1. Product and Company Identification

Product identifier: YSI 2357 Buffer Concentrate Kit
Version #: 01
Issue date: 03-June-2014
Revision date: -
Supersedes date: -
CAS #: Mixture
Product code: 2357
Product use: Analysis Standard/Reagent
Manufacturer information:
YSI, Inc
1700/1725 Brannum Lane
Yellow Springs, Ohio 45387
MSDSinfo@ysi.com
(937) 767-7241
CHEMTREC (US/Canada) (800) 424-9300
CHEMTREC (International) 011 703-527-3887
(Collect calls accepted)

2. Hazards Identification

Emergency overview:
WARNING
Causes eye irritation. Prolonged exposure may cause chronic effects. May cause reproductive effects.

Potential health effects:

Routes of exposure:
Inhalation. Ingestion. Skin contact. Eye contact.

Skin:
Do not get this material in contact with skin.

Inhalation:
Do not breathe dust/fume/gas/mist/vapors/spray.

Ingestion:
Do not ingest.

Chronic effects:
Contains a substance which may have a reproductive effect.

Signs and symptoms:
Symptoms include itching, burning, redness, and tearing of eyes.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium phosphate dibasic</td>
<td>7558-79-4</td>
<td>50 - 55</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>7647-14-5</td>
<td>16 - 22</td>
</tr>
<tr>
<td>Sodium acid phosphate</td>
<td>7558-80-7</td>
<td>10 - 15</td>
</tr>
<tr>
<td>Glycine, N,N'-1,2-ethanediylbis(N-carboxymethyl) dipotassium salt, dihydrate</td>
<td>25102-12-9</td>
<td>&lt; 10</td>
</tr>
<tr>
<td>Sodium Benzoate</td>
<td>532-32-1</td>
<td>&lt; 10</td>
</tr>
<tr>
<td>Gentamicin, sulfate (salt)</td>
<td>1405-41-0</td>
<td>0.5 - 1.5</td>
</tr>
</tbody>
</table>

4. First Aid Measures

First aid procedures:

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. If eye irritation persists: Get medical advice/attention.

Skin contact:
Wash off with soap and water. Get medical attention if irritation develops and persists.

Inhalation:
Move to fresh air. Oxygen or artificial respiration if needed. Call a physician if symptoms develop or persist.

Ingestion:
Rinse mouth. Do not induce vomiting without advice from poison control center. Get medical attention if symptoms occur.
Notes to physician
Provide general supportive measures and treat symptomatically.

General advice
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties
Not flammable by WHMIS criteria.

Extinguishing media
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.

Protection of firefighters
Specific hazards arising from the chemical
During fire, gases hazardous to health may be formed.

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

Fire fighting equipment/instructions
Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk.

Explosion data
Sensitivity to static discharge
Not established.

Sensitivity to mechanical impact
Not established.

6. Accidental Release Measures

Personal precautions
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation of vapors or mists. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the MSDS.

Environmental precautions
Avoid discharge into drains, water courses or onto the ground.

Methods for cleaning up
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. 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 MSDS.

7. Handling and Storage

Handling
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid contact during pregnancy/while nursing. Provide adequate ventilation. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke.

Storage
Store locked up. Store in a cool, dry, well-ventilated place. Keep container tightly closed. Store away from incompatible materials (See Section 10).

8. Exposure Controls / Personal Protection

Occupational exposure limits
No exposure limits noted for ingredient(s).

Engineering controls
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. Provide eyewash station.

Personal protective equipment
Eye / face protection
Wear safety glasses with side shields (or goggles).

Skin protection
Wear suitable protective clothing. For prolonged or repeated skin contact use suitable protective gloves.

Respiratory protection
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
9. Physical & Chemical Properties

Appearance: Not available.
Physical state: Solid.
Form: Powder.
Color: White
Odor: Mild odor.
Odor threshold: No data available.
pH: 6.5 - 7.5
Vapor pressure: Not applicable.
Vapor density: Not applicable.
Boiling point: No data available.
Melting point/Freezing point: > 500 °F (> 260 °C)
Solubility (water): Soluble.
Specific gravity: > 1
Flash point: Not applicable.
Flammability limits in air, upper, % by volume: No data available.
Flammability limits in air, lower, % by volume: No data available.
Auto-ignition temperature: No data available.
VOC: Not applicable.
Evaporation rate: No data available.
Viscosity: Not applicable.
Partition coefficient (n-octanol/water): Not determined.
Other data
Decomposition temperature: No data available.
Density: No data available.
Explosive limit - lower (%): No data available.
Explosive limit - upper (%): No data available.
Explosive properties: No data available.
Flammability (solid, gas): No data available.
Oxidizing properties: No data available.

10. Chemical Stability & Reactivity Information

Chemical stability: Material is stable under normal conditions.
Conditions to avoid: None known.
Incompatible materials: Strong acids. Strong oxidizing agents.
Hazardous decomposition products: Phosphorus oxides.
Possibility of hazardous reactions: Polymerization will not occur.

11. Toxicological Information

Toxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium acid phosphate (CAS 7558-80-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>&gt; 7940 mg/kg</td>
</tr>
</tbody>
</table>

YSI 2357 Buffer Concentrate Kit
3 / 5
Components | Species | Test Results
--- | --- | ---
Oral LD50 | Mouse | > 2000 mg/kg
Oral | Rat | 8290 mg/kg

Sodium chloride (CAS 7647-14-5)

Acute Oral
LD50 | Rat | 3000 mg/kg

Sodium phosphate dibasic (CAS 7558-79-4)

Acute Oral
LD50 | Rat | 17 g/kg

Local effects
Irritating to eyes.

Carcinogenicity
This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

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

Reproductive effects
Suspected of damaging fertility or the unborn child.

Symptoms and target organs
Symptoms include itching, burning, redness, and tearing of eyes. May cause adverse reproductive effects - such as birth defects, miscarriages, or infertility based on animal data.

12. Ecological Information

Ecotoxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium acid phosphate (CAS 7558-80-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish LC50</td>
<td>Western mosquitofish (Gambusia affinis)</td>
<td>186 mg/l, 96 hours</td>
</tr>
<tr>
<td>Sodium Benzoate (CAS 532-32-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish LC50</td>
<td>Fathead minnow (Pimephales promelas)</td>
<td>&gt; 100 mg/l, 96 hours</td>
</tr>
<tr>
<td>Sodium chloride (CAS 7647-14-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea EC50</td>
<td>Water flea (Daphnia magna)</td>
<td>340.7 - 469.2 mg/l, 48 hours</td>
</tr>
<tr>
<td>Fish LC50</td>
<td>Bluegill (Lepomis macrochirus)</td>
<td>1294.6 mg/l, 96 hours</td>
</tr>
</tbody>
</table>

Ecotoxicity
Not expected to be harmful to aquatic organisms.

Environmental effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Persistence and degradability
Not available.

13. Disposal Considerations

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

Waste from residues / unused products
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. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

TDG
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.
15. Regulatory Information

Canadian regulations
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status
Controlled

WHMIS classification
D2B - Other Toxic Effects-TOXIC

WHMIS labeling

Inventory status

<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>No</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>Yes</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>No</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

HMIS® ratings
Health: 1
Flammability: 0
Physical hazard: 0

NFPA ratings
Health: 1
Flammability: 0
Instability: 0

Disclaimer
The information in the sheet was written based on the best knowledge and experience currently available.