1. Product and Company Identification

Product identifier: YSI 8591 Bicarbonate Buffer
Version #: 01
Issue date: 08-October-2014
Revision date: -
Supersedes date: -
CAS #: Mixture
Product code: 8591
Product use: Analysis Standard/Reagent

Manufacturer information:
YSI, a Xylem brand
1700/1725 Brannum Lane
Yellow Springs, Ohio 45387
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: Exposure to powder or dusts may be irritating to eyes, nose and throat.

Potential health effects:

- Routes of exposure: Inhalation.
- Eyes: Dust in the eyes will cause irritation.
- Skin: Dust or powder may irritate the skin.
- Inhalation: Dust may irritate respiratory system.
- Ingestion: May cause irritation.

Signs and symptoms: Irritation of eyes. Upper respiratory tract irritation.

Potential environmental effects: Ecological injuries are not known or expected under normal use.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium chloride</td>
<td>7647-14-5</td>
<td>91 - 92</td>
</tr>
<tr>
<td>Sodium bicarbonate</td>
<td>144-55-8</td>
<td>8 - 9</td>
</tr>
</tbody>
</table>

4. First Aid Measures

First aid procedures:

- **Inhalation**: If dust from the material is inhaled, remove the affected person immediately to fresh air. Call a physician if symptoms develop or persist.
- **Skin contact**: Rinse skin with water/shower. Get medical attention if irritation develops and persists.
- **Eye contact**: Rinse with water. Get medical attention if irritation develops and persists.
- **Ingestion**: Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
- **General advice**: If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

- **Flammable properties**: Not flammable by WHMIS criteria.
- **Extinguishing media**:
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
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.

Explosion data
Sensitivity to static discharge
Not sensitive.

Sensitivity to mechanical impact
Not sensitive.

Hazardous combustion products
None known.

6. Accidental Release Measures
Personal precautions
Keep unnecessary personnel away. Avoid inhalation of dust from the spilled material. Ensure adequate ventilation. In case of inadequate ventilation, use respiratory protection. For personal protection, see section 8 of the MSDS.

Environmental precautions
Do not contaminate water.

Methods for containment
If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product.

Methods for cleaning up
Minimize dust generation and accumulation. Should not be released into the environment. This product is miscible in water. Collect dust using a vacuum cleaner equipped with HEPA filter. Following product recovery, flush area with water. For waste disposal, see section 13 of the MSDS.

7. Handling and Storage
Handling
Provide appropriate exhaust ventilation at places where dust is formed. Minimize dust generation and accumulation. Avoid breathing dust. Avoid contact with eyes. Avoid release to the environment. Practice good housekeeping.

Storage
Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the MSDS).

8. Exposure Controls / Personal Protection
Occupational exposure limits
No exposure limits noted for ingredient(s).

Engineering controls
Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing.

Personal protective equipment
Eye / face protection
Use tight fitting goggles if dust is generated.

Skin protection
Wear suitable protective clothing. Wear protective gloves.

Respiratory protection
In case of inadequate ventilation or risk of inhalation of dust, use a suitable NIOSH approved respirator with an appropriate particulate filter.

9. Physical & Chemical Properties
Appearance
Physical state
Solid.

Form
Powder.

Color
White.

Odor
None.

Odor threshold
Not available.

pH
Neutral

Vapor pressure
Not available.

Vapor density
Not available.

Boiling point
Not available.
10. Chemical Stability & Reactivity Information

Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
Material is stable under normal conditions.

Conditions to avoid
Contact with incompatible materials. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

Incompatible materials
Strong oxidizing agents.

Hazardous decomposition products
No hazardous decomposition products are known.

Possibility of hazardous reactions
No dangerous reaction known under conditions of normal use.

11. Toxicological Information

Test Results

Toxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium bicarbonate (CAS 144-55-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Oral</td>
<td>Rat</td>
<td>&gt; 4000 mg/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium chloride (CAS 7647-14-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Dermal</td>
<td>Rabbit</td>
<td>&gt; 10000 mg/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td>Rat</td>
<td>&gt; 42 mg/l, 1 Hours</td>
</tr>
<tr>
<td>LC50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>3550 mg/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

Acute effects
Not expected to be acutely toxic.

Sensitization
Not a skin or respiratory sensitizer.

Local effects
Inhalation of dusts may cause respiratory irritation.

Chronic effects
Not expected to be hazardous by WHMIS criteria.

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

Skin corrosion/irritation
Prolonged skin contact may cause temporary irritation.

Serious eye damage/irritation
Dust in the eyes will cause irritation.

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

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

Teratogenicity
Not available.

Symptoms and target organs
Dust may cause eye, skin and respiratory tract irritation.
12. Ecological Information

Ecotoxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium bicarbonate (CAS 144-55-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Daphnia</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Bluegill (Lepomis macrochirus)</td>
</tr>
<tr>
<td>Sodium chloride (CAS 7647-14-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Water flea (Daphnia magna)</td>
</tr>
</tbody>
</table>

Ecotoxicity

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.

Environmental effects

Not available.

Aquatic toxicity

Not classified.

Persistence and degradability

No data is available on the degradability of this product.

Mobility in environmental media

The product is soluble in water.

13. Disposal Considerations

Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

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. 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

Non-controlled

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>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>Country(s) or region</td>
<td>Inventory name</td>
<td>On inventory (yes/no)*</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------------------------</td>
<td>------------------------</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

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

**NFPA ratings**
- Health: 1
- Flammability: 0
- Instability: 0

**Disclaimer**
YSI, a Xylem brand 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.

**Prepared by**
Not available.