SAFETY DATA SHEET

Brilliant III Ultra-Fast SYBR Green QPCR Master Mix, Part Number 600883

Section 1. Identification

1.1 Product identifier

Product name: Brilliant III Ultra-Fast SYBR Green QPCR Master Mix, Part Number 600883
Part No. (Chemical Kit): 600883
Part No.: Reference Dye 600530-53
2X Brilliant III SYBR® Green QPCR Master Mix 600882-51

Validation date: 1/22/2018

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

Material uses:
- Analytical reagent: 10/pk
- Reference Dye: 0.1 ml (100 µl 1 mM)
- 2X Brilliant III SYBR® Green QPCR Master Mix: 10 x 2 ml

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer: Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
800-227-9770

1.4 Emergency telephone number

In case of emergency: CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status: Reference Dye
While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

2X Brilliant III SYBR® Green QPCR Master Mix This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

H320 EYE IRRITATION - Category 2B

Ingredients of unknown toxicity:
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master 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%

Date of issue: 01/22/2018
Section 2. Hazards identification

2.2 GHS label elements

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Reference Dye</th>
<th>No signal word.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Warning</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazard statements</th>
<th>Reference Dye</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>H320 - Causes eye irritation.</td>
<td></td>
</tr>
</tbody>
</table>

Precautionary statements

Prevention

<table>
<thead>
<tr>
<th>Reference Dye</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>P264 - Wash hands thoroughly after handling.</td>
</tr>
</tbody>
</table>

Response

<table>
<thead>
<tr>
<th>Reference Dye</th>
<th>Not applicable.</th>
</tr>
</thead>
</table>
| 2X Brilliant III SYBR® Green QPCR Master Mix | P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue washing.
|                        | P337 + P313 - If eye irritation persists: Get medical attention. |

Storage

<table>
<thead>
<tr>
<th>Reference Dye</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

Disposal

<table>
<thead>
<tr>
<th>Reference Dye</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

Supplemental label elements

None known.

2.3 Other hazards

Hazards not otherwise classified

None known.

Section 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Reference Dye</th>
<th>Mixture</th>
<th>2X Brilliant III SYBR® Green QPCR Master Mix</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Dye Potassium chloride</td>
<td>≤5</td>
<td>7447-40-7</td>
</tr>
<tr>
<td>2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride</td>
<td>≤3</td>
<td>1185-53-1</td>
</tr>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Glycerol</td>
<td>≥10 - ≤25 56-81-5</td>
</tr>
<tr>
<td></td>
<td>≥10</td>
<td>67-68-5</td>
</tr>
<tr>
<td></td>
<td>≤3</td>
<td>7447-40-7</td>
</tr>
<tr>
<td></td>
<td>≤3</td>
<td></td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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.

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

Date of issue: 01/22/2018
# Section 4. First aid measures

## 4.1 Description of necessary first aid measures

<table>
<thead>
<tr>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye contact</strong></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>
<tr>
<td><strong>2X Brilliant III SYBR® Green QPCR Master Mix</strong></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. If irritation persists, get medical attention.</td>
</tr>
<tr>
<td><strong>Inhalation</strong></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>
<tr>
<td><strong>2X Brilliant III SYBR® Green QPCR Master Mix</strong></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 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.</td>
</tr>
<tr>
<td><strong>Skin contact</strong></td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td><strong>2X Brilliant III SYBR® Green QPCR Master Mix</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></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>
<tr>
<td><strong>2X Brilliant III SYBR® Green QPCR Master Mix</strong></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 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.</td>
</tr>
</tbody>
</table>
Section 4. First aid measures

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

**Eye contact**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

No known significant effects or critical hazards.
Causes eye irritation.

**Inhalation**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

No known significant effects or critical hazards.
No known significant effects or critical hazards.

**Skin contact**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

No known significant effects or critical hazards.
No known significant effects or critical hazards.

**Ingestion**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

No known significant effects or critical hazards.
No known significant effects or critical hazards.

Over-exposure signs/symptoms

**Eye contact**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

Adverse symptoms may include the following:
irritation
watering
redness

**Inhalation**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

No specific data.
No specific data.

**Skin contact**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

No specific data.
No specific data.

**Ingestion**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

No specific data.
No specific data.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

**Notes to physician**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

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.
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**Specific treatments**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

No specific treatment.
No specific treatment.

**Protection of first-aiders**: Reference Dye
2X Brilliant III SYBR® Green QPCR Master Mix

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

See toxicological information (Section 11)

Date of issue : 01/22/2018
Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

: Reference Dye

2X Brilliant III SYBR® Green QPCR Master Mix

Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media

: Reference Dye

2X Brilliant III SYBR® Green QPCR Master Mix

None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical

: Reference Dye

2X Brilliant III SYBR® Green QPCR Master Mix

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

Hazardous thermal decomposition products

: Reference Dye

2X Brilliant III SYBR® Green QPCR Master Mix

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

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
- sulfur oxides
- halogenated compounds
- metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters

: Reference Dye

2X Brilliant III SYBR® Green QPCR Master Mix

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

: Reference Dye

2X Brilliant III SYBR® Green QPCR Master Mix

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

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Section 6. Accidental release measures

For non-emergency personnel

- Reference Dye

**Brilliant III Ultra-Fast SYBR Green QPCR Master Mix, Part Number 600883**

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 spilled material. Put on appropriate personal protective equipment.

- 2X Brilliant III SYBR® Green QPCR Master Mix

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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**Reference Dye**

Avoid dispersal of spilled 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).

- 2X Brilliant III SYBR® Green QPCR Master Mix

6.2 Environmental precautions

For emergency responders

- Reference Dye

If specialized 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".

- 2X Brilliant III SYBR® Green QPCR Master Mix

If specialized 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".

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up

- Reference Dye

**Brilliant III Ultra-Fast SYBR Green QPCR Master Mix, Part Number 600883**

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.

- 2X Brilliant III SYBR® Green QPCR Master 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.

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Section 7. Handling and storage

7.1 Precautions for safe handling

**Protective measures**
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master Mix

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

**Advice on general occupational hygiene**
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master 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, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

**Reference Dye**
- 2X Brilliant III SYBR® Green QPCR Master 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 unlabeled 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**
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master Mix

Industrial applications, Professional applications.

**Industrial sector specific solutions**
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master Mix

Not applicable.
Section 8. Exposure controls/personal protection

8.1 Control parameters

### Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Dye</td>
<td>None.</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>None.</td>
</tr>
<tr>
<td>2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride</td>
<td>None.</td>
</tr>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust</td>
</tr>
<tr>
<td>Glycerol</td>
<td>OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>AIHA WEEL (United States, 10/2011). TWA: 250 ppm 8 hours.</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>None.</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

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

**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.

**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.

**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: chemical splash goggles.

**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.

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Section 8. Exposure controls/personal 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.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

**Appearance**

**Physical state**
- Reference Dye: Liquid.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Liquid.

**Color**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**Odor**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**Odor threshold**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**pH**
- Reference Dye: 8
- 2X Brilliant III SYBR® Green QPCR Master Mix: 7.8

**Melting point**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**Boiling point**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**Flash point**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**Evaporation rate**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**Flammability (solid, gas)**
- Reference Dye: Not applicable.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not applicable.

**Lower and upper explosive (flammable) limits**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**Vapor pressure**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**Vapor density**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**Relative density**
- Reference Dye: Not available.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Not available.

**Solubility**
- Reference Dye: Easily soluble in the following materials: cold water and hot water.
- 2X Brilliant III SYBR® Green QPCR Master Mix: Soluble in the following materials: cold water and hot water.

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Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Reference Dye</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Section 10. Stability and reactivity

10.1 Reactivity

<table>
<thead>
<tr>
<th>Reference Dye</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

10.2 Chemical stability

<table>
<thead>
<tr>
<th>Reference Dye</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>The product is stable.</td>
</tr>
</tbody>
</table>

10.3 Possibility of hazardous reactions

<table>
<thead>
<tr>
<th>Reference Dye</th>
<th>Under normal conditions of storage and use, hazardous reactions will not occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
</tbody>
</table>

10.4 Conditions to avoid

<table>
<thead>
<tr>
<th>Reference Dye</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

10.5 Incompatible materials

<table>
<thead>
<tr>
<th>Reference Dye</th>
<th>May react or be incompatible with oxidizing materials.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
</tbody>
</table>

10.6 Hazardous decomposition products

<table>
<thead>
<tr>
<th>Reference Dye</th>
<th>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</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

Date of issue: 01/22/2018
## Section 11. Toxicological information

<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>Reference Dye</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>40000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>14500 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>Reference Dye</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

### Sensitization
Not available.

### Mutagenicity
Not available.

### Carcinogenicity
Not available.

### Reproductive toxicity
Not available.

### Teratogenicity
Not available.

### Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Dye</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Specific target organ toxicity (repeated exposure)

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Not available.

**Aspiration hazard**
Not available.

**Information on the likely routes of exposure**

<table>
<thead>
<tr>
<th>Route</th>
<th>Substance</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Reference Dye</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Routes of entry anticipated: Oral, Dermal, Inhalation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Reference Dye</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Routes of entry anticipated: Oral, Dermal, Inhalation.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Reference Dye</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Causes eye irritation.</td>
</tr>
</tbody>
</table>

**Potential acute health effects**

<table>
<thead>
<tr>
<th>Route</th>
<th>Substance</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye contact</td>
<td>Reference Dye</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Causes eye irritation.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Reference Dye</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Reference Dye</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Reference Dye</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Route</th>
<th>Substance</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye contact</td>
<td>Reference Dye</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>Adverse symptoms may include the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Irritation, watering, redness</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Reference Dye</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Reference Dye</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Reference Dye</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

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

**Short term exposure**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Substance</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential immediate effects</td>
<td>Reference Dye</td>
<td>Not available.</td>
</tr>
<tr>
<td>Potential delayed effects</td>
<td>Reference Dye</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Long term exposure**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Substance</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential immediate effects</td>
<td>Reference Dye</td>
<td>Not available.</td>
</tr>
<tr>
<td>Potential delayed effects</td>
<td>Reference Dye</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Potential chronic health effects**
Section 11. Toxicological information

General:
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master Mix
  No known significant effects or critical hazards.

Carcinogenicity:
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master Mix
  No known significant effects or critical hazards.

Mutagenicity:
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master Mix
  No known significant effects or critical hazards.

Teratogenicity:
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master Mix
  No known significant effects or critical hazards.

Developmental effects:
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master Mix
  No known significant effects or critical hazards.

Fertility effects:
- Reference Dye
- 2X Brilliant III SYBR® Green QPCR Master Mix
  No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Dye Oral</td>
<td>70270.3 mg/kg</td>
</tr>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix Oral</td>
<td>183001.9 mg/kg</td>
</tr>
</tbody>
</table>

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>Reference Dye Potassium chloride</td>
<td>Acute EC50 1337000 µg/l Fresh water</td>
<td>Algae - Navicula seminulum</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 9.24 µg/L Fresh water</td>
<td>Algae - Desmodesmus subspicatus</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 141460 µg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 12.92 mg/l Fresh water</td>
<td>Crustaceans - Pseudosida ramosa - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 880 mg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix Glycerol</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 25000 ppm Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 34000000 µg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 100 ul/L Marine water</td>
<td>Algae - Ulva lactuca</td>
<td>72 hours</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>Acute EC50 1337000 µg/l Fresh water</td>
<td>Algae - Navicula seminulum</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 9.24 µg/L Fresh water</td>
<td>Algae - Desmodesmus subspicatus</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 141460 µg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
</tbody>
</table>

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Section 12. Ecological information

12.2 Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix Glycerol</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reference Dye Potassium chloride</td>
<td>Aquatic half-life</td>
<td>Photolysis</td>
<td>Biodegradability</td>
<td></td>
</tr>
<tr>
<td>Reference Dye</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
<td></td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
<td></td>
</tr>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix Glycerol</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
<td></td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
<td></td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP_{ow}</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Dye Potassium chloride</td>
<td>-0.46</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>-1.35</td>
<td>3.16</td>
<td>low</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>-0.46</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}): Not available.

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

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods: The generation of waste should be avoided or minimized 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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 spilled material and runoff and contact with soil, waterways, drains and sewers.
Section 13. Disposal considerations

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

DOT / TDG / Mexico / IMDG / IATA : Not regulated.

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.

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

Section 15. Regulatory information

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

U.S. Federal regulations:
- Clean Water Act 311: Edetic acid
- Clean Air Act 112(b) Hazardous Air Pollutants (HAPs): Not listed
- Clean Air Act Section 602 Class I Substances: Not listed
- Clean Air Act Section 602 Class II Substances: Not listed
- DEA List I Chemicals (Precursor Chemicals): Not listed
- DEA List II Chemicals (Essential Chemicals): Not listed
- SARA 302/304
  - Composition/information on ingredients: No products were found.
- SARA 304 RQ: Not applicable.
- SARA 311/312
  - Classification: Reference Dye 2X Brilliant III SYBR® Green QPCR Master Mix
  - Classification: EYE IRRITATION - Category 2B

Composition/information on ingredients

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Section 15. Regulatory information

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reference Dye</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>≤5</td>
<td>EYE IRRITATION - Category 2A</td>
</tr>
<tr>
<td>2-Amino-2-(hydroxymethyl) propane-1,3-diol</td>
<td>≤3</td>
<td>SKIN IRRITATION - Category 2</td>
</tr>
<tr>
<td>hydrochloride</td>
<td></td>
<td>EYE IRRITATION - Category 2A</td>
</tr>
<tr>
<td>2X Brilliant III SYBR® Green QPCR Master Mix</td>
<td></td>
<td>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3</td>
</tr>
<tr>
<td>Glycerol</td>
<td>≥10 - ≤25</td>
<td>EYE IRRITATION - Category 2A</td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>≤10</td>
<td>FLAMMABLE LIQUIDS - Category 4</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>≤3</td>
<td>EYE IRRITATION - Category 2A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EYE IRRITATION - Category 2A</td>
</tr>
</tbody>
</table>

**State regulations**

- **Massachusetts**: The following components are listed: GLYCERINE MIST
- **New York**: None of the components are listed.
- **New Jersey**: The following components are listed: GLYCERIN; 1,2,3-PROPANETRIOL; DIMETHYL SULFOXIDE; METHANE, SULFINYL BIS-
- **Pennsylvania**: The following components are listed: 1,2,3-PROPANETRIOL

**International regulations**

- **Chemical Weapon Convention List Schedules I, II & III Chemicals**: Not listed.
- **Stockholm Convention on Persistent Organic Pollutants**: Not listed.
- **UNECE Aarhus Protocol on POPs and Heavy Metals**: Not listed.

**Inventory list**

- **Australia**: Not determined.
- **Canada**: Not determined.
- **China**: All components are listed or exempted.
- **Europe**: Not determined.
- **Japan**: Japan inventory (ENCS): Not determined.
- **Japan inventory (ISHL)**: Not determined.
- **Malaysia**: Not determined.
- **New Zealand**: Not determined.
- **Philippines**: Not determined.
- **Republic of Korea**: Not determined.
- **Taiwan**: Not determined.
- **Thailand**: Not determined.
- **Turkey**: Not determined.
- **United States**: Not determined.

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Section 15. Regulatory information

Viet Nam: Not determined.

Section 16. Other information

History

Date of issue: 01/22/2018
Date of previous issue: 10/28/2015.
Version: 5

Indicates information that has changed from previously issued version.

Notice to reader

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