



SDS DATE: August 28, 2023

**SECTION 1: PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME:** CytoFrac Cell Fractionation Kit  
**PRODUCT CODES:** Cat# PI-0106  
**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 |
|-------------------------------|--|--------|--------------------|
| Cytosolic Extraction Buffer   | Proprietary Buffer                     | 25 ml  | No hazards         |
| Membranes Extraction Buffer A | Proprietary Buffer                     | 22 ml  | No hazards         |
| Membranes Extraction Buffer B | Proprietary Buffer (Tergitol 15-S-9)   | 1.5 ml | See below          |
| Nuclear Extraction Buffer     | Proprietary Buffer (contains glycerol) | 12 ml  | See below          |
| DTT                           | DTT                                    | 150 µl | See below          |
| Proteinase Inhibitor Cocktail | contains PMSF                          | 1 vial | See below          |

**TERGITOL™, 15-S-9, MEGAPURE™, DETERGENT 10% SOLUTION:**

**Emergency Overview**

**GHS Classification:**

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

**GHS Label elements, including precautionary statements**

Pictogram:



Signal word: Danger

**GHS Hazard statement(s):**

H315 Causes skin irritation.

H318 Causes serious eye damage.

**GHS Precautionary statement(s):**

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/ eye protection/ face protection.

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

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.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

**HMIS Classification**

Health hazard: 2

Chronic health hazard: 0

Flammability: 0

Physical hazards: 0

**NFPA Rating**

Health Hazard: 2

Fire: 0

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.

**Glycerol:**

**Emergency Overview**

**OSHA Hazards:** Target organ effect

**Target Organs:** Kidney

**GHS Classification:** Skin irritation (Category 3)  
Eye irritation (Category 2B)

**GHS Label elements, including precautionary statements**

**Pictogram:** none

**Signal word:** none

**Hazard statement(s):** none

48511 Warm Springs Blvd. # 213, Fremont, CA 94539

+1(408)739-9315

[contact@akrivisbio.com](mailto:contact@akrivisbio.com)



**Precautionary statement(s):** none

**HMIS Classification**

Health hazard: 1  
Chronic Health Hazard: \*  
Flammability: 1  
Physical hazards: 0

**NFPA Rating**

Health hazard: 1  
Fire: 1  
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.

**DTT:**

**Emergency Overview**

**OSHA Hazards:** Target organ effect, Toxic by ingestion, Irritant

**Target Organs:** Central nervous system

**GHS Classification:** Acute toxicity, Oral (Category 5)  
Skin irritation (Category 2)  
Eye irritation (Category 2A)

**GHS Label elements, including precautionary statements**

**Pictogram:**



**Signal word:**

Warning

**Hazard statement(s):**

H303 May be harmful if swallowed  
H315 Causes skin irritation  
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: 2  
Chronic Health Hazard: \*  
Flammability: 0  
Physical hazards: 0

**NFPA Rating**

Health hazard: 2  
Fire: 0  
Reactivity Hazard: 0

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.  
**Skin:** May be harmful if absorbed through skin. Causes skin irritation.  
**Eyes:** Causes eye irritation.  
**Ingestion:** Toxic if swallowed.

**PMSF:**

**Emergency Overview**

**Synonyms:**  $\alpha$ -Toluenesulphonyl fluoride, phenylmethylsulfonyl fluoride, Benzylsulfonyl fluoride

**OSHA Hazards:** acute toxicity, skin corrosion, serious eye damage

**GHS Classification:** Acute toxicity (Category 3)  
Serious eye damage (Category 1)  
Skin irritation (Category 1B)

**GHS Label elements, including precautionary statements**

**Pictogram:**



**Signal word:**

Danger

**Hazard statement(s):**

H302: Toxic if swallowed.  
H314 Causes severe skin burns and eye damage.

**Precautionary statement(s):**

P260 Do not breathe dust or mist.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.  
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER or doctor/ physician.  
P363 Wash contaminated clothing before reuse..



**HMIS Classification**

Health hazard: 2  
 Flammability: 0  
 Physical hazards: 0

**NFPA Rating**

Health Hazard: 2  
 Fire: 0  
 Reactivity Hazard: 0

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled.  
**Skin:** Causes skin corrosion.  
**Eyes:** Causes serious eye damage.  
**Ingestion:** May be harmful if swallowed.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

| Component            | CAS Number | EC-No.    | Molecular Weight | Chemical Formula   |
|----------------------|------------|-----------|------------------|--|
| Tergitol 15-S-9, 10% | 84133-50-6 | 617-534-0 | --               | --   |
| Glycerol             | 56-81-5    | 200-289-5 | 92.09            | HOCH <sub>2</sub> CH(OH)CH <sub>2</sub> OH                   |
| DTT                  | 3483-12-3  | 222-468-7 | 154.25           | C <sub>4</sub> H <sub>10</sub> O <sub>2</sub> S <sub>2</sub> |
| PMSF                 | 329-98-6   | 206-350-2 | 174.19           | C <sub>7</sub> H <sub>7</sub> FO <sub>2</sub> S              |

**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. Take victim immediately to hospital. Consult a physician.

**In case of eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed:** DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**5: FIRE-FIGHTING MEASURES**

**Condition of flammability:** Not flammable or combustible.

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

**Special protective equipment for fire-fighters:** Wear self-contained breathing apparatus for firefighting if necessary.

**Hazardous combustion products:** Hazardous combustion products formed under fire conditions— not data available.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Personal precautions:** Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

**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:** Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations. Keep in suitable, closed containers for disposal.

**SECTION 7: HANDLING AND STORAGE**

**PMSF:**

**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**

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

Moisture sensitive.

Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials.

Recommended storage temperature: -20 °C

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

**Glycerol:**

| Components | CAS-No.  | Value | Control parameters   | Basis  |
|------------|--|-------|----------------------|--|
| Glycerol   | 56-81-5  | TWA   | 10 mg/m <sup>3</sup> | USA. OSHA – TABLE Z-1 Limits for Air Contaminants – 1910.1000                    |
|            |  | TWA   | 5 mg/m <sup>3</sup>  | USA. OSHA – TABLE Z-1 Limits for Air Contaminants – 1910.1000                    |
|            |  | TWA   | 10 mg/m <sup>3</sup> | USA. ACGIH Threshold Limit Values (TLV)  |
| Remarks:   | Upper Respiratory Tract Irritation                   |       |                      |  |
|            |  | TWA   | 15 mg/m <sup>3</sup> | USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants |
|            |  | TWA   | 5 mg/m <sup>3</sup>  | USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants |
|            | See Appendix D – Substances with no established RELs |       |                      |  |

**DTT:**



Contains no substances with occupational exposure limit values.

**Personal protective equipment**

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. 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.

**Eye protection**

Tightly fitting safety goggles. Face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**

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

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

| Property                          | Tergitol 15-S-9, 10% | Glycerol          | DTT                     | PMSF              |
|-----------------------------------|----------------------|-------------------|-------------------------|-------------------|
| <b>Appearance:</b>                | Liquid               | Clear liquid      | Clear powder            | white crystals    |
| <b>pH:</b>                        | No data available    | 5.5-8             | 3.0-5.0                 | No data available |
| <b>Water Solubility:</b>          | No data available    | Soluble           | Highly soluble          | No data available |
| <b>Other Solubility:</b>          | No data available    | No data available | No data available       | No data available |
| <b>Boiling Point (°C):</b>        | No data available    | 182 °C (360 °F)   | No data available       | No data available |
| <b>Melting Point (°C):</b>        | No data available    | 20 °C (68 °F)     | No data available       | 92°C              |
| <b>Flash Point (°C):</b>          | No data available    | 160 °C (320 °F)   | No data available       | No data available |
| <b>Ignition Temperature (°C):</b> | No data available    | 370 °C (698 °F)   | No data available       | No data available |
| <b>Density:</b>                   | 1.006 g/ml           | 1.25 g/ml         | 1.035 g/cm <sup>3</sup> | No data available |

**SECTION 10: STABILITY AND REACTIVITY**

| Property                                 | Tergitol 15-S-9, 10%                                | Glycerol                              | DTT   | PMSF   |
|--|---|---------------------------------------|---|--|
| <b>Chemical stability:</b>               | Stable under recommended storage conditions         |                                       |   |  |
| <b>Conditions to avoid:</b>              | Strong heating                                      | No Data Available                     |   |  |
| <b>Materials to avoid:</b>               | Strong acids, strong bases, strong oxidizing agents | Strong bases, strong oxidizing agents | Bases, oxidizing agents, reducing agents, alkali metals | Strong oxidizing agents, Strong bases, acids |
| <b>Hazardous decomposition products:</b> | No data available                                   | Carbon oxides                         | Carbon oxides, sulfur oxides, hydrogen sulfide gas      | Contact with acids liberates toxic gas       |

**SECTION 11: TOXICOLOGICAL INFORMATION**

**Tergitol 15-S-9, 10% Solution**

**Acute toxicity:** no data available

**Skin corrosion/irritation:** Irritating to skin.

**Serious eye damage/eye irritation:** severe eye irritation.

**Respiratory or skin sensitization:** Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

**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

**Teratogenicity:** no data available

**Specific target organ toxicity – single exposure (GHS):** The substance or mixture is not classified as specific target organ toxicant, single exposure. Acute oral toxicity - Irritations of mucous membranes in the mouth, pharynx, esophagus and gastrointestinal tract..

**Specific target organ toxicity – repeated exposure (GHS):** no data available

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.



**Skin:** Harmful if absorbed through skin. Causes skin irritation.  
**Eyes:** Causes eye irritation.  
**Ingestion:** Harmful if swallowed.

**Glycerol:**

**Acute toxicity:** LD50 Dermal – rabbit – >10,000 mg/kg

**Irritation and corrosion:** no data available

**Sensitization:** no data available

**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

**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.

**Additional information:** RTECS: MA8050000

**DTT:**

**Acute toxicity:** no data available

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

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

**Respiratory or skin sensitization:** no data available

**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

**Teratogenicity:** no data available

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** May be harmful if absorbed through skin. Causes skin irritation.

**Eyes:** Causes eye irritation.

**Ingestion:** Toxic if swallowed.

**Signs and Symptoms of Exposure:** Exposure may cause central nervous system depression. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects:** no data available

**Additional information:** RTECS: not available

**PMSF:**

**Acute toxicity:** LD50 Oral - Mouse - 200 mg/kg

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

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

**Respiratory or skin sensitization:** no data available

**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

**Teratogenicity:** 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

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** Harmful if absorbed through skin. Causes skin irritation.

**Eyes:** Causes eye irritation.



**Ingestion:** Harmful if swallowed.

**Signs and Symptoms of Exposure:** To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects:** no data available

**Additional information:** RTECS: XT8040000

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## SECTION 12: ECOLOGICAL INFORMATION

**Tergitol™, 15-S-9, 10%:** Persistence and degradability: Biodegradability Result: > 60 % - Readily biodegradable. (OECD Test Guideline 301F)

**Toxicity:** No data available

**Mobility in soil:** no data available

**PBT and vPvB assessment:** no data available

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life

### **PMSF**

**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

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## SECTION 13: DISPOSAL CONSIDERATIONS

**Product:** Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

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

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## SECTION 14: TRANSPORT INFORMATION

### **Glycerol & DTT:**

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

**IMDG:** Not dangerous goods

**IATA:** Not dangerous goods.

### **PMSF:**

**DOT (US):** UN number: 2928                      Class: 6.1 (8)                      Packing group: II

Proper shipping name: Toxic solids, corrosive, organic, n.o.s. ( $\alpha$ -Toluenesulphonyl fluoride)

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

**IMDG:** UN number: 2928                      Class: 6.1 (8)                      Packing group: II                      EMS-No: F-A, S-B

Proper shipping name: TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. ( $\alpha$ -Toluenesulphonyl fluoride)

**IATA:** UN number: 2928                      Class: 6.1 (8)                      Packing group: II

Proper shipping name: Toxic solid, corrosive, organic, n.o.s. ( $\alpha$ -Toluenesulphonyl fluoride)

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## SECTION 15: REGULATORY INFORMATION

### **OSHA Hazards:**

**Glycerol:** Target organ effect

**DTT:** Target organ effect, Toxic by ingestion, Irritant

**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:** **Tergitol 15-S-9:** Acute Health Hazard

**DTT:** Acute Health Hazard, Chronic Health Hazard

**Glycerol:** Chronic Health Hazard

**Massachusetts Right To Know Components:** **Glycerol**, CAS-No. 56-81-5; Revision Date: 2007-03-01

**Pennsylvania Right To Know Components:** **Glycerol**, CAS-No. 56-81-5; Revision Date: 2007-03-01

**DTT**, CAS-No. 3483-12-3

**$\alpha$ -Toluenesulphonyl fluoride**: CAS-No. 329-98-6

**New Jersey Right To Know Components:** **Glycerol**, CAS-No. 56-81-5; Revision Date: 2007-03-01

**DTT**, CAS-No. 3483-12-3

**$\alpha$ -Toluenesulphonyl fluoride**: CAS-No. 329-98-6

**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      |
|-----------|--------------|---------------------|
| Glycerol  | --           | S24/25              |
| DTT       | R20/21/22    | S2, S46             |
| PMSF      | R25, R34     | S26, S36/37/39, S45 |

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## 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.