



A Group Company of MITSUBISHI CHEMICAL

**HE 4005 ANTIMICROBIAL****Safety Data Sheet HE4005**

Issue date: 12/15/2020

Revision date: 04/12/2022

Version: 2.1

**SECTION 1: Identification****1.1. Identification**

Product name : HE 4005 ANTIMICROBIAL  
 Product code : HE4005  
 Product form : Mixture  
 Physical state : Liquid  
 Formula : C<sub>23</sub>H<sub>52</sub>ClNO<sub>3</sub>Si  
 Synonyms : HE 4005 - 3-(TRIHYDROXYSILYL)PROPYLDIMETHYLOCTADECYLAMMONIUMCHLORIDE, 5% in water  
 3-(TRIHYDROXYSILYL)PROPYLDIMETHYLOCTADECYL AMMONIUM CHLORIDE  
 OCTADECYLDIMETHYL(3-TRIHYDROXYSILYLPROPYL)AMMONIUM CHLORIDE  
 SILSESQUOXANES, 3-(DIMETHYLOCTADECYLAMMONIO)PROPYL, HYDROXY-TERMINATED, CHLORIDES  
 Chemical family : ORGANOTRIHYDROXYSILANE

**1.2. Recommended use and restrictions on use**

Recommended use : Antimicrobial product

**1.3. Supplier****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](mailto:info@gelest.com) - [www.gelest.com](http://www.gelest.com)

**1.4. Emergency telephone number**

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

**SECTION 2: Hazard(s) identification****2.1. Classification of the substance or mixture****GHS US classification**

Not classified

**2.2. GHS Label elements, including precautionary statements****GHS US labeling**

No labeling applicable

**2.3. Hazards not otherwise classified (HNOC)**

No additional information available

**2.4. Unknown acute toxicity (GHS US)**

Not applicable

**SECTION 3: Composition/Information on ingredients****3.1. Substances**

Not applicable

**3.2. Mixtures**

Name	Product identifier	%	GHS US classification
Water	(CAS-No.) 7732-18-5	89.4 – 90.4	Not classified
3-(Trihydroxysilyl)propyldimethyloctadecyl ammonium chloride	(CAS-No.) 199111-50-7	4.5 – 5.5	Eye Irrit. 2B, H320
Proprietary*	(CAS-No.) Trade Secret	2 – 2.1	Flam. Liq. 2, H225 Eye Irrit. 2A, H319
Proprietary*	(CAS-No.) Trade Secret	1.5 – 2	Acute Tox. 4 (Inhalation:dust,mist), H332 Eye Irrit. 2A, H319 Aquatic Acute 2, H401

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\*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

Full text of hazard classes and H-statements : see section 16

### 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 victim to fresh air and keep at rest in a position comfortable for breathing.
First-aid measures after skin contact	: Wash with plenty of soap and 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 (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. Immediate medical attention and special treatment, if necessary

No additional information available

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Foam. Carbon dioxide. Dry chemical.
Unsuitable extinguishing media	: None known.

#### 5.2. Specific hazards arising from the chemical

Fire hazard	: Not flammable.
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#### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapor 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".
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#### 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.
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#### 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.
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Incompatible materials : Oxidizing agent.  
Storage area : The liquid may freeze if stored outside. Store away from heat.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Proprietary		
ACGIH	ACGIH OEL STEL [ppm]	1000 ppm
OSHA	OSHA PEL (TWA) [1]	1900 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) [2]	1000 ppm
IDLH	IDLH [ppm]	3300 ppm (10% LEL)
NIOSH	NIOSH REL (TWA)	1900 mg/m <sup>3</sup>
NIOSH	NIOSH REL TWA [ppm]	1000 ppm

#### 8.2. Appropriate engineering controls

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

#### 8.3. Individual protection measures/Personal protective equipment

##### 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

##### Personal protective equipment symbol(s):



### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state : Liquid  
Appearance : Clear liquid.  
Color : Colorless.  
Odor : None.  
Odor threshold : No data available  
Refractive index : No data available  
pH : 3 – 4  
Relative evaporation rate (butyl acetate=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  
Vapor pressure : No data available

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Relative vapor density at 20 °C	: No data available
Relative density	: 1.02
% Volatiles	: 0 %
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion 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 (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

#### Water (7732-18-5)

LD50 oral rat	> 90 ml/kg
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#### 3-(Trihydroxysilyl)propyldimethyloctadecyl ammonium chloride (199111-50-7)

LD50 oral rat	> 5000 mg/kg
LD50 dermal rabbit	> 5050 mg/kg
LC50 Inhalation - Rat	> 2.19 mg/l

#### Proprietary

LD50 oral rat	7060 mg/kg
LC50 Inhalation - Rat	124.7 mg/l/4h
LC50 Inhalation - Rat [ppm]	20000 ppm 10 hrs.
LDLo oral rat	1400 mg/kg (Human)
ATE US (oral)	7060 mg/kg body weight
ATE US (gases)	20000 ppmV/4h
ATE US (vapors)	124.7 mg/l/4h
ATE US (dust, mist)	124.7 mg/l/4h

#### Proprietary

LD50 oral rat	4920 µl/kg
LD50 dermal rat	> 2000 mg/kg
LC50 Inhalation - Rat	2 g/m³ (Exposure time: 4 h)
ATE US (oral)	4920 mg/kg body weight
ATE US (vapors)	2 mg/l/4h

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Proprietary	
ATE US (dust, mist)	2 mg/l/4h
Skin corrosion/irritation	: Not classified pH: 3 – 4
Serious eye damage/irritation	: Not classified pH: 3 – 4
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
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

Proprietary	
LC50 - Fish [1]	> 10000 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
LC50 - Fish [2]	> 13400 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
Proprietary	
LC50 - Fish [1]	6.8 mg/l (Zebra Fish)
EC50 - Crustacea [1]	25 mg/l (Daphnia magna)
ErC50 algae	32 mg/l (Pseudokirchneriella subcapitata)

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

Proprietary	
Partition coefficient n-octanol/water (Log Pow)	-0.32

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

Effect on the ozone layer : No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal 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

Not regulated for transport.

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### 14.2. UN proper shipping name

Not applicable

### 14.3. Additional information

Other information : No supplementary information available.

### Transport by sea

No additional information available

### Air transport

No additional information available

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### HE 4005 ANTIMICROBIAL (199111-50-7)

TSCA Exemption/Exclusion

This substance is excluded from U.S. TSCA notification requirements according to 40 CFR 720.30(a).

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Water	7732-18-5	Present	Active	
3-(Trihydroxysilyl)propyldimethyloctadecyl ammonium chloride	199111-50-7	Not present	-	
Proprietary		Present	Active	
Proprietary		Present	Active	

### 15.2. International regulations

#### CANADA

##### Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List)

##### Proprietary

Listed on the Canadian DSL (Domestic Substances List)

##### Proprietary

Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

##### Water (7732-18-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

##### Proprietary

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### National regulations

##### Water (7732-18-5)

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

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### Proprietary

Listed on IARC (International Agency for Research on Cancer)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)

### Proprietary

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

### Proprietary

U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List

## SECTION 16: Other information

Full text of H-phrases::

H225	Highly flammable liquid and vapor
H319	Causes serious eye irritation
H320	Causes eye irritation
H332	Harmful if inhaled
H401	Toxic to aquatic life

Abbreviations and acronyms

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

### Hazard Rating

Health : 0 Minimal Hazard - No significant risk to health  
Flammability : 0 Minimal Hazard - Materials that will not burn  
Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Prepared by safety and environmental affairs.

Issue date: 12/15/2020

Revision date: 04/12/2022

Version: 2.1

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



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