Product Name/Description: TurboLink Catalyst Buffer (Aniline Buffer)

I. Product and Company Description

Solulink Biosciences
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887 (International)

SoluLInk-858.625.0670 (For product use see product data sheet insert)

Chemical Name or Synonym:

Sodium phosphate buffer containing low concentrations (90 mM) of aniline.

Synonyms for aniline are:

Aminophen
Aniline
Aniline (Italian, Polish)
Anilin (Czech)
Benzamine
Arylamine
Aromatic amine
Phenylamine
Benzenamine
Benzidam

RTECS Number: BW6650000

II. Chemical Composition

Aniline Buffer is supplied as a clear aqueous solution containing 50 mM sodium phosphate, 150 mM sodium chloride solution with less than 1% aniline, pH 6.0

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS Number</th>
<th>%</th>
<th>EC number</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium phosphate, monobasic</td>
<td>10049-21-5</td>
<td>0.2%</td>
<td>231-449-2</td>
<td>Xi, R 36/37/38</td>
</tr>
<tr>
<td>Sodium phosphate, dibasic</td>
<td>7558-79-4</td>
<td>0.55%</td>
<td>231-448-7</td>
<td>Xi, R 36/37/38</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>7647-14-5</td>
<td>0.88%</td>
<td>231-598-3</td>
<td>Xi, R 36/37/38</td>
</tr>
<tr>
<td>Aniline</td>
<td>62-53-3</td>
<td>0.83%</td>
<td>200-539-3</td>
<td>T, R /23/24/25/40 S 2/28/45</td>
</tr>
<tr>
<td>Water</td>
<td>07732-18-5</td>
<td>97.54</td>
<td>N/A</td>
<td>Not controlled</td>
</tr>
</tbody>
</table>
III. Hazards Identification

NFPA Ratings (Scale 0-4):   Health = 2   Fire = 0   Reactivity = 1

Major Health Hazards:

Under normal use conditions, product as manufactured is not anticipated to cause major health hazards. May cause skin, eye and respiratory irritation from accidental exposure.

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man And Environment: Refer to sections III, VIII, XII, XV in this document.

Physical Appearance: Clear liquid

B. Potential Health Effects:

Acute Health Effects

Acute Eye: May cause irritation.
Acute Skin: May cause moderate skin irritation.
Acute Ingestion: Not considered a likely route of exposure under normal product use conditions. Harmful if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause effects similar to those of acute inhalation.
Acute Inhalation: Effects may be delayed. May cause respiratory tract irritation.
Chronic: May cause liver and kidney damage. May cause fetal effects. Repeated exposure may cause sensitization dermatitis. Chronic exposure may cause hemolysis of the red blood cells followed by stimulation of the bone marrow. Laboratory experiments have resulted in mutagenic effects. May cause cyanosis - a blue-gray coloring of the skin and lips caused by a lack of oxygen. Animal studies have reported the development of tumors.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid. Do NOT allow victim to rub or keep eyes closed. If irritation develops seek medical attention.

Skin Exposure:
Immediately wash affected areas with soap and water. If irritation develops seek medical attention. Wash clothing before reuse. Destroy contaminated shoes.

Inhalation:
Move to fresh air. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask. SEEK MEDICAL ATTENTION.
Material Safety Data Sheet

Ingestion:
Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. SEEK MEDICAL ATTENTION.

Notes to Physician: Absorption of this product into the body may cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Moderate degrees of cyanosis need to be treated only by supportive measures: bed rest and oxygen inhalation. Cleansing of the entire contaminated area of the body is of utmost importance. Do not administer alcohol in any form. Individuals with liver or kidney disorders, impaired cardiovascular status, or a history of alcoholism may be more susceptible to the effects of this product. Effects may be delayed. If cyanosis is severe, intravenous injection of Methylene blue, 1mg/kg of body weight may be of value.

Antidote: Methylene blue, alone or in combination with oxygen is indicated as a treatment in nitrite induced methemoglobinemia.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: materials contained in this product at the indicated concentration are not considered to be a fire hazard.
Autoignition: not applicable
Flash Point: not applicable
Flammability Limits (vol/vol%): not applicable  Lower: Upper: not applicable

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

Cleanup and Disposal of Spill:
Use standard lab personal protective equipment such as gloves, lab coat, and goggles and wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations.

VII. Handling and Storage

Handling: Handle wearing gloves and lab coat. Do not breathe vapor. Avoid contact with eyes, skin, clothing.
**Material Safety Data Sheet**

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**Storage:** Store material refrigerated.

**Special requirements:** Light sensitive

### VIII. Exposure Controls / Personal Protection

**Exposure Guidelines:**

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA-PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium phosphate, dibasic</td>
<td>PEL-TWA</td>
<td>Not listed</td>
<td>PEL-TWA 1 mg/m³</td>
</tr>
<tr>
<td></td>
<td>1 mg/m³</td>
<td></td>
<td>PEL-STEL 3 mg/m³</td>
</tr>
<tr>
<td>Sodium phosphate, monobasic</td>
<td>PEL-TWA</td>
<td>Not listed</td>
<td>PEL-TWA 1 mg/m³</td>
</tr>
<tr>
<td></td>
<td>1 mg/m³</td>
<td></td>
<td>PEL-STEL 3 mg/m³</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Aniline</td>
<td>TLV-TWA</td>
<td>N/A</td>
<td>PEL-TWA 5 ppm</td>
</tr>
</tbody>
</table>

**Engineering Controls:**
Safety shower and eye bath. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

**Respiratory Protection:**
Not required under anticipated use conditions.

**Eye / Face Protection:**
Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA’s eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

**Skin Protection:**
Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

### IX. Physical and Chemical Properties

Component: Aniline Buffer
Physical Appearance: Clear liquid
Percent Purity: 100%
Boiling Point: Not available
Melting Point: Not available
Specific gravity: Not available
Freezing Point: Not Available
pH: 6.0

X. Stability and Reactivity

Chemical Stability:
Stable, may be slightly hygroscopic.

Conditions to Avoid:
Temperatures <0°C or > 50°C

Materials / Chemicals to Be Avoided:
Reactive with strong oxidizing agents, metal, acids, alkali

Hazardous Decomposition Products:
Phosphorus oxides may form when heated to decomposition

Hazardous Polymerization:
Unknown

XI. Toxicological Information

Information for Aniline

Route of exposure:
Skin absorption: toxic if absorbed through skin. Readily absorbed through skin.
Eye contact: Causes severe eye irritation.
Ingestion: toxic if swallowed
Inhalation: Material is irritating to mucous membranes and upper respiratory tract.
Toxic if inhaled.

Sensitization:
Skin: May cause allergic skin reaction.

Target Organs:
Blood, bladder, kidneys, central nervous system.

Signs and symptoms of exposure:
Absorption into body leads to methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2-4 hours.

Carcinogenicity:
ACGIH: Classified A3 (proven for animal)
IARC: (not classifiable for human)
OSHA: Not available

Mutagenic Effects:
Mutagenic for mammalian somatic cells. Species human, dose 300 umol.L, cell type lymphocyte, mutation test: sister chromatid exchange.
Mutagenic for bacteria and or yeast.

Developmental toxicity: not available
Reproductive effects: chronic exposure to aniline (6-13 days, pregnant) poses reproductive hazard in mouse at 4.48 g/kg (oral)

Acute Oral Toxicity: Oral LD50; Acute: 250 mg/Kg (rat), 464 mg/Kg (mouse);

Acute Dermal Toxicity: Dermal (LD50): Acute: 820 mg/Kg (rabbit), 1400 mg/Kg (rat)

Acute Inhalation Toxicity: Mouse (LD50) 247.5 ppm

See Hazardous identification

XII. Ecological Information

Ecotoxicological Information: not available

BOD5 and COD: not available

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. Long term degradation products may arise.

Toxicity of products of Biodegradation: Products of degradation are less toxic than the product itself.

XIII. Disposal Considerations

Waste Disposal Method:
Discard any product, residue, disposable container or liner in full compliance with national regulations.

Container Handling and Disposal:
Dispose of container and unused contents in accordance with national regulations.

XIV. Transportation Information

Shipping Name: ADR/RID/IMO/ICAO/US DOT

IATA Special Provision - Aqueous solutions containing 1% or less aniline by volume is not subject to these regulations.

Proper Shipping Name: Not regulated
Hazard Class: Not regulated
ID Number: Not regulated
Packaging Group: Not regulated
Hazard label: Not regulated
Information reported for product/size: 3 mL

XV. Regulatory Information
**Material Safety Data Sheet**

Solulink Biosciences
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121

Tel: 858.625.0670
Fax: 858.625.0770
Prepared: 06/12/09

**U.S. Federal Regulations:**

**WARNING:** THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

California prop, 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the stature: aniline
to cause birth defects or reproductive harm which requires a warning under the stature: aniline
California prop, 65: No significant risk level: aniline: 0.1 mg/ml (value)

Connecticut hazardous material survey: aniline
Illinois toxic substances disclosure to employee act: aniline
New York release reporting list: aniline
Rhode Island RTK: aniline
Pennsylvania RTK: aniline
Minnesota: aniline
Massachusetts RTK: aniline
New Jersey: aniline
Louisiana RTK: aniline
California Director's list of Hazardous substances: aniline

**TSCA**
8(b) inventory: aniline
8(b) inventory: aniline
8(b) inventory: aniline

Chemical Weapons Convention: No  TSCA 12(b): No  CDTA: Yes

**SARA Title III Hazard Classes:**
SARA 302/304/311/312 extremely hazardous substances: aniline: 5000 lbs
SARA 302/304/311/312 extremely hazardous substances: aniline

CERCLAL Hazardous substances: aniline: 5000 lbs (2268 kg)

**Other Regulations:**

**U.S. Federal and State Regulations:**
California prop, 65: This product contains ingredients for which the State of California has found

**European/International Regulations**

**EC Classification T:** Toxic
**EC Risk Phrases:**
R2: Keep out of reach of children
R23 Toxic by inhalation
R24 Toxic in contact with skin
R25 Toxic if swallowed
R40 Limited evidence of a carcinogenic effect

Safety Phrases:
- S2 Keep out of reach of children
- S28 After contact with skin, wash immediately with plenty of water
- S45 In case of accident or if you feel unwell, seek medical advice immediately (show label if possible)

WHMIS (Canada):
- Class D-1A: Material causing immediate and serious toxic effects (Very toxic)
- Class D-2B: Material causing other toxic effects (Toxic)

XVI. Other Information

Key Legend Information:

- **N/A** – Not Applicable
- **ND** – Not Determined
- **ACGIH** – American Conference of Governmental Industrial Hygienists
- **OSHA** – Occupational Safety and Health Administration
- **TLV** – Threshold Limit Value
- **PEL** – Permissible Exposure Limit
- **TWA** – Time Weighted Average
- **STEL** – Short Term Exposure Limit
- **NTP** – National Toxicology Program
- **IARC** – International Agency for Research on Cancer

The information contained herein is based on the data available to us and is believed to be correct. However Solulink Incorporated makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.