Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Code(s) B-002000-UB-100

Product Name 5X Buffer Solution

Chemical name

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

Recommended Use Laboratory chemicals.

Uses advised against No information available.

1.3. Details of the supplier of the safety data sheet

Supplier Name Dharmacon Inc.
Horizon Discovery Ltd.

Supplier Address 2560 Crescent Drive Suite 100
Lafayette, Co 80026

Supplier Phone Number Tel: (303)-604-9499
Fax: (303)-604-9680

Supplier Email Stephanie.stroh@horizondiscovery.com

For further information, please contact.

1.4. Emergency telephone number

Emergency telephone Chemtrec International 1-703-741-5970

Emergency telephone §45 - (EC)1272/2008 Europe 112
SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

2.2. Label elements

2.3. Other hazards
No information available

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>EC No</th>
<th>CAS-No</th>
<th>Weight-%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
<th>REACH Reg. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>-</td>
<td>7732-18-5</td>
<td>20-50%</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Potassium Chloride</td>
<td>-</td>
<td>7447-40-7</td>
<td>0-20%</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Magnesium Chloride</td>
<td>-</td>
<td>7786-30-3</td>
<td>0-5%</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>HEPES</td>
<td>-</td>
<td>7365-45-9</td>
<td>0-10%</td>
<td>No data available</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Full text of H- and EUH-phrases: see section 16

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No</th>
<th>SVHC candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEPES</td>
<td>7365-45-9</td>
<td>-</td>
</tr>
<tr>
<td>Potassium Chloride</td>
<td>7447-40-7</td>
<td>-</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>-</td>
</tr>
<tr>
<td>Magnesium Chloride</td>
<td>7786-30-3</td>
<td>-</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation         Remove to fresh air.

Skin contact       Wash off immediately with plenty of water for at least 15 minutes.

Eye contact        Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Ingestion          DO NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms           No information available.
4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

---

Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

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

Unsuitable extinguishing media No information available.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None.

5.3. Advice for firefighters

Special protective equipment for fire-fighters
Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

---

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Use personal protective equipment as required.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3. 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 Take up mechanically, placing in appropriate containers for disposal.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

---

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Advice on safe handling
Ensure adequate ventilation.

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

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

Risk Management Methods (RMM)
The information required is contained in this Material Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSOMAL PROTECTION

8.1. Control parameters

Exposure Limits
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL)  No information available

Predicted No Effect Concentration (PNEC)  No information available

8.2. Exposure controls

Engineering Controls
Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/face protection  Wear safety glasses with side shields (or goggles).
Hand Protection  Protective gloves.
Skin and body protection  Wear suitable protective clothing.

Environmental exposure controls  No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
<td></td>
<td>None known</td>
</tr>
<tr>
<td>Property</td>
<td>Information Available</td>
<td>Known Value</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>Melting / freezing point</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Soluble in water</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
<td>None known</td>
<td></td>
</tr>
</tbody>
</table>

9.2. Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Information Available</th>
<th>Known Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softening Point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>VOC Content (%)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Liquid Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Bulk Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Particle Size</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Particle Size Distribution</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical stability

Stable under normal conditions.

**Explosion Data**

<table>
<thead>
<tr>
<th>Sensitivity to Mechanical Impact</th>
<th>None.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity to Static Discharge</td>
<td>None.</td>
</tr>
</tbody>
</table>

10.3. Possibility of hazardous reactions

**Possibility of Hazardous Reactions**

None under normal processing.

**Hazardous Polymerization**

Hazardous polymerization does not occur.

10.4. Conditions to avoid

Incompatible materials.

10.5. Incompatible materials
Strong oxidizing agents.

10.6. Hazardous decomposition products
None under normal use conditions.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

<table>
<thead>
<tr>
<th>Route</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Specific test data for the substance or mixture is not available.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Specific test data for the substance or mixture is not available.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Specific test data for the substance or mixture is not available.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Specific test data for the substance or mixture is not available.</td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
No information available.

Numerical measures of toxicity

Acute Toxicity

Unknown acute toxicity

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

<table>
<thead>
<tr>
<th>Effect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>No information available.</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>No information available.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>No information available.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>No information available.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>No information available.</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>No information available.</td>
</tr>
<tr>
<td>STOT - single exposure</td>
<td>No information available.</td>
</tr>
</tbody>
</table>
STOT - repeated exposure  No information available.

Aspiration hazard  No information available.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecotoxicity  No information available.

#### 12.2. Persistence and degradability

Persistence and Degradability  No information available.

#### 12.3. Bioaccumulative potential

Bioaccumulation  No information available.

#### 12.4. Mobility in soil

Mobility in soil  No information available.

#### 12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment  No information available.

#### 12.6. Other adverse effects

Other adverse effects  No information available.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste from residues/unused products  Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging  No information available.

### SECTION 14: Transport information

#### IMDG

14.1 UN Number  Not regulated

14.2 Proper Shipping Name  Not regulated

14.3 Hazard Class  Not regulated
14.4  Packing group  Not regulated
14.5  Marine Pollutant  Not applicable
14.6  Special Provisions  None
14.7  Transport in bulk  No information available
according to Annex II of MARPOL and the IBC Code

RID
14.1  UN-No.  Not regulated
14.2  Proper Shipping Name  Not regulated
14.3  Hazard Class  Not regulated
14.4  Packing Group  Not regulated
14.5  Environmental hazard  Not applicable
14.6  Special Provisions  None

ADR
14.1  UN-No.  Not regulated
14.2  Proper Shipping Name  Not regulated
14.3  Hazard Class  Not regulated
14.4  Packing Group  Not regulated
14.5  Environmental hazard  Not applicable
14.6  Special Provisions  None

IATA
14.1  UN Number  Not regulated
14.2  Proper Shipping Name  Not regulated
14.3  Hazard Class  Not regulated
14.4  Packing group  Not regulated
14.5  Environmental hazard  Not applicable
14.6  Special Provisions  None

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Authorizations and/or restrictions on use:
This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV). This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

Persistent Organic Pollutants
Not applicable.

Ozone-depleting substances (ODS) regulation (EC) 1005/2009
Not applicable.
**International Inventories**

TSCA - Contact supplier for inventory compliance status.

DSL/NDSL - Contact supplier for inventory compliance status.

EINECS/ELINCS - Contact supplier for inventory compliance status.

ENCS - Contact supplier for inventory compliance status.

IECSC - Contact supplier for inventory compliance status.

KECL - Contact supplier for inventory compliance status.

PICCS - Contact supplier for inventory compliance status.

AICS - Contact supplier for inventory compliance status.

**Legend**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>United States Toxic Substances Control Act Section 8(b) Inventory</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Canadian Domestic Substances List/Non-Domestic Substances List</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances</td>
</tr>
<tr>
<td>ENCS</td>
<td>Japan Existing and New Chemical Substances</td>
</tr>
<tr>
<td>IECSC</td>
<td>China Inventory of Existing Chemical Substances</td>
</tr>
<tr>
<td>KECL</td>
<td>Korean Existing and Evaluated Chemical Substances</td>
</tr>
<tr>
<td>PICCS</td>
<td>Philippines Inventory of Chemicals and Chemical Substances</td>
</tr>
<tr>
<td>AICS</td>
<td>Australian Inventory of Chemical Substances</td>
</tr>
</tbody>
</table>

**15.2. Chemical safety assessment**

No information available.

---

**SECTION 16: Other information**

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Legend**

SVHC: Substances of Very High Concern for Authorization:

**Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

<table>
<thead>
<tr>
<th>TWA</th>
<th>TWA (time-weighted average)</th>
<th>STEL</th>
<th>STEL (Short Term Exposure Limit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling</td>
<td>Maximum limit value</td>
<td>-</td>
<td>Skin designation</td>
</tr>
</tbody>
</table>

**Key literature references and sources for data**

www.ChemADVISOR.com/

**Issuing Date**

null

**Revision Date**

05-Dec-2019

This safety data sheet complies with the requirements of: Regulation (EC) No. 1907/2006.

**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 Safety Data Sheet

Data for Regulatory Rules