Section 1. Identification

1.1 Product identifier
Product name: Custom MassCode PCR Purification Kit, Part Number 930605
Part no. (chemical kit): 930605
Part no.: DNA-Binding Solution 400773-13
Wash Buffer (5X) 400773-16
Validation date: 4/30/2018

1.2 Relevant identified uses of the substance or mixture and uses advised against
Material uses: Analytical reagent.
DNA-Binding Solution 3 x 25 ml
Wash Buffer (5X) 50 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
Wash Buffer (5X)

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 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%

2.2 GHS label elements
Hazard pictograms: DNA-Binding Solution

Date of issue: 04/30/2018
Section 2. Hazards identification

**Signal word**
- DNA-Binding Solution: Warning
- Wash Buffer (5X): No signal word.

**Hazard statements**
- DNA-Binding Solution: H302 + H332 - Harmful if swallowed or if inhaled.
- Wash Buffer (5X): No known significant effects or critical hazards.

**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.
- 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.
- Wash Buffer (5X): Not applicable.

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

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

**2.3 Other hazards**

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

Section 3. Composition/information on ingredients

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

<table>
<thead>
<tr>
<th>Ingredient/mixture</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guanidinium thiocyanate</td>
<td>≥25 - ≤50</td>
<td>593-84-0</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>Trometamol</td>
<td>≤3</td>
<td>77-86-1</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.
### Section 4. First aid measures

#### 4.1 Description of necessary first aid measures

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Solution</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye contact</strong></td>
<td>DNA-Binding Solution</td>
<td><strong>Inhalation</strong></td>
</tr>
<tr>
<td></td>
<td>Wash Buffer (5X)</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. Get medical attention if irritation occurs.</td>
</tr>
<tr>
<td></td>
<td>DNA-Binding Solution</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Wash Buffer (5X)</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td><strong>Skin contact</strong></td>
<td>DNA-Binding Solution</td>
<td><strong>Ingestion</strong></td>
</tr>
<tr>
<td></td>
<td>Wash Buffer (5X)</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></td>
<td>DNA-Binding Solution</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 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. Wash out mouth with water. Remove victim to</td>
</tr>
<tr>
<td></td>
<td>Wash Buffer (5X)</td>
<td></td>
</tr>
</tbody>
</table>
Section 4. First aid measures

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>DNA-Binding Solution</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wash Buffer (5X)</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>DNA-Binding Solution</td>
<td>Harmful if inhaled.</td>
</tr>
<tr>
<td></td>
<td>Wash Buffer (5X)</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>DNA-Binding Solution</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Wash Buffer (5X)</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>DNA-Binding Solution</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td></td>
<td>Wash Buffer (5X)</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

Over-exposure signs/symptoms

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>DNA-Binding Solution</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wash Buffer (5X)</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>DNA-Binding Solution</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>Wash Buffer (5X)</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>DNA-Binding Solution</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>Wash Buffer (5X)</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>DNA-Binding Solution</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>Wash Buffer (5X)</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

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

Notes to physician

<table>
<thead>
<tr>
<th>DNA-Binding Solution</th>
<th>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.</th>
<th>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash Buffer (5X)</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

Specific treatments

<table>
<thead>
<tr>
<th>DNA-Binding Solution</th>
<th>No specific treatment.</th>
<th>No specific treatment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash Buffer (5X)</td>
<td>No specific treatment.</td>
<td>No specific treatment.</td>
</tr>
</tbody>
</table>

Protection of first-aiders

<table>
<thead>
<tr>
<th>DNA-Binding Solution</th>
<th>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.</th>
<th>No action shall be taken involving any personal risk or without suitable training.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash Buffer (5X)</td>
<td>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.</td>
<td>No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
</tbody>
</table>

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

### 5.1 Extinguishing media

| Suitable extinguishing media | DNA-Binding Solution | Use an extinguishing agent suitable for the surrounding fire. Wash Buffer (5X) | Use an extinguishing agent suitable for the surrounding fire. Wash Buffer (5X) |
| Unsuitable extinguishing media | DNA-Binding Solution | None known. Wash Buffer (5X) | None known. Wash Buffer (5X) |

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

| Specific hazards arising from the chemical | DNA-Binding Solution | In a fire or if heated, a pressure increase will occur and the container may burst. Wash Buffer (5X) | In a fire or if heated, a pressure increase will occur and the container may burst. Wash Buffer (5X) |
| Hazardous thermal decomposition products | DNA-Binding Solution | Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides, halogenated compounds. Wash Buffer (5X) | No specific data. Wash Buffer (5X) |

### 5.3 Advice for firefighters

| Special protective actions for fire-fighters | DNA-Binding Solution | 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. Wash Buffer (5X) | 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. Wash Buffer (5X) |
| Special protective equipment for fire-fighters | DNA-Binding Solution | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Wash Buffer (5X) | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Wash Buffer (5X) |

## Section 6. Accidental release measures

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

| For non-emergency personnel | DNA-Binding Solution | 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. Wash Buffer (5X) | 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. Wash Buffer (5X) |

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Section 6. Accidental release measures

For emergency responders: DNA-Binding Solution

- 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).

- 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.

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).

- 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.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures: DNA-Binding Solution

- 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.

Wash Buffer (5X)
Section 7. Handling and storage

Advice on general occupational hygiene

<table>
<thead>
<tr>
<th>Material</th>
<th>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>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>Guidelines</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. See Section 10 for incompatible materials before handling or use.</td>
</tr>
<tr>
<td>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. See Section 10 for incompatible materials before handling or use.</td>
</tr>
</tbody>
</table>

7.3 Specific end use(s)

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA-Binding Solution</td>
<td>Industrial applications, Professional applications.</td>
</tr>
<tr>
<td>Wash Buffer (5X)</td>
<td>Industrial applications, Professional applications.</td>
</tr>
<tr>
<td>DNA-Binding Solution</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>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>2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride</td>
<td>None.</td>
</tr>
<tr>
<td>Trometamol</td>
<td>None.</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

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Section 8. Exposure controls/personal protection

**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: 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**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>DNA-Binding Solution</th>
<th>Wash Buffer (5X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Odor</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>6.4</td>
<td>6.4</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not available</td>
<td>0°C (32°F)</td>
</tr>
</tbody>
</table>

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## Section 9. Physical and chemical properties

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

## Section 10. Stability and reactivity

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

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

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

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

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

10.6 Hazardous decomposition products

<table>
<thead>
<tr>
<th>DNA-Binding Solution</th>
<th>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash Buffer (5X)</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>DNA-Binding Solution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</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>
</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></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>25 Percent</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

Sensitization

Not available.

Mutagenicity

Conclusion/Summary: Not available.

Carcinogenicity

Conclusion/Summary: Not available.

Reproductive toxicity

Conclusion/Summary: Not available.

Teratogenicity

Conclusion/Summary: 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 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Trometamol</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>Wash Buffer (5X)</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Potential acute health effects

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

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

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

**Ingestion**: DNA-Binding Solution, Harmful if swallowed. 
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. 
Wash Buffer (5X), No specific data.

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

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

**Ingestion**: DNA-Binding Solution, No specific data. 
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. 
Wash Buffer (5X), No known significant effects or critical hazards.

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

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

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

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

**Fertility effects** : DNA-Binding Solution, No known significant effects or critical hazards. 
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 Oral</td>
<td>1061.1 mg/kg</td>
</tr>
<tr>
<td>DNA-Binding Solution Dermal</td>
<td>2340.4 mg/kg</td>
</tr>
<tr>
<td>DNA-Binding Solution Inhalation (dusts and mists)</td>
<td>3.191 mg/l</td>
</tr>
</tbody>
</table>

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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>Trometamol</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

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

: **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

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

: **DNA-Binding Solution**

Wash Buffer (5X)

ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (inhalation) - Category 4
Not applicable.

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Classification</th>
</tr>
</thead>
</table>
| DNA-Binding Solution| ≥25 - ≤50 | ACUTE TOXICITY (oral) - Category 4  
|                     |        | ACUTE TOXICITY (dermal) - Category 4  
|                     |        | ACUTE TOXICITY (inhalation) - Category 4  
|                     |        | SKIN IRRITATION - Category 2  
|                     |        | EYE IRRITATION - Category 2A  
|                     |        | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3  
| Guanidinium thiocyanate | ≤3      | COMBUSTIBLE DUSTS  
| 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride | ≤3      | SKIN IRRITATION - Category 2  
| Trometamol          |        | EYE IRRITATION - Category 2A  
|                     |        | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |

State regulations

Massachusetts

: None of the components are listed.

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New York: None of the components are listed.
New Jersey: None of the components are listed.
Pennsylvania: None of the components are listed.

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

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

Section 16. Other information

History

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Date of previous issue: 07/15/2016
Version: 4

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA-Binding Solution</td>
<td></td>
</tr>
<tr>
<td>ACUTE TOXICITY (oral) - Category 4</td>
<td>Calculation method</td>
</tr>
<tr>
<td>ACUTE TOXICITY (inhalation) - Category 4</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Indicates information that has changed from previously issued version.

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Section 16. Other information

Notice to reader

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