SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Yeast Nuclei Isolation Kit

PRODUCT CODES: Cat. # K289-50

MANUFACTURER: BioVision, Inc.
ADDRESS: 155 S. Milpitas Boulevard, Milpitas, CA 95035

EMERGENCY PHONE: 858-373-8066
CHEMTREC PHONE: OTHER CALLS: 408-493-1800
FAX PHONE: 408-493-1801

SECTION 2: HAZARDS IDENTIFICATION

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Volume</th>
<th>Safety Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer A</td>
<td>Proprietary Buffer</td>
<td>50 ml</td>
<td>No hazards</td>
</tr>
<tr>
<td>Buffer B</td>
<td>Proprietary Buffer</td>
<td>50 ml</td>
<td>No hazards</td>
</tr>
<tr>
<td>DTT</td>
<td>1 M in H₂O</td>
<td>1 ml</td>
<td>See below</td>
</tr>
<tr>
<td>Lysis Enzyme Mix</td>
<td>Liquid</td>
<td>500 μl</td>
<td>No hazards</td>
</tr>
<tr>
<td>Buffer N</td>
<td>Proprietary Buffer</td>
<td>90 ml</td>
<td>No hazards</td>
</tr>
<tr>
<td>Protease Inhibitor Cocktail</td>
<td>Lyophilized</td>
<td>22 mg</td>
<td>See below</td>
</tr>
</tbody>
</table>

**DTT:**

Emergency Overview
OSHA Hazards: Target organ effect, Harmful by ingestion, Irritant
Target Organs: Central nervous system
GHS Classification: Acute toxicity, Oral (Category 4)
Skin irritation (Category 2)
Eye irritation (Category 2A)

GHS Label elements, including precautionary statements
Pictogram:

Signal word: Warning
Hazard statement(s):
H302 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: Harmful if swallowed.

PMSF:
Emergency Overview
Synonyms: α-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
SAFETY DATA SHEET
Cat# K289-50, Yeast Nuclei Isolation Kit
SDS DATE: 16APR2015

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

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>EC-No.</th>
<th>Molecular Weight</th>
<th>Chemical Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTT</td>
<td>3483-12-3</td>
<td>222-468-7</td>
<td>154.25</td>
<td>C₉H₂₀O₂S₂</td>
</tr>
<tr>
<td>PMSF</td>
<td>329-98-6</td>
<td>206-350-2</td>
<td>174.19</td>
<td>C₇H₇FO₂S</td>
</tr>
</tbody>
</table>

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. 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
Suitable extinguishing media: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.
Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.
Hazardous combustion products: Hazardous decomposition products formed under fire conditions –see section 10.
Further information: Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES
Personal precautions: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
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
PMSF:
Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result
SAFETY DATA SHEET
Cat# K289-50, Yeast Nuclei Isolation Kit

Conditions for 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:

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>56-81-5</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>USA. American Conference of Governmental and Industrial Hygienists; Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004; Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs).</td>
</tr>
</tbody>
</table>

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
Face shield and safety glasses. 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

<table>
<thead>
<tr>
<th>Property</th>
<th>PMSF</th>
<th>DTT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>white crystals</td>
<td>Clear liquid</td>
</tr>
<tr>
<td>pH:</td>
<td>No data available</td>
<td>3.0-5.0</td>
</tr>
<tr>
<td>Water Solubility:</td>
<td>No data available</td>
<td>Highly soluble</td>
</tr>
<tr>
<td>Other Solubility:</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point (°C):</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting Point (°C):</td>
<td>92°C</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point (°C):</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Ignition Temperature (°C):</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Density:</td>
<td>No data available</td>
<td>1.035 g/cm³</td>
</tr>
</tbody>
</table>

SECTION 10: STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>PMSF</th>
<th>DTT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability:</td>
<td>Stable under recommended storage conditions</td>
<td>Stable under recommended storage conditions</td>
</tr>
<tr>
<td>Conditions to avoid:</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Materials to avoid:</td>
<td>Strong oxidizing agents, Strong bases, acids</td>
<td>Bases, oxidizing agents, reducing agents, alkali metals</td>
</tr>
<tr>
<td>Hazardous decomposition products:</td>
<td>Contact with acids liberates toxic gas</td>
<td>Carbon oxides, sulfur oxides, hydrogen sulfide gas</td>
</tr>
</tbody>
</table>

SECTION 11: TOXICOLOGICAL INFORMATION

DTT:
SAFETY DATA SHEET
Cat# K289-50, Yeast Nuclei Isolation Kit           SDS DATE: 16APR2015

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: Harmful 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

SECTION 12: ECOLOGICAL INFORMATION
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

SECTION 13: DISPOSAL CONSIDERATIONS
Product: Observe all federal, state, and local environmental regulations.
Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

DTT:
SAFETY DATA SHEET
Cat# K289-50, Yeast Nuclei Isolation Kit           SDS DATE: 16APR2015
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. (α-Toluenesulphonyl fluoride)
Reportable Quantity (RQ): Poison Inhalation Hazard: No
IMDG: UN number: 2928   Class: 6.1 (8)   Packing group: II
Proper shipping name: TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. (α-Toluenesulphonyl fluoride)
IATA: UN number: 2928   Class: 6.1 (8)   Packing group: II
Proper shipping name: Toxic solid, corrosive, organic, n.o.s. (α-Toluenesulphonyl fluoride)

SECTION 15: REGULATORY INFORMATION

OSHA Hazards: DTT: Target organ effect, Harmful by ingestion, Irritant
PMSF: Target organ effect, Toxic by ingestion, Corrosive
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: DTT & PMSF: Acute Health Hazard, Chronic Health Hazard
Massachusetts Right To Know Components: Glycerol, CAS-No. 56-81-5; Revision Date: 2007-03-01
Pennsylvania Right To Know Components: DTT, CAS-No. 3483-12-3
PMSF, CAS-No. 329-98-6
New Jersey Right To Know Components: DTT, CAS-No. 3483-12-3
PMSF, 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

<table>
<thead>
<tr>
<th>Component</th>
<th>Risk Phrases</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTT</td>
<td>R22, R36/37/38</td>
<td>S26, S36</td>
</tr>
<tr>
<td>PMSF</td>
<td>R34</td>
<td>S26, S36/37/39, S45</td>
</tr>
</tbody>
</table>

SECTION 16: OTHER INFORMATION

OTHER INFORMATION:
PREPARATION 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. BioVision, 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.