

**TETRABROMOSILANE**

Safety Data Sheet SIT7050.0

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Version: 2.0

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

|                 |   |
|-----------------|---|
| Product form    | : Substance                             |
| Physical state  | : Liquid                                |
| Substance name  | : TETRABROMOSILANE                      |
| Product code    | : SIT7050.0                             |
| Formula         | : Br <sub>4</sub> Si                    |
| Synonyms        | : SILICON TETRABROMIDE; SILICON BROMIDE |
| Chemical family | : SILICON HALIDE                        |

**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.**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)**GELEST INC.**Fritz-Klatte-Strasse 8  
65933 Frankfurt**Germany**

T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM

[info@gelestde.com](mailto:info@gelestde.com) - [www.gelestde.com](http://www.gelestde.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 1B  | H314 |
| Serious eye damage/eye irritation, Category 1   | H318 |
| Specific target organ toxicity — Single exposure, Category 3,<br>Respiratory tract irritation | H335 |
| 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) :



GHS05



GHS07

Signal word (CLP) :

: Danger

Hazard statements (CLP) :

: H314 - Causes severe skin burns and eye damage.  
H335 - May cause respiratory irritation.

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|                                |   |
|--------------------------------|---|
| Precautionary statements (CLP) | : P280 - Wear protective gloves/protective clothing/eye protection/face protection.<br>P260 - Do not breathe vapours.<br>P264 - Wash hands thoroughly after handling.<br>P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.<br>P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>P310 - Immediately call a POISON CENTER or doctor/physician |
| EUH-statements                 | : EUH014 - Reacts violently with water.   |

### 2.3. Other hazards

|  |   |
|--|---|
| Other hazards not contributing to the classification | : Hydrogen bromide may be formed by reaction with water and moisture in air. The US OSHA PEL (TWA) for hydrogen bromide is 3 ppm. |
|--|---|

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

|                |                    |
|----------------|--------------------|
| Substance type | : Mono-constituent |
| Name           | : TETRABROMOSILANE |
| CAS-No.        | : 7789-66-4        |
| EC-No.         | : 232-182-4        |

| Name             | Product identifier                        | %        | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|------------------|---|----------|---|
| Tetrabromosilane | (CAS-No.) 7789-66-4<br>(EC-No.) 232-182-4 | 97 - 100 | Skin Corr. 1B, H314<br>Eye Dam. 1, H318<br>STOT SE 3, H335      |

Full text of H-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. IF exposed or concerned: Get medical advice/attention. |
| 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 immediate 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 immediate 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                    | : Causes severe skin burns and eye damage. |
| Symptoms/effects after inhalation   | : May cause respiratory irritation.        |
| Symptoms/effects after skin contact | : Causes (severe) skin burns.              |
| Symptoms/effects after eye contact  | : Causes serious eye damage.               |
| 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   | : Alcohol-resistant foam. Carbon dioxide. Dry chemical. Use of high expansion foam (100:1) is recommended to cover flames. |
| Unsuitable extinguishing media | : Water.   |

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

|             |   |
|-------------|---|
| Fire hazard | : Irritating fumes of hydrogen bromide and organic acid vapors may develop when material is exposed to water or open flame. |
|-------------|---|

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### 5.3. Advice for firefighters

- Firefighting instructions : Exercise caution when fighting any chemical fire. Use only dry media to extinguish flames. Water spray or fog should only be used to knock down hydrogen bromide vapors in areas downwind from the 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. Sweep or shovel spills into appropriate container 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 : Avoid all eye and skin contact and do not breathe vapour and mist. Use only outdoors or in a well-ventilated area.
- 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. Store locked up. Store in sealed corrosion resistant containers.
- Incompatible materials : Acids. alcohols. 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

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 face shield. Contact lenses should not be worn

#### Skin and body protection:

Wear suitable protective clothing

#### Respiratory protection:

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Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor/acid gas (yellow 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                             | : 347.7 g/mol                  |
| Colour                                     | : Straw.                       |
| Odour                                      | : Acrid. Hydrogen bromide.     |
| Odour threshold                            | : No data available            |
| Refractive index                           | : 1.5627                       |
| pH   | : No data available            |
| Relative evaporation rate (butylacetate=1) | : No data available            |
| Melting point                              | : No data available            |
| Freezing point                             | : 5 °C                         |
| Boiling point                              | : 154 °C                       |
| Flash point                                | : > 110 °C                     |
| Critical temperature                       | : 383 °C                       |
| Auto-ignition temperature                  | : No data available            |
| Decomposition temperature                  | : No data available            |
| Flammability (solid, gas)                  | : No data available            |
| Vapour pressure                            | : 1.8 mm Hg @ 0°C              |
| Relative vapour density at 20 °C           | : > 5                          |
| Relative density                           | : 2.772                        |
| % Volatiles                                | : 100 %                        |
| Solubility                                 | : Reacts violently 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            |
| 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 corrosion resistant containers stored under a dry inert atmosphere.

#### 10.3. Possibility of hazardous reactions

Reacts with water and moisture in air, liberating hydrogen bromide.

#### 10.4. Conditions to avoid

Heat. Open flame. Sparks.

#### 10.5. Incompatible materials

Acids. alcohols. Oxidizing agent.

#### 10.6. Hazardous decomposition products

Hydrogen bromide. Organic acid vapors.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

|                               |  |
|-------------------------------|--|
| Acute toxicity                | : Not classified                           |
| Skin corrosion/irritation     | : Causes severe skin burns and eye damage. |
| Serious eye damage/irritation | : Causes serious eye damage.               |

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|   |   |
|---|---|
| Respiratory or skin sensitisation                   | : Not classified  |
| Germ cell mutagenicity                              | : Not classified  |
| Carcinogenicity                                     | : Not classified  |
| Reproductive toxicity                               | : Not classified  |
| STOT-single exposure                                | : May cause respiratory irritation.   |
| STOT-repeated exposure                              | : Not classified  |
| Aspiration hazard                                   | : Not classified  |
| Potential adverse human health effects and symptoms | : NOTE: Material may form a siloxane polymer on the skin, eyes or in the lungs. |
| Symptoms/effects after inhalation                   | : May cause respiratory irritation.   |
| Symptoms/effects after skin contact                 | : Causes (severe) skin burns.   |
| Symptoms/effects after eye contact                  | : Causes serious eye damage.  |
| 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 |

#### 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

|                       |   |
|-----------------------|---|
| 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 | : 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

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

#### 14.1. UN number

|               |        |
|---------------|--------|
| UN-No. (ADR)  | : 1760 |
| UN-No. (IMDG) | : 1760 |
| UN-No. (IATA) | : 1760 |
| UN-No. (ADN)  | : 1760 |
| UN-No. (RID)  | : 1760 |

#### 14.2. UN proper shipping name

|                                       |   |
|---------------------------------------|---|
| Proper Shipping Name (ADR)            | : CORROSIVE LIQUID, N.O.S.  |
| Proper Shipping Name (IMDG)           | : CORROSIVE LIQUID, N.O.S.  |
| Proper Shipping Name (IATA)           | : Corrosive liquid, n.o.s.  |
| Proper Shipping Name (ADN)            | : CORROSIVE LIQUID, N.O.S.  |
| Proper Shipping Name (RID)            | : CORROSIVE LIQUID, N.O.S.  |
| Transport document description (ADR)  | : UN 1760 CORROSIVE LIQUID, N.O.S. (TETRABROMOSILANE), 8, II, (E) |
| Transport document description (IMDG) | : UN 1760 CORROSIVE LIQUID, N.O.S. (TETRABROMOSILANE), 8, II      |
| Transport document description (IATA) | : UN 1760 Corrosive liquid, n.o.s. (TETRABROMOSILANE), 8, II      |

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Transport document description (ADN) : UN 1760 CORROSIVE LIQUID, N.O.S. (TETRABROMOSILANE), 8, II  
Transport document description (RID) : UN 1760 CORROSIVE LIQUID, N.O.S. (TETRABROMOSILANE), 8, II

### 14.3. Transport hazard class(es)

#### ADR

Transport hazard class(es) (ADR) : 8  
Danger labels (ADR) : 8



#### IMDG

Transport hazard class(es) (IMDG) : 8  
Danger labels (IMDG) : 8



#### IATA

Transport hazard class(es) (IATA) : 8  
Hazard labels (IATA) : 8



#### ADN

Transport hazard class(es) (ADN) : 8  
Danger labels (ADN) : 8



#### RID

Transport hazard class(es) (RID) : 8  
Danger labels (RID) : 8



### 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

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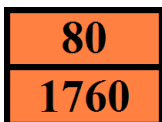
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|                   |  |
|-------------------|--|
| Marine pollutant  | : No                                     |
| Other information | : No supplementary information available |

### 14.6. Special precautions for user

#### - Overland transport

|   |               |
|---|---------------|
| Classification code (ADR)                                 | : C9          |
| Special provisions (ADR)                                  | : 274         |
| Limited quantities (ADR)                                  | : 1I          |
| Excepted quantities (ADR)                                 | : E2          |
| Packing instructions (ADR)                                | : P001, IBC02 |
| Mixed packing provisions (ADR)                            | : MP15        |
| Portable tank and bulk container instructions (ADR)       | : T11         |
| Portable tank and bulk container special provisions (ADR) | : TP2, TP27   |
| Tank code (ADR)   | : L4BN        |
| Vehicle for tank carriage                                 | : AT          |
| Transport category (ADR)                                  | : 2           |
| Hazard identification number (Kemler No.)                 | : 80          |
| Orange plates   | :             |



|                               |      |
|-------------------------------|------|
| Tunnel restriction code (ADR) | : E  |
| EAC code                      | : 2X |
| APP code                      | : B  |

#### - Transport by sea

|                                    |  |
|------------------------------------|--|
| Special provisions (IMDG)          | : 274  |
| Limited quantities (IMDG)          | : 1 L  |
| Excepted quantities (IMDG)         | : E2   |
| Packing instructions (IMDG)        | : P001   |
| IBC packing instructions (IMDG)    | : IBC02  |
| Tank instructions (IMDG)           | : T11  |
| Tank special provisions (IMDG)     | : TP2, TP27  |
| EmS-No. (Fire)                     | : F-A  |
| EmS-No. (Spillage)                 | : S-B  |
| Stowage category (IMDG)            | : B  |
| Stowage and handling (IMDG)        | : SW2  |
| Properties and observations (IMDG) | : Causes burns to skin, eyes and mucous membranes. |

#### - Air transport

|  |        |
|--|--------|
| PCA Excepted quantities (IATA)               | : E2   |
| PCA Limited quantities (IATA)                | : Y840 |
| PCA limited quantity max net quantity (IATA) | : 0.5L |
| PCA packing instructions (IATA)              | : 851  |
| PCA max net quantity (IATA)                  | : 1L   |
| CAO packing instructions (IATA)              | : 855  |
| CAO max net quantity (IATA)                  | : 30L  |
| Special provisions (IATA)                    | : A3   |
| ERG code (IATA)                              | : 8L   |

#### - Inland waterway transport

|                           |          |
|---------------------------|----------|
| Classification code (ADN) | : C9     |
| Special provisions (ADN)  | : 274    |
| Limited quantities (ADN)  | : 1 L    |
| Excepted quantities (ADN) | : E2     |
| Carriage permitted (ADN)  | : T      |
| Equipment required (ADN)  | : PP, EP |



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|   |               |
|---|---------------|
| Number of blue cones/lights (ADN)                         | : 0           |
| <b>- Rail transport</b>                                   |               |
| Classification code (RID)                                 | : C9          |
| Special provisions (RID)                                  | : 274         |
| Limited quantities (RID)                                  | : 1L          |
| Excepted quantities (RID)                                 | : E2          |
| Packing instructions (RID)                                | : P001, IBC02 |
| Mixed packing provisions (RID)                            | : MP15        |
| Portable tank and bulk container instructions (RID)       | : T11         |
| Portable tank and bulk container special provisions (RID) | : TP2, TP27   |
| Tank codes for RID tanks (RID)                            | : L4BN        |
| Transport category (RID)                                  | : 2           |
| Colis express (express parcels) (RID)                     | : CE6         |
| Hazard identification number (RID)                        | : 80          |

### 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

No REACH Annex XVII restrictions

TETRABROMOSILANE is not on the REACH Candidate List

TETRABROMOSILANE is not on the REACH Annex XIV List

TETRABROMOSILANE is not 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.

TETRABROMOSILANE is 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

% Volatiles : 100 %

#### 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-lijst van kankerverwekkende stoffen : TETRABROMOSILANE is listed

SZW-lijst van mutagene stoffen : TETRABROMOSILANE is listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

##### Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

### 15.2. Chemical safety assessment

No additional information available

## 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.: 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:

|               |  |
|---------------|--|
| Eye Dam. 1    | Serious eye damage/eye irritation, Category 1  |
| Skin Corr. 1B | Skin corrosion/irritation, Category 1B   |
| STOT SE 3     | Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation |
| H314          | Causes severe skin burns and eye damage.   |
| H318          | Causes serious eye damage.   |
| H335          | May cause respiratory irritation.  |
| EUH014        | Reacts violently with water.   |

SDS EU (REACH Annex II) - Custom

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