

**3-CHLOROPROPYLTRIETHOXSILANE**

Safety Data Sheet SIC2407.0

Date of issue: 08/28/2015

Version: 1.0

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Product form	: Substance
Physical state	: Liquid
Substance name	: 3-CHLOROPROPYLTRIETHOXSILANE
Product code	: SIC2407.0
Formula	: C <sub>9</sub> H <sub>21</sub> ClO <sub>3</sub> Si
Synonyms	: TRIETHOXY(CHLOROPROPYL)SILANE
Chemical family	: ORGANOETHOXSILANE

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

Use of the substance/mixture	: Chemical intermediate For research and industrial use only
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**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](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)
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**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Classification (GHS-US)**

Flam. Liq. 4 H227

Skin Irrit. 2 H315

Eye Irrit. 2A H319

Full text of H-phrases: see section 16

**2.2. Label elements****GHS-US labeling**

Hazard pictograms (GHS-US)



GHS07

Signal word (GHS-US)

: Warning

Hazard statements (GHS-US)

: H227 - Combustible liquid  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation

Precautionary statements (GHS-US)

: P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P210 - Keep away from heat, open flames, sparks. - No smoking  
P264 - Wash hands thoroughly after handling  
P302+P352 - If on skin: Wash with plenty of soap and water  
P332+P313 - If skin irritation occurs: Get medical advice/attention  
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  
P321 - Specific treatment (see first aid instructions on this label)  
P362+P364 - Take off contaminated clothing and wash it before reuse  
P370+P378 - In case of fire: Use water spray or fog, foam, carbon dioxide, dry chemical to extinguish  
P403+P235 - Keep in a cool place  
P501 - Dispose of contents/container to licensed waste disposal facility.**2.3. Other hazards**

Other hazards not contributing to the classification

: The hydrolysis product of this compound is ethanol. Overexposure to ethanol by skin absorption, inhalation or ingestion may have a narcotic effect (headache, nausea, drowsiness).

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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.

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

No data available

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Substance type : Mono-constituent  
Name : 3-CHLOROPROPYLTRIETHOXSILANE  
CAS No : 5089-70-3  
EC no : 225-805-6

Name	Product identifier	%	Classification (GHS-US)
3-Chloropropyltriethoxysilane	(CAS No) 5089-70-3	> 95	Flam. Liq. 4, H227 Skin Irrit. 2, H315 Eye Irrit. 2A, H319
Ethanol	(CAS No) 64-17-5		Flam. Liq. 2, H225 Carc. 1A, H350 STOT SE 3, H335 Aquatic Acute 2, H401

### 3.2. Mixture

Not applicable

## 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. IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

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

Symptoms/injuries after skin contact : Causes skin irritation.

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

Symptoms/injuries 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. Water fog. Foam. Carbon dioxide. Dry chemical.

Unsuitable extinguishing media : None known.

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

Fire hazard : Combustible liquid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

### 5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.

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

General measures : Remove ignition sources. Use special care to avoid static electric charges.

#### 6.1.1. For non-emergency personnel

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

Emergency procedures : Evacuate unnecessary personnel.

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### 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

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

Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

### 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

Additional hazards when processed : Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapor and mist. Provide good ventilation in process area to prevent accumulation of vapors. Ground/bond container and receiving equipment. Use only non-sparking tools.

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

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed. Keep in a cool place.

Incompatible materials : Oxidizing agent.

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

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Ethanol (64-17-5)		
USA ACGIH	ACGIH STEL (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (ppm)	1000 ppm
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
USA IDLH	US IDLH (ppm)	3300 ppm (10% LEL)

### 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 organic vapor (black cartridge) respirator.

## SECTION 9: Physical and chemical properties

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

Physical state : Liquid

Appearance : Clear liquid.

Molecular mass : 240.8 g/mol

Color : No data available

Odor : Characteristic.

Odor threshold : No data available

Refractive index : 1.42

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pH	: No data available
Relative evaporation rate (butyl acetate=1)	: < 1
Melting point	: No data available
Freezing point	: < 0 °C
Boiling point	: 100 - 102 °C @ 10 mm Hg
Flash point	: 78 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Combustible liquid
Vapor pressure	: < 1 mm Hg @ 25°C
Relative vapor density at 20 °C	: > 1
Relative density	: 1.009
Solubility	: Insoluble in water. Reacts slowly with water.
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
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

Material decomposes slowly in contact with moist air or with water liberating ethanol.

### 10.4. Conditions to avoid

Heat. Open flame. Sparks.

### 10.5. Incompatible materials

Oxidizing agent.

### 10.6. Hazardous decomposition products

Ethanol. Organic acid vapors. Silicon dioxide.

## 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
ATE US (oral)	7060.000 mg/kg body weight
ATE US (vapors)	124.700 mg/l/4h
ATE US (dust, mist)	124.700 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.

Draize test, skin: 1.5 (slight irritant)

Serious eye damage/irritation : Causes serious eye irritation.

Draize test, eye: 47 (moderate irritant)

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Ethanol (64-17-5)	
IARC group	1 - Carcinogenic to humans

Reproductive toxicity : Not classified

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Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: This compound liberates ethanol on contact with moisture. Material generates ethanol on contact with water or moisture in skin, eyes and mucous membranes and has an irritating, dehydrating effect on overexposed tissue.
Symptoms/injuries after inhalation	: May cause irritation to the respiratory tract.
Symptoms/injuries after skin contact	: Causes skin irritation.
Symptoms/injuries after eye contact	: Causes serious eye irritation.
Symptoms/injuries after ingestion	: May be harmful if swallowed.
Reason for classification	: Expert judgment

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : Harmful to aquatic life.

##### Ethanol (64-17-5)

LC50 fish 1	12.0 - 16.0 ml/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 1	9268 - 14221 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	> 100 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Daphnia 2	2 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

#### 12.2. Persistence and degradability

No additional information available

#### 12.3. Bioaccumulative potential

##### Ethanol (64-17-5)

Log Pow	-0.32
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#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

Other adverse effects	: This substance may be hazardous to the environment.
Effect on ozone layer	: No additional information available
Effect on the global warming	: No known ecological damage caused by this product.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Sewage disposal recommendations	: Do not dispose of waste into sewer.
Waste disposal recommendations	: Incinerate. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials	: Avoid release to the environment.

### SECTION 14: Transport information

#### 14.1. UN number

DOT NA no. NA1993

#### 14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Combustible liquid, n.o.s. (3-CHLOROPROPYLTRIETHOXYSIANE)
Department of Transportation (DOT) Hazard Classes	: 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
DOT Symbols	: D - Proper shipping name for domestic use only, or to and from Canada, G - Identifies PSN requiring a technical name
Packing group (DOT)	: III - Minor Danger
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 203
DOT Packaging Bulk (49 CFR 173.xxx)	: 241

#### 14.3. Additional information

Other information : No supplementary information available.

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### Transport by sea

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

### Air transport

DOT Quantity Limitations Passenger aircraft/rail : 60 L  
(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : 220 L  
CFR 175.75)

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Ethanol (64-17-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 3-Chloropropyltriethoxysilane (5089-70-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

#### Ethanol (64-17-5)

Listed on IARC (International Agency for Research on Cancer)  
Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Listed on INSQ (Mexican national Inventory of Chemical Substances)  
Listed on Turkish inventory of chemical

#### 3-Chloropropyltriethoxysilane (5089-70-3)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on the Canadian NDSL (Non-Domestic Substances List)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

### 15.3. US State regulations

#### 3-CHLOROPROPYLTRIETHOXYSIANE(5089-70-3)

U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No

#### Ethanol (64-17-5)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
Yes	Yes	No	No	

#### 3-Chloropropyltriethoxysilane (5089-70-3)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
No	No	No	No	

#### 3-Chloropropyltriethoxysilane (5089-70-3)

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### SECTION 16: Other information

#### 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.

#### Full text of H-phrases::

Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Carc. 1A	Carcinogenicity Category 1A
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 2	Flammable liquids Category 2
Flam. Liq. 4	Flammable liquids Category 4
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H225	Highly flammable liquid and vapor
H227	Combustible liquid
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H350	May cause cancer
H401	Toxic to aquatic life

#### HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur  
Flammability : 2 Moderate Hazard  
Physical : 0 Minimal Hazard

Prepared by safety and environmental affairs.

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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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