MATERIAL SAFETY DATA SHEET

This product is not classified as hazardous based on Directive 67/548/EEC (as amended) or Directive 1999/45/EC of the Commission of the European Communities

AMPLITAQ DNA POLYMERASE,LD

1. Identification of the substance/preparation and the company

1.1 Identification of the substance or preparation:

Synonyms:
AmpliTaq DNA POLYMERASE,LD
AmpliTaq DNA POLYMERASE,LD, with GeneAmp 10X PCR buffer
AmpliTaq DNA POLYMERASE,LD, with GeneAmp 10X PCR buffer II and MgCl₂ solution

CAS no. : N.A.
EC index no. : N.A.
EINECS no. : N.A.
RTECS no. : N.A.
Molecular weight : N.A.
Formula : N.A.

1.2 Company/undertaking identification:
Applied Biosystems Pty Ltd
52 Rocco Drive
Scoresby Vic
Australia 3179
Tel: 03 9730 8600 Fax: 03 9730 8798

1.3 Telephone number for emergency:
0011 1 703 527 3887
(Can be a Reverse Charge Call by Calling 12550 from Australia)
CHEMTREC (24 Hr Emergency Response Service Provider)
1300 Wilson Blvd.
Arlington, VA 22209 USA

2. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Hazardous ingredients</th>
<th>CAS no.</th>
<th>Conc. in %</th>
<th>Hazard class.</th>
<th>Risks (R-phrases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>&lt; 60</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EDTA</td>
<td>60-00-4</td>
<td>&lt; 1</td>
<td>Xi</td>
<td>36-52/53</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>7447-40-7</td>
<td>0-5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TRIS, hydrochloride</td>
<td>1185-53-1</td>
<td>0-5</td>
<td>Xi</td>
<td>36/37/38</td>
</tr>
<tr>
<td>Magnesium chloride</td>
<td>7786-30-3</td>
<td>&lt; 0.2</td>
<td>Xi</td>
<td>36/37/38</td>
</tr>
<tr>
<td>Water and other low-hazard constituents (&lt;1%)</td>
<td>-</td>
<td>balance</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

3. Hazards identification

- No hazard classification

4. First aid measures

4.1 Eye contact:
- Rinse immediately with plenty of water for 15 minutes
- Consult a doctor/medical service if irritation persists

4.2 Skin contact:
- Wash immediately with lots of water and soap for 15 minutes
- Consult a doctor/medical service if irritation persists

4.3 After inhalation:
- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration
- Consult a doctor/medical service if breathing problems develop

4.4 After ingestion:
- Immediately give lots of water to drink
- Never give water to an unconscious person
- Do not allow vomiting
- Consult a doctor/medical service if you feel unwell

Printing date : 05-2001
5. Fire-fighting measures

5.1 Suitable extinguishing media:
- Non combustible
- For surrounding fires: all extinguishing media allowed

5.2 Unsuitable extinguishing media:
- No data available

5.3 Special exposure hazards:
- On burning: release of toxic and corrosive gases/vapours (ammonia, nitrous vapours, hydrogen chloride)

5.4 Instructions:
- Dilute toxic gases with water spray

5.5 Special protective equipment for firefighters:
- Heat/fire exposure: compressed air/oxygen apparatus
- Heat/fire exposure: gas-tight suit

6. Accidental release measures

6.1 Personal protection: see 8.3

6.2 Environmental precautions:
- Contain leaking substance, pump over in suitable containers
- Plug the leak, cut off the supply

6.3 Clean-up:
- Take up liquid spill into absorbent material
- Scoop absorbed substance into closing containers
- Small quantities of liquid spill: wash down with an excess of water
- Clean contaminated surfaces with an excess of water

7. Handling and storage

7.1 Handling:
- Observe normal hygiene standards

7.2 Storage:
- Keep container tightly closed
- Meet the legal requirements.
- Keep away from: heat sources, oxidizing agents, acids, bases

  Storage temperature: N.D.

7.3 Materials for packaging:
- to avoid: no data available

8. Exposure controls/Personal protection

8.1 Recommended engineering controls:
- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

  Sampling methods:
  Glycerin Mist (Respirable and total dust) OSHA CSI
  Glycerin Mist (Particulates) NIOSH 600

8.2 Exposure limits:
For glycerine:

<table>
<thead>
<tr>
<th>TLV-TWA</th>
<th>10</th>
<th>mg/m³</th>
<th>ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLV-STE</td>
<td>-</td>
<td>mg/m³</td>
<td>ppm</td>
</tr>
<tr>
<td>OES-LTEL</td>
<td>10</td>
<td>mg/m³</td>
<td>ppm</td>
</tr>
<tr>
<td>OES-STE</td>
<td>-</td>
<td>mg/m³</td>
<td>ppm</td>
</tr>
</tbody>
</table>
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**AMPLITAQ DNA POLYMERASE, LD**

<table>
<thead>
<tr>
<th>MAK</th>
<th>mg/m³</th>
<th>ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC-TGG 8h</td>
<td>10 mist</td>
<td>mg/m³</td>
</tr>
<tr>
<td>MAC-TGG 15 min.</td>
<td>mg/m³</td>
<td></td>
</tr>
<tr>
<td>VME-8h</td>
<td>10 aerosol</td>
<td>mg/m³</td>
</tr>
<tr>
<td>VLE-15 min.</td>
<td>mg/m³</td>
<td></td>
</tr>
<tr>
<td>GWBB-8h</td>
<td>10 mist</td>
<td>mg/m³</td>
</tr>
<tr>
<td>GWK-15 min.</td>
<td>mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

8.3 Personal protection:
- Eye protection:
  - Safety glasses
- Hand protection:
  - Gloves
- Skin protection:
  - Protective clothing
- Materials for protective clothing:
  - Natural rubber
  - Neoprene
  - Nitrile rubber
- Respiratory protection:
  - On heating: gas mask

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>9.1 Appearance (at 20°C)</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.2 Odour</td>
<td>N.D.</td>
</tr>
<tr>
<td>9.3 Colour</td>
<td>Colourless</td>
</tr>
<tr>
<td>9.4 pH value</td>
<td>6/8</td>
</tr>
<tr>
<td>9.5 Boiling point/boiling range</td>
<td>100 °C</td>
</tr>
<tr>
<td>9.6 Melting point/melting range</td>
<td>0 °C</td>
</tr>
<tr>
<td>9.7 Flashpoint</td>
<td>N.A.</td>
</tr>
<tr>
<td>9.8 Auto-ignition point</td>
<td>N.A.</td>
</tr>
<tr>
<td>9.9 Explosion limits</td>
<td>N.A. vol% (°C)</td>
</tr>
<tr>
<td>9.10 Vapour pressure (at 20°C)</td>
<td>23 hPa</td>
</tr>
<tr>
<td>9.11 Relative density (at 4°C)</td>
<td>1</td>
</tr>
<tr>
<td>9.12 Water solubility</td>
<td>COMPLETELY</td>
</tr>
<tr>
<td>9.13 Soluble in</td>
<td>N.D.</td>
</tr>
<tr>
<td>9.14 Relative vapour density</td>
<td>N.D.</td>
</tr>
<tr>
<td>9.15 Saturation concentration</td>
<td>N.D. g/m³</td>
</tr>
<tr>
<td>9.16 Viscosity</td>
<td>N.D. Pa.s</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

10.1 Stability:
- Stable under normal conditions

10.2 Reactivity/Hazardous decomposition products:
- On burning: release of toxic and corrosive gases/vapours (ammonia, nitrous vapours, hydrogen chloride)

10.3 Conditions/materials to avoid:
- Keep away from: heat sources, oxidizing agents, acids, bases
11. Toxicological information

11.1 Acute toxicity:

For glycerine:

- **LD50 oral rat**: 12600 mg/kg
- **LD50 dermal rat**: N.D. mg/kg
- **LD50 dermal rabbit**: > 10000 mg/kg
- **LC50 inhalation rat**: N.D. mg/1/4 h

11.2 Chronic toxicity:

- **EC carc. cat.**: not listed
- **EC muta. cat.**: not listed
- **EC repr. cat.**: not listed

Carcinogenicity (TLV): not listed
Carcinogenicity (MAC): not listed
Carcinogenicity (VME): not listed
Carcinogenicity (MEL): not listed
Carcinogenicity (MAK): not listed
Mutagenicity (MAC): not listed
Teratogenicity (MAC): not listed
IARC classification: not listed

Obligatory medical control (ARAB-RGPT-Belgium Art. 124):
- Group: I
- Number: 20.1
- I 23.1

11.3 Routes of exposure: ingestion, inhalation, eyes and skin

11.4 Acute effects/symptoms:

**AFTER INHALATION**
- Slight irritation

**ON HEATING:**
- Irritation of the respiratory tract

**AFTER INGESTION**
AFTER ABSORPTION OF HIGH QUANTITIES:
- Irritation of the gastric/intestinal mucosa
- Nausea
- Vomiting
- Diarrhoea

**AFTER SKIN CONTACT**
- Slight irritation

**ON HEATING:**
- Tingling/irritation of the skin

**AFTER EYE CONTACT**
- Slight irritation

**ON HEATING:**
- Irritation of the eye tissue

11.5 Chronic effects:
- No data available
12. Ecological information

12.1 Mobility:
- Volatile organic compounds (VOC): N.A.
- Soluble in water

12.2 Biodegradation:
- soil: T ½ : N.D. days
- BOD₅ : N.D. g O₂/g substance
- COD : N.D. g O₂/g substance
- water: - No data available

12.3 Bioaccumulation:
- log Pₖₚw : N.D.
- BCF : N.D.

12.4 Aquatic toxicity:
For glycerine:
- LC50 (96 h) : 54000 mg/l (SALMO GAIRDNERI/ONCORHYNCHUS MYKISSL)
- LC50 (96 h) : >1000 mg/l ()

12.5 Other information:
- WGK: 1 (004)
- Effect on the ozone layer : N.D.
- Waste water purification : N.D.

13. Waste disposal considerations

13.1 Provisions relating to waste:
- EWC code (75/442/EC): 16 05 03
- Waste material code (Flanders): 691
- Waste code (Germany): 59302

13.2 Disposal methods:
- Dehydrate
- Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber

14. Transport information

14.1 Proper shipping name: N.A.

14.2 Transport by road/rail (ADR/RID): N.A.
- Danger code: -
- Danger labels on tanks : -
- Danger labels on packages : -

14.3 Substance identification number (UN number): N.A.
- Packing: -

14.4 Maritime transport (IMDG code): N.A.
- EMS : -
- MFAG : -
- Marine pollutant : -

14.5 Inland navigation (ADNR) : N.A.

14.6 Air freight (ICAO) : N.A.
- Instruction “passenger” : -
- Instruction “cargo” : -

14.7 Other information: not restricted for any mode of international transport
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15. Regulatory information

Classification according to directives 67/548/EEC and 1999/45/EC

NOT REQUIRED ACCORDING TO AVAILABLE INFORMATION

16. Other information

The information provided on this MSDS 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 as 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 material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
* = INTERNAL CLASSIFICATION

WGK:
001 : Internal classification
002 : Classification in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999
003 : Classification based on R phrases in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999
004 : Classification based on the components in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999

Exposure limits:
TLV : Threshold Limit Value - ACGIH USA 1999
OES : Occupational Exposure Standards - United Kingdom 1999
MEL : Maximum Exposure Limits - United Kingdom 1999
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 1999
TRK : Technische Richtkonzentrationen - Germany 1999
MAC : Maximale aanvaarde concentratie - The Netherlands 2000
VME : Valeurs limites de Moyenne d’Exposition - France 1999
VLE : Valeurs limites d’Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 1998
GWK : Grenswaarde kortstondige blootstelling - Belgium 1998

MSDS established : 17-10-2000
Reference number : BIG\34436GB
P/N N808-0107; P/N N808-0157; P/N N808-0158

Document number : 4328548
Revision date :
Revision number : A
Reason for revision :

Printing date : 05-2001