1. Identification

Product Name: Buffer Solution, pH 4.00
Cat No.: SB98-1; SB98-10; SB98-20; SB98-500; NC0682583
Synonyms: (Certified)
Recommended Use: Laboratory chemicals.
Uses advised against: No Information available

2. Hazard(s) Identification

Classification: Based on available data, the classification criteria are not met
Label Elements: None required

Hazards not otherwise classified (HNOC): None identified

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>98.93</td>
</tr>
</tbody>
</table>
1.2-Benzenedicarboxylic acid, monopotassium salt
877-24-7
1.0

Formaldehyde
50-00-0
0.05

Methyl alcohol
67-56-1
0.02

### 4. First-aid measures

**Eye Contact**  
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact**  
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

**Inhalation**  
Move to fresh air. Get medical attention immediately if symptoms occur.

**Ingestion**  
Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

**Most important symptoms/effects**  
None reasonably foreseeable.

**Notes to Physician**  
Treat symptomatically.

### 5. Fire-fighting measures

**Suitable Extinguishing Media**  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Unsuitable Extinguishing Media**  
No information available

**Flash Point**  
No information available

**Method - Autoignition Temperature**  
No information available

**Explosion Limits**  
No data available

**Upper Lower**  
No data available

**Sensitivity to Mechanical Impact**  
No information available

**Sensitivity to Static Discharge**  
No information available

**Specific Hazards Arising from the Chemical**  
Thermal decomposition can lead to release of irritating gases and vapors.

**Hazardous Combustion Products**  
Thermal decomposition can lead to release of irritating gases and vapors

**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**  
Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation.

**Environmental Precautions**  
Should not be released into the environment. See Section 12 for additional ecological information.

**Methods for Containment and Clean Up**  
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

### 7. Handling and storage

**Handling**  
Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin,
eyes and clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place.

### 8. Exposure controls / personal protection

#### 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>Formaldehyde</td>
<td>Ceiling: 0.3 ppm</td>
<td>(Vacated) TWA: 3 ppm (Vacated) STEL: 10 ppm (Vacated) Ceiling: 5 ppm TWA: 0.75 ppm STEL: 2 ppm</td>
<td>IDLH: 20 ppm TWA: 0.016 ppm Ceiling: 0.1 ppm</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>TWA: 200 ppm STEL: 250 ppm Skin</td>
<td>(Vacated) TWA: 200 ppm (Vacated) STEL: 260 mg/m³ (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m³ Skin TWA: 200 ppm STEL: 260 ppm</td>
<td>IDLH: 6000 ppm TWA: 200 ppm STEL: 260 mg/m³ STEL: 325 mg/m³</td>
</tr>
</tbody>
</table>

#### Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

#### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Personal Protective Equipment

**Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

### 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>4.0</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No information available</td>
</tr>
</tbody>
</table>
10. Stability and reactivity

Reactive Hazard
None known, based on information available

Stability
Stable under normal conditions.

Conditions to Avoid
Excess heat.

Incompatible Materials
None known

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

Hazardous Polymerization
Hazardous polymerization does not occur.

Hazardous Reactions
None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
No acute toxicity information is available for this product

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>-</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>1,2-Benzenedicarboxylic acid, monopotassium salt</td>
<td>LD50 &gt; 3200 mg/kg ( Rat )</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>500 mg/kg ( Rat )</td>
<td>LD50 = 270 mg/kg ( Rabbit )</td>
<td>0.578 mg/L ( Rat ) 4 h</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>Calc. ATE 60 mg/kg LD50 &gt; 1187 – 2769 mg/kg ( Rat )</td>
<td>Calc. ATE 60 mg/kg LD50 = 17100 mg/kg ( Rabbit )</td>
<td>Calc. ATE 0.6 mg/L (vapours) or 0.5 mg/L (mists) LC50 = 128.2 mg/L ( Rat ) 4 h</td>
</tr>
</tbody>
</table>

Toxicologically Synergistic Products
No information available

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

Irritation
May cause eye, skin, and respiratory tract irritation

Sensitization
No information available

Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>1,2-Benzenedicarboxylic acid, monopotassium salt</td>
<td>877-24-7</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>Group 1</td>
<td>Known</td>
<td>A2</td>
<td>X</td>
<td>A2</td>
</tr>
</tbody>
</table>
Methyl alcohol | 67-56-1 | Not listed | Not listed | Not listed | Not listed | Not listed

**IARC: (International Agency for Research on Cancer)**
- Group 1 - Carcinogenic to Humans
- Group 2A - Probably Carcinogenic to Humans
- Group 2B - Possibly Carcinogenic to Humans

**NTP: (National Toxicity Program)**
- Known - Known Carcinogen
- Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

**ACGIH: (American Conference of Governmental Industrial Hygienists)**
- A1 - Known Human Carcinogen
- A2 - Suspected Human Carcinogen
- A3 - Animal Carcinogen
- ACGIH: (American Conference of Governmental Industrial Hygienists)

**Mexico - Occupational Exposure Limits - Carcinogens**
- A1 - Confirmed Human Carcinogen
- A2 - Suspected Human Carcinogen
- A3 - Confirmed Animal Carcinogen
- A4 - Not Classifiable as a Human Carcinogen
- A5 - Not Suspected as a Human Carcinogen

**Mutagenic Effects**
- No information available

**Reproductive Effects**
- No information available.

**Developmental Effects**
- No information available.

**Teratogenicity**
- No information available.

**STOT - single exposure**
- None known

**STOT - repeated exposure**
- None known

**Aspiration hazard**
- No information available

**Symptoms / effects, both acute and delayed**
- No information available

**Endocrine Disruptor Information**
- No information available

**Other Adverse Effects**
- See actual entry in RTECS for complete information.

---

### 12. Ecological information

**Ecotoxicity**

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>Not listed</td>
<td>Leuciscus idus: LC50 = 15 mg/L 96h</td>
<td>Not listed</td>
<td>EC50 = 20 mg/L 96h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EC50 = 2 mg/L 48h</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>Not listed</td>
<td>Pimephales promelas: LC50 &gt; 10000 mg/L 96h</td>
<td>EC50 = 39000 mg/L 25 min</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EC50 = 40000 mg/L 15 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EC50 = 43000 mg/L 5 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EC50 &gt; 10000 mg/L 24h</td>
</tr>
</tbody>
</table>

**Persistence and Degradability**
- No information available

**Bioaccumulation/ Accumulation**
- No information available

**Mobility**

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>-0.35</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>-0.74</td>
</tr>
</tbody>
</table>

---

### 13. Disposal considerations

**Waste Disposal Methods**
- Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
### 14. Transport information

<table>
<thead>
<tr>
<th>DOT</th>
<th>Not regulated</th>
<th>TDG</th>
<th>Not regulated</th>
<th>IATA</th>
<th>Not regulated</th>
<th>IMDG/IMO</th>
<th>Not regulated</th>
</tr>
</thead>
</table>

### 15. Regulatory information

All of the components in the product are on the following Inventory lists: Australia Complete Regulatory Information contained in following SDS's X = listed China Canada The product is classified and labeled according to EC directives or corresponding national laws The product is classified and labeled in accordance with Directive 1999/45/EC Europe TSCA Korea Philippines U.S.A. (TSCA) Canada (DSL/NDSL) Europe (EINECS/ELINCS/NLP) Australia (AICS) Korea (ECL) China (IECSC) Japan (ENCS) Philippines (PICCS)

#### International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>231-791-2</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1,2-Benzenedicarboxylic acid, monopotassium salt</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>212-889-4</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>200-001-8</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>200-659-6</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

#### U.S. Federal Regulations

**TSCA 12(b)**

Not applicable

#### SARA 313

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>0.05</td>
<td>0.1</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>67-56-1</td>
<td>0.02</td>
<td>1.0</td>
</tr>
</tbody>
</table>

#### SARA 311/312 Hazard Categories

- Acute Health Hazard: Yes
- Chronic Health Hazard: No
- Fire Hazard: No
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

#### CWA (Clean Water Act)

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Hazardous Substances</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
</tr>
</thead>
</table>

---

Buffer Solution, pH 4.00

Revision Date: 09-Jun-2016
Formaldehyde | X | 100 lb | - | - |

### Clean Air Act

<table>
<thead>
<tr>
<th>Component</th>
<th>HAPS Data</th>
<th>Class 1 Ozone Depletors</th>
<th>Class 2 Ozone Depletors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### OSHA Occupational Safety and Health Administration
Not applicable

<table>
<thead>
<tr>
<th>Component</th>
<th>Specifically Regulated Chemicals</th>
<th>Highly Hazardous Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>2 ppm STEL 0.5 ppm Action Level 0.75 ppm TWA</td>
<td>TQ: 1000 lb</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>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>100 lb</td>
<td>100 lb</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>5000 lb</td>
<td>-</td>
</tr>
</tbody>
</table>

### California Proposition 65
This product contains the following proposition 65 chemicals:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>California Prop. 65</th>
<th>Prop 65 NSRL</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>Carc. (Gaseous only)</td>
<td>40 µg/day</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>67-56-1</td>
<td>Developmental</td>
<td>-</td>
<td>Developmental</td>
</tr>
</tbody>
</table>

### U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

### U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant: N
DOT Severe Marine Pollutant: N

### U.S. Department of Homeland Security
This product contains the following DHS chemicals:

<table>
<thead>
<tr>
<th>Component</th>
<th>DHS Chemical Facility Anti-Terrorism Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>11250 lb STQ (solution)</td>
</tr>
</tbody>
</table>

### Other International Regulations

Mexico - Grade
No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class
Non-controlled

---

**16. Other information**

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com
Buffer Solution, pH 4.00

Creation Date: 29-Jan-2010
Revision Date: 09-Jun-2016
Print Date: 09-Jun-2016
Revision Summary: SDS sections updated; 2; 5; 15; 16

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of SDS