Material Safety Data Sheet

Agilent Technologies Australia Pty Ltd
347 Burwood Highway
Forest Hill
Victoria 3131, Australia
1800 802 402

Moloney Murine Leukemia Virus Reverse Transcriptase

1. Identification of the material and supplier

Names
Product name: Moloney Murine Leukemia Virus Reverse Transcriptase
Part No. (Chemical Kit): 600084
Part No.: Moloney Murine Leukemia Virus Reverse Transcriptase 600084-51
10× MMuLV Reverse Transcriptase Buffer 600084-52
ADG: Not regulated as Dangerous Goods according to the ADG Code
Supplier/Manufacturer: Agilent Technologies Australia Pty Ltd
347 Burwood Highway
Forest Hill
Victoria 3131, Australia
1800 802 402
Emergency telephone number: Chemtrec: +(61)-290372994

Uses
Area of application: Moloney Murine Leukemia Virus Reverse Transcriptase
10× MMuLV Reverse Transcriptase Buffer
Industrial applications, Professional applications.

Material uses: Analytical reagent.
Moloney Murine Leukemia Virus Reverse Transcriptase 0.2 ml
10× MMuLV Reverse Transcriptase Buffer 1 ml

2. Hazards identification

Classification: Moloney Murine Leukemia Virus Reverse Transcriptase Not regulated.
10× MMuLV Reverse Transcriptase Buffer Not regulated.
Risk phrases: Moloney Murine Leukemia Virus Reverse Transcriptase Not classified.
10× MMuLV Reverse Transcriptase Buffer Not classified.
Safety phrases: Moloney Murine Leukemia Virus Reverse Transcriptase S36- Wear suitable protective clothing.
10× MMuLV Reverse Transcriptase Buffer S36- Wear suitable protective clothing.

Statement of hazardous/dangerous nature: Moloney Murine Leukemia Virus Reverse Transcriptase NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.
10× MMuLV Reverse Transcriptase Buffer NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on ingredients

Mixture: Moloney Murine Leukemia Virus Reverse Transcriptase Yes.
10× MMuLV Reverse Transcriptase Buffer Yes.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>CAS number</th>
<th>Concentration</th>
</tr>
</thead>
</table>

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3. Composition/information on ingredients

Other ingredients, determined not to be hazardous according to Safe Work Australia criteria, and not dangerous according to the ADG Code, make up the product concentration to 100%.

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.

4. First-aid measures

<table>
<thead>
<tr>
<th>Ingestion</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<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>

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<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>

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<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>

<table>
<thead>
<tr>
<th>Protection of first-aiders</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No action shall be taken involving any personal risk or without suitable training.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<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>

<table>
<thead>
<tr>
<th>Advice to doctor</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>No specific treatment. 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>
5. Fire-fighting measures

Extinguishing media

| Suitable | Moloney Murine Leukemia Virus Reverse Transcriptase | Use an extinguishing agent suitable for the surrounding fire. |
| Not suitable | Moloney Murine Leukemia Virus Reverse Transcriptase | None known. |

10× MMuLV Reverse Transcriptase Buffer

Use an extinguishing agent suitable for the surrounding fire. None known.

Special exposure hazards

| Moloney Murine Leukemia Virus Reverse Transcriptase | 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. |
| 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. |

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

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

Special protective equipment for fire-fighters

- Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions

| Moloney Murine Leukemia Virus Reverse Transcriptase | 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. Put on appropriate personal protective equipment (see Section 8). |
| 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. Put on appropriate personal protective equipment (see Section 8). |

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. Accidental release measures

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.

7. Handling and storage

Handling

- **Moloney Murine Leukemia Virus Reverse Transcriptase**
  - Put on appropriate personal protective equipment (see Section 8). 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.

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

Storage

- **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.

8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase</td>
<td><strong>Safe Work Australia (Australia, 8/2005).</strong> TWA: 10 mg/m³ 8 hour(s).</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
</tr>
</tbody>
</table>

No additional exposure standard allocated for other ingredients/components covered by the MSDS other than those listed in the table above.
8. Exposure controls/personal protection

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.

Exposure controls

Engineering measures: No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

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.

Eyes: 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 or dusts.

Hands: 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.

Respiratory: 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.

Skin: 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.

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.

9. Physical and chemical properties

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

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

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

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

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

Melting point: Moloney Murine Leukemia Virus Reverse Transcriptase Not available.
10× MMuLV Reverse Transcriptase Buffer Not available.
### 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>Vapour pressure</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammable limits</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH</td>
<td>8</td>
<td>8.3</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</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>
</tbody>
</table>

### 10. Stability and reactivity

<table>
<thead>
<tr>
<th>Stability</th>
<th>Moloney Murine Leukemia Virus Reverse Transcriptase</th>
<th>10× MMuLV Reverse Transcriptase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability</td>
<td>The product is stable.</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Materials to avoid</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>
10. Stability and reactivity

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.

11. Toxicological information

Potential acute health effects

Inhalation: 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.

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

Ingestion

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.

Skin contact

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.

Eye contact

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.

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 Glycerol</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusion/Summary: Not available.

Potential chronic health effects

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>
</tbody>
</table>

Conclusion/Summary: Not available.

Sensitiser

Conclusion/Summary: Not available.

Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity

Not available.

Chronic 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.

Carcinogenicity

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.
11. Toxicological information

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

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

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

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

**Over-exposure signs/symptoms**

**Inhalation**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  - No specific data.

**Ingestion**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  - No specific data.

**Skin**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  - No specific data.

**Eyes**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  - No specific data.

**Other adverse symptoms**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  - Not available.

**Target organs**
- Moloney Murine Leukemia Virus Reverse Transcriptase
- 10× MMuLV Reverse Transcriptase Buffer
  - Contains material which may cause damage to the following organs: kidneys, upper respiratory tract, skin, eye, lens or cornea.

12. Ecological information

**Ecotoxicity**
- No known significant effects or critical hazards.

**Aquatic ecotoxicity**

<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 Glycerol</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>
</tbody>
</table>

**Other ecological information**

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moloney Murine Leukemia Virus Reverse Transcriptase Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>
Moloney Murine Leukemia Virus Reverse Transcriptase

12. Ecological information

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

13. Disposal considerations

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. 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. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

Regulatory information

ADG / IMDG / IATA : Not regulated as Dangerous Goods according to the ADG Code.

15. Regulatory information

Standard for the Uniform Scheduling of Drugs and Poisons

5

Control of Scheduled Carcinogenic Substances

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>No listed substance</td>
<td></td>
</tr>
</tbody>
</table>

Australia inventory (AICS) : All components are listed or exempted.

16. Other information

Date of issue : 09/05/2012
Date of previous issue : 26/05/2010.

Indicates information that has changed from previously issued version.

Disclaimer: The information contained in this document is based on Agilent’s state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.