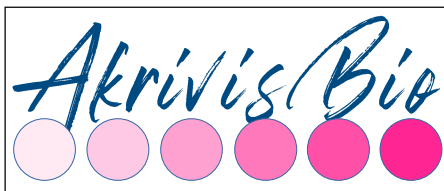
**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

Property	Tergitol	DMSO	HRP	Sodium pyruvate
<b>Appearance:</b>	Liquid	Clear liquid	Solid	White powder
<b>pH:</b>	7.2	No data available	No data available	7
<b>Water Solubility:</b>	< 0.5 %	No data available	No data available	1.78 g/cm <sup>3</sup> at 20 °C (68 °F)
<b>Other Solubility:</b>	No data available	DMSO	~5 mg/ml in 0.1 M potassium phosphate buffer, pH 6.0;	No data available
<b>Specific Gravity (g/ml):</b>	No data available	No data available	No data available	No data available
<b>Boiling Point (°C):</b>	> 200 °C (> 392 °F)	No data available	No data available	No data available
<b>Melting Point (°C):</b>	No data available	372.2 °F (189 °C)	No data available	> 300 °C (> 572 °F)
<b>Flash Point (°C):</b>	218 °C (424 °F) ASTM D 93 closed cup	64.4 °F (18 °C)	No data available	No data available
<b>Ignition Temperature (°C):</b>	No data available	188.6 °F (87.0 °C)	No data available	No data available
<b>Density</b>	1.027 at 20 °C (68 °F) / 20 °C	No data available	No data available	No data available

**SECTION 10: STABILITY AND REACTIVITY**

Property	Tergitol	DMSO	HRP	Sodium pyruvate
<b>Chemical stability</b>	Stable under recommended storage conditions			
<b>Conditions to avoid:</b>	Strong heating	flash point. Contact with incompatible materials	No data available	No data available
<b>Materials to avoid:</b>	Strong acids, Strong bases, Strong oxidizing agents	Strong oxidizing agents. Alkaline metals. Isocyanates	No data available	Strong oxidizing agents





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<b>Hazardous decomposition products:</b>	Carbon oxides (fire condition)	No data available	No data available	Carbon oxides, Sodium oxides
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**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

**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

**Horseradish Peroxidase (HRP):**

**Acute toxicity:** No data available

**Skin corrosion/irritation:** No data available

**Serious eye damage/eye irritation:** No data available

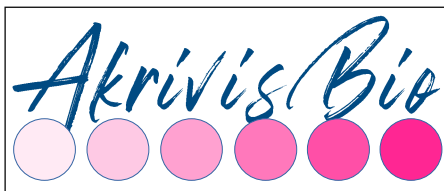
**Respiratory or skin sensitization:** May cause allergy or asthma symptoms or breathing difficulties if inhaled

**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.



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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

**Sodium pyruvate:**

**Acute toxicity:** No data available  
**Skin corrosion/irritation:** Skin - reconstructed human epidermis (RhE) Result: No skin irritation - 42 min (OECD Test Guideline 439)  
**Serious eye damage/eye irritation:** Eyes - In vitro study Result: Causes serious eye irritation. - 6 h (OECD Test Guideline 492)  
**Respiratory or skin sensitization:** Local lymph node assay (LLNA) – Mouse Result: positive (OECD Test Guideline 429)  
**Germ cell mutagenicity:** No data available Ames test Escherichia coli/Salmonella typhimurium Result: negative

**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:** Repeated dose toxicity - Rat - male and female – Inhalation  
RTECS: Not available

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**SECTION 12: ECOLOGICAL INFORMATION**

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**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

**Sodium pyruvate:**

**Toxicity:** No data available  
**Persistence and degradability:** Biodegradability aerobic - Exposure time 28 d Result: 81.6 % - Readily biodegradable. (OECD Test Guideline 301D)  
**Bioaccumulative potential:** No data available  
**Mobility in soil:** No data available  
**PBT and vPvB assessment:** No data available  
**Other adverse effects:** Discharge into the environment must be avoided.

**Horseradish Peroxidase (HRP):**

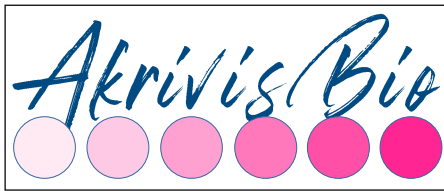
**Toxicity:** Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.  
**Persistence and degradability:** No data available  
**Toxicity:** No data available  
**Bio accumulative potential:** No data available  
**Mobility in soil:** No data available  
**PBT and vPvB assessment:** No data available

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**SECTION 13: DISPOSAL CONSIDERATIONS**

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**Tergitol:**



SDS DATE: May 29, 2023

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

**DMSO:**

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

**Contaminated packaging:** Dispose of as unused product.

**Sodium pyruvate:**

**Product:** Waste material must be disposed of in accordance with the national and local No mixing with other waste. Handle uncleaned containers like the product. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

**Horseradish Peroxidase (HRP):**

**Waste Disposal Method:** Dispose in accordance with local, state, and federal regulations

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**SECTION 14: TRANSPORT INFORMATION**

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**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.

**Horseradish Peroxidase (HRP), Sodium pyruvate:**

**DOT (US):** Not dangerous goods

**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: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title II, 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; Pyruvic acid sodium salt CAS-No.113-24-6 Revision Date

**New Jersey Right To Know Components:** Dimethyl sulfoxide CAS-No. 67-68-5; Revision Date: 2007-03-01; Pyruvic acid sodium salt CAS-No.113-24-6 Revision Date

**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:** This product is not classified according to the EU regulations.

Component	Risk Phrases	Safety Phrases
Tergitol	--	--
DMSO	--	--
HRP	--	--
Sodium pyruvate	--	--

**Regulatory Information Statement:** This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

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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.