

METHYLTRIS(METHYLETHYLKETOXIMINO)SILANE, tech-95

Safety Data Sheet SIM6590.0

Date of issue: 01/07/2015

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	: METHYLTRIS(METHYLETHYLKETOXIMINO)SILANE, tech-95
Product code	: SIM6590.0
Formula	: C ₁₃ H ₂₇ N ₃ O ₃ Si
Synonyms	: 2-BUTANONE, O,O',O''-(METHYLSILYLIDYNE)TRIOXINE; METHYLTRIS(1-METHYLPROPYLIDENEAMINOXY) SILANE; 2-BUTANONE, 2,2',2''-[O,O',O''-(METHYLSILYLIDYNE)TRIOXIME]; METHYLTRIS(BUTANONEOXIME)SILANE
Chemical family	: ORGANOAMINOSILANE

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

Use of the substance/mixture	: Chemical intermediate For research and industrial 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. 4	H227
Acute Tox. 4 (Oral)	H302
Skin Irrit. 2	H315
Eye Dam. 1	H318
Skin Sens. 1	H317
Carc. 2	H351

Full text of H-phrases: see section 16

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

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H227 - Combustible liquid
H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H351 - Suspected of causing cancer

Precautionary statements (GHS-US)

: P280 - Wear protective gloves/protective clothing/eye protection/face protection
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, open flames, sparks. - No smoking
P261 - Avoid breathing vapors
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P272 - Contaminated work clothing must not be allowed out of the workplace
P301+P312 - If swallowed: Call a doctor if you feel unwell
P330 - Rinse mouth

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P302+P352 - If on skin: Wash with plenty of water
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - If exposed or concerned: Get medical advice/attention
P332+P313 - If skin irritation occurs: Get medical advice/attention
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P362+P364 - Take off contaminated clothing and wash it before reuse
P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry 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

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type : Multi-constituent
Name : METHYLTRIS(METHYLETHYLKETOXIMINO)SILANE, tech-95
CAS No : 22984-54-9
EC no : 245-366-4

Name	Product identifier	%	Classification (GHS-US)
Methyltris(methylethylketoximino)silane	(CAS No) 22984-54-9	> 90	Flam. Liq. 4, H227 Skin Irrit. 2, H315 Eye Irrit. 2A, H319
2-Butanone, oxime	(CAS No) 96-29-7	< 5	Flam. Liq. 4, H227 Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Skin Sens. 1, H317 Carc. 2, H351

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.

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 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/injuries after inhalation : May cause irritation to the respiratory tract. Vapors from decomposition or exposure to atmospheric moisture may cause a reversible narcotic effect. Overexposure may cause coma and respiratory failure.

Symptoms/injuries after skin contact : Causes skin irritation. May cause an allergic skin reaction.

Symptoms/injuries after eye contact : Causes serious eye damage.

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

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. Foam. Carbon dioxide. Dry chemical.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Combustible liquid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

Reactivity : Contact with iron should be avoided. Contact with electrophiles such as ferric chloride can lead to a violent reaction.

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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.

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

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper 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

- 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, open flames, sparks. - No smoking.
Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapor and mist. 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 thoroughly after handling. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.
Storage conditions : Keep container tightly closed. Store in sealed containers without contacting iron or steel.
Incompatible materials : Acids. Iron. Metals. Moisture. 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. 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 - amine gas (brown 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 : 301.46 g/mol
Color : Straw.
Odor : Mild.

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Odor threshold	: No data available
Refractive index	: 1.4548
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: -22 °C
Boiling point	: 110 - 111 °C @ 2 mm Hg
Flash point	: 90 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Combustible liquid
Vapor pressure	: 4 mm Hg @ 150°C
Relative vapor density at 20 °C	: > 1
Relative density	: 0.982
VOC content	: < 5 %
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
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Contact with iron should be avoided. Contact with electrophiles such as ferric chloride can lead to a violent reaction.

10.2. Chemical stability

Stable in sealed containers.

10.3. Possibility of hazardous reactions

Reacts with water and moisture in air and acids liberating methylethylketoxime (MEKO).

10.4. Conditions to avoid

Open flame. Heat. Sparks.

10.5. Incompatible materials

Acids. Iron. Metals. Moisture. Oxidizing agent.

10.6. Hazardous decomposition products

Organic acid vapors. Carbon dioxide. Carbon monoxide. Methylethylketone. Methylethylketoxime. NOx. Silicon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

2-Butanone, oxime (96-29-7)	
LD50 oral rat	930 mg/kg
LD50 dermal rabbit	0.2 ml/kg
ATE US (oral)	930.000 mg/kg body weight

Methyltris(methylethylketoxmino)silane (22984-54-9)	
LD50 oral rat	2000 - 3000 mg/kg

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye damage.
Respiratory or skin sensitization	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
	In vivo and in vitro studies did not indicate mutagenicity or genotoxicity.

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2-Butanone, oxime (96-29-7)

Carcinogenicity	: Suspected of causing cancer. The hydrolysis product, methylethylketoxime, in lifetime inhalation studies in which mice and rats were exposed 6hrs/day, 5days/week for 18 and 24 months, respectively, showed a statistical increase in liver carcinomas at exposure levels of 375ppm.
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Subchronic oral toxicity studies with the hydrolysis product, methylethylketoxime, indicate that ingestion may produce blood effects, reducing the blood's ability to transport oxygen (methemoglobinemia and anemia.).
Symptoms/injuries after inhalation	: May cause irritation to the respiratory tract. Vapors from decomposition or exposure to atmospheric moisture may cause a reversible narcotic effect. Overexposure may cause coma and respiratory failure.
Symptoms/injuries after skin contact	: Causes skin irritation. May cause an allergic skin reaction.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity

2-Butanone, oxime (96-29-7)

LC50 fish 1	777 - 914 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	750 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	760 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [static])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

2-Butanone, oxime (96-29-7)

BCF fish 1	0.5 - 5.8
Log Pow	0.65 (at 25 °C)

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	: May be incinerated. 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

DOT NA no. NA1993

14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Combustible liquid, n.o.s. (METHYLTRIS(METHYLETHYLKETOXIMINO)SILANE)
Department of Transportation (DOT) Hazard Classes	: 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
DOT Symbols	: D - Proper shipping name for domestic use only, or to and from Canada, G - Identifies PSN requiring a technical name
Packing group (DOT)	: III - Minor Danger
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150

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DOT Packaging Non Bulk (49 CFR 173.xxx) : 203

DOT Packaging Bulk (49 CFR 173.xxx) : 241

14.3. Additional information

Other information : No supplementary information available.

Transport by sea

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

Air transport

DOT Quantity Limitations Passenger aircraft/rail : 60 L
(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : 220 L
CFR 175.75)

SECTION 15: Regulatory information

15.1. US Federal regulations

2-Butanone, oxime (96-29-7)

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

EPA TSCA Regulatory Flag T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

Methyltris(methylethylketoxmino)silane (22984-54-9)

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

EPA TSCA Regulatory Flag S - S - indicates a substance that is identified in a proposed or final Significant New Uses Rule.

15.2. International regulations

2-Butanone, oxime (96-29-7)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on the Canadian DSL (Domestic Substances List)

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

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

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

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)

Methyltris(methylethylketoxmino)silane (22984-54-9)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on the Canadian DSL (Domestic Substances List)

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

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

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

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)

15.3. US State regulations

METHYLTRIS(METHYLETHYLKETOXIMINO)SILANE, tech-95(22984-54-9)

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

2-Butanone, oxime (96-29-7)

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

Methyltris(methylethylketoxmino)silane (22984-54-9)

U.S. - California - Proposition 65 - Carcinogens List

U.S. - California - Proposition 65 - Developmental Toxicity

U.S. - California - Proposition 65 - Reproductive Toxicity -

U.S. - California - Proposition 65 - Reproductive Toxicity -

No significance risk level (NSRL)

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2-Butanone, oxime (96-29-7)				
		Female	Male	
No	No	No	No	
2-Butanone, oxime (96-29-7)				
U.S. - Minnesota - Hazardous Substance List				
U.S. - Texas - Effects Screening Levels - Long Term				
U.S. - Texas - Effects Screening Levels - Short Term				
Methyltris(methylethylketoximino)silane (22984-54-9)				
U.S. - Texas - Effects Screening Levels - Long Term				
U.S. - Texas - Effects Screening Levels - Short Term				

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::

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Carc. 2	Carcinogenicity Category 2
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 4	Flammable liquids Category 4
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization Category 1
H227	Combustible liquid
H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H351	Suspected of causing cancer

HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur
Flammability : 2 Moderate Hazard
Physical : 1 Slight Hazard

Prepared by safety and environmental affairs.

Date of issue: 01/07/2015 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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