Section 1. Identification

1.1 Product identifier

Product name: DAB Substrate Buffer

Part no.: GE001, GV800, GV823, GV825, GV900, GV925, K0620, K1492, K1494, K3467, K3468, K3954, K4065, K4071, K5007, K5204, K5207, K5361, K8000, K8002, K8023, SK001, SK005, SK006, SK050, SK110, SK310

Validation date: 5/26/2022

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

Material uses: Laboratory use

Container type: vials

GE001 // EnVision FLEX Substrate Buffer (Dako Omnis) // HercepTest mAb pharmDx // 2 x 26 mL
GV800 // EnVision FLEX Substrate Buffer (Dako Omnis) // EnVision FLEX, High pH (Dako Omnis) // 16x26 mL
GV823 // EnVision FLEX Substrate Buffer (Dako Omnis) // EnVision FLEX Mini Kit, High pH (Dako Omnis) // 4x26 mL
GV825 // EnVision FLEX Substrate Buffer (Dako Omnis) // EnVision FLEX DAB+ Substrate Chromogen System // 4x26 mL
GV900 // EnVision FLEX Substrate Buffer (Dako Omnis) // EnVision FLEX HRP Magenta, High pH (Dako Omnis) // 3x26 mL
GV925 // EnVision FLEX Substrate Buffer (Dako Omnis) // EnVision FLEX HRP Magenta Substrate Chromogen System (Dako Omnis) // 1x26 mL
K0620 // DAB Substrate Buffer // GenPoint Tyramide Signal Amplification System for Biotinylated Probes // 10 mL
K1492 // DAB+ Substrate Buffer // EGFR pharmDx // 1x10 mL
K1494 // DAB+ Substrate Buffer // EGFR pharmDx // 10x11 mL
K3467 // DAB+ Substrate Buffer // Dako Liquid DAB+ Substrate Chromogen System // 1x15 mL
K3468 // DAB+ Substrate Buffer // Dako Liquid DAB+ Substrate Chromogen System // 1x110 mL
K3954 // DAB (Animal Research Kit) // Peroxidase for Mouse Primary Antibodies // 1x18 mL
K4065 // DAB+ Substrate Buffer // Dako EnVision Plus Dual Link System-HRP (DAB+) // 1x18 mL
K4071 // ER/PR pharmDx DAB+ Substrate Buffer // Dako ER/PR pharmDx Kit For the Dako Autostainer // 10x11 mL
K5007 // Dako REAL Substrate Buffer // Dako REAL EnVision Detection System, Peroxidase/ DAB+, Rabbit/Mouse // 1x250 mL
K5204 // DAB Buffered Substrate // HercepTestTM // 1x10 mL
K5207 // DAB Buffered Substrate // HercepTestfor the Dako Autostainer // 15x11 mL
K5361 // DAB+ Substrate Buffer // EnVision G2 Doublestain System, Rabbit/Mouse (DAB+/ Permanent Red) // 3x11 mL
K8000 // EnVision FLEX Substrate Buffer // EnVision FLEX, High pH, (Link) // 12x20 mL
K8002 // EnVision FLEX Substrate Buffer // EnVision FLEX+, Mouse, High pH, (Link) // 12x20 mL
K8023 // EnVision FLEX Substrate Buffer // EnVision FLEX Mini Kit, High pH, (Link) // 5x20 mL
SK001 // HercepTest DAB Substrate Buffer // HercepTest for Automated Link Platforms // 2x22 mL
SK005 // DAB+ Substrate Buffer // PD-L1 IHC 28-8 pharmDx // 15x7.2 mL
SK006 // DAB+ Substrate Buffer // PD-L1 IHC 22C3 pharmDx // 15x7.2 mL
SK050 // DAB Substrate Buffer // Her2Low // 15x7.2 mL
SK110 // EnVision DuoFLEX DAB+ Substrate Buffer // EnVision DuoFLEX Doublestain System, (Link) // 2x36 mL
SK310 // ER/PR pharmDx DAB+ Substrate Buffer // Dako ER/PR pharmDx Kit (Link) // 2x50 mL

Reference number: SDS342

1.3 Details of the supplier of the safety data sheet

Date of issue: 05/26/2022
Section 1. Identification

Supplier/Manufacturer : Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
Tel: +1 800 227 9770

Agilent Technologies Singapore (International) Pte Ltd.
No. 1 Yishun Avenue 7
Singapore, 768923
Tel. (65) 6276 2622

Agilent Technologies Denmark ApS
Produktionsvej 42
2600 Glostrup,
Denmark
Tel. +45 44 85 95 00

www.Agilent.com

e-mail address of person responsible for this SDS : SDS@Agilent.com

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

Classification of the substance or mixture
H360 : TOXIC TO REPRODUCTION - Category 1B

2.2 GHS label elements
Hazard pictograms :

Signal word : Danger
Hazard statements : H360 - May damage fertility or the unborn child.
Precautionary statements
Prevention : P201 - Obtain special instructions before use.
P280 - Wear protective gloves, protective clothing and eye or face protection.
Response : P308 + P313 - IF exposed or concerned: Get medical advice or attention.
Storage : Not applicable.
Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

2.3 Other hazards
Hazard not otherwise classified : None known.

Date of issue : 05/26/2022
### Section 3. Composition/information on ingredients

**Substance/mixture**: Mixture

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidazole</td>
<td>&lt;1</td>
<td>288-32-4</td>
</tr>
<tr>
<td>Nonylphenol, ethoxylated</td>
<td>≤0.12</td>
<td>9016-45-9</td>
</tr>
<tr>
<td>Quaternary ammonium compounds, alkylbenzyldimethyl, chlorides</td>
<td>≤0.012</td>
<td>8001-54-5</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 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**

**Eye contact**

- 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**

- 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 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.

**Skin contact**

- Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion**

- Wash out mouth with water. Remove dentures if any. 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. 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.

**4.2 Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

- **Eye contact**: No known significant effects or critical hazards.
- **Inhalation**: No known significant effects or critical hazards.
- **Skin contact**: No known significant effects or critical hazards.
- **Ingestion**: No known significant effects or critical hazards.

**Over-exposure signs/symptoms**

- **Eye contact**: No specific data.
- **Inhalation**: Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations.
- **Skin contact**: Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations.

Date of issue: 05/26/2022
Section 4. First aid measures

Ingestion: Adverse symptoms may include the following:
- reduced fetal weight
- increase in fetal deaths
- skeletal malformations

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

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

Specific treatments: No specific treatment.

Protection of first-aiders: 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical: In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products: No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters: 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: 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

For non-emergency personnel: 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.

For emergency responders: 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".

6.2 Environmental precautions: 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).

Date of issue: 05/26/2022
Section 6. Accidental release measures

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up: 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: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: 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: Specific storage conditions: Please consult the label. 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. Store locked up. 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: Industrial applications, Professional applications.

Industrial sector specific solutions: Not available.

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>Imidazole</td>
<td>None.</td>
</tr>
<tr>
<td>Nonylphenol, ethoxylated</td>
<td>None.</td>
</tr>
<tr>
<td>Quaternary ammonium compounds, alkylbenzyldimethyl, chlorides</td>
<td>None.</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Appropriate engineering controls: If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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.
Section 8. Exposure controls/personal protection

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 and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Liquid.
Color : Not available.
Odor : Not available.
Odor threshold : Not available.
pH : 7.5
Melting point/freezing point : 0°C (32°F)
Boiling point, initial boiling point, and boiling range : 100°C (212°F)
Flash point : Not available.
Evaporation rate : Not available.
Flammability : Not applicable.
Lower and upper explosion limit/flammability limit : Not available.
Vapor pressure : Not available.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Closed cup</th>
<th>Open cup</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>Nonylphenol, ethoxylated</td>
<td>&gt;93</td>
<td>&gt;199.4</td>
</tr>
<tr>
<td>Imidazole</td>
<td>&gt;135</td>
<td>&gt;275</td>
</tr>
</tbody>
</table>

Date of issue : 05/26/2022
Section 9. Physical and chemical properties and safety characteristics

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Vapor Pressure at 20°C</th>
<th>Vapor pressure at 50°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm Hg</td>
<td>kPa</td>
</tr>
<tr>
<td>Water</td>
<td>23.8</td>
<td>3.2</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>0.75</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Relative vapor density: Not available.
Relative density: Not available.
Solubility: Easily soluble in the following materials: cold water and hot water.
Miscible with water: Yes.
Partition coefficient: n-octanol/water: Not applicable.
Auto-ignition temperature:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>°C</th>
<th>°F</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidazole</td>
<td>480</td>
<td>896</td>
<td></td>
</tr>
</tbody>
</table>

Decomposition temperature: Not available.
Viscosity: Not available.
Particle characteristics:
Median particle size: Not applicable.

Section 10. Stability and reactivity

10.1 Reactivity: No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability: The product is stable.
10.3 Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid: No specific data.
10.5 Incompatible materials: May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products: 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>Imidazole</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>220 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Quaternary ammonium compounds, alkylbenzyldimethyl, chlorides</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>240 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

Date of issue: 05/26/2022
Section 11. Toxicological information

<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>Imidazole</td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>168 hours 105 mg</td>
<td></td>
</tr>
<tr>
<td>Nonylphenol, ethoxylated</td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>20 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Guinea pig</td>
<td>-</td>
<td>20 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Mouse</td>
<td>-</td>
<td>20 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Human</td>
<td>-</td>
<td>50 ug</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Monkey</td>
<td>-</td>
<td>24 hours 2 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>10 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 1 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Human</td>
<td>-</td>
<td>72 hours 150 ug</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Human</td>
<td>-</td>
<td>24 hours 3 %</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Human</td>
<td>-</td>
<td>48 hours 1 %</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 50 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Woman</td>
<td>-</td>
<td>0.1 %</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)**
Not available.

**Specific target organ toxicity (repeated exposure)**
Not available.

**Aspiration hazard**
Not available.

**Information on the likely routes of exposure**
Routes of entry anticipated: Oral, Dermal, Inhalation.

**Potential acute health effects**

- **Eye contact**: No known significant effects or critical hazards.
- **Inhalation**: No known significant effects or critical hazards.
- **Skin contact**: No known significant effects or critical hazards.
- **Ingestion**: No known significant effects or critical hazards.

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

- **Eye contact**: No specific data.

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Section 11. Toxicological information

Inhalation: Adverse symptoms may include the following:
- reduced fetal weight
- increase in fetal deaths
- skeletal malformations

Skin contact: Adverse symptoms may include the following:
- reduced fetal weight
- increase in fetal deaths
- skeletal malformations

Ingestion: Adverse symptoms may include the following:
- reduced fetal weight
- increase in fetal deaths
- skeletal malformations

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: No known significant effects or critical hazards.
- Carcinogenicity: No known significant effects or critical hazards.
- Mutagenicity: No known significant effects or critical hazards.
- Reproductive toxicity: May damage fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapors) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidazole</td>
<td>220</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Nonylphenol, ethoxylated</td>
<td>4000</td>
<td>5010</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Quaternary ammonium compounds, alkylbenzyldimethyl, chlorides</td>
<td>240</td>
<td>1100</td>
<td>N/A</td>
<td>11</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Section 12. Ecological information

12.1 Toxicity
Section 12. Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonylphenol, ethoxylated</td>
<td>Acute LC50 1.23 mg/l Marine water</td>
<td>Crustaceans - Americamysis bahia</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 0.148 mg/l Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 1300 µg/l Fresh water</td>
<td>Fish - Lepomis macrochirus</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 35 µg/l Fresh water</td>
<td>Fish - Oryzias latipes - Fry</td>
<td>100 days</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 56 µg/l Fresh water</td>
<td>Algae - Chlorella pyrenoidosa - Exponential growth phase</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 56 µg/l Fresh water</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute EC50 18 µg/l Fresh water</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute EC50 750 µg/l Fresh water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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>Imidazole</td>
<td>OECD 301A Ready Biodegradability - DOC Die-Away Test</td>
<td>90 to 100 % - Readily - 18 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidazole</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
<tr>
<td>Nonylphenol, ethoxylated</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidazole</td>
<td>-0.02</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) : 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 IMO instruments**: 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 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**

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>EHS</th>
<th>SARA 302 TPQ (lbs)</th>
<th>SARA 302 TPQ (gallons)</th>
<th>SARA 304 RQ (lbs)</th>
<th>SARA 304 RQ (gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>hydrogen peroxide</td>
<td>≤0.1</td>
<td>Yes.</td>
<td>1000</td>
<td>106.1</td>
<td>1000</td>
<td>106.1</td>
</tr>
</tbody>
</table>

**SARA 304 RQ**: 5000000 lbs / 2270000 kg

**SARA 311/312**

**Classification**: TOXIC TO REPRODUCTION - Category 1B

**Composition/information on ingredients**

Date of issue: 05/26/2022
Section 15. Regulatory information

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidazole</td>
<td>&lt;1</td>
<td>ACUTE TOXICITY (oral) - Category 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SKIN CORROSION - Category 1C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EYE IRRITATION - Category 2A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TOXIC TO REPRODUCTION - Category 1B</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

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

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: At least one component is not listed in DSL but all such components are listed in NDSL.
China: All components are listed or exempted.
Europe: Not determined.
Japan: Japan inventory (CSCL): Not determined.
Japan inventory (ISHL): Not determined.
New Zealand: Not determined.
Philippines: Not determined.
Republic of Korea: Not determined.
Taiwan: All components are listed or exempted.
Thailand: Not determined.
Turkey: Not determined.
United States: Not determined.
Viet Nam: All components are listed or exempted.

Date of issue: 05/26/2022
**Section 16. Other information**

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOXIC TO REPRODUCTION - Category 1B</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

History

- Date of issue: 05/26/2022
- Date of previous issue: 07/22/2020
- Version: 6

Key to abbreviations:

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- N/A = Not available
- UN = United Nations

*Indicates information that has changed from previously issued version.*

**Notice to reader**

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