
SAFETY DATA SHEET

Clarigo v2

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

1.1 Product identifier
Product name : Clarigo v2
Part no. (chemical kit) : MR-2501.096
Part no. :
AR 1 I-0801
Clarigo PCR Mix I-2143
Taq DNA Polymerase I-1707

1.2 Relevant identified uses of the substance or mixture and uses advised against
Material uses : For In Vitro Diagnostic Use
5.0184 ml
AR 1 1 x 1 ml
Clarigo PCR Mix 4 x 1 ml
Taq DNA Polymerase 1 x 0.018 ml

1.3 Details of the supplier of the safety data sheet
Agilent Technologies Belgium
De Kleelaaan 5 bus 9
1831 Diegem
Belgium

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 :
AR 1 Mono-constituent substance
Clarigo PCR Mix Mixture
Taq DNA Polymerase Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]
Taq DNA Polymerase H412 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3

Ingredients of unknown toxicity :
Clarigo PCR Mix Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%
Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 1 - 10%
Taq DNA Polymerase Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 10 - 30%

Ingredients of unknown ecotoxicity :
Clarigo PCR Mix Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2.2%

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

Date of issue/Date of revision : 17/09/2018
SECTION 2: Hazards identification

2.2 Label elements

Signal word:
- AR 1: No signal word.
- Clarigo PCR Mix: No signal word.
- Taq DNA Polymerase: No signal word.

Hazard statements:
- AR 1: No known significant effects or critical hazards.
- Clarigo PCR Mix: No known significant effects or critical hazards.
- Taq DNA Polymerase: H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention:
- AR 1: Not applicable.
- Clarigo PCR Mix: Not applicable.
- Taq DNA Polymerase: P273 - Avoid release to the environment.

Response:
- AR 1: Not applicable.
- Clarigo PCR Mix: Not applicable.
- Taq DNA Polymerase: Not applicable.

Storage:
- AR 1: Not applicable.
- Clarigo PCR Mix: Not applicable.
- Taq DNA Polymerase: Not applicable.

Disposal:
- AR 1: Not applicable.
- Clarigo PCR Mix: Not applicable.
- Taq DNA Polymerase: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients:
- Taq DNA Polymerase: Not applicable.

Supplemental label elements:
- AR 1: Not applicable.
- Clarigo PCR Mix: Not applicable.
- Taq DNA Polymerase: Not applicable.

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

- AR 1: Not applicable.
- Clarigo PCR Mix: Not applicable.
- Taq DNA Polymerase: Not applicable.

Special packaging requirements:

Tactile warning of danger:
- AR 1: Not applicable.
- Clarigo PCR Mix: Not applicable.
- Taq DNA Polymerase: Not applicable.

2.3 Other hazards

Other hazards which do not result in classification:
- AR 1: None known.
- Clarigo PCR Mix: None known.
- Taq DNA Polymerase: None known.

SECTION 3: Composition/information on ingredients

3.1 Substances:
- AR 1: Mono-constituent substance
- Clarigo PCR Mix: Mixture
- Taq DNA Polymerase: Mixture

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Clarigo PCR Mix</td>
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<td></td>
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<tr>
<td>Taq DNA Polymerase</td>
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SECTION 3: Composition/information on ingredients

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<thead>
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<tbody>
<tr>
<td>Substance</td>
<td>Water</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>[A] Substance classified with a health or environmental hazard</td>
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</tbody>
</table>

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Substance</td>
<td>Glycerol</td>
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<tr>
<td></td>
<td></td>
<td>[2] Substance with a workplace exposure limit</td>
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</tbody>
</table>

| Type          | Substance | REACH #: Annex V EC: 56-81-5 | CAS: 9036-19-5 | <1 | Eye Irrit. 2, H319 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) |
|--------------|-----------|---------------------------------|----------------|    | See Section 16 for the full text of the H statements declared above. |
| Substance    | Poly(oxy-1,2-ethanediyl), .alpha.-{(1,1,3,3-tetramethylbutyl)phenyl}-.omega.-hydroxy- | | | | |
|              |           | [1] [5] Substance of equivalent concern |

**SECTION 4: First aid measures**

### 4.1 Description of first aid measures

**Eye contact**

- **AR 1**
  - **Clarigo PCR Mix**
    - 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.
  - **Taq DNA Polymerase**
    - 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.
  - **Clarigo PCR Mix**
    - 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 if irritation occurs.

**Inhalation**

- **AR 1**
  - **Clarigo PCR Mix**
    - Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
  - **Taq DNA Polymerase**
    - 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.
  - **Clarigo PCR Mix**
    - 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 if adverse health effects persist or are severe. 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.

**Type**

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy
- [*] Substance
- [A] Constituent
- [B] Impurity
- [C] Stabilising additive

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### SECTION 4: First aid measures

#### Skin contact

**AR 1**
Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

**Clarigo PCR Mix**
Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

**Taq DNA Polymerase**
Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

#### Ingestion

**AR 1**
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.

**Clarigo PCR Mix**
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.

**Taq DNA Polymerase**
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 if adverse health effects persist or are severe. 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.

**Protection of first-aiders**

**AR 1**
No action shall be taken involving any personal risk or without suitable training.

**Clarigo PCR Mix**
No action shall be taken involving any personal risk or without suitable training.

**Taq DNA Polymerase**
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.

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

### Potential acute health effects

#### Eye contact

**AR 1**
No known significant effects or critical hazards.

**Clarigo PCR Mix**
No known significant effects or critical hazards.

**Taq DNA Polymerase**
No known significant effects or critical hazards.

#### Inhalation

**AR 1**
No known significant effects or critical hazards.

**Clarigo PCR Mix**
No known significant effects or critical hazards.

**Taq DNA Polymerase**
No known significant effects or critical hazards.

#### Skin contact

**AR 1**
No known significant effects or critical hazards.

**Clarigo PCR Mix**
No known significant effects or critical hazards.

**Taq DNA Polymerase**
No known significant effects or critical hazards.

#### Ingestion

**AR 1**
No known significant effects or critical hazards.

**Clarigo PCR Mix**
No known significant effects or critical hazards.

**Taq DNA Polymerase**
No known significant effects or critical hazards.

### Over-exposure signs/symptoms

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### SECTION 4: First aid measures

<table>
<thead>
<tr>
<th></th>
<th>AR 1</th>
<th>Clarigo PCR Mix</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye contact</td>
<td></td>
<td>Taq DNA Polymerase</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>AR 1</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>AR 1</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>AR 1</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
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</table>

#### Specific treatments

<table>
<thead>
<tr>
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<th>AR 1</th>
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<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye contact</td>
<td></td>
<td>Taq DNA Polymerase</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>AR 1</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>AR 1</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>AR 1</td>
<td>No specific data.</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></th>
<th>AR 1</th>
<th>Clarigo PCR Mix</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes to physician</td>
<td></td>
<td>Taq DNA Polymerase</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

**SECTION 5: Firefighting measures**

#### 5.1 Extinguishing media

<table>
<thead>
<tr>
<th></th>
<th>AR 1</th>
<th>Clarigo PCR Mix</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suitable extinguishing media</td>
<td></td>
<td>Taq DNA Polymerase</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>AR 1</th>
<th>Clarigo PCR Mix</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable extinguishing media</td>
<td></td>
<td>Taq DNA Polymerase</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

#### 5.2 Special hazards arising from the substance or mixture

<table>
<thead>
<tr>
<th></th>
<th>AR 1</th>
<th>Clarigo PCR Mix</th>
<th>No specific data.</th>
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</thead>
<tbody>
<tr>
<td>Hazards from the substance or mixture</td>
<td></td>
<td>Taq DNA Polymerase</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>AR 1</th>
<th>Clarigo PCR Mix</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous combustion products</td>
<td></td>
<td>Taq DNA Polymerase</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

**5.3 Advice for firefighters**

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SECTION 5: Firefighting measures

**Special precautions for fire-fighters**

<table>
<thead>
<tr>
<th>Special protective equipment for fire-fighters</th>
<th>AR 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clarigo PCR Mix</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Taq DNA Polymerase</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

**Special precautions for fire-fighters**

<table>
<thead>
<tr>
<th>Special protective equipment for fire-fighters</th>
<th>AR 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clarigo PCR Mix</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Taq DNA Polymerase</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

**SECTION 6: Accidental release measures**

6.1 **Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel**

<table>
<thead>
<tr>
<th>For non-emergency personnel</th>
<th>AR 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clarigo PCR Mix</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Taq DNA Polymerase</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

**For emergency responders**

<table>
<thead>
<tr>
<th>For emergency responders</th>
<th>AR 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clarigo PCR Mix</strong></td>
<td>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 &quot;For non-emergency personnel&quot;.</td>
</tr>
<tr>
<td><strong>Taq DNA Polymerase</strong></td>
<td>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 &quot;For non-emergency personnel&quot;.</td>
</tr>
</tbody>
</table>
SECTION 6: Accidental release measures

6.2 Environmental precautions

AR 1
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).

Clarigo PCR Mix
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).

Taq DNA Polymerase
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). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : AR 1
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.

Clarigo PCR Mix
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.

Taq DNA Polymerase
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 : AR 1
Put on appropriate personal protective equipment (see Section 8).

Clarigo PCR Mix
Put on appropriate personal protective equipment (see Section 8).

Taq DNA Polymerase
Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. 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.

Advice on general occupational hygiene : AR 1
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.

Clarigo PCR Mix
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,
SECTION 7: Handling and storage

drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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.

Taq DNA Polymerase
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. See Section 10 for incompatible materials before handling or use.

Clarigo PCR Mix
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. See Section 10 for incompatible materials before handling or use.

Taq DNA Polymerase
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7.2 Conditions for safe storage, including any incompatibilities

Storage: AR 1
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. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations: AR 1
Industrial applications, Professional applications.

Clarigo PCR Mix
Industrial applications, Professional applications.

Taq DNA Polymerase
Industrial applications, Professional applications.

Industrial sector specific solutions: AR 1
Not applicable.

Clarigo PCR Mix
Not applicable.

Taq DNA Polymerase
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>Taq DNA Polymerase</td>
<td>EH40/2005 WELs (United Kingdom (UK), 12/2011).</td>
</tr>
<tr>
<td>Glycerol</td>
<td>TWA: 10 mg/m³ 8 hours. Form: Mist</td>
</tr>
</tbody>
</table>

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SECTION 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. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Hand protection

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling the product. The protection time of the gloves cannot be accurately estimated.

Eye/face protection

Safety glasses complying with an approved standard should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin 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.

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.

8.2 Exposure controls

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

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. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

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: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls

Emmissions 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**

<table>
<thead>
<tr>
<th>Property</th>
<th>AR 1</th>
<th>Clarigo PCR Mix</th>
<th>Taq DNA Polymerase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical state</strong></td>
<td>Liquid</td>
<td>Liquid</td>
<td>Liquid [Clear / solution]</td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>AR 1</td>
<td>Colourless</td>
<td>Colourless</td>
</tr>
<tr>
<td><strong>Odour</strong></td>
<td>AR 1</td>
<td>Odourless</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Odour threshold</strong></td>
<td>AR 1</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>AR 1</td>
<td>7</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Melting point/freezing point</strong></td>
<td>AR 1</td>
<td>0°C</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Initial boiling point and boiling range</strong></td>
<td>AR 1</td>
<td>100°C</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>AR 1</td>
<td>Not applicable</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>AR 1</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>AR 1</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Upper/lower flammability or explosive limits</strong></td>
<td>AR 1</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Vapour pressure</strong></td>
<td>AR 1</td>
<td>3.2 kPa [room temperature]</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Vapour density</strong></td>
<td>AR 1</td>
<td>0.62 [Air = 1]</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>AR 1</td>
<td>1</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Solubility(ies)</strong></td>
<td>AR 1</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Partition coefficient: n-octanol/water</strong></td>
<td>AR 1</td>
<td>-1.38</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature</strong></td>
<td>AR 1</td>
<td>Not applicable</td>
<td>Not available</td>
</tr>
</tbody>
</table>
SECTION 9: Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>AR 1</th>
<th>Clarigo PCR Mix</th>
<th>Taq DNA Polymerase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

9.2 Other information
No additional information.

SECTION 10: Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>AR 1</th>
<th>Clarigo PCR Mix</th>
<th>Taq DNA Polymerase</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1 Reactivity</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td>10.2 Chemical stability</td>
<td>The product is stable.</td>
<td>The product is stable.</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>10.3 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>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>10.4 Conditions to avoid</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>10.5 Incompatible materials</td>
<td>May react or be incompatible with oxidising materials.</td>
<td>May react or be incompatible with oxidising materials.</td>
<td>May react or be incompatible with oxidising materials.</td>
</tr>
<tr>
<td>10.6 Hazardous decomposition products</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
</tbody>
</table>
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>Taq DNA Polymerase</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2800 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

### 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>Taq DNA Polymerase</td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>1 Percent</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

### Sensitiser

<table>
<thead>
<tr>
<th>Conclusion/Summary</th>
<th>Not available.</th>
</tr>
</thead>
</table>

### Mutagenicity

<table>
<thead>
<tr>
<th>Conclusion/Summary</th>
<th>Not available.</th>
</tr>
</thead>
</table>

### Carcinogenicity

<table>
<thead>
<tr>
<th>Conclusion/Summary</th>
<th>Not available.</th>
</tr>
</thead>
</table>

### Reproductive toxicity

<table>
<thead>
<tr>
<th>Conclusion/Summary</th>
<th>Not available.</th>
</tr>
</thead>
</table>

### Teratogenicity

<table>
<thead>
<tr>
<th>Conclusion/Summary</th>
<th>Not available.</th>
</tr>
</thead>
</table>

### Information on likely routes of exposure

- **Inhalation**: AR 1, No known significant effects or critical hazards.
- **Clarigo PCR Mix**: Not available.
- **Taq DNA Polymerase**: Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

- **Inhalation**: AR 1, No known significant effects or critical hazards.
- **Clarigo PCR Mix**: No known significant effects or critical hazards.
- **Taq DNA Polymerase**: No known significant effects or critical hazards.

- **Ingestion**: AR 1, No known significant effects or critical hazards.
- **Clarigo PCR Mix**: No known significant effects or critical hazards.
- **Taq DNA Polymerase**: No known significant effects or critical hazards.

- **Skin contact**: AR 1, No known significant effects or critical hazards.
- **Clarigo PCR Mix**: No known significant effects or critical hazards.
- **Taq DNA Polymerase**: No known significant effects or critical hazards.

- **Eye contact**: AR 1, No known significant effects or critical hazards.
- **Clarigo PCR Mix**: No known significant effects or critical hazards.
- **Taq DNA Polymerase**: No known significant effects or critical hazards.

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

- **Inhalation**: AR 1, No specific data.
- **Clarigo PCR Mix**: No specific data.
- **Taq DNA Polymerase**: No specific data.

- **Ingestion**: AR 1, No specific data.
- **Clarigo PCR Mix**: No specific data.
- **Taq DNA Polymerase**: No specific data.

- **Skin contact**: AR 1, No specific data.
- **Clarigo PCR Mix**: No specific data.
- **Taq DNA Polymerase**: No specific data.

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SECTION 11: Toxicological information

**Eye contact**
- Clarigo PCR Mix: No specific data.
- Taq DNA Polymerase: No specific data.

**Delayed and immediate effects as well as 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**
- AR 1: No known significant effects or critical hazards.
- Clarigo PCR Mix: No known significant effects or critical hazards.
- Taq DNA Polymerase: No known significant effects or critical hazards.

**Carcinogenicity**
- AR 1: No known significant effects or critical hazards.
- Clarigo PCR Mix: No known significant effects or critical hazards.
- Taq DNA Polymerase: No known significant effects or critical hazards.

**Mutagenicity**
- AR 1: No known significant effects or critical hazards.
- Clarigo PCR Mix: No known significant effects or critical hazards.
- Taq DNA Polymerase: No known significant effects or critical hazards.

**Teratogenicity**
- AR 1: No known significant effects or critical hazards.
- Clarigo PCR Mix: No known significant effects or critical hazards.
- Taq DNA Polymerase: No known significant effects or critical hazards.

**Developmental effects**
- AR 1: No known significant effects or critical hazards.
- Clarigo PCR Mix: No known significant effects or critical hazards.
- Taq DNA Polymerase: No known significant effects or critical hazards.

**Fertility effects**
- AR 1: No known significant effects or critical hazards.
- Clarigo PCR Mix: No known significant effects or critical hazards.
- Taq DNA Polymerase: No known significant effects or critical hazards.

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>Taq DNA Polymerase Poly(oxy-1,2-ethanediyl), .alpha.-{(1,1,3, 3-tetramethylbutyl)phenyl}.omega.-hydroxy-</td>
<td>Acute EC50 210 μg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 10800 μg/l Marine water</td>
<td>Crustaceans - Pandalus montagui - Adult</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 8600 μg/l Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 7200 μg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

Not available.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR 1 Water</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

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SECTION 12: Ecological information

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>AR 1 Water</td>
<td>-1.38</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Taq DNA Polymerase</td>
<td>3.77</td>
<td>78.67</td>
<td>low</td>
</tr>
<tr>
<td>Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-</td>
<td></td>
<td></td>
<td></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

<table>
<thead>
<tr>
<th>Product</th>
<th>Hazardous waste Packaging</th>
<th>Methods of disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

13.2 Methods of disposal
- The generation of waste should be avoided or minimised wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

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

SECTION 14: Transport information

14.6 Special precautions for user : Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol 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**

None of the components are listed.

**Substances of very high concern**

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Intrinsic property</th>
<th>Status</th>
<th>Reference number</th>
<th>Date of revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taq DNA Polymerase</td>
<td>Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl].omega.-hydroxy-</td>
<td>Substance of equivalent concern for environment</td>
<td>Recommended</td>
<td>ED/169/2012</td>
</tr>
</tbody>
</table>

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

**Ozone depleting substances (1005/2009/EU)**

Not listed.

**Prior Informed Consent (PIC) (649/2012/EU)**

Not listed.

**Seveso Directive**

This product is not controlled under the Seveso Directive.

**International regulations**

**Chemical Weapon Convention List Schedules I, II & III Chemicals**

Not listed.

**Montreal Protocol (Annexes A, B, C, E)**

Not listed.

**Stockholm Convention on Persistent Organic Pollutants**

Not listed.

**Rotterdam Convention on Prior Informed Consent (PIC)**

Not listed.

**UNECE Aarhus Protocol on POPs and Heavy Metals**

Not listed.

**Inventory list**

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Canada</td>
<td>Not determined.</td>
</tr>
<tr>
<td>China</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Europe</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Japan</td>
<td>Japan inventory (ENCS): Not determined.</td>
</tr>
<tr>
<td></td>
<td>Japan inventory (ISHL): Not determined.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Not determined.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Philippines</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>

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SECTION 15: Regulatory information

15.2 Chemical safety assessment

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

Republic of Korea: Not determined.
Taiwan: Not determined.
Thailand: Not determined.
Turkey: Not determined.
United States: Not determined.
Viet Nam: Not determined.

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>Taq DNA Polymerase</th>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Chronic 3, H412</td>
<td></td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Full text of abbreviated H statements

<table>
<thead>
<tr>
<th>Taq DNA Polymerase</th>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>H319</td>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>H400</td>
<td>H400</td>
<td>Very toxic to aquatic life.</td>
</tr>
<tr>
<td>H410</td>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects.</td>
</tr>
<tr>
<td>H412</td>
<td>H412</td>
<td>Harmful to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

Full text of classifications [CLP/GHS]

<table>
<thead>
<tr>
<th>Taq DNA Polymerase</th>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute 1, H400</td>
<td>SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1</td>
<td></td>
</tr>
<tr>
<td>Aquatic Chronic 1, H410</td>
<td>LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1</td>
<td></td>
</tr>
<tr>
<td>Aquatic Chronic 3, H412</td>
<td>LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3</td>
<td></td>
</tr>
<tr>
<td>Eye Irrit. 2, H319</td>
<td>SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2</td>
<td></td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 17/09/2018

Date of previous issue: No previous validation

Version: 1

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