GHS Safety Data Sheet

SDS No. : SIR01LAEG Date Issued : 2020/04/01

Section 1. Identification of the substance or mixture and of the supplier

Product Information

Product name: $Si(OCH_3)_4$ Silicon tetramethoxide

Product	Purity	Form	Size or Shape
SIR01LB	99.9999%(6N)	liquid	−

Company Information:

Manufacturer : Kojundo Chemical Laboratory Co., Ltd.
1-28, 5-chome, Chiyoda, Sakado-shi, Saitama Japan 350-0284
Phone: +81-49-284-1511 Fax: +81-49-284-1351
Emergency Phone : +81-49-284-1511

Recommended uses and restrictions on use: For research purposes

Section 2. Hazards identification

GHS Classification

Health Hazards	Environmental Hazards	Physical Hazards
Acute toxicity(Inhalation; vapours) : Category 1 **Serious eye damage/eye irritation : Category 1** **Specific target organ toxicity, single exposure : Category 2** **Specific target organ toxicity, repeated exposure : Category 1,2**	No data available	**Flammable solids : Category 2**

GHS Label: F, T, R, C

Pictograms or symbols:

Warning word: **DANGER**

Hazard information	Description of precaution
Highly flammable liquid and vapour **Fatal if inhaled** **Causes serious eye damage** **May cause damage to organs (lung)** **Causes damage to organs (respiratory system) through prolonged or repeated exposure** **May cause damage to organs (kidney) through prolonged or repeated exposure**	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use explosion-proof electrical/ventilating/lighting/…/equipment. Take precautionary measures static discharge. Wear protective gloves/protective clothing/eye protection/respiratory protection/face protection during handling. Avoid breathing dust/mist/gas/fume/vapors/spray. Do not eat, drink or smoke when using this product, and wash hands thoroughly after handling. Take off the contaminated clothing and wash before reuse. Keep container or bottle tightly closed when not in use. Use only outdoors or in well-ventilated area. IN CASE OF FIRE: Wear protective gloves/eye protection/face protection. Use 《refer to our SDS》 to extinguish. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN: Remove immediately all contaminated clothing and rinse skin with water/shower.

	Then wash skin with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Immediately call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell. Protect from sunlight. Store in a cool, dry and well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents/ container in accordance with local/national regulations.

Section 3. Composition / information on ingredients

Chemical or common name:	Tetramethoxysilane
Synonyms:	Silicon tetramethoxide, Methyl orthosilicate
Chemical formula:	$Si(OCH_3)_4$
Single Substance or Compound:	Single substance
Composition:	100%
CAS #:	681-84-5
RTECS#:	VV9800000
TSCA inventory :	Listed
EINECS:	2116564

Section 4. First aid measures

Eye contact: Promptly wash eyes with plenty of water while lifting the eye lids.
Continue to rinse for at least 15 minutes and get medical attention.

Skin contact: Remove immediately all contaminated clothing. Wipe off the product immediately by tissue or soft cloth, etc. Promptly flush contaminated skin with soap or mild detergent and water. Contact physician if irritation continues.

Inhalation: Remove the exposed person immediately and provide fresh air.
Get medical attention.

Ingestion: Rinse mouth and throat with water. Get medical attention immediately.

Section5. Fire fighting measures

Extinguishing media:
Carbon dioxide, Dry chemical powder, water alcohol resistance foam, dry sand.
DO NOT use a direct water stream.

Fire fighting: Flammable material.
Contact with water may liberate flammable gases.
Remove containers to safe place if possible.
Use water spray to Cool down nearby structures and containers.
Self-contained breathing apparatus and full protective clothing should be used, if the material is involved in fire.

Section 6. Accidental release measures

Personal Precautions:
Workers should use protective wears to prevent contact with the spilt adhesive and inhalation of its vapor/dusts.

Environmental hazard precautions:
Shut off leak if without risk.
Prevent flow out to river, etc. so as not to badly affect.

Method for containment and cleaning up:
Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves.
Wear disposable coveralls and discard them after use.
Remove all sources of ignition.
DO NOT use water with spills.

Avoid unnecessary contacts with spills.
Indoor leakage: Ventilate as much as possible until the cleaning is completed.
Outdoor leakage: Work from the windward and evacuate the leeward crowd.
Absorb or cover with vermiculite or other suitable absorbent, and dispose of DOT-approved waste containers as much as possible.
Carefully wash spill site with plenty of water after material pick up.

Section 7. Handling and storage

Precautions to be taken in handling:

Safe handling: Use protective wears and local ventilation equipment, if inhalation or skin contact is foreseen.
Avoid prolonged or repeated exposure.
Handle the material in a dry inert gas atmosphere, utilizing glove bag or glove box.
Keep away from moisture when handling.
Keep container or bottle tightly closed when not in use.
Air and moisture sensitive. Light sensitive.
Keep away from heat, sparks and naked flame.
Electrically ground all equipment when handling this material and use only non-sparking tools.

Precautions to be taken in storage:

General precautions: Store the material in a sealed container, or in the original container under dry atmosphere.
Store in a cool, dry, well ventilated and dark place away from incompatible materials.
Keep away from any heat, sparks, and flames.

Section 8. Exposure controls / personal protection

Exposure guideline: ACGIH(2019) : TLV-TWA 1 ppm
OSHA(2006) : No data available
Facility measures: Local ventilation of closed work room or total proper ventilation to prevent inhalation.
Protective ware: Wear appropriate NIOSH/MSHA-approved respirator, safety goggles, protective gloves.

Section 9. Physical and chemical properties

Appearance:	Colorless liquid
Chemical formula:	$Si(OCH_3)_4$
Formula weight:	152.2
Melting point:	-4 ℃
Boiling point:	121 ℃
Vapor pressure:	2.2 kPa(at 20 ℃)
Density:	1.03 g/cm^3 (at 20 ℃)
Solubility in water:	Reacts with water.
Flash point:	20 ℃ (closed cup)
Flammable:	Flammable substance
Oxidation:	None

Section10. Stability and reactivity

Stability: Sensitive to moisture of the air.
Stable in a sealed dry atmosphere under room temperature.

Reactivity
Incompatibility: Oxidizing agents, reducing agent.
Condition to avoid: Heat, moisture, sources of ignition.

Section11. Toxicological information

Acute toxicity(Dermal):	GHS : Not classified.; Falls below the lowest level. Dermal rabbit LD_{50} = 17400 mg/kg (Assessment report in Holland (2004))
Acute toxicity(Inhalation; vapours):	GHS : Category 1 ; Fatal if inhaled Inhalation; vapours rat LC_{50}(4hr) = 53 ppm (Assessment report in Holland (2004))
Skin corrosive / irritation:	GHS : No data available
Serious eye damage / irritation:	GHS : Category 1 ; Causes serious eye damage
Respiratory/ skin sensitization:	GHS : No data available
Germ cell mutagenicity:	GHS : No data available
Carcinogenicity:	GHS : No data available
Reproductive toxicity:	GHS : No data available
Specific target organ toxicity	
−single exposure:	GHS : Category 2 ; May cause damage to organs (lung)
−repeated exposure:	GHS : Category 1 ; Causes damage to organs (respiratory system) through prolonged or repeated exposure Category 2 ; May cause damage to organs (kidney) through prolonged or repeated exposure
Aspiration hazard:	GHS : No data available

Section12. Ecological information

Ecotoxicity:
Hazardous to the aquatic environment

−acute toxicity:	GHS : No data available
−chronic toxicity:	GHS : No data available
Hazardous to the ozone layer	GHS : No data available No Freon or Halon
Fish toxicity:	No data available
Degradability:	No data available
Bioaccumulative potential:	No data available
Mobility in soil:	No data available

Section13. Disposal considerations

Disposal method: User of the product should contract with the local government or licensed 'Industrial Waste Haulers' for disposal of waste.

Section 14. Transport information

UN number:	2606
IATA shipping name:	METHYL ORTHOSILICATE
IATA hazard class:	Class 6.1 (Toxic substances)
Subsidiary risk:	3
IATA packing group:	I
HS code:	2920.90
Marine pollution:	None
Precautions:	Container should be transported in a secure position, in a well-ventilated vehicle.

Section 15. Regulatory information

TSCA inventory: Listed

Please refer to any other local / national measures that may be relevant.

Section 16. Other information

This SDS is only for provision of information, and it does not represent a guarantee the properties or safeties of the product.

The information herein is based on the references we could obtained and the present state of our knowledge, however, this SDS does not always cover all information about the product.

Some new information or amendments may be added afterwards.

Prior to use, please investigate the laws and regulations of the organization, area and country where the product is to be used. The information is intended to ordinary usage, in case of special handling, sufficient care should be taken.