

Safety Data Sheet SIP6718.0

Issue date: 12/18/2014 Revision date: 05/24/2023 Version: 2.1

SECTION 1: Identification

1.1. Identification

Product name : 1,3,5,7,9-PENTAMETHYLCYCLOPENTASILOXANE, 90%

Product code : SIP6718.0
Product form : Substance
Physical state : Liquid
Formula : C5H2005Si5

Synonyms : D'5; METHYL HYDROGEN CYCLIC PENTAMER; 2,4,6,8,10-

PENTAMETHYLCYCLOPENTASILOXANE

Chemical family : ORGANOSILOXANE

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 3 H226 Flammable liquid and vapor

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) : Warning

Hazard statements (GHS US) : H226 - Flammable liquid and vapor

Precautionary statements (GHS US) : P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P210 - Keep away from heat, open flames, sparks. - No smoking.

P233 - Keep container tightly closed.

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.

P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin

with water/shower

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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. 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 : Multi-constituent

Name : 1,3,5,7,9-PENTAMETHYLCYCLOPENTASILOXANE, 90%

CAS-No. : 6166-86-5

Name	Product identifier	%	GHS US classification
1,3,5,7,9-Pentamethylcyclopentasiloxane	CAS-No.: 6166-86-5	> 90	Flam. Liq. 3, H226
Tetramethylcyclotetrasiloxane	CAS-No.: 2370-88-9	< 10	Flam. Liq. 3, H226

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. If you feel

unwell, seek medical advice.

First-aid measures after skin contact : Wash with plenty of soap and water.

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 (acute and delayed)

Symptoms/effects after inhalation : No information available. Symptoms/effects after skin contact : May cause skin irritation. Symptoms/effects after eye contact : May cause eye irritation. Symptoms/effects after ingestion : No information available.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Water fog. Foam. Carbon dioxide. Dry chemical.

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5.2. Specific hazards arising from the chemical

Fire hazard : Flammable liquid and vapor. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame. During extended storage may generate

hydrogen gas.

5.3. Special protective equipment and precautions for fire-fighters

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

containers.

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.

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. 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

Precautions for safe handling : Ground/bond container and receiving equipment. Avoid all eye and skin contact and do not

breathe vapor and mist. Provide good ventilation in process area to prevent accumulation of

vapors. Use only non-sparking tools.

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

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof

electrical/ventilating/lighting equipment.

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

Incompatible materials : Alkalis. Metals. Oxidizing agent.

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

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Avoid all unnecessary 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:

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 : 300.64 g/mol
Color : No data available
Odor : No data available

Odor : No data available
Odor threshold : No data available
pH : No data available
No data available

Relative evaporation rate (butyl acetate=1) : ~ 1 Melting point : -108 °C

Freezing point : No data available

Boiling point : $168 \, ^{\circ}\text{C}$ Flash point : $39 \, ^{\circ}\text{C}$

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 : 0.998

Solubility Insoluble in water. Partition coefficient n-octanol/water (Log Pow) No data available Partition coefficient n-octanol/water (Log Kow) No data available Viscosity, kinematic No data available No data available Viscosity, dynamic : No data available Explosive properties Oxidizing properties No data available **Explosion limits** No data available

9.2. Other information

No additional information available

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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

The product can generate small amounts of hydrogen when exposed to alkalis and protic materials such as water and alcohol in combination with metal salts such as aluminum chloride or precious metals such as platinum.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Alkalis. Metal salts. Oxidizing agent. Precious metals.

10.6. Hazardous decomposition products

Carbon monoxide. Formaldehyde. Hydrogen. Organic acid vapors. Silicon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Tetramethylcyclotetrasiloxane (2370-88-9)	
LD50 oral rat	> 2000 mg/kg body weight Animal: rat, Animal sex: female, Guideline: OECD Guideline 420 (Acute Oral Toxicity - Fixed Dose Method), Guideline: EU Method B.1 bis (Acute Oral Toxicity - Fixed Dose Procedure)
LC50 Inhalation - Rat	> 4.9 mg/l air Animal: rat, Animal sex: female, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)

1,3,5,7,9-Pentamethylcyclopentasiloxane (616	66-86-5)
LDE0 and not	> 2000/

LD50 oral rat	> 2000 mg/kg body weight Animal: rat, Animal sex: female, Guideline: OECD Guideline 420 (Acute Oral Toxicity - Fixed Dose Method), Guideline: EU Method B.1 bis (Acute Oral Toxicity - Fixed Dose Procedure)
LC50 Inhalation - Rat	> 4.9 mg/l air Animal: rat, Animal sex: female, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)

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 STOT-single exposure : Not classified STOT-repeated exposure : Not classified

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1,3,5,7,9-Pentamethylcyclopentasiloxane (6166-86-5)					
NOAEL (oral,rat,90 days)	150 mg/kg body weight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)				
Aspiration hazard	: Not classified				
Symptoms/effects after inhalation	: No information available.				
Symptoms/effects after skin contact	: May cause skin irritation.				
Symptoms/effects after eye contact	: May cause eye irritation.				
Symptoms/effects after ingestion	: No information available.				

SECTION 12: Ecological information

12.1. Toxicity

Tetramethylcyclotetrasiloxane (2370-88-9)						
EC50 - Crustacea [1] > 100 mg/l Test organisms (species): Daphnia magna						
EC50 - Crustacea [2]	> 500 mg/l Test organisms (species): Daphnia magna					
EC50 72h - Algae [1]	> 500 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)					
EC50 72h - Algae [2]	> 100 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)					
EC50 96h - Algae [1]	1.164 mg/l Source: EPISUITE					
LOEC (chronic)	> 10 mg/l Test organisms (species): Daphnia magna Duration: '21 d'					
NOEC (chronic)	10 mg/l Test organisms (species): Daphnia magna Duration: '21 d'					
1,3,5,7,9-Pentamethylcyclopentasiloxane (6166-86-5)						
LC50 - Fish [1]	32.369 mg/l Source: Episuite					
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna					
EC50 - Crustacea [2] > 500 mg/l Test organisms (species): Daphnia magna						
EC50 72h - Algae [1]	> 500 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)					
EC50 72h - Algae [2]	> 100 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)					
EC50 96h - Algae [1]	15.252 mg/l Source: Episuite					
LOEC (chronic)	> 10 mg/l Test organisms (species): Daphnia magna Duration: '21 d'					
NOEC (chronic)	10 mg/l Test organisms (species): Daphnia magna Duration: '21 d'					

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Tetramethylcyclotetrasiloxane (2370-88-9)				
Partition coefficient n-octanol/water (Log Pow)	4.6 Source: EPISUITE			
1,3,5,7,9-Pentamethylcyclopentasiloxane (6166-86-5)				
Partition coefficient n-octanol/water (Log Pow) 2.97 Source: NLM				

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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 : 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 DOT / TDG / IMDG / IATA

DOT	TDG		IMDG	IATA		
14.1. UN number						
1993	Not applicable	1993		1993		
14.2. Proper Shipping Name						
Flammable liquids, n.o.s. ((1,3,5,7,9- PENTAMETHYLCYCLOPENTASIL OXANE))	Not applicable		FLAMMABLE LIQUID, N.O.S. (1,3,5,7,9- PENTAMETHYLCYCLOPENTASIL OXANE)	Flammable liquid, n.o.s. (1,3,5,7,9- PENTAMETHYLCYCLOPENTASIL OXANE)		
Transport document description						
UN1993 Flammable liquids, n.o.s. (1,3,5,7,9- PENTAMETHYLCYCLOPENTASIL OXANE), 3, III	Not applicable		UN 1993 FLAMMABLE LIQUID, N.O.S. (1,3,5,7,9- PENTAMETHYLCYCLOPENTASIL OXANE), 3, III	UN 1993 Flammable liquid, n.o.s. (1,3,5,7,9- PENTAMETHYLCYCLOPENTASIL OXANE), 3, III		
14.3. Transport hazard class(es)					
3	Not applicable		3	3		
Not applicable	Not applicable		3	3		
14.4. Packing group						
III	Not applicable		III	III		
14.5. Environmental hazards						
Dangerous for the environment: No	Dangerous for the environment: No		Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No		
IMO IMDG- code: 3.2			I	I		

14.6. Special precautions for user

DOT

UN-No.(DOT) : UN1993

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DOT Special Provisions (49 CFR 172.102)

B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable.

B52 - Notwithstanding the provisions of 173.24b of this subchapter, non-reclosing pressure relief devices are authorized on DOT 57 portable tanks.

IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

T4 - 2.65 178.274(d)(2) Normal...... 178.275(d)(3)

TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

DOT Packaging Exceptions (49 CFR 173.xxx) : 150
DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
DOT Packaging Bulk (49 CFR 173.xxx) : 242
DOT Quantity Limitations Passenger aircraft/rail (49 : 60 L

CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49

CFR 175.75)

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

passenger vessel.

: 220 L

TDG

Emergency Response Guide (ERG) Number : 128

IMDG

Special provision (IMDG) : 223, 274, 955

Limited quantities (IMDG) : 5 L

Excepted quantities (IMDG) : E1

Packing instructions (IMDG) : P001, LP01

IBC packing instructions (IMDG) : IBC03

Tank instructions (IMDG) : T4

Tank special provisions (IMDG) : TP1, TP29

EmS-No. (Fire) : F-E - FIRE SCHEDULE Echo - NON-WATER-REACTIVE FLAMMABLE LIQUIDS EmS-No. (Spillage) : S-E - SPILLAGE SCHEDULE Echo - FLAMMABLE LIQUIDS, FLOATING ON WATER

Stowage category (IMDG) : A

IATA

PCA Excepted quantities (IATA) : E1 PCA Limited quantities (IATA) Y344 PCA limited quantity max net quantity (IATA) 10L PCA packing instructions (IATA) 355 PCA max net quantity (IATA) 60L CAO packing instructions (IATA) 366 220L CAO max net quantity (IATA) Special provision (IATA) : A3 ERG code (IATA) 3L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

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SECTION 15: Regulatory information

15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Tetramethylcyclotetrasiloxane	2370-88-9	Present	Active	
1,3,5,7,9-Pentamethylcyclopentasiloxane	6166-86-5	Present	Active	

15.2. International regulations

CANADA

Tetramethylcyclotetrasiloxane (2370-88-9)

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

1,3,5,7,9-Pentamethylcyclopentasiloxane (6166-86-5)

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

EU-Regulations

Tetramethylcyclotetrasiloxane (2370-88-9)

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

1,3,5,7,9-Pentamethylcyclopentasiloxane (6166-86-5)

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

National regulations

Tetramethylcyclotetrasiloxane (2370-88-9)

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

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)

Listed on KECL/KECI (Korean Existing Chemicals Inventory)

Listed on the TCSI (Taiwan Chemical Substance Inventory)

Listed on the NCI (Vietnam - National Chemical Inventory)

Listed on TECI (Thailand Existing Chemicals Inventory)

1,3,5,7,9-Pentamethylcyclopentasiloxane (6166-86-5)

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the Japanese ENCS (Existing New Chemical Substances) inventory

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on the TCSI (Taiwan Chemical Substance Inventory)

Listed on TECI (Thailand Existing Chemicals Inventory)

Listed on the NCI (Vietnam - National Chemical Inventory)

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

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SECTION 16: Other information

Full text of H-phrases::

H226 Flammable liquid and vapor

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.: Chemcial 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 : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions.

Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well

as liquids with flash points between 73 F and 100 F. (Classes IB IC)

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

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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