

**TETRAMETHYLTIN, 99%**

Safety Data Sheet SNT7560.1

Date of issue: 01/13/2015

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SECTION 1: Identification**1.1. Identification**

Product name : TETRAMETHYLTIN, 99%
 Product code : SNT7560.1
 Product form : Substance
 Physical state : Liquid
 Formula : C4H12Sn
 Synonyms : TETRAMETHYLSTANNANE
 Chemical family : ORGANOTIN

1.2. Recommended use and restrictions on use

Recommended use : Chemical intermediate

1.3. Supplier**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)

SECTION 2: Hazard(s) identification**2.1. Classification of the substance or mixture****GHS-US classification**

Flammable liquids Category 2	H225 Highly flammable liquid and vapor
Acute toxicity (oral) Category 2	H300 Fatal if swallowed
Acute toxicity (dermal) Category 1	H310 Fatal in contact with skin
Acute toxicity (inhalation:vapor) Category 2	H330 Fatal if inhaled
Hazardous to the aquatic environment - Acute Hazard Category 1	H400 Very toxic to aquatic life
Hazardous to the aquatic environment - Chronic Hazard Category 1	H410 Very toxic to aquatic life with long lasting effects

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements**GHS US labeling**

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger

Hazard statements (GHS US) : H225 - Highly flammable liquid and vapor
 H300+H310+H330 - Fatal if swallowed, in contact with skin or if inhaled
 H400 - Very toxic to aquatic life
 H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS US) : P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 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.
 P262 - Do not get in eyes, on skin, or on clothing.
 P264 - Wash hands thoroughly after handling.
 P270 - Do not eat, drink or smoke when using this product.
 P271 - Use only outdoors or in a well-ventilated area.
 P273 - Avoid release to the environment.
 P284 - [In case of inadequate ventilation] wear In case of inadequate ventilation wear respiratory protection..
 P330 - Rinse mouth.
 P301+P310 - If swallowed: Immediately call a doctor
 P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse

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skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P310 - Immediately call a doctor
P320 - Specific treatment is urgent (see first aid instructions on this label)
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.
P391 - Collect spillage.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Keep in a cool place
P405 - Store locked up.
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Hazards not otherwise classified (HNOC)

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : TETRAMETHYLTIN, 99%
CAS-No. : 594-27-4

Name	Product identifier	%	GHS-US classification
Tetramethyltin	(CAS-No.) 594-27-4	99 - 100	Flam. Liq. 2, H225 Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation:vapour), H330 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of hazard classes and 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.

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

First-aid measures after skin contact : Wash with plenty of soap and water. Immediately call a poison center or doctor/physician.

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. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : Fatal if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. At low levels exposure to tetramethyltin may produce coughing, headache and nausea. Tetramethyltin has been reported to cause bradycardia, hypertension, nausea, vomiting, irritation of upper and lower respiratory systems, abrupt variation in sinus rhythm and short term memory loss. At higher levels tetramethyltin has been reported to cause damage to brain cells in the limbic system.

Symptoms/effects after skin contact : Fatal in contact with skin. May cause skin irritation. Repeated exposure to this material can result in absorption through skin causing significant health hazard.

Symptoms/effects after eye contact : May cause eye irritation. The onset of irritation may not occur until several hours after exposure.

Symptoms/effects after ingestion : Fatal if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Chronic symptoms : Tetramethyltin has been shown to have similar metabolic products to trimethylchlorotin. Trimethylchlorotin is a cumulative toxin. Symptomatic manifestations can follow exposure up to five days. Reported symptoms include memory loss, exhibition of rage and anger, and reduction of sexual function.

4.3. Immediate medical attention and special treatment, if necessary

Note to physician: Application of corticosteroid creams has been effective in treating severe skin irritation. If blisters develop, they may require abrasion to promote healing.

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SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.
Unsuitable extinguishing media : None known.

5.2. Specific hazards arising from the chemical

Fire hazard : Highly flammable liquid and vapor. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame. Moderately toxic by inhalation.
Explosion hazard : May form flammable/explosive vapor-air mixture.

5.3. Special protective equipment and precautions for fire-fighters

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.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate every possible source of ignition. 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". Self-contained breathing apparatus should be worn at all times to avoid inhalation.

6.2. Environmental precautions

Avoid release to the environment. 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 : Collect spillage. Clean up any spills as soon as possible, using an absorbent material to collect it. 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 : Handle empty containers with care because residual vapors are flammable. 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. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area. Use only non-sparking tools.
Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. 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

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.
Storage conditions : Keep container tightly closed. Keep in a cool place. Store locked up.
Incompatible materials : Air. Direct sunlight. Oxidizing agent.
Storage area : Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Tetramethyltin (594-27-4)		
OSHA	OSHA PEL (TWA) (mg/m ³)	0.1 mg/m ³ as tin (41ppb TMT equiv)

8.2. Appropriate engineering controls

Appropriate engineering controls : Handle in an enclosing hood with exhaust ventilation. Insure that exhaust is vented properly-caustic scrubbing is recommended.

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8.3. Individual protection measures/Personal protective 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.

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	: Clear liquid.
Molecular mass	: 178.83 g/mol
Color	: Colorless.
Odor	: No data available
Odor threshold	: No data available
Refractive index	: 1.441
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: > 1
Melting point	: -54 °C
Freezing point	: No data available
Boiling point	: 74 - 75 °C
Flash point	: -12 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapor
Vapor pressure	: 90 mm Hg @ 20°C
Relative vapor density at 20 °C	: 6.17
Relative density	: 1.291
% Volatiles	: 100 %
Solubility	: Insoluble in 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	: 1.9 vol % (LEL)

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

Direct sunlight in air causes slow degradation to an inorganic tin salt. Avoid contact with tin IV chloride as highly toxic trimethylchlorotin may form.

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10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Air. Direct sunlight. Oxidizing agent.

10.6. Hazardous decomposition products

Organic acid vapors. Organotin compounds.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

TETRAMETHYLTIN, 99% (594-27-4)	
ATE US (oral)	5 mg/kg body weight
ATE US (dermal)	5 mg/kg body weight
ATE US (vapors)	0.5 mg/l/4h
Tetramethyltin (594-27-4)	
LD50 oral rat	195 - 331 mg/kg
LD50 intravenous rat	7 - 13 mg/kg
LCLo inhalation mouse	2550 mg/m ³ 10M
ATE US (oral)	5 mg/kg body weight
ATE US (dermal)	5 mg/kg body weight
ATE US (vapors)	0.5 mg/l/4h

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

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/effects after inhalation : Fatal if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. At low levels exposure to tetramethyltin may produce coughing, headache and nausea. Tetramethyltin has been reported to cause bradycardia, hypertension, nausea, vomiting, irritation of upper and lower respiratory systems, abrupt variation in sinus rhythm and short term memory loss. At higher levels tetramethyltin has been reported to cause damage to brain cells in the limbic system.

Symptoms/effects after skin contact : Fatal in contact with skin. May cause skin irritation. Repeated exposure to this material can result in absorption through skin causing significant health hazard.

Symptoms/effects after eye contact : May cause eye irritation. The onset of irritation may not occur until several hours after exposure.

Symptoms/effects after ingestion : Fatal if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Chronic symptoms : Tetramethyltin has been shown to have similar metabolic products to trimethylchlorotin. Trimethylchlorotin is a cumulative toxin. Symptomatic manifestations can follow exposure up to five days. Reported symptoms include memory loss, exhibition of rage and anger, and reduction of sexual function.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the ozone layer : No additional information available

SECTION 13: Disposal considerations

13.1. Disposal 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.
Additional information : Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

UN-No.(DOT) : 3384
DOT NA no. : UN3384

14.2. UN proper shipping name

Transport document description : UN3384 Toxic by inhalation liquid, flammable, n.o.s. (Inhalation Hazard Zone B (TETRAMETHYLTIN)), 6.1, I
Proper Shipping Name (DOT) : Toxic by inhalation liquid, flammable, n.o.s.
Inhalation Hazard Zone B (TETRAMETHYLTIN)
Class (DOT) : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132
Packing group (DOT) : I - Great Danger
Hazard labels (DOT) : 6.1 - Poison inhalation hazard
3 - Flammable liquid

Dangerous for the environment : Yes
Marine pollutant : Yes



DOT Packaging Non Bulk (49 CFR 173.xxx) : 227
DOT Packaging Bulk (49 CFR 173.xxx) : 244
DOT Packaging Exceptions (49 CFR 173.xxx) : None
DOT Symbols : G - Identifies PSN requiring a technical name

14.3. Additional information

Emergency Response Guide (ERG) Number : 131
Other information : No supplementary information available.

Transport by sea

DOT Vessel Stowage Location : D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.
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) : Forbidden

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SECTION 15: Regulatory information

15.1. US Federal regulations

Tetramethyltin (594-27-4)

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

15.2. International regulations

CANADA

Tetramethyltin (594-27-4)

Listed on the Canadian NDSL (Non-Domestic Substances List)

EU-Regulations

Tetramethyltin (594-27-4)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Tetramethyltin (594-27-4)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
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)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Tetramethyltin (594-27-4)

U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases::

H225	Highly flammable liquid and vapor
H300	Fatal if swallowed
H310	Fatal in contact with skin
H330	Fatal if inhaled
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

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.

Hazard Rating

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

Flammability : 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

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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