Section 1. Identification

1.1 Product identifier

Product name: QuikChange HT DNA Cleanup Kit, Part Number 5190-7456

Part No. (Chemical Kit): 5190-7456

Part No. DNA-Binding Solution: 400771-14
PCR Wash Buffer (5X): 400771-17

Validation date: 2/12/2016

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

Material uses: DNA-Binding Solution, 2.5 ml
PCR Wash Buffer (5X), 5 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: DNA-Binding Solution

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

PCR Wash Buffer (5X)

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.

Classification of the substance or mixture

DNA-Binding Solution

H302 ACUTE TOXICITY (oral) - Category 4

H332 ACUTE TOXICITY (inhalation) - Category 4

Ingredients of unknown toxicity: DNA-Binding Solution

Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 1.6%

PCR Wash Buffer (5X)

Not applicable.

2.2 GHS label elements

Hazard pictograms:

Signal word: DNA-Binding Solution

Warning: PCR Wash Buffer (5X)

No signal word.

Date of issue: 02/12/2016
Section 2. Hazards identification

Hazard statements:
- **DNA-Binding Solution**
  - GHS SYMBOL - Exclamation mark -
  - H302 + H332 - Harmful if swallowed or if inhaled.

Precautionary statements:

**Prevention**:
- **DNA-Binding Solution**
  - P271 - Use only outdoors or in a well-ventilated area.
  - P261 - Avoid breathing vapor.
  - P270 - Do not eat, drink or smoke when using this product.
  - P264 - Wash hands thoroughly after handling.
  - **PCR Wash Buffer (5X)**
    - Not applicable.

**Response**:
- **DNA-Binding Solution**
  - P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
  - P301 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.
  - **PCR Wash Buffer (5X)**
    - Not applicable.

**Storage**:
- **DNA-Binding Solution**
  - Not applicable.
  - **PCR Wash Buffer (5X)**
    - Not applicable.

**Disposal**:
- **DNA-Binding Solution**
  - P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
  - **PCR Wash Buffer (5X)**
    - Not applicable.

Supplemental label elements:
- **DNA-Binding Solution**
  - None known.
  - **PCR Wash Buffer (5X)**
    - None known.

2.3 Other hazards:

**Hazards not otherwise classified**:
- **DNA-Binding Solution**
  - None known.
  - **PCR Wash Buffer (5X)**
    - None known.

Section 3. Composition/information on ingredients

**Substance/mixture**:
- **DNA-Binding Solution**
  - Mixture
  - **PCR Wash Buffer (5X)**
    - Mixture

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA-Binding Solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guanidinium thiocyanate</td>
<td>≥25 - ≤50</td>
<td>593-84-0</td>
</tr>
<tr>
<td>Trometamol</td>
<td>≤3</td>
<td>77-86-1</td>
</tr>
<tr>
<td>2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride</td>
<td>≤3</td>
<td>1185-53-1</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 : 02/12/2016
Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact : DNA-Binding Solution

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 : DNA-Binding Solution

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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 necessary, call a poison center or physician. 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. 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.

Skin contact : DNA-Binding Solution

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 : DNA-Binding Solution

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 necessary, call a poison center or physician. 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.

Date of issue : 02/12/2016
Section 4. First aid measures

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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

| Eye contact | DNA-Binding Solution | PCR Wash Buffer (5X) | No known significant effects or critical hazards. |
| Ingestion   | DNA-Binding Solution | PCR Wash Buffer (5X) | No known significant effects or critical hazards. |
| Skin contact| DNA-Binding Solution | PCR Wash Buffer (5X) | No known significant effects or critical hazards. |

Inhalation :

| DNA-Binding Solution | Harmful if inhaled. |
| PCR Wash Buffer (5X) | No known significant effects or critical hazards. |

Over-exposure signs/symptoms

| Eye contact | DNA-Binding Solution | PCR Wash Buffer (5X) | No specific data. |
| Ingestion   | DNA-Binding Solution | PCR Wash Buffer (5X) | No specific data. |
| Skin contact| DNA-Binding Solution | PCR Wash Buffer (5X) | No specific data. |

Inhalation :

| DNA-Binding Solution | No specific data. |
| PCR Wash Buffer (5X) | No specific data. |

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

Notes to physician :

| DNA-Binding Solution | 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. |
| PCR Wash Buffer (5X) | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |

Specific treatments :

| DNA-Binding Solution | No specific treatment. |
| PCR Wash Buffer (5X) | No specific treatment. |

Protection of first-aiders :

| DNA-Binding Solution | No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |
| PCR Wash Buffer (5X) | No action shall be taken involving any personal risk or without suitable training. |

See toxicological information (Section 11)
Section 5. Fire-fighting measures

5.1 Extinguishing media

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>DNA-Binding Solution</th>
<th>PCR Wash Buffer (5X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable extinguishing media</td>
<td>DNA-Binding Solution</td>
<td>PCR Wash Buffer (5X)</td>
</tr>
</tbody>
</table>

5.2 Special hazards arising from the substance or mixture

<table>
<thead>
<tr>
<th>Specific hazards arising from the chemical</th>
<th>DNA-Binding Solution</th>
<th>PCR Wash Buffer (5X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous thermal decomposition products</td>
<td>DNA-Binding Solution</td>
<td>PCR Wash Buffer (5X)</td>
</tr>
</tbody>
</table>

5.3 Advice for firefighters

<table>
<thead>
<tr>
<th>Special protective actions for fire-fighters</th>
<th>DNA-Binding Solution</th>
<th>PCR Wash Buffer (5X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special protective equipment for fire-fighters</td>
<td>DNA-Binding Solution</td>
<td>PCR Wash Buffer (5X)</td>
</tr>
</tbody>
</table>

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

<table>
<thead>
<tr>
<th>For non-emergency personnel</th>
<th>DNA-Binding Solution</th>
<th>PCR Wash Buffer (5X)</th>
</tr>
</thead>
</table>

Date of issue: 02/12/2016
Section 6. Accidental release measures

For emergency responders: DNA-Binding Solution

PCR Wash Buffer (5X)

6.2 Environmental precautions:

DNA-Binding Solution

PCR Wash Buffer (5X)

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).

PCR Wash Buffer (5X)

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).

Methods for cleaning up:

For emergency responders:

DNA-Binding Solution

PCR Wash Buffer (5X)

For non-emergency personnel, take note of the information provided in Section 8 on suitable and unsuitable materials. See also the information in "For emergency personnel".

Section 7. Handling and storage

7.1 Precautions for safe handling:

Protective measures: DNA-Binding Solution

PCR Wash Buffer (5X)

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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.

PCR Wash Buffer (5X)

Put on appropriate personal protective equipment (see Section 8).
Section 7. Handling and storage

Advice on general occupational hygiene

<table>
<thead>
<tr>
<th>Material</th>
<th>Handling and storage advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA-Binding Solution</td>
<td>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.</td>
</tr>
<tr>
<td>PCR Wash Buffer (5X)</td>
<td>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.</td>
</tr>
</tbody>
</table>

7.2 Conditions for safe storage, including any incompatibilities

<table>
<thead>
<tr>
<th>Material</th>
<th>Storage instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA-Binding Solution</td>
<td>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.</td>
</tr>
<tr>
<td>PCR Wash Buffer (5X)</td>
<td>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.</td>
</tr>
</tbody>
</table>

7.3 Specific end use(s)

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>DNA-Binding Solution</th>
<th>Industrial applications, Professional applications.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial sector specific solutions</td>
<td>DNA-Binding Solution</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>PCR Wash Buffer (5X)</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

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>DNA-Binding Solution</td>
<td>None.</td>
</tr>
<tr>
<td>Guanidinium thiocyanate</td>
<td>None.</td>
</tr>
<tr>
<td>Trometamol</td>
<td>None.</td>
</tr>
<tr>
<td>2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride</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. |

Date of issue : 02/12/2016
Section 8. Exposure controls/personal protection

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: 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.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state

DNA-Binding Solution Liquid.
PCR Wash Buffer (5X) Liquid.

Color

DNA-Binding Solution Not available.
PCR Wash Buffer (5X) Not available.

Odor

DNA-Binding Solution Not available.
PCR Wash Buffer (5X) Not available.

Odor threshold

DNA-Binding Solution Not available.
PCR Wash Buffer (5X) Not available.

pH

DNA-Binding Solution 6.4
PCR Wash Buffer (5X) 6.4

Melting point

DNA-Binding Solution Not available.
PCR Wash Buffer (5X) 0°C (32°F)

Boiling point

DNA-Binding Solution Not available.
PCR Wash Buffer (5X) 100°C (212°F)
Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>DNA-Binding Solution</th>
<th>PCR Wash Buffer (5X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Lower and upper explosive (flammable) limits</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Section 10. Stability and reactivity

10.1 Reactivity
- DNA-Binding Solution
  - No specific test data related to reactivity available for this product or its ingredients.
- PCR Wash Buffer (5X)
  - No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability
- DNA-Binding Solution
  - The product is stable.
- PCR Wash Buffer (5X)
  - The product is stable.

10.3 Possibility of hazardous reactions
- DNA-Binding Solution
  - Under normal conditions of storage and use, hazardous reactions will not occur.
- PCR Wash Buffer (5X)
  - Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid
- DNA-Binding Solution
  - No specific data.
- PCR Wash Buffer (5X)
  - No specific data.

10.5 Incompatible materials
- DNA-Binding Solution
  - May react or be incompatible with oxidizing materials.
- PCR Wash Buffer (5X)
  - May react or be incompatible with oxidizing materials.
Section 10. Stability and reactivity

10.6 Hazardous decomposition products

<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>DNA-Binding Solution</td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>PCR Wash Buffer (5X)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA-Binding Solution</td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Trometamol</td>
<td></td>
<td></td>
<td></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>DNA-Binding Solution</td>
<td>Skin - Moderate</td>
<td>Rabbit</td>
<td>-</td>
<td>25 Percent</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>irritant</td>
<td></td>
<td></td>
<td>500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Severe</td>
<td>Rabbit</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>irritant</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Trometamol</td>
<td></td>
<td></td>
<td></td>
<td></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>DNA-Binding Solution Trometamol</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>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

<table>
<thead>
<tr>
<th>DNA-Binding Solution</th>
<th>Routes of entry anticipated: Oral, Dermal, Inhalation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCR Wash Buffer (5X)</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Date of issue: 02/12/2016
Section 11. Toxicological information

Potential acute health effects

Eye contact : DNA-Binding Solution No known significant effects or critical hazards.
              PCR Wash Buffer (5X) No known significant effects or critical hazards.

Inhalation : DNA-Binding Solution Harmful if inhaled.
            PCR Wash Buffer (5X) No known significant effects or critical hazards.

Skin contact : DNA-Binding Solution No known significant effects or critical hazards.
              PCR Wash Buffer (5X) No known significant effects or critical hazards.

Ingestion : DNA-Binding Solution Harmful if swallowed.
            PCR Wash Buffer (5X) No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : DNA-Binding Solution No specific data.
              PCR Wash Buffer (5X) No specific data.

Inhalation : DNA-Binding Solution No specific data.
            PCR Wash Buffer (5X) No specific data.

Skin contact : DNA-Binding Solution No specific data.
              PCR Wash Buffer (5X) No specific data.

Ingestion : DNA-Binding Solution No specific data.
            PCR Wash Buffer (5X) No specific data.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : DNA-Binding Solution No known significant effects or critical hazards.
          PCR Wash Buffer (5X) No known significant effects or critical hazards.

Carcinogenicity : DNA-Binding Solution No known significant effects or critical hazards.
                  PCR Wash Buffer (5X) No known significant effects or critical hazards.

Mutagenicity : DNA-Binding Solution No known significant effects or critical hazards.
               PCR Wash Buffer (5X) No known significant effects or critical hazards.

Teratogenicity : DNA-Binding Solution No known significant effects or critical hazards.
                PCR Wash Buffer (5X) No known significant effects or critical hazards.

Developmental effects : DNA-Binding Solution No known significant effects or critical hazards.
                       PCR Wash Buffer (5X) No known significant effects or critical hazards.

Fertility effects : DNA-Binding Solution No known significant effects or critical hazards.
                   PCR Wash Buffer (5X) 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>DNA-Binding Solution</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>1053.6 mg/kg</td>
</tr>
<tr>
<td>Dermal</td>
<td>2325.6 mg/kg</td>
</tr>
<tr>
<td>Inhalation (dusts and mists)</td>
<td>3.171 mg/l</td>
</tr>
</tbody>
</table>
Section 11. Toxicological information

Other information:
- DNA-Binding Solution: Not available.
- PCR Wash Buffer (5X): Not available.

Section 12. Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA-Binding Solution</td>
<td>Acute EC50 &gt;980 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute NOEC 520 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

Not available.

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>DNA-Binding Solution</td>
<td>-1.56</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Trometamol</td>
<td></td>
<td></td>
<td></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.

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

Section 15. Regulatory information

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

U.S. Federal regulations : United States inventory (TSCA 8b): All components are listed or exempted.

- Clean Air Act Section 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 : Immediate (acute) health hazard

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA-Binding Solution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>≤3</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>2-Amino-2-[(hydroxymethyl)propane-1, 3-diol hydrochloride</td>
<td>≤3</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
</tbody>
</table>

State regulations

- Massachusetts : None of the components are listed.
- New York : None of the components are listed.
- New Jersey : None of the components are listed.
- Pennsylvania : None of the components are listed.
- California Prop. 65
  No products were found.
- Canada inventory : All components are listed or exempted.
- International regulations

Date of issue : 02/12/2016
Section 15. Regulatory information

<table>
<thead>
<tr>
<th>International lists</th>
<th>Australia inventory (AICS): All components are listed or exempted.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>China inventory (IECSC): All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Japan inventory (ENCS): All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Japan inventory (ISHL): All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Korea inventory: Not determined.</td>
</tr>
<tr>
<td></td>
<td>Malaysia Inventory (EHS Register): Not determined.</td>
</tr>
<tr>
<td></td>
<td>New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Philippines inventory (PICCS): All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Taiwan Chemical Substances Inventory (TCSI): All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Turkey inventory: Not determined.</td>
</tr>
</tbody>
</table>

Chemical Weapons Convention List Schedule I Chemicals: Not listed

Chemical Weapons Convention List Schedule II Chemicals: Not listed

Chemical Weapons Convention List Schedule III Chemicals: Not listed

Section 16. Other information

History

Date of issue: 02/12/2016

Date of previous issue: 06/11/2014.

Version: 2

Displays information that has changed from previously issued version.

Notice to reader

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