SAFETY DATA SHEET

1. Identification

Product identifier: Tissue-Tek Xpress® Pre-Processing Solution
Other means of identification: 7115
Product code: 7115
Recommended use: Tissue-Tek Xpress® Rapid Tissue Processor
Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information
Manufacturer/Supplier: Sakura Finetek USA Inc.
Address: 1750 West 214th St.
Torrance, CA 90501
Telephone: 1-310-972-7800
Emergency phone number: CHEMTREC: 1-800-424-9300
Email: SDSsupport@sakuraus.com

2. Hazard(s) identification

Physical hazards: Flammable liquids Category 2
Health hazards: Serious eye damage/eye irritation Category 2A
Specific target organ toxicity, single exposure Category 3 narcotic effects

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger
Hazard statement: Highly flammable liquid and vapor. Causes serious eye irritation. May cause drowsiness or dizziness.

Precautionary statement
Prevention: Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Keep container tightly closed. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash hands thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/eye protection/face protection.

Response: If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. If eye irritation persists: Get medical advice/attention. In case of fire: Use appropriate media to extinguish.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.

Supplemental information: None.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary #1</td>
<td>Proprietary</td>
<td>Proprietary</td>
</tr>
</tbody>
</table>
4. First-aid measures

**Inhalation**
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

**Skin contact**
Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.

**Eye contact**
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Ingestion**
Rinse mouth. Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed**
- Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

**Indication of immediate medical attention and special treatment needed**
Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

**General information**
If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

**Suitable extinguishing media**
Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
Highly flammable liquid and vapor.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**
Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

**Environmental precautions**
Avoid discharge into drains, water courses or onto the ground.
7. Handling and storage

**Precautions for safe handling**

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes. Avoid prolonged exposure. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

**Occupational exposure limits**

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary #1 (CAS Proprietary)</td>
<td>PEL</td>
<td>2400 mg/m³</td>
</tr>
<tr>
<td>Proprietary #2 (CAS Proprietary)</td>
<td>PEL</td>
<td>1000 ppm</td>
</tr>
<tr>
<td>Proprietary #2 (CAS Proprietary)</td>
<td>PEL</td>
<td>980 mg/m³</td>
</tr>
</tbody>
</table>

**US. ACGIH Threshold Limit Values**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary #1 (CAS Proprietary)</td>
<td>STEL</td>
<td>750 ppm</td>
</tr>
<tr>
<td>Proprietary #2 (CAS Proprietary)</td>
<td>TWA</td>
<td>500 ppm</td>
</tr>
<tr>
<td>Proprietary #2 (CAS Proprietary)</td>
<td>STEL</td>
<td>400 ppm</td>
</tr>
<tr>
<td>Proprietary #2 (CAS Proprietary)</td>
<td>TWA</td>
<td>200 ppm</td>
</tr>
</tbody>
</table>

**US. NIOSH: Pocket Guide to Chemical Hazards**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary #1 (CAS Proprietary)</td>
<td>TWA</td>
<td>590 mg/m³</td>
</tr>
<tr>
<td>Proprietary #2 (CAS Proprietary)</td>
<td>STEL</td>
<td>1225 mg/m³</td>
</tr>
<tr>
<td>Proprietary #2 (CAS Proprietary)</td>
<td>TWA</td>
<td>500 ppm</td>
</tr>
<tr>
<td>Proprietary #2 (CAS Proprietary)</td>
<td>TWA</td>
<td>980 mg/m³</td>
</tr>
</tbody>
</table>

**US. Workplace Environmental Exposure Level (WEEL) Guides**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide (CAS 67-68-5)</td>
<td>TWA</td>
<td>250 ppm</td>
</tr>
</tbody>
</table>

**Biological limit values**

**ACGIH Biological Exposure Indices**

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Determinant</th>
<th>Specimen</th>
<th>Sampling Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary #1 (CAS Proprietary)</td>
<td>50 mg/l</td>
<td>Acetone</td>
<td>Urine</td>
<td>*</td>
</tr>
<tr>
<td>Proprietary #2 (CAS Proprietary)</td>
<td>40 mg/l</td>
<td>Acetone</td>
<td>Urine</td>
<td>*</td>
</tr>
</tbody>
</table>

* - For sampling details, please see the source document.
Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

Eye/face protection

- Wear safety glasses with side shields (or goggles).

Skin protection

- Wear appropriate chemical resistant gloves.

Hand protection

- Wear suitable protective clothing.

Respiratory protection

- Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards

- Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

- Clear pale green liquid

Physical state

- Liquid.

Form

- Liquid.

Color

- Pale green

Odor

- Mild odor.

Odor threshold

- Not available.

pH

- Not available.

Melting point/freezing point

- Not available.

Initial boiling point and boiling range

- 142.9 °F (61.61 °C) by ASTM D-86

Flash point

- < 50.0 °F (< 10.0 °C) ASTM Method D-93

Evaporation rate

- Not available.

Flammability (solid, gas)

- Not applicable.

Upper/lower flammability or explosive limits

- Flammability limit - lower (%): 2.5%
- Flammability limit - upper (%): 12%
- Explosive limit - lower (%): Not available.
- Explosive limit - upper (%): Not available.

Vapor pressure

- ASTM method: 4.99 psi (258.0 mm Hg)
- CARB equation: 4.86 psi (251.3 mm Hg)
- EPA method: 5.14 psi (265.7 mm Hg)

Vapor density

- Not available.

Relative density

- 0.864 @ 15 °C ASTM D-1298

Solubility(ies)

- Solubility (water): Soluble

Partition coefficient (n-octanol/water)

- Not available.

Auto-ignition temperature

- 750 °F (398.89 °C)

Decomposition temperature

- Not available.

Viscosity

- Not available.

Other information

- Explosive properties: Not explosive.
Flammability class: IB
Oxidizing properties: Not oxidizing.
VOC (Weight %): 73.8 % by weight SCAQMD method

10. Stability and reactivity
Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability: Material is stable under normal conditions.
Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.
Conditions to avoid: Avoid heat, sparks, open flames and other ignition sources. Contact with incompatible materials.
Hazardous decomposition products: Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

11. Toxicological information
Information on likely routes of exposure
Inhalation: May cause drowsiness and dizziness.
Skin contact: Prolonged skin contact may cause temporary irritation.
Eye contact: Causes serious eye irritation.
Ingestion: Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics
Headache. May cause drowsiness and dizziness. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Information on toxicological effects
Acute toxicity: Narcotic effects.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary #1 (CAS Proprietary)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Dermal</td>
<td>Rabbit</td>
<td>20 ml/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td>Rat</td>
<td>50 mg/l, 8 Hours</td>
</tr>
<tr>
<td>LC50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>5800 mg/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proprietary #2 (CAS Proprietary)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Dermal</td>
<td>Rabbit</td>
<td>12800 mg/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>4.7 g/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Prolonged skin contact may cause temporary irritation.</td>
<td></td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Causes serious eye irritation.</td>
<td></td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>Not a respiratory sensitizer.</td>
<td></td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>This product is not expected to cause skin sensitization.</td>
<td></td>
</tr>
<tr>
<td>Skin sensitization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.</td>
<td></td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.</td>
<td></td>
</tr>
</tbody>
</table>

IARC Monographs. Overall Evaluation of Carcinogenicity
Not listed.
NTP Report on Carcinogens
Not listed.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

This product is not expected to cause reproductive or developmental effects.

May cause drowsiness and dizziness.

Not classified.

Prolonged inhalation may be harmful.

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary #1 Aquatic Fish</td>
<td>Fathead minnow (Pimephales promelas)</td>
<td>&gt; 100 mg/l, 96 hours</td>
</tr>
<tr>
<td>Proprietary #2 Aquatic Fish</td>
<td>Bluegill (Lepomis macrochirus)</td>
<td>&gt; 1400 mg/l, 96 hours</td>
</tr>
</tbody>
</table>

No data is available on the degradability of this product.

Mobile in soil.

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Dispose in accordance with all applicable regulations.

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Read safety instructions, SDS and emergency procedures before handling.

IB2, T7, TP1, TP8, TP28

1* Bottles smaller than 32 Fl.Oz are eligible to be shipped under ORM-D or limited quantity exemptions [49 CFR Section 173.150(b)(2) and 173.150(c)]
IATA
UN number          UN1993
UN proper shipping name Flammable liquid, n.o.s. (Acetone)
Transport hazard class(es)
  Class             3
  Subsidiary risk   -
Packing group      II
Environmental hazards No.
ERG Code           3H
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG
UN number          UN1993
UN proper shipping name FLAMMABLE LIQUID, N.O.S. (Acetone)
Transport hazard class(es)
  Class             3
  Subsidiary risk   -
Packing group      II
Environmental hazards
  Marine pollutant No.
EmS                F-E, S-E
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Not established.
  Annex II of MARPOL 73/78 and the IBC Code

15. Regulatory information
US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
  TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
    Not regulated.
  OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
    Not listed.
  CERCLA Hazardous Substance List (40 CFR 302.4)
    Proprietary #1 (CAS Proprietary) LISTED
    Proprietary #2 (CAS Proprietary) LISTED
Superfund Amendments and Reauthorization Act of 1986 (SARA)
  Hazard categories
    Immediate Hazard - Yes
    Delayed Hazard - No
    Fire Hazard - Yes
    Pressure Hazard - No
    Reactivity Hazard - No
  SARA 302 Extremely hazardous substance
    Not listed.
  SARA 311/312 Hazardous chemical
    Yes
  SARA 313 (TRI reporting)
    Not regulated.
Other federal regulations
  Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
    Not regulated.
  Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
    Not regulated.
US state regulations

**US. Massachusetts RTK - Substance List**
- Proprietary #1 (CAS Proprietary)
- Proprietary #2 (CAS Proprietary)

**US. New Jersey Worker and Community Right-to-Know Act**
- Dimethyl Sulfoxide (CAS 67-68-5)
- Proprietary #1 (CAS Proprietary)
- Proprietary #2 (CAS Proprietary)

**US. Pennsylvania Worker and Community Right-to-Know Law**
- Proprietary #1 (CAS Proprietary)
- Proprietary #2 (CAS Proprietary)

**US. Rhode Island RTK**
- Proprietary #1 (CAS Proprietary)
- Proprietary #2 (CAS Proprietary)

**US. California Proposition 65**
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

### International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s). A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

**Issue date**
1-DEC-2008

**Revision date**
27-MAY-2016

**Version #**
G

**Further information**
HMIS® is a registered trade and service mark of the American Coatings Association (ACA).

**HMIS® ratings**
- Health: 2
- Flammability: 3
- Physical hazard: 0

**NFPA ratings**

**Disclaimer**
Sakura Finetek USA Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.