1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name  
ph 4.01 Buffer

Product No  
910104, 910460, 9104CB, 910425, 910410-W

Pure substance/mixture  
Mixture

Relevant identified uses of the substance or mixture and uses advised against

Recommended Use  
Use as laboratory reagent

Uses advised against  
No Information available

Manufacturer, Importer, Supplier  
Thermo Fisher Scientific®
Water and Lab Products
22 Alpha Road
Chelmsford, MA 01824, USA
1-978-232-6000

E-mail address  
info.water@thermo.com

Made in  
USA

Emergency Telephone  
24 Hour Emergency Phone Number
CHEMTREC®
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: 1-703-527-3887 (collect calls accepted)
2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label Elements

Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health

Appearance Light red  Physical State Liquid  Odor Odorless

Precautionary Statements

Hazards not otherwise classified (HNOC)
No information available

Other Information
No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt;90.0%</td>
</tr>
<tr>
<td>Potassium Hydrogen Phthalate</td>
<td>877-24-7</td>
<td>0.1 - 1.0%</td>
</tr>
<tr>
<td>Potassium Hydroxide</td>
<td>1310-58-3</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Amaranth Red No. 27</td>
<td>915-67-3</td>
<td>&lt;0.1%</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures

General Advice
Use first aid treatment according to the nature of the injury. Get medical attention immediately if symptoms occur. Show this safety data sheet to the doctor in attendance.

Eye Contact
Rinse thoroughly with plenty of water, also under the eyelids. Get medical attention.

Skin Contact
Wash off immediately with soap and plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. In case of skin reactions, consult a physician.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. Get medical attention if symptoms occur.
**Ingestion**

Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Self-Protection of the First Aider**

Use personal protective equipment. See section 8 for more information. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**Most important symptoms and effects, both acute and delayed**

No information available

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically

**Notes to Physician**

Treat symptomatically

### 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media**

No information available

**Specific Hazards Arising from the Chemical**

No information available.

**Explosion Data**

- Sensitivity to Mechanical Impact: None
- Sensitivity to Static Discharge: None

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures**

**Personal Precautions**

Use personal protective equipment. For further specification, refer to section 8 of the SDS.

**Environmental Precautions**

Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**Methods and Material for Containment and Cleaning Up**

**Methods for Containment**

Prevent further leakage or spillage if safe to do so.

**Methods for Cleaning Up**

Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

### 7. HANDLING AND STORAGE

**Precautions for Safe Handling**

**Handling**

To avoid risks to human health and the environment, comply with the instructions for use.

- Wear personal protective equipment
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Ensure adequate ventilation, especially in confined areas
Conditions for Safe Storage, Including any Incompatibilities

Storage
Keep container tightly closed in a dry and well-ventilated place
Store at room temperature in the original container
Keep away from direct sunlight

Incompatible Products
No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Hydroxide 1310-58-3</td>
<td>Ceiling: 2 mg/m³</td>
<td>(Vacated) Ceiling: 2 mg/m³</td>
<td>Ceiling: 2 mg/m³</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering Measures
Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face Protection
Wear chemical splash goggles and face shield. If splashes are likely to occur, wear:
Face-shield.

Skin and Body Protection
Wear protective gloves/clothing.

Respiratory Protection
None under normal use conditions. In case of inadequate ventilation wear respiratory protection.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Light red</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>4.01</td>
<td></td>
</tr>
<tr>
<td>PH Range</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>~ 100 °C / 212 °F</td>
<td></td>
</tr>
<tr>
<td>Flash Point (High in °C)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Exothermic heat release</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Water Solubility</td>
<td>soluble</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

Product No 910104, 910460, 9104CB, 910425, 910410-W

Document No. 205487-001
Product Name  pH 4.01 Buffer
Revision Date  06-Nov-2018

Partition coefficient  No information available
Autoignition Temperature  -
Decomposition Temperature  No information available
Kinematic viscosity  No information available
Dynamic viscosity  No information available
Explosive Properties  No information available
Oxidizing Properties  No information available

Other Information
Softening Point  No information available
Molecular Weight  No information available
VOC Content(%)  0
Density  No Information available
Bulk Density  No information available

10. STABILITY AND REACTIVITY

Reactivity
No Information available

Chemical Stability
Stable under normal conditions

Possibility of Hazardous Reactions
None under normal processing

Conditions to Avoid
Extremes of temperature and direct sunlight.

Incompatible Materials
No information available

Hazardous Decomposition Products
Thermal decomposition can lead to release of irritating gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation  No information available
Eye Contact  No information available
Skin Contact  No information available
Ingestion  No information available

Information on Toxicological Effects

Symptoms  No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization  No information available
Mutagenic Effects  No information available
Carcinogenicity  No information available.
Reproductive Effects  No information available
STOT - single exposure  No information available
STOT - repeated exposure  No information available
Aspiration hazard  No information available

**Numerical measures of toxicity - Product Information**

12. ECOLOGICAL INFORMATION

**Ecotoxicity**

1.01% of the mixture consists of components(s) of unknown hazards to the aquatic environment

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Hydroxide</td>
<td>-</td>
<td>LC50: = 80 mg/L, 96h static (Gambusia affinis)</td>
<td>-</td>
</tr>
<tr>
<td>1310-58-3</td>
<td>1310-58-3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Persistence and Degradability**

No information available

**Bioaccumulation/ Accumulation**

No information available

**Mobility**

No information available.

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Hydroxide</td>
<td>0.83</td>
</tr>
<tr>
<td>1310-58-3</td>
<td></td>
</tr>
</tbody>
</table>

**Other adverse effects**

No information available

13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Waste Disposal Methods**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated Packaging**

Improper disposal or reuse of this container may be dangerous and illegal.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAWAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Hydroxide</td>
<td>Toxic</td>
</tr>
<tr>
<td>1310-58-3</td>
<td>Corrosive</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

**DOT**

Not regulated

**ICAO**

Not regulated
IATA  Not regulated
IMDG/IMO  Not regulated

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>International Inventory</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>USINV</td>
<td>Complies</td>
</tr>
<tr>
<td>CANINV</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

Legend:
USINV/ TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
CANINV/ DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

CWA (Clean Water Act)

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Hydroxide</td>
<td>1000 lb</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>1310-58-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Hydroxide</td>
<td>1000 lb</td>
<td></td>
<td>RQ 1000 lb final RQ</td>
</tr>
<tr>
<td>1310-58-3</td>
<td></td>
<td></td>
<td>RQ 454 kg final RQ</td>
</tr>
</tbody>
</table>

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations
16. OTHER INFORMATION

Prepared By: Regulatory Affairs
Prepared For: Thermo Fisher Scientific Inc.
Issue Date: No information available
Revision Date: 06-Nov-2018
Reason for revision: SDS sections updated.

Disclaimer
IMPORTANT: The information contained in this SDS is correct to the best of our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties of any kind as to the accuracy or completeness of the information contained herein or the merchantability or fitness of the product or this information for a particular purpose. It is the responsibility of each individual buyer/user to determine the suitability of this information and the product for its intended purposes. Product sales are subject to Thermo Fisher Scientifics standard terms and conditions of sale. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions, or is altered in any way. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable government requirements. Since conditions of use of the product are not under direct control of Thermo Fisher Scientific, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. Thermo Fisher Scientific will not be liable for any injuries or damages resulting from handling, use, misuse or contact with the product.

End of Safety Data Sheet