SAFETY DATA SHEET
Moloney Murine Leukemia Virus Reverse Transcriptase

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Product name : Moloney Murine Leukemia Virus Reverse Transcriptase
Part No. (Kit) : 600084
Part No. : Moloney Murine Leukemia Virus Reverse Transcriptase
10× MMuLV Reverse Transcriptase Buffer

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

<table>
<thead>
<tr>
<th>Identified uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical reagent.</td>
</tr>
<tr>
<td>Moloney Murine Leukemia Virus</td>
</tr>
<tr>
<td>Reverse Transcriptase</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase</td>
</tr>
</tbody>
</table>

1.3 Details of the supplier of the safety data sheet
Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation) : Chemtrec: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Product definition : Moloney Murine Leukemia Virus Reverse Transcriptase
10× MMuLV Reverse Transcriptase Buffer

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]
Moloney Murine Leukemia Virus Reverse Transcriptase
H373i SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE): INHALATION [kidneys] - Category 2

Ingredients of unknown toxicity : Moloney Murine Leukemia Virus Reverse Transcriptase
10× MMuLV Reverse Transcriptase Buffer

Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 7.9%

Date of issue/Date of revision : 09/05/2012
SECTION 2: Hazards identification

**Ingredients of unknown ecotoxicity**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 7.9%

**Classification according to Directive 1999/45/EC [DPD]**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  The product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

**Classification**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  Not classified.

See Section 16 for the full text of the R phrases or H statements declared above.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

**Hazard pictograms**

**Signal word**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  Warning
  No signal word.

**Hazard statements**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  GHS08 - May cause damage to organs through prolonged or repeated exposure if inhaled. (kidneys)
  No known significant effects or critical hazards.

**Precautionary statements**

**Prevention**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  Do not breathe vapour.
  Not applicable.

**Response**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  Get medical attention if you feel unwell.
  Not applicable.

**Storage**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  Not applicable.

**Disposal**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  Not applicable.

**Hazardous ingredients**
- Moloney Murine Leukemia Virus Reverse Transcriptase
  Glycerol

Date of issue/Date of revision: 09/05/2012
Moloney Murine Leukemia Virus Reverse Transcriptase

SECTION 2: Hazards identification

Supplemental label elements:
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  - Not applicable.

Special packaging requirements:
- Tactile warning of danger:
  - Moloney Murine Leukemia Virus Reverse Transcriptase
  - 10× MMuLV Reverse Transcriptase Buffer
  - Not applicable.

2.3 Other hazards
- Other hazards which do not result in classification:
  - Moloney Murine Leukemia Virus Reverse Transcriptase
  - 10× MMuLV Reverse Transcriptase Buffer
  - Not available.

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Identifiers</th>
<th>%</th>
<th>Classification</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>EC: 200-289-5&lt;br&gt;CAS: 56-81-5</td>
<td>50-75</td>
<td>Not classified.</td>
<td>STOT RE 2, H373i [1][2]</td>
</tr>
<tr>
<td>Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-</td>
<td>CAS: 9036-19-5</td>
<td>&lt;1</td>
<td>Xi; R41</td>
<td>Eye Dam. 1, H318 Aquatic Acute 1, H400 [1]</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride</td>
<td>EC: 214-684-5&lt;br&gt;CAS: 1185-53-1</td>
<td>5-10</td>
<td>Xi; R36/37/38</td>
<td>Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 [1]</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>EC: 231-211-8&lt;br&gt;CAS: 7447-40-7</td>
<td>5-10</td>
<td>Not classified.</td>
<td>See Section 16 for the full text of the R-phrases declared above</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type:
- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

Date of issue/Date of revision: 09/05/2012
SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td>Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell.</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.</td>
</tr>
</tbody>
</table>

Inhalation

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</td>
</tr>
</tbody>
</table>

Skin contact

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell. Wash clothing before reuse. Clean shoes thoroughly before reuse.</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
</tr>
</tbody>
</table>

Ingestion

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td>Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention following exposure or if feeling unwell. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.</td>
</tr>
</tbody>
</table>

Protection of first-aiders

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td>No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
</tbody>
</table>

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects
**SECTION 4: First aid measures**

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Ingestion</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Over-exposure signs/symptoms</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Ingestion</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

4.3 Indication of any immediate medical attention and special treatment needed

<table>
<thead>
<tr>
<th>Notes to physician</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific treatments</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No specific treatment.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>No specific treatment.</td>
</tr>
</tbody>
</table>
SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer

Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media:
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer

None known.

5.2 Special hazards arising from the substance or mixture

Hazard from the substance or mixture:
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer

In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products:
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer

Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide
- nitrogen oxides
- halogenated compounds
- metal oxide/oxides

5.3 Advice for firefighters

Special precautions for fire-fighters:
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters:
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Date of issue/Date of revision: 09/05/2012
SECTION 6: Accidental release measures

For emergency responders:

- Moloney Murine Leukemia Virus Reverse Transcriptase
  - If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 10× MMuLV Reverse Transcriptase Buffer
  - If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions:

- Moloney Murine Leukemia Virus Reverse Transcriptase
  - Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

- 10× MMuLV Reverse Transcriptase Buffer
  - Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up:

Methods for cleaning up:

- Moloney Murine Leukemia Virus Reverse Transcriptase
  - Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

- 10× MMuLV Reverse Transcriptase Buffer
  - Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections:

- See Section 1 for emergency contact information.
- See Section 8 for information on appropriate personal protective equipment.
- See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:

Protective measures:

- Moloney Murine Leukemia Virus Reverse Transcriptase
  - Put on appropriate personal protective equipment (see Section 8). Do not breathe vapour or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

- 10× MMuLV Reverse Transcriptase Buffer
  - Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene:

- Moloney Murine Leukemia Virus Reverse Transcriptase
  - Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- 10× MMuLV Reverse Transcriptase Buffer
  - Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
SECTION 7: Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

Moloney Murine Leukemia Virus Reverse Transcriptase

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

10× MMuLV Reverse Transcriptase Buffer

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations : Moloney Murine Leukemia Virus Reverse Transcriptase

Industrial applications, Professional applications.

10× MMuLV Reverse Transcriptase Buffer

Industrial applications, Professional applications.

Industrial sector specific solutions : Not applicable.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Exposure limit values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase Glycerol</td>
<td>ACGIH TLV (United States, 2/2010). TWA: 10 mg/m³ 8 hour(s). Form: Inhalable fraction</td>
</tr>
</tbody>
</table>

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Derived effect levels : No DNELs available.

Predicted effect concentrations : No PNECs available.

8.2 Exposure controls

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Date of issue/Date of revision : 09/05/2012
SECTION 8: Exposure controls/personal protection

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin protection
Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance
Physical state: Moloney Murine Leukemia Virus Reverse Transcriptase 10× MMuLV Reverse Transcriptase Buffer Liquid.

Colour: Moloney Murine Leukemia Virus Reverse Transcriptase 10× MMuLV Reverse Transcriptase Buffer Not available.

Odour: Moloney Murine Leukemia Virus Reverse Transcriptase 10× MMuLV Reverse Transcriptase Buffer Not available.

Odour threshold: Moloney Murine Leukemia Virus Reverse Transcriptase 10× MMuLV Reverse Transcriptase Buffer Not available.

pH: Moloney Murine Leukemia Virus Reverse Transcriptase 10× MMuLV Reverse Transcriptase Buffer 8

Melting point/freezing point: Moloney Murine Leukemia Virus Reverse Transcriptase 10× MMuLV Reverse Transcriptase Buffer Not available.

Initial boiling point and boiling range: Moloney Murine Leukemia Virus Reverse Transcriptase 10× MMuLV Reverse Transcriptase Buffer Not available.
### SECTION 9: Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>10× MMuLV Reverse Transcriptase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flash point</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Upper/lower flammability or explosive limits</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Vapour pressure</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Vapour density</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Solubility(ies)</strong></td>
<td>Soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td><strong>Partition coefficient: n-octanol/water</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>
SECTION 9: Physical and chemical properties

Explosive properties:
- Moloney Murine Leukemia Virus Reverse Transcriptase: Not available.
- 10× MMuLV Reverse Transcriptase Buffer: Not available.

9.2 Other information
No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity:
- Moloney Murine Leukemia Virus Reverse Transcriptase: No specific test data related to reactivity available for this product or its ingredients.
- 10× MMuLV Reverse Transcriptase Buffer: No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability:
- Moloney Murine Leukemia Virus Reverse Transcriptase: The product is stable.
- 10× MMuLV Reverse Transcriptase Buffer: The product is stable.

10.3 Possibility of hazardous reactions:
- Moloney Murine Leukemia Virus Reverse Transcriptase: Under normal conditions of storage and use, hazardous reactions will not occur.
- 10× MMuLV Reverse Transcriptase Buffer: Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid:
- Moloney Murine Leukemia Virus Reverse Transcriptase: No specific data.
- 10× MMuLV Reverse Transcriptase Buffer: No specific data.

10.5 Incompatible materials:
- Moloney Murine Leukemia Virus Reverse Transcriptase: No specific data.
- 10× MMuLV Reverse Transcriptase Buffer: No specific data.

10.6 Hazardous decomposition products:
- Moloney Murine Leukemia Virus Reverse Transcriptase: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- 10× MMuLV Reverse Transcriptase Buffer: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol Poly(oxy-1,2-ethanediyl), alpha-[(1,1,3,3-tetramethylbutyl)phenyl]-omega-hydroxy-</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2800 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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SECTION 11: Toxicological information

| Transcriptase Buffer | Potassium chloride | LD50 Oral | Rat | 2600 mg/kg | - |

**Acute toxicity estimates**

Not available.

**Irritation/Corrosion**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase Glycerol</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>1 Percent</td>
<td>-</td>
</tr>
<tr>
<td>Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

**Sensitiser**

**Conclusion/Summary**: Not available.

**Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity**

Not available.

**Specific target organ toxicity (single exposure)**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer Potassium chloride</td>
<td>Category 3</td>
<td>Not determined</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

**Specific target organ toxicity (repeated exposure)**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase Glycerol</td>
<td>Category 2</td>
<td>Inhalation</td>
<td>kidneys</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer Potassium chloride</td>
<td>Category 2</td>
<td>Not determined</td>
<td>gastrointestinal tract</td>
</tr>
</tbody>
</table>

**Aspiration hazard**

Not available.

**Information on the likely routes of exposure**

**Potential acute health effects**

**Inhalation**: No known significant effects or critical hazards.

Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

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### SECTION 11: Toxicological information

**Potential chronic health effects**

| Ingestion | Moloney Murine Leukemia Virus Reverse Transcriptase | No known significant effects or critical hazards. |
| Skin contact | Moloney Murine Leukemia Virus Reverse Transcriptase | No known significant effects or critical hazards. |
| Eye contact | Moloney Murine Leukemia Virus Reverse Transcriptase | No known significant effects or critical hazards. |

**Symptoms related to the physical, chemical and toxicological characteristics**

| Inhalation | Moloney Murine Leukemia Virus Reverse Transcriptase | No specific data. |
| Ingestion | Moloney Murine Leukemia Virus Reverse Transcriptase | No specific data. |
| Skin contact | Moloney Murine Leukemia Virus Reverse Transcriptase | No specific data. |
| Eye contact | Moloney Murine Leukemia Virus Reverse Transcriptase | No specific data. |

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Short term exposure**

- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

**Long term exposure**

- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

**Potential chronic health effects**

- **General**:
  - Moloney Murine Leukemia Virus Reverse Transcriptase
  - 10× MMuLV Reverse Transcriptase Buffer
  - May cause damage to organs through prolonged or repeated exposure if inhaled.
  - No known significant effects or critical hazards.

- **Carcinogenicity**:
  - Moloney Murine Leukemia Virus Reverse Transcriptase
  - 10× MMuLV Reverse Transcriptase Buffer
  - No known significant effects or critical hazards.
**SECTION 11: Toxicological information**

**Mutagenicity**
- Moloney Murine Leukemia Virus Reverse Transcriptase: No known significant effects or critical hazards.
- 10× MMuLV Reverse Transcriptase Buffer: No known significant effects or critical hazards.

**Teratogenicity**
- Moloney Murine Leukemia Virus Reverse Transcriptase: No known significant effects or critical hazards.
- 10× MMuLV Reverse Transcriptase Buffer: No known significant effects or critical hazards.

**Developmental effects**
- Moloney Murine Leukemia Virus Reverse Transcriptase: No known significant effects or critical hazards.
- 10× MMuLV Reverse Transcriptase Buffer: No known significant effects or critical hazards.

**Fertility effects**
- Moloney Murine Leukemia Virus Reverse Transcriptase: No known significant effects or critical hazards.
- 10× MMuLV Reverse Transcriptase Buffer: No known significant effects or critical hazards.

**Absorption**
- Moloney Murine Leukemia Virus Reverse Transcriptase: Not available.
- 10× MMuLV Reverse Transcriptase Buffer: Not available.

**Distribution**
- Moloney Murine Leukemia Virus Reverse Transcriptase: Not available.
- 10× MMuLV Reverse Transcriptase Buffer: Not available.

**Other information**
- Not available.

**SECTION 12: Ecological information**

### 12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td>Acute LC50 54 to 57 ml/L Fresh water</td>
<td>Fish - Oncorhynchus mykiss - 0.9 g</td>
<td>96 hours</td>
</tr>
<tr>
<td>Glycerol</td>
<td>Acute EC50 210 ug/L Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>96 hours</td>
</tr>
<tr>
<td>Poly(oxy-1,2-ethanediyl), alpha-[(1,1,3,3-tetramethylbutyl)phenyl]-omega-hydroxy-</td>
<td>Acute LC50 10800 ug/L Marine water</td>
<td>Crustaceans - Pandalus montagui - Adult</td>
<td>48 hours</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>Acute LC50 8400 to 9800 ug/L Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate - &lt;24 hours</td>
<td>48 hours</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>Acute LC50 7200 ug/L Fresh water</td>
<td>Fish - Oncorhynchus mykiss - 5 to 6 cm</td>
<td>96 hours</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>Acute EC50 1337000 ug/L Fresh water</td>
<td>Algae - Navicula seminulum</td>
<td>96 hours</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>Acute EC50 83000 ug/L Fresh water</td>
<td>Daphnia - Daphnia magna - 12 hours</td>
<td>48 hours</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>Acute LC50 16.5 mg/L Fresh water</td>
<td>Crustaceans - Diaphanosoma brachyurum - Neonate - 24 hours</td>
<td>48 hours</td>
</tr>
<tr>
<td>10× MMuLV Reverse Transcriptase Buffer</td>
<td>Acute LC50 435000 ug/L Fresh water</td>
<td>Fish - Gambusia affinis - Adult</td>
<td>96 hours</td>
</tr>
</tbody>
</table>
SECTION 12: Ecological information

12.2 Persistence and degradability
Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil
Soil/water partition coefficient (K<sub>oc</sub>) : Not available.
Mobility : Not available.

12.5 Results of PBT and vPvB assessment
PBT : Not applicable.
vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging
Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

Regulatory information
ADR/RID / IMDG / IATA : Not regulated.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

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SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Substances of very high concern
None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

Other EU regulations

Europe inventory: At least one component is not listed.
Black List Chemicals: Not listed
Priority List Chemicals: Not listed
Integrated pollution prevention and control list (IPPC) - Air: Not listed
Integrated pollution prevention and control list (IPPC) - Water: Not listed

15.2 Chemical Safety Assessment

This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms:
ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT RE 2, H373i</td>
<td></td>
</tr>
</tbody>
</table>

Full text of abbreviated H statements:

Moloney Murine Leukemia Virus Reverse Transcriptase
H318 Causes serious eye damage.
H373i May cause damage to organs through prolonged or repeated exposure if inhaled.
H400 Very toxic to aquatic life.

10× MMuLV Reverse Transcriptase Buffer
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.

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Moloney Murine Leukemia Virus Reverse Transcriptase

SECTION 16: Other information

Full text of classifications [CLP/GHS]:
- Moloney Murine Leukemia Virus Reverse Transcriptase
  - Aquatic Acute 1, H400
  - Eye Dam. 1, H318
  - STOT RE 2, H373
  - AQUATIC TOXICITY (ACUTE) - Category 1
  - SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
  - SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE): INHALATION [kidneys] - Category 2

- 10× MMuLV Reverse Transcriptase Buffer
  - Eye Irrit. 2, H319
  - Skin Irrit. 2, H315
  - STOT RE 2, H373
  - STOT SE 3, H335
  - SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
  - SKIN CORROSION/IRRITATION - Category 2
  - SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) [gastrointestinal tract] - Category 2
  - SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation] - Category 3

Full text of abbreviated R phrases:
- Moloney Murine Leukemia Virus Reverse Transcriptase
  - Xi - Irritant

- 10× MMuLV Reverse Transcriptase Buffer
  - R36/37/38- Irritating to eyes, respiratory system and skin.

Full text of classifications [DSD/DPD]:
- Moloney Murine Leukemia Virus Reverse Transcriptase
  - Xi - Irritant

- 10× MMuLV Reverse Transcriptase Buffer
  - Xi - Irritant

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Date of previous issue: 26/05/2010
Version: 2

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