SAFETY DATA SHEET

1. Identification
Product identifier Xylose Calibration Standard – all concentrations
Other means of identification Product code 2767; 2768; 7167
Recommended use Analysis Standard/Reagent
Recommended restrictions None known.
Manufacturer / Importer / Supplier / Distributor information
Company name YSI, Inc
Address 1700/1725 Brannum Lane
Telephone (937) 767-7241
E-mail MSDSinfo@ysi.com
Emergency phone number CHEMTREC (US/Canada) (800) 424-9300
CHEMTREC (International) 011 703-527-3887 (Collect calls accepted)

2. Hazard(s) identification
Physical hazards Not classified.
Health hazards Not classified.
OSHA defined hazards Not classified.
Label elements
Hazard symbol None.
Signal word None.
Hazard statement The mixture does not meet the criteria for classification.
Precautionary statement
Prevention Observe good industrial hygiene practices.
Response Wash hands after handling.
Storage Store away from incompatible materials.
Disposal Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC) None known.
Supplemental information Not applicable.

3. Composition/information on ingredients
Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>L(-)-Xylose</td>
<td>609-06-3</td>
<td>2</td>
</tr>
<tr>
<td>Benzoic acid</td>
<td>65-85-0</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Dipotassium EDTA Dihydrate</td>
<td>25102-12-9</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt; 96</td>
</tr>
</tbody>
</table>

4. First-aid measures
Inhalation Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact Rinse with water. Get medical attention if irritation develops and persists.
Ingestion Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed May cause temporary irritation on skin or eye contact.
<table>
<thead>
<tr>
<th>Indication of immediate medical attention and special treatment needed</th>
<th>Treat symptomatically.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General information</td>
<td>Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.</td>
</tr>
<tr>
<td><strong>5. Fire-fighting measures</strong></td>
<td></td>
</tr>
<tr>
<td>Suitable extinguishing media</td>
<td>Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).</td>
</tr>
<tr>
<td>Unsuitable extinguishing media</td>
<td>Do not use water jet as an extinguisher, as this will spread the fire.</td>
</tr>
<tr>
<td>Specific hazards arising from the chemical</td>
<td>During fire, gases hazardous to health may be formed.</td>
</tr>
<tr>
<td>Special protective equipment and precautions for firefighters</td>
<td>Self-contained breathing apparatus and full protective clothing must be worn in case of fire.</td>
</tr>
<tr>
<td>Fire-fighting equipment/instructions</td>
<td>Move containers from fire area if you can do so without risk.</td>
</tr>
<tr>
<td>General fire hazards</td>
<td>No unusual fire or explosion hazards noted.</td>
</tr>
<tr>
<td><strong>6. Accidental release measures</strong></td>
<td></td>
</tr>
<tr>
<td>Personal precautions, protective equipment and emergency procedures</td>
<td>Keep unnecessary personnel away. Keep people away from upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see Section 8 of the SDS.</td>
</tr>
<tr>
<td>Methods and materials for containment and cleaning up</td>
<td>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. For waste disposal, see Section 13 of the SDS.</td>
</tr>
<tr>
<td>Environmental precautions</td>
<td>Prevent further leakage or spillage if safe to do so. Do not contaminate water.</td>
</tr>
<tr>
<td><strong>7. Handling and storage</strong></td>
<td></td>
</tr>
<tr>
<td>Precautions for safe handling</td>
<td>Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Provide adequate ventilation. Wear personal protective equipment. Wash thoroughly after handling.</td>
</tr>
<tr>
<td>Conditions for safe storage, including any incompatibilities</td>
<td>Store in accordance with local/regional/national/international regulation. Store away from incompatible materials (See Section 10).</td>
</tr>
<tr>
<td><strong>8. Exposure controls/personal protection</strong></td>
<td></td>
</tr>
<tr>
<td>Occupational exposure limits</td>
<td>No exposure limits noted for ingredient(s).</td>
</tr>
<tr>
<td>Biological limit values</td>
<td>No biological exposure limits noted for the ingredient(s).</td>
</tr>
<tr>
<td>Appropriate engineering controls</td>
<td>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.</td>
</tr>
<tr>
<td>Individual protection measures, such as personal protective equipment</td>
<td>If contact is likely, safety glasses with side shields are recommended. For prolonged or repeated skin contact use suitable protective gloves. Wear suitable protective clothing. No personal respiratory protective equipment normally required. Wear appropriate thermal protective clothing, when necessary. 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.</td>
</tr>
<tr>
<td><strong>9. Physical and chemical properties</strong></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Form</td>
<td>Clear and colorless.</td>
</tr>
<tr>
<td>Color</td>
<td>None.</td>
</tr>
</tbody>
</table>
Odor threshold
p
Melting point/freezing point
Initial boiling point and boiling range
Flash point
Evaporation rate
Flammability (solid, gas)
Upper/lower flammability or explosive limits
Flammability limit - lower (%)
Flammability limit - upper (%)
Explosive limit - lower (%)
Explosive limit - upper (%)
Vapor pressure
Vapor density
Relative density
Solubility(ies)
Solubility (water)
Partition coefficient (n-octanol/water)
Auto-ignition temperature
Decomposition temperature
Viscosity
(= water vapor)
Other information
Explosive properties
Not explosive.
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
None known.
Incompatible materials
None known.
Hazardous decomposition products
No hazardous decomposition products are known.
11. Toxicological information
Information on likely routes of exposure
Ingestion
Do not ingest.
Inhalation
Do not inhale this material.
Skin contact
Direct contact may irritate.
Eye contact
Direct contact with eyes may cause temporary irritation.
Symptoms related to the physical, chemical and toxicological characteristics
None known.
Information on toxicological effects
Acute toxicity
Not classified.
Components
Species
Test Results
Benzoic acid (CAS 65-85-0)
Acute
Dermal
LD50
Rabbit
> 5000 mg/kg
Inhalation
LC50
Rat
> 0.026 mg/l, 1 Hours
<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>Rat</td>
<td>1700 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation
Based on available data, the classification criteria are not met.

Respiratory or skin sensitization
Respiratory sensitization
Due to lack of data the classification is not possible.

Skin sensitization
Due to lack of data the classification is not possible.

Germ cell mutagenicity
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity
This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. Based on available data, the classification criteria are not met.

Reproductive toxicity
Based on available data, the classification criteria are not met.

Specific target organ toxicity - single exposure
Due to lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure
Due to lack of data the classification is not possible.

Aspiration hazard
Due to lack of data the classification is not possible.

Further information
This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity
Not expected to be harmful to aquatic organisms.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzoic acid (CAS 65-85-0)</td>
<td>Western mosquitofish (Gambusia affinis)</td>
<td>180 mg/l, 96 hours</td>
</tr>
<tr>
<td>Aquatic LC50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partition coefficient n-octanol / water (log Kow)</td>
<td>Benzoic acid (CAS 65-85-0)</td>
<td>1.87</td>
</tr>
</tbody>
</table>

Persistence and degradability
No data is available on the degradability of this product.

Bioaccumulative potential
No data available for this product.

Mobility in soil
Not available.

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

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

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

Waste from residues / unused products
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).

Contaminated packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not available.

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)
Benzoic acid (CAS 65-85-0) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories
Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
Not listed.
SARA 311/312 Hazardous chemical
No
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.
Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations
US. Massachusetts RTK - Substance List
Benzoic acid (CAS 65-85-0)

US. New Jersey Worker and Community Right-to-Know Act
Benzoic acid (CAS 65-85-0)

US. Pennsylvania Worker and Community Right-to-Know Law
Benzoic acid (CAS 65-85-0)

US. Rhode Island RTK
Benzoic acid (CAS 65-85-0)

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.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not listed.

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>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>European</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</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>No</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 13-February-2014

Xylose Calibration Standard – all concentrations
918994    Version #: 01    Revision date: -    Issue date: 13-February-2014
Disclaimer
The information in the sheet was written based on the best knowledge and experience currently available.