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

<table>
<thead>
<tr>
<th>1.1. Product identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product form: Mixture</td>
</tr>
<tr>
<td>Physical state: Liquid</td>
</tr>
<tr>
<td>Product name: HM 4001 RTU ANTIMICROBIAL</td>
</tr>
<tr>
<td>Product code: HM4001</td>
</tr>
<tr>
<td>Type of product: Pure substance</td>
</tr>
<tr>
<td>Formula: C23H52ClNO3Si</td>
</tr>
<tr>
<td>Synonyms: 3-(TRIHYDROXYSILYL)PROPYLDIMETHYLOCTADECYL AMMONIUM CHLORIDE OCTADECYLDIMETHYL(3-TRIHYDROXYSILYLPROPYL)AMMONIUM CHLORIDE, 84% active condensed 3-(TRIHYDROXYSILYL)PROPYLDIMETHYLOCTADECYL AMMONIUM CHLORIDE, 1% AQUEOUS SOLUTION SILSESQUIOXANES, 3-(DIMETHYLOCTADECYLAMMONIO)PROPYL, HYDROXY-TERMINATED, CHLORIDES</td>
</tr>
<tr>
<td>Chemical family: ORGANOTRIHYDROXYSILANE</td>
</tr>
</tbody>
</table>

| 1.2. Relevant identified uses of the substance or mixture and uses advised against |
| 1.2.1. Relevant identified uses |
| Use of the substance/mixture: Antimicrobial product |
| 1.2.2. Uses advised against |
| No additional information available |

| 1.3. Details of the supplier of the safety data sheet |
| GELEST, INC. |
| 11 East Steel Road |
| Morrisville, PA 19067 |
| USA |
| T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST |
| info@gelest.com - www.gelest.com |

| 1.4. Emergency telephone number |
| Emergency number: CHEMTREC; 1-800-424-9300 (USA); +1 703-527-3887 (International) |

### SECTION 2: Hazards identification

| 2.1. Classification of the substance or mixture |
| Classification according to Regulation (EC) No. 1272/2008 [CLP] |
| Not classified |

**Adverse physicochemical, human health and environmental effects**

No additional information available

| 2.2. Label elements |
| Labelling according to Regulation (EC) No. 1272/2008 [CLP] |
| No labelling applicable |

| 2.3. Other hazards |
| No additional information available |
SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>(CAS-No.) 7732-18-5</td>
<td>99</td>
<td>Not classified</td>
</tr>
<tr>
<td>3-{(Trihydroxysilyl)propyldimethyloctadecyl} ammonium chloride</td>
<td>(CAS-No.) 199111-50-7</td>
<td>1</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation: If you feel unwell, seek medical advice. Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact: Wash with plenty of water/…. Get medical advice/attention.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion: Get medical advice/attention. Never give anything by mouth to an unconscious person.

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

Symptoms/effects after inhalation: No significant signs or symptoms indicative of any adverse health hazard are expected to occur as a result of inhalation exposure.

Symptoms/effects after skin contact: No significant signs or symptoms indicative of any adverse health hazard are expected to occur as a result of skin exposure.

Symptoms/effects after eye contact: May cause mild eye irritation.

Symptoms/effects after ingestion: No information available.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media: None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Not flammable.

5.3. Advice for firefighters

Firefighting instructions: Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces. Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment: Wear protective equipment as described in Section 8.

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.
6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Clean up any spills as soon as possible, using an absorbent material to collect it. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Use personal protective equipment as required.

Hygiene measures: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed. Store at ambient temperature of 25°C.

Incompatible materials: Oxidizing agent.

Storage area: The liquid may freeze if stored outside. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls:
Provide local exhaust or general room ventilation.

Personal protective equipment:
Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:
Neoprene or nitrile rubber gloves

Eye protection:
Chemical goggles or safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. N95 particulate respirator

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid
Appearance: Clear liquid.
Colour: Colourless.
Odour: None.
Odour threshold: No data available
Refractive index: No additional information available
pH: 2 - 4
Relative evaporation rate (butylacetate=1): No data available
Melting point: No data available
Freezing point: No data available
Boiling point: No data available
Flash point: > 200 °F
Auto-ignition temperature: No data available
 Decomposition temperature: No data available
Flammability (solid, gas): No data available
Vapour pressure: No data available
Relative vapour density at 20 °C: No data available
Relative density: 1.02
% Volatiles: 0 %
Solubility: No data available
Log Pow: No data available
Log Kow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
No additional information available

10.4. Conditions to avoid
No additional information available

10.5. Incompatible materials
Oxidizing agent.

10.6. Hazardous decomposition products
Organic acid vapors. Silicon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

Water (7732-18-5)
LD50 oral rat: > 90 ml/kg
LD50 dermal rabbit: > 5050 mg/kg
LC50 inhalation rat (mg/l): > 2.19 mg/l

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

Reproductive toxicity: Not classified
STOT-single exposure: Not classified
STOT-repeated exposure: Not classified
Aspiration hazard: Not classified
Symptoms/effects after inhalation: No significant signs or symptoms indicative of any adverse health hazard are expected to occur as a result of inhalation exposure.
Symptoms/effects after skin contact: No significant signs or symptoms indicative of any adverse health hazard are expected to occur as a result of skin exposure.
Symptoms/effects after eye contact: May cause mild eye irritation.
Symptoms/effects after ingestion: No information available.
**SECTION 12: Ecological information**

12.1. **Toxicity**
   - Acute aquatic toxicity: Not classified
   - Chronic aquatic toxicity: Not classified

12.2. **Persistence and degradability**
   No additional information available

12.3. **Bioaccumulative potential**
   No additional information available

12.4. **Mobility in soil**
   No additional information available

12.5. **Results of PBT and vPvB assessment**
   No additional information available

12.6. **Other adverse effects**
   No additional information available

**SECTION 13: Disposal considerations**

13.1. **Waste treatment methods**
   - Sewage disposal recommendations: Do not dispose of waste into sewer.
   - Product/Packaging disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
   - Additional information: Improper disposal of pesticides or pesticide residues is a violation of US Federal law. Preferred option for disposal of waste pesticides is incineration at a licensed and permitted facility.
   - Ecology - waste materials: Avoid release to the environment.

**SECTION 14: Transport information**

14.1. **UN number**
   In accordance with ADR / RID / IMDG / IATA / ADN

14.1. **UN number**
   - UN-No. (ADR): Not applicable
   - UN-No. (IMDG): Not applicable
   - UN-No. (IATA): Not applicable
   - UN-No. (ADN): Not applicable
   - UN-No. (RID): Not applicable

14.2. **UN proper shipping name**
   - Proper Shipping Name (ADR): Not applicable
   - Proper Shipping Name (IMDG): Not applicable
   - Proper Shipping Name (IATA): Not applicable
   - Proper Shipping Name (ADN): Not applicable
   - Proper Shipping Name (RID): Not applicable

14.3. **Transport hazard class(es)**
   **ADR**
   - Transport hazard class(es) (ADR): Not applicable

   **IMDG**
   - Transport hazard class(es) (IMDG): Not applicable

   **IATA**
   - Transport hazard class(es) (IATA): Not applicable

   **ADN**
   - Transport hazard class(es) (ADN): Not applicable

   **RID**
   - Transport hazard class(es) (RID): Not applicable
14.4. Packing group

<table>
<thead>
<tr>
<th>Packing group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ADR)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>(IMDG)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>(IATA)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>(ADN)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>(RID)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

14.5. Environmental hazards

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangerous for the environment</td>
<td>No</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>No</td>
</tr>
<tr>
<td>Other information</td>
<td>No supplementary information available</td>
</tr>
</tbody>
</table>

14.6. Special precautions for user

- Overland transport
  Not applicable

- Transport by sea
  Not applicable

- Air transport
  Not applicable

- Inland waterway transport
  Not applicable

- Rail transport
  Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances
Contains no REACH Annex XIV substances

% Volatiles : 0 %

15.1.2. National regulations

Germany
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands
SZW-list van kankerverwekkende stoffen : None of the components are listed
SZW-list van mutagene stoffen : None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

15.2. Chemical safety assessment

No additional information available
SECTION 16: Other information

Abbreviations and acronyms:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND</td>
<td>Not Determined, No Data</td>
</tr>
<tr>
<td>NA</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>LD</td>
<td>Lethal Dose</td>
</tr>
<tr>
<td>LC</td>
<td>Lethal Concentration</td>
</tr>
<tr>
<td>ATE</td>
<td>Acute Toxicity Estimates</td>
</tr>
<tr>
<td>H</td>
<td>hour</td>
</tr>
<tr>
<td>°C</td>
<td>unless otherwise stated</td>
</tr>
<tr>
<td>mm</td>
<td>millimeters Hg, torr</td>
</tr>
<tr>
<td>PEL</td>
<td>permissible exposure level</td>
</tr>
<tr>
<td>TWA</td>
<td>time weighted average</td>
</tr>
<tr>
<td>TLV</td>
<td>threshold limit value</td>
</tr>
<tr>
<td>TG</td>
<td>Test Guideline</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety and Health</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
<tr>
<td>HMIS</td>
<td>Hazardous Material Information System</td>
</tr>
<tr>
<td>CAS No.</td>
<td>Chemical Abstract Service Registration Number</td>
</tr>
<tr>
<td>EC No.</td>
<td>European Commission Registration Number</td>
</tr>
<tr>
<td>EC Index No.</td>
<td>European Commission Index Number</td>
</tr>
<tr>
<td>OECD</td>
<td>The Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>GHS</td>
<td>The Globally Harmonized System of Classification and Labelling</td>
</tr>
<tr>
<td>APF</td>
<td>Assigned Protection Factor</td>
</tr>
</tbody>
</table>

Other information: Prepared by safety and environmental affairs.

SDS EU (REACH Annex II) - Custom

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

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