

1,1,3,3-TETRACHLORO-1,3-DISILABUTANE, tech-90

Safety Data Sheet SIT7084.0

Date of issue: 09/23/2015

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	: 1,1,3,3-TETRACHLORO-1,3-DISILABUTANE, tech-90
Product code	: SIT7084.0
Formula	: C ₂ H ₆ Cl ₄ Si ₂
Synonyms	: (DICHLOROSILYLMETHYL)METHYLDICHLOROSILANE
Chemical family	: ORGANOCHLOROSILANE

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

Use of the substance/mixture	: Chemical intermediate For research 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 - www.gelest.com**1.4. Emergency telephone number**

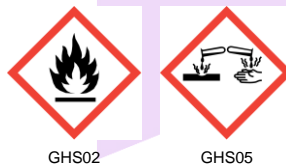
Emergency number	: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)
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SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification (GHS-US)**Flam. Liq. 3 H226
Skin Corr. 1B H314
Eye Dam. 1 H318

Full text of H-phrases: see section 16

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

Hazard pictograms (GHS-US)



GHS02

GHS05

Signal word (GHS-US)
Hazard statements (GHS-US): Danger
: H226 - Flammable liquid and vapor
: H314 - Causes severe skin burns and eye damage

Precautionary statements (GHS-US)

: P280 - Wear protective gloves/protective clothing/eye protection/face protection
: P233 - Keep container tightly closed
: P210 - Keep away from heat, open flames, sparks. - No smoking
: P240 - Ground/bond container and receiving equipment
: P241 - Use explosion-proof electrical equipment
: P242 - Use only non-sparking tools
: P243 - Take precautionary measures against static discharge
: P260 - Do not breathe vapors
: P264 - Wash hands thoroughly after handling
: P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
: P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin with water/shower
: P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
: P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
: P310 - Immediately call a doctor
: P321 - Specific treatment (see first aid instructions on this label)
: P363 - Wash contaminated clothing before reuse
: P370+P378 - In case of fire: Use water spray, alcohol resistant foam, carbon dioxide, dry

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chemical to extinguish
P403+P235 - Keep in a cool place
P405 - Store locked up
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Other hazards

Other hazards not contributing to the classification : Hydrogen chloride may be formed by reaction with water and moisture in air. The US OSHA PEL (TWA) for hydrogen chloride is 5 ppm.

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type : Multi-constituent
Name : 1,1,3,3-TETRACHLORO-1,3-DISILABUTANE, tech-90
CAS No : 148859-49-8

Name	Product identifier	%	Classification (GHS-US)
1,1,3,3-Tetrachloro-1,3-disilabutane	(CAS No) 148859-49-8	80 - 90	Flam. Liq. 3, H226 Skin Corr. 1B, H314 Eye Dam. 1, H318
Pentachloro-1,3-disilabutane	(CAS No) 18105-27-6	10 - 20	Flam. Liq. 3, H226 Skin Corr. 1B, H314 Eye Dam. 1, H318

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 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 if you feel unwell.

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

Symptoms/injuries : Causes severe skin burns and eye damage.
Symptoms/injuries after inhalation : May cause irritation to the respiratory tract.
Symptoms/injuries after skin contact : Causes (severe) skin burns.
Symptoms/injuries after eye contact : Causes serious eye damage.
Symptoms/injuries after ingestion : May be harmful if swallowed.

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

Note to physician- Eyes: If pain persists, repeat washing for 15 minutes or until pH of eye returns to normal. If great pain persists, place one (1) drop Benoxinate solution (0.4%) in the affected eye.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Alcohol-resistant foam. Carbon dioxide. Dry chemical.
Unsuitable extinguishing media : Water.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapor. Irritating fumes of hydrochloric acid and organic acid vapors may develop when material is exposed to water or open flame.

5.3. Advice for firefighters

Firefighting instructions : Use water spray to cool exposed surfaces. 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.
Other information : Do not direct water into an unignited spill.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate 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.

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. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent accumulation of vapors. Take precautionary measures against static discharge. 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

Technical measures : Use explosion-proof electrical equipment.

Storage conditions : Keep container tightly closed. Store in a cool area. Store locked up.

Incompatible materials : Alkalis. 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 : 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 : Liquid.

Molecular mass : 228.05 g/mol

Color : Straw to amber.

Odor : Acrid. Similar to hydrogen chloride.

Odor threshold : No data available

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Refractive index	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: < 0 °C
Boiling point	: 166 - 167 °C
Flash point	: 42 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable liquid and vapor
Vapor pressure	: No data available
Relative vapor density at 20 °C	: > 1
Relative density	: 1.32
VOC content	: 100 %
Solubility	: Reacts 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 in sealed containers stored under a dry inert atmosphere.

10.3. Possibility of hazardous reactions

Reacts with water and moisture in air, liberating hydrogen chloride. Reacts with base, liberating hydrogen.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Alcohols. Base. Oxidizing agent.

10.6. Hazardous decomposition products

Hydrogen. Hydrogen chloride. 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.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after inhalation	: May cause irritation to the respiratory tract.
Symptoms/injuries after skin contact	: Causes (severe) skin burns.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: May be harmful if swallowed.

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Reason for classification : Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

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. 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

Waste 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

UN-No.(DOT) : 2986
DOT NA no. UN2986

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Chlorosilanes, corrosive, flammable, n.o.s.
(1,1,3,3-TETRACHLORO-1,3-DISILABUTANE)
Department of Transportation (DOT) Hazard Classes : 8 - Class 8 - Corrosive material 49 CFR 173.136
Hazard labels (DOT) : 8 - Corrosive
3 - Flammable liquid



Packing group (DOT) : II - Medium Danger
DOT Packaging Exceptions (49 CFR 173.xxx) : None
DOT Packaging Non Bulk (49 CFR 173.xxx) : 206
DOT Packaging Bulk (49 CFR 173.xxx) : 243

14.3. Additional information

Other information : No supplementary information available.

Transport by sea

DOT Vessel Stowage Location : C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L

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SECTION 15: Regulatory information

15.1. US Federal regulations

1,1,3,3-TETRACHLORO-1,3-DISILABUTANE, tech-90 (148859-49-8)

TSCA Exemption/Exclusion	CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.
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1,1,3,3-Tetrachloro-1,3-disilabutane (148859-49-8)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

Pentachloro-1,3-disilabutane (18105-27-6)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

Pentachloro-1,3-disilabutane (18105-27-6)

15.3. US State regulations

1,1,3,3-TETRACHLORO-1,3-DISILABUTANE, tech-90(148859-49-8)

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

1,1,3,3-Tetrachloro-1,3-disilabutane (148859-49-8)

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	

Pentachloro-1,3-disilabutane (18105-27-6)

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	

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::

Eye Dam. 1	Serious eye damage/eye irritation Category 1
Flam. Liq. 3	Flammable liquids Category 3
Skin Corr. 1B	Skin corrosion/irritation Category 1B
H226	Flammable liquid and vapor
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage

HMIS III Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 3 Serious Hazard

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Physical : 1 Slight Hazard

Prepared by safety and environmental affairs.

Date of issue: 09/23/2015 Version: 1.0

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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