

**TETRA-s-BUTOXYSILANE****Safety Data Sheet SIT7064.0**

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Version: 2.1

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

Product form	: Substance
Physical state	: Liquid
Substance name	: TETRA-s-BUTOXYSILANE
Product code	: SIT7064.0
Formula	: C <sub>16</sub> H <sub>36</sub> O <sub>4</sub> Si
Synonyms	: SEC-BUTYLSILICATE 2-ETHYLBUTYL SILICATE TETRA-S-BUTYL SILICATE 2-ETHYLBUTYL ORTHOSILICATE 1-BUTANOL, 2-ETHYL-, SILICATE SILICON TETRA-S-BUTOXIDE TETRA-S-BUTYLORTHOSILICATE
Chemical family	: SILICATE ESTER

**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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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)**GELEST INC.**

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[info@gelestde.com](mailto:info@gelestde.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: Hazards identification****2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Skin corrosion/irritation, Category 2

H315

Full text of H- and EUH-statements: see section 16

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

No additional information available

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### 2.2. Label elements

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

Hazard pictograms (CLP)



Signal word (CLP)

: Warning

Hazard statements (CLP)

: H315 - Causes skin irritation.

Precautionary statements (CLP)

: P264 - Wash hands thoroughly after handling.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 - IF ON SKIN: Wash with plenty of water.

P321 - Specific treatment (see supplemental first aid instruction on this label).

P332+P313 - If skin irritation occurs: Get medical advice/attention.

P362+P364 - Take off contaminated clothing and wash it before reuse.

### 2.3. Other hazards

Contains no PBT/vPvB substances  $\geq 0.1\%$  assessed in accordance with REACH Annex XIII

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Substance type

: Mono-constituent

Name

: TETRA-s-BUTOXYSILANE

CAS-No.

: 5089-76-9

EC-No.

: 225-807-7

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Tetra-s-butoxysilane	(CAS-No.) 5089-76-9 (EC-No.) 225-807-7	95 – 100	Skin Irrit. 2, H315

Full text of H- and EUH-statements: see section 16

### 3.2. Mixtures

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.

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

: Causes skin irritation. May be harmful in contact with skin.

Symptoms/effects after eye contact

: May cause eye irritation.

Symptoms/effects after ingestion

: May be harmful if swallowed.

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### 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 : Do not use a heavy water stream.

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

Fire hazard : 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 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

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.

### 6.4. Reference to other sections

See Section 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapour and mist. Provide good ventilation in process area to prevent formation of vapour.  
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.  
Incompatible materials : Oxidizing agent. Moisture. Water.  
Storage area : Store in a well-ventilated place. Store away from heat.

### 7.3. Specific end use(s)

No additional information available

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### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

##### 8.1.1 National occupational exposure and biological limit values

No additional information available

##### 8.1.2. Recommended monitoring procedures

No additional information available

##### 8.1.3. Air contaminants formed

No additional information available

##### 8.1.4. DNEL and PNEC

No additional information available

##### 8.1.5. Control banding

No additional information available

#### 8.2. Exposure controls

##### 8.2.1. Appropriate engineering controls

###### Appropriate engineering controls:

Provide local exhaust or general room ventilation.

##### 8.2.2. Personal protection 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.

###### 8.2.2.1. Eye and face protection

###### Eye protection:

Chemical goggles or safety glasses. Contact lenses should not be worn

###### 8.2.2.2. Skin protection

###### Skin and body protection:

Wear suitable protective clothing

###### Hand protection:

Neoprene or nitrile rubber gloves

###### 8.2.2.3. Respiratory protection

###### Respiratory protection:

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

###### 8.2.2.4. Thermal hazards

No additional information available

##### 8.2.3. Environmental exposure controls

No additional information available

### SECTION 9: Physical and chemical properties

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

Physical state	: Liquid
Appearance	: Clear liquid.
Molecular mass	: 320.54 g/mol
Colour	: Light amber.
Odour	: characteristic.
Odour threshold	: No data available
Refractive index	: 1.407
pH	: No data available

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Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: < -60 °C
Boiling point	: 100 °C @ 4 mm Hg
Flash point	: 110 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 4.5 mm Hg @ 100°C
Relative vapour density at 20°C	: No data available
Relative density	: 0.884 – 0.89
Solubility	: Insoluble in water. Reacts with water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: 1.9 – 2.1 cSt @ 37.8°C
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

Material decomposes slowly in contact with moist air or with water liberating 2-butanol.

### 10.4. Conditions to avoid

Heat. Open flame. Sparks.

### 10.5. Incompatible materials

Oxidizing agent. Moisture. Water.

### 10.6. Hazardous decomposition products

Organic acid vapors. Silicon dioxide. 2-butanol.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

#### Tetra-s-butoxysilane (5089-76-9)

LD50 oral rat	> 10000 g/kg RTECS Number: VV9712500
LD50 dermal rabbit	> 7940 mg/kg

Skin corrosion/irritation	: Causes skin irritation. Primary skin irritation: Irritation Score (24, 72 hour avg.) 5.2, New Zealand Albino rabbits, exposure: 24 hours
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified

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Carcinogenicity	: Not classified None of the components in this product at concentrations >0.1% are listed by NTP or OSHA as a carcinogen..
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Note: The hydrolysis product of silicon tetra-s-butoxide is s-butanol TOXICITY- oral rat, LD50: 6480mg/kg. Material generates s-butanol on contact with water or moisture in skin, eyes and mucous membranes and has an irritating, dehydrating effect on overexposed tissue.
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: Causes skin irritation. May be harmful in contact with skin.
Symptoms/effects after eye contact	: May cause eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.

## SECTION 12: Ecological information

### 12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: 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	: 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

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.2. UN proper shipping name</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

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ADR	IMDG	IATA	ADN	RID
<b>14.3. Transport hazard class(es)</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.4. Packing group</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.5. Environmental hazards</b>				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

### 14.6. Special precautions for user

#### Overland transport

No data available

#### Transport by sea

No data available

#### Air transport

No data available

#### Inland waterway transport

No data available

#### Rail transport

No data available

### 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

##### REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

##### POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

##### REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

##### REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

##### PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

##### Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

##### VOC Directive (2004/42)

VOC content : No additional information available



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## Safety Data Sheet

### Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

### Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

### 15.1.2. National regulations

#### Germany

Water hazard class (WGK) : WGK 1, Slightly hazardous to water.  
Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

#### Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed  
SZW-lijst van mutagene stoffen : The substance is not listed  
SZW-lijst van reprotoxische stoffen – Borstvoeding : The substance is not listed  
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : The substance is not listed  
SZW-lijst van reprotoxische stoffen – Ontwikkeling : The substance is not listed

#### Switzerland

Storage class (LK) : LK 10/12 - Liquids

### 15.2. Chemical safety assessment

No additional information available

## 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; 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:

H315	Causes skin irritation.
Skin Irrit. 2	Skin corrosion/irritation, Category 2

SDS EU (REACH Annex II) - Custom v22

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

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