

Safety Data Sheet SIS6989.0

Date of issue: 24/05/2016 Revision date: 08/03/2019 Version: 2.1

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

#### 1.1. Product identifier

Product form : Mixture
Physical state : Liquid

Product name : (STYRYLMETHYL)BIS(TRIETHOXYSILYLPROPYL)AMMONIUM CHLORIDE, 40% in ethanol

Product code : SIS6989.0
Formula : C27H52CINO6Si2

Synonyms : N-(VINYLBENZYL)BIS(TRIETHOXYSILYL)PROPYLAMMONIUM CHLORIDE

Chemical family : ORGANOSILANE IN SOLVENT

### 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 : Chemical intermediate

## 1.2.2. Uses advised against

No additional information available

## 1.3. Details of the supplier of the safety data sheet

### **GELEST, INC.**

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## 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]

Flammable liquids, Category 2

Serious eye damage/eye irritation, Category 2

H319

Full text of H statements : see section 16

## Adverse physicochemical, human health and environmental effects

No additional information available

## 2.2. Label elements

## Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02



GHS07

Signal word (CLP) : Dange

Hazard statements (CLP) : H225 - Highly flammable liquid and vapour.

H319 - Causes serious eye irritation.

Precautionary statements (CLP) : P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No

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smoking

P240 - Ground/bond container and receiving equipment.

P264 - Wash hands thoroughly after handling.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

contact lenses, if present and easy to do. Continue rinsing.

P337+P313 - If eye irritation persists: Get medical advice/attention.

#### 2.3. Other hazards

Other hazards not contributing to the classification

Overexposure to ethanol by skin absorption, inhalation or ingestion may have a narcotic effect (headache, nausea, drowsiness). Ethanol is metabolized to acetaldehyde and acetic acid which in large quantities result in metabolic acidosis, CNS depression and death due to respiratory arrest. This product contains ethanol which is classified as a carcinogen by IARC in alcoholic beverages.

## **SECTION 3: Composition/information on ingredients**

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Ethanol	(CAS-No.) 64-17-5 (EC-No.) 200-578-6 (EC Index-No.) 603-002-00-5	58 - 62	Flam. Liq. 2, H225
(Styrylmethyl)bis(triethoxysilylpropyl)ammonium chloride	(CAS-No.) Not found	38 - 42	Eye Irrit. 2, H319

Full text of 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 : Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical

advice.

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 : Never give anything by mouth to an unconscious person. Get medical advice/attention.

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

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : May cause skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : May be harmful if swallowed.

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

No additional information available

## **SECTION 5: Firefighting measures**

## 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.

Unsuitable extinguishing media : Do not use straight streams.

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

Fire hazard : Highly flammable liquid and vapour. Irritating fumes and organic acid vapors may develop when

material is exposed to elevated temperatures or open flame.

Explosion hazard : May form flammable/explosive vapour-air mixture.

## 5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.

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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 vapour and mist.

## SECTION 6: Accidental release measures

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

General measures : Eliminate every possible source of ignition. Use special care to avoid static electric charges.

For non-emergency personnel 6.1.1.

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".

#### **Environmental precautions**

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

### Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or

Methods for cleaning up Clean up any spills as soon as possible, using an absorbent material to collect it. Use only non-

sparking tools.

### Reference to other sections

See Heading 8. Exposure controls and personal protection.

### SECTION 7: Handling and storage

## Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable. Keep away from

heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Avoid all eye and skin contact and do not breathe vapour and mist. Ground/bond container and

Precautions for safe handling receiving equipment. Take precautionary measures against static discharge. Use only outdoors

or in a well-ventilated area. Use only non-sparking tools.

Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild

Hygiene measures soap and water before eating, drinking or smoking and when leaving work.

## Conditions for safe storage, including any incompatibilities

: Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof Technical measures

electrical equipment.

Storage conditions Keep container tightly closed. Store in a cool area. Store locked up. Store < 5°C.

Incompatible materials : Acids. alcohols. Oxidizing agent. Peroxides.

: Store in a well-ventilated place. Store away from heat. Storage area

## Specific end use(s)

No additional information available

## **SECTION 8: Exposure controls/personal protection**

## **Control parameters**

Ethanol (64-17-5)		
Austria	MAK (mg/m³)	1900 mg/m³
Austria	MAK (ppm)	1000 ppm
Austria	MAK Short time value (mg/m³)	3800 mg/m³
Austria	MAK Short time value (ppm)	2000 ppm
Belgium	Limit value (mg/m³)	1907 mg/m³
Belgium	Limit value (ppm)	1000 ppm
Bulgaria	OEL TWA (mg/m³)	1000 mg/m <sup>3</sup>
France	VLE (mg/m³)	9500 mg/m³
France	VLE (ppm)	5000 ppm
France	VME (mg/m³)	1900 mg/m³
France	VME (ppm)	1000 ppm
Germany	TRGS 900 Occupational exposure limit value (mg/m³)	960 mg/m³ (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)

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Ethanol (64-17-5)		
Germany	TRGS 900 Occupational exposure limit value (ppm)	500 ppm (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Greece	OEL TWA (mg/m³)	1900 mg/m³
Greece	OEL TWA (ppm)	1000 ppm
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	1000 ppm
Latvia	OEL TWA (mg/m³)	1000 mg/m³
USA IDLH	US IDLH (ppm)	3300 ppm (10% LEL)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1900 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	1000 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	1900 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
Spain	VLA-EC (mg/m³)	1910 mg/m³
Spain	VLA-EC (ppm)	1000 ppm
Switzerland	KZGW (mg/m³)	1920 mg/m³
Switzerland	KZGW (ppm)	1000 ppm
Switzerland	MAK (mg/m³)	960 mg/m³
Switzerland	MAK (ppm)	500 ppm
Netherlands	Grenswaarde TGG 8H (mg/m³)	260 mg/m³
Netherlands	Grenswaarde TGG 15MIN (mg/m³)	1900 mg/m³
United Kingdom	WEL TWA (mg/m³)	1920 mg/m³
United Kingdom	WEL TWA (ppm)	1000 ppm
United Kingdom	WEL STEL (mg/m³)	5760 mg/m³ (calculated)
United Kingdom	WEL STEL (ppm)	3000 ppm (calculated)
Czech Republic	Expoziční limity (PEL) (mg/m³)	1000 mg/m <sup>3</sup>
Denmark	Grænseværdie (langvarig) (mg/m³)	1900 mg/m³
Denmark	Grænseværdie (langvarig) (ppm)	1000 ppm
Finland	HTP-arvo (8h) (mg/m³)	1900 mg/m³
Finland	HTP-arvo (8h) (ppm)	1000 ppm
Finland	HTP-arvo (15 min)	2500 mg/m³
Finland	HTP-arvo (15 min) (ppm)	1300 ppm
Hungary	AK-érték	1900 mg/m³
Hungary	CK-érték	7600 mg/m³
Ireland	OEL (15 min ref) (ppm)	1000 ppm
Lithuania	IPRV (mg/m³)	1000 mg/m³
Lithuania	IPRV (ppm)	500 ppm
Lithuania	TPRV (mg/m³)	1900 mg/m³
Lithuania	TPRV (ppm)	1000 ppm
Norway	Grenseverdier (AN) (mg/m³)	950 mg/m³
Norway	Grenseverdier (AN) (ppm)	500 ppm
Norway	Grenseverdier (Korttidsverdi) (mg/m3)	950 mg/m³
Norway	Grenseverdier (Korttidsverdi) (ppm)	500 ppm
Poland	NDS (mg/m³)	1900 mg/m³
Romania	OEL TWA (mg/m³)	1900 mg/m³
Romania	OEL TWA (ppm)	1000 ppm
Romania	OEL STEL (mg/m³)	9500 mg/m³
Romania	OEL STEL (ppm)	5000 ppm
Slovakia	NPHV (priemerná) (mg/m³)	960 mg/m <sup>3</sup>
Slovakia	NPHV (priemerná) (ppm)	500 ppm
Slovakia	NPHV (Hraničná) (mg/m³)	1920 mg/m³
Sweden	nivågränsvärde (NVG) (mg/m³)	1000 mg/m³
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Ethanol (64-17-5)		
Sweden	nivågränsvärde (NVG) (ppm)	500 ppm
Sweden	kortidsvärde (KTV) (mg/m³)	1900 mg/m³
Sweden	kortidsvärde (KTV) (ppm)	1000 ppm
Canada (Quebec)	VEMP (mg/m³)	1880 mg/m³
Canada (Quebec)	VEMP (ppm)	1000 ppm
Australia	TWA (mg/m³)	1880 mg/m³
Australia	TWA (ppm)	1000 ppm
Portugal	OEL TWA (ppm)	1000 ppm
Portugal	OEL chemical category (PT)	A4 - Not Classifiable as a Human Carcinogen

## 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. Contact lenses should not be worn

### Skin and body protection:

Wear suitable protective clothing

## Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor - amine gas (brown cartridge) respirator.

## **SECTION 9: Physical and chemical properties**

## 9.1. Information on basic physical and chemical properties

Physical state: LiquidAppearance: Liquid.Molecular mass: 578.34 g/molColour: Straw to amber.

Odour : Mild. Amine. Ammonia-like.

Odour threshold : No data available

Refractive index : No additional information available

pH : No data available Relative evaporation rate (butylacetate=1) : No data available Melting point : No data available

Freezing point : < 0 °C

Boiling point : 76 °C (initial, ethanol)

Flash point : 15 °C

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : Highly flammable liquid and vapour.

Vapour pressure : 59 mm Hg @ 20°C

Relative vapour density at 20 °C : > 1Relative density : 0.909 % Volatiles : > 60 %

Solubility : Partially soluble. Reacts with water.

Log Pow : No data available
Log Kow : No data available

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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 in sealed containers stored in the dark below 10°C.

## 10.3. Possibility of hazardous reactions

Non-hazardous polymerization can occur.

### 10.4. Conditions to avoid

Heat. Sparks. Open flame.

## 10.5. Incompatible materials

Acids. alcohols. Oxidizing agent. Peroxides.

## 10.6. Hazardous decomposition products

Organic acid vapors.

## **SECTION 11: Toxicological information**

## 11.1. Information on toxicological effects

Acute toxicity : Not classified

Ethanol (64-17-5)		
LD50 oral rat	7060 mg/kg	
LC50 inhalation rat (mg/l)	124.7 mg/l/4h	
LC50 inhalation rat (ppm)	20000 ppm 10 hrs.	
LDLo oral rat	1400 mg/kg (Human)	
ATE CLP (oral)	7060 mg/kg bodyweight	
ATE CLP (vapours)	124.7 mg/l/4h	
ATE CLP (dust,mist)	124.7 mg/l/4h	

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

## Ethanol (64-17-5)

IARC group 1 - Carcinogenic to humans

Reproductive toxicity : Not classified STOT-single exposure : Not classified STOT-repeated exposure : Not classified Aspiration hazard : Not classified

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : May cause skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : May be harmful if swallowed.

Reason for classification : Expert judgment

## SECTION 12: Ecological information

## 12.1. Toxicity

Acute aquatic toxicity : Not classified Chronic aquatic toxicity : Not classified

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Ethanol (64-17-5)	
LC50 fish 1	> 10000 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [rainbow trout])
LC50 fish 2	> 13400 mg/l (Exposure time: 96 h - Species: Pimephales promelas [fathead minnow])

#### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

Ethanol (64-17-5)	
Log Pow	-0.32

### 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

Other adverse effects : This substance may be hazardous to the environment.

## **SECTION 13: Disposal considerations**

## 13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.

Product/Packaging disposal recommendations : May be incinerated. Dispose in a safe manner in accordance with local/national regulations.

Dispose of contents/container to licensed waste disposal facility.

Additional information : Handle empty containers with care because residual vapours are flammable.

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)
 : 1993

 UN-No. (IMDG)
 : 1993

 UN-No. (IATA)
 : 1993

 UN-No. (ADN)
 : 1993

 UN-No. (RID)
 : 1993

## 14.2. UN proper shipping name

Proper Shipping Name (ADR) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (IMDG) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (IATA) : Flammable liquid, n.o.s.
Proper Shipping Name (ADN) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (RID) : FLAMMABLE LIQUID, N.O.S.

Transport document description (ADR) : UN 1993 FLAMMABLE LIQUID, N.O.S.

 $((\mathsf{STYRYLMETHYL})\mathsf{BIS}(\mathsf{TRIETHOXYSILYLPROPYL})\mathsf{AMMONIUM}\;\mathsf{CHLORIDE},\,40\%\;\mathsf{in}$ 

ethanol), 3, II, (D/E)

Transport document description (IMDG) : UN 1993 FLAMMABLE LIQUID, N.O.S.

((STYRYLMETHYL)BIS(TRIETHOXYSILYLPROPYL)AMMONIUM CHLORIDE, 40% in

ethanol), 3, II

Transport document description (IATA) : UN 1993 Flammable liquid, n.o.s.

 $((\texttt{STYRYLMETHYL}) \texttt{BIS}(\texttt{TRIETHOXYSILYLPROPYL}) \texttt{AMMONIUM CHLORIDE}, 40\% \ \texttt{in}$ 

ethanol), 3, II

Transport document description (ADN) : UN 1993 FLAMMABLE LIQUID, N.O.S.

 $(({\sf STYRYLMETHYL}) {\sf BIS}({\sf TRIETHOXYSILYLPROPYL}) {\sf AMMONIUM\ CHLORIDE,\ 40\%\ in}$ 

ethanol), 3, II

Transport document description (RID) : UN 1993 FLAMMABLE LIQUID, N.O.S.

((STYRYLMETHYL)BIS(TRIETHOXYSILYLPROPYL)AMMONIUM CHLORIDE, 40% in

ethanol), 3, II

## 14.3. Transport hazard class(es)

### **ADR**

Transport hazard class(es) (ADR) : 3

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Danger labels (ADR) : 3

:



**IMDG** 

Transport hazard class(es) (IMDG) : 3
Danger labels (IMDG) : 3



IATA

Transport hazard class(es) (IATA) : 3
Hazard labels (IATA) : 3

:



ADN

Transport hazard class(es) (ADN) : 3

Danger labels (ADN)



RID

Transport hazard class(es) (RID) : 3
Danger labels (RID) : 3

:



14.4. Packing group

Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards

Dangerous for the environment : No Marine pollutant : No

Other information : No supplementary information available

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## Special precautions for user

## - Overland transport

Classification code (ADR) : F1

: 274, 601, 640C Special provisions (ADR)

Limited quantities (ADR) : 11 Excepted quantities (ADR) : E2 : P001 Packing instructions (ADR) : MP19 Mixed packing provisions (ADR) : T7

Portable tank and bulk container instructions

Portable tank and bulk container special : TP1, TP8, TP28

provisions (ADR)

: L1.5BN Tank code (ADR) Vehicle for tank carriage : FL Transport category (ADR) : 2 Special provisions for carriage - Operation : S2, S20

(ADR)

Hazard identification number (Kemler No.) : 33

Orange plates

33 1993

Tunnel restriction code (ADR) : D/E

- Transport by sea

: 274 Special provisions (IMDG) Limited quantities (IMDG) 1 L Excepted quantities (IMDG) E2 Packing instructions (IMDG) P001 IBC packing instructions (IMDG) : IBC02 **T7** Tank instructions (IMDG)

Tank special provisions (IMDG) TP1, TP8, TP28

EmS-No. (Fire) F-E : S-E EmS-No. (Spillage) Stowage category (IMDG) : B

- Air transport

PCA Excepted quantities (IATA) : E2 PCA Limited quantities (IATA) : Y341 PCA limited quantity max net quantity (IATA) : 1L PCA packing instructions (IATA) : 353 PCA max net quantity (IATA) : 5L CAO packing instructions (IATA) : 364 CAO max net quantity (IATA) : 60L Special provisions (IATA) : A3 ERG code (IATA) : 3H

- Inland waterway transport

Classification code (ADN) : F1

Special provisions (ADN) : 274, 601, 640C

Limited quantities (ADN) : 1 L Excepted quantities (ADN) : E2 Carriage permitted (ADN) : T

Equipment required (ADN) : PP, EX, A Ventilation (ADN) : VE01 Number of blue cones/lights (ADN) : 1

- Rail transport

Classification code (RID) : F1

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Special provisions (RID) : 274, 601, 640C

Limited quantities (RID) : 1L

Excepted quantities (RID) : E2

Packing instructions (RID) : P001

Mixed packing provisions (RID) : MP19

Portable tank and bulk container instructions : T7

(RID)

Portable tank and bulk container special

provisions (RID)

: TP1, TP8, TP28

Tank codes for RID tanks (RID) : L1.5BN
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE7
Hazard identification number (RID) : 33

## 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 substance subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

Substance(s) are not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC.

Contains no REACH Annex XIV substances

% Volatiles : > 60 %

## 15.1.2. National regulations

### Germany

Reference to AwSV : Water hazard class (WGK) 3, Highly hazardous to water (Classification according to AwSV,

Annex 1)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV

: Is not subject of the 12. BlmSchV (Hazardous Incident Ordinance)

## Netherlands

SZW-lijst van kankerverwekkende stoffen : Ethanol is listed

SZW-lijst van mutagene stoffen : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting

giftige stoffen – Borstvoeding

: Ethanol is listed

NIET-limitatieve lijst van voor de voortplanting

giftige stoffen – Vruchtbaarheid

: Ethanol is listed

NIET-limitatieve lijst van voor de voortplanting

NIET-limitatieve lijst van voor de giftige stoffen – Ontwikkeling : Ethanol is listed

Denmark

Class for fire hazard : Class I-1 Store unit : 1 liter

Classification remarks : F <Flam. Liq. 2>; Emergency management guidelines for the storage of flammable liquids

must be followed

## 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## **SECTION 16: Other information**

Abbreviations and acronyms:

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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.: Chemcial 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

Other information

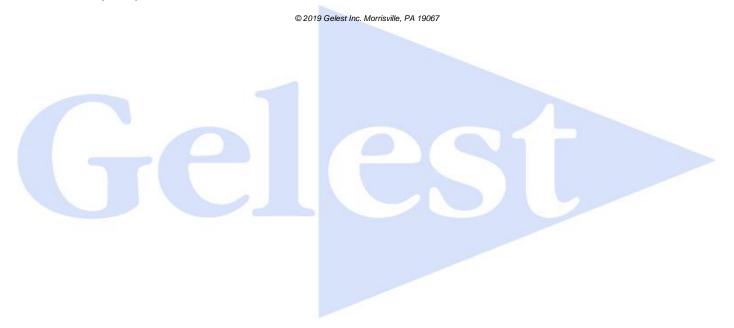
: Prepared by safety and environmental affairs.

### Full text of H- and EUH-statements:

Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.

#### 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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