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

Product identifier

Product Name: EPO ELISA TMB Substrate Solution

Other means of identification

Catalog Number: 01604
Document Number: DX20815
Synonyms: None

Recommended use of the chemical and restrictions on use

Recommended Use: Laboratory reagent

STEMCELL TECHNOLOGIES INC.’S QUALITY MANAGEMENT SYSTEM IS CERTIFIED TO ISO 13485. PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED.

Details of the supplier of the safety data sheet

Manufacturer/Supplier: STEMCELL Technologies Canada Inc.
Suite 500 - 1618 Station Street
Vancouver, British Columbia V6A 1B6 Canada

Emergency telephone number

Emergency Telephone: 1-800-667-0322

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2A</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Category 1B</td>
</tr>
</tbody>
</table>

Hazards not otherwise classified (HNOC)

Not applicable

Label elements
Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling

Precautionary statements - Response
IF exposed or concerned: Get medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of water and soap
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash it before reuse

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Other Information
Not applicable

Unknown acute toxicity
30.5 % of the mixture consists of ingredient(s) of unknown toxicity
0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
30.5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
30.5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
20.5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable.

Mixture

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene carbonate</td>
<td>108-32-7</td>
<td>10-25</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>10</td>
</tr>
<tr>
<td>2,2' -oxybisethanol</td>
<td>111-46-6</td>
<td>3</td>
</tr>
</tbody>
</table>

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

4. FIRST AID MEASURES

Description of first aid measures

General advice
Show this safety data sheet to the doctor in attendance.

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

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area.

Skin contact
Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

Ingestion
Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

Self-protection of the first aider
Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms
Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES
SAFETY DATA SHEET

01604 - EPO ELISA TMB Substrate Solution

Revision Date 06-Feb-2019
Revision Number 2

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

Unsuitable extinguishing media
CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical
No information available.

Explosion data
- Sensitivity to Mechanical Impact: None.
- Sensitivity to Static Discharge: None.

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

Other Information
Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions
Prevent further leakage or spillage if safe to do so.

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
Pick up and transfer to properly labeled containers.

Prevention of secondary hazards
Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse.
Conditions for safe storage, including any incompatibilities

Storage Conditions
Store locked up. Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits
The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Appropriate engineering controls

Engineering controls
Shower
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection
If splashes are likely to occur, wear safety glasses with side-shields.

Hand protection
Wear suitable gloves. Impervious gloves.

Skin and body protection
Wear suitable protective clothing. Long sleeved clothing.

Respiratory protection
No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations
Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes or clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>No information available</td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

01604 - EPO ELISA TMB Substrate Solution

Revision Date 06-Feb-2019
Revision Number 2

Odor threshold
No information available

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Soluble in cold water and hot water</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

Other Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</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>Molecular formula</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>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
No information available.

Chemical stability
Stable under normal conditions.

Possibility of hazardous reactions
None under normal processing.

Hazardous polymerization
Hazardous polymerization does not occur.

Conditions to avoid
None known based on information supplied.

Incompatible materials
Strong acids. Strong oxidizing agents.

Hazardous decomposition products
None known based on information supplied.
11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation
Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

Eye contact
Specific test data for the substance or mixture is not available. Irritating to eyes. (based on components). Causes serious eye irritation.

Skin contact
Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).

Ingestion
Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms
Redness. May cause redness and tearing of the eyes.

Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document.

<table>
<thead>
<tr>
<th>Component</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene carbonate</td>
<td>= 29000 mg/kg (Rat)</td>
<td>&gt; 3000 mg/kg (Rabbit)</td>
<td>-</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>= 3914 mg/kg (Rat)</td>
<td>= 8 g/kg (Rabbit)</td>
<td>&gt; 5.1 mg/L (Rat) 4 h</td>
</tr>
<tr>
<td>2,2’-oxybisethanol</td>
<td>= 12565 mg/kg (Rat)</td>
<td>= 11890 mg/kg (Rabbit)</td>
<td>-</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

01604 - EPO ELISA TMB Substrate Solution

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

Skin corrosion/irritation Classification based on data available for ingredients. Irritating to skin.

Serious eye damage/eye irritation Classification based on data available for ingredients. Irritating to eyes.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity Classification based on data available for ingredients.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Toxicity to microorganisms</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene carbonate</td>
<td>EC50: &gt;500mg/L (72h, Desmodesmus subspicatus)</td>
<td>LC50: &gt;1000mg/L (96h, Cyprinus carpio) LC50: &gt;500mg/L (96h, Leuciscus idus)</td>
<td>-</td>
<td>EC50: &gt;500mg/L (48h, Daphnia magna)</td>
</tr>
<tr>
<td>108-32-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>EC50: &gt;500mg/L (72h, Desmodesmus subspicatus)</td>
<td>LC50: =832mg/L (96h, Lepomis macrochirus) LC50: =1072mg/L (96h, Pimephales promelas) LC50: =1400mg/L (96h, Poecilia reticulata) LC50: =4000mg/L (96h, Leuciscus idus)</td>
<td>-</td>
<td>EC50: =4897mg/L (48h, Daphnia magna)</td>
</tr>
<tr>
<td>872-50-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,2'-oxybisethanol</td>
<td>-</td>
<td>LC50: =75200mg/L (96h, Pimephales promelas)</td>
<td>-</td>
<td>EC50: =84000mg/L (48h, Daphnia magna)</td>
</tr>
<tr>
<td>111-46-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability No information available.

Bioaccumulation There is no data for this product.

Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene carbonate</td>
<td>0.48</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

01604 - EPO ELISA TMB Substrate Solution

Revision Date 06-Feb-2019
Revision Number 2

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Common Name</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-32-7</td>
<td>N-Methyl-2-pyrrolidone 872-50-4</td>
<td>-0.46</td>
</tr>
<tr>
<td></td>
<td>2,2’-oxybisethanol 111-46-6</td>
<td>-1.98</td>
</tr>
</tbody>
</table>

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

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
Do not reuse empty containers.

14. TRANSPORT INFORMATION

DOT
Not regulated

TDG
Not regulated

MEX
Not regulated

ICAO (air)
Not regulated

IATA
Not regulated

IMDG
Not regulated

RID
Not regulated

ADR
Not regulated

ADN
Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA
Complies

DSL/NDSL
Complies
SAFETY DATA SHEET

01604 - EPO ELISA TMB Substrate Solution

Revision Date 06-Feb-2019
Revision Number 2

EINECS/ELINCS
Complies

ENCS
Does not comply

IECSC
Complies

KECL
Complies

PICCS
Complies

AICS
Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China 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

US 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
- Acute health hazard: Yes
- Chronic Health Hazard: Yes
- Fire hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Proposition 65</th>
</tr>
</thead>
</table>

Page 10 / 11
SAFETY DATA SHEET

01604 - EPO ELISA TMB Substrate Solution

Revision Date 06-Feb-2019
Revision Number 2

N-Methyl-2-pyrrolidone - 872-50-4

Developmental

U.S. State Right-to-Know Regulations

US State Regulations

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water 7732-18-5</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone 872-50-4</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2,2’-oxybisethanol 111-46-6</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Prepared By, Quality Control. STEMCELL Technologies Canada Inc.

Revision Date 06-Feb-2019

Revision Note No information available.

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. STEMCELL Technologies Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

End of Safety Data Sheet