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## SECTION 1: Identification of the substance/mixture and of the company

### Product Identifier

Product Name: SiSiB® PC5410  
 Chemical Name: Tetramethoxysilane  
 CAS-No.: 681-84-5

### Relevant identified uses of the substance or mixture and uses advised against

Relevant applications identified For industrial use

### Details of the supplier of the safety data sheet

**Company** Nanjing SiSiB Silicones Co., Ltd.  
 Guanghua Sci & Tech Industrial Zone,  
 No. 104, Guanghua Road, Nanjing 210007, P.R.China  
 Email: SDS@SiSiB.com

**Emergency Telephone Number:** +86-25-8468-0091

## SECTION 2: Hazardous identification

### Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids	Category 3	H226
Skin irritation	Category 2	H315
Serious eye damage	Category 1	H318
Acute toxicity (Inhalation)	Category 1	H330

### Label elements

#### Labelling as per (EU) 1272/2008

Statutory basis EU-CLP as per Regulation (EU) No. 1272/2008



Symbol(s)

Signal word

Danger

Hazard statement

H226 Flammable liquid and vapor.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H330 Fatal if inhaled.

Precautionary statement Prevention

P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

P280 Wear protective gloves/protective clothing/eye protection.

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**Precautionary statement Reaction**

P302 + P352

IF ON SKIN: Wash with plenty of water/ soap.

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 POISON CENTER/doctor.

**Precautionary statement Storage**

P403 + P233

Store in a well-ventilated place. Keep container tightly closed.

**Other hazards**

Risk of blindness even on exposure of eyes to vapors.

Not a PBT, vPvB substance as per the criteria of the REACH Regulation.

## SECTION 3: Composition/information on ingredients

**Substances**

**Information on ingredients / Hazardous components as per EU-CLP Regulation (EC) No.1272/2008**

**Tetramethoxysilane**

CAS-No. 681-84-5

EC-No. 211-656-4

Flammable liquids

Category 3

H226

Skin irritation

Category 2

H315

Serious eye damage

Category 1

H318

Acute toxicity (Inhalation)

Category 1

H330

Texts of H phrases, see in Chapter 16

**Mixtures**

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## SECTION 4: First aid measures

**Description of first aid measures**

Observe self-protection

Move out of dangerous area.

Remove contaminated or saturated clothing immediately and dispose of safely.

**Inhalation**

If aerosol or mists are formed:

Call a physician immediately.

Move victims into fresh air.

Do not leave victims unattended.

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Keep patient warm and at rest.

Place person on side in stable position if unconscious.

### **Skin contact**

Wash off immediately with plenty of water.

In case of complaints: Consult doctor immediately.

### **Eye contact**

Keeping eyelid open, immediately rinse thoroughly for at least 5 minutes using plenty of water or, if necessary, eye rinsing solution.

In case of persistent discomfort: Consult an ophthalmologist.

### **Ingestion**

Inform emergency physician immediately.

Only when patient fully conscious:

Have the mouth rinsed with water.

Do not leave victims unattended.

Keep warm and in a quiet place.

Place person on side in stable position if unconscious.

### **Most important symptoms and effects, both acute and delayed**

#### **Symptoms**

None known

#### **Hazards**

None known

### **Indication of any immediate medical attention and special treatment needed**

If substance has been swallowed:

Gastric lavage, administration of activated charcoal, acceleration of gastrointestinal passage.

## **SECTION 5: Firefighting measures**

### **Extinguishing media**

#### **Suitable extinguishing media**

Water spray jet

Foam

Carbon dioxide (CO<sub>2</sub>)

Dry powder

#### **Unsuitable extinguishing media**

High volume water jet

### **Special hazards arising from the substance or mixture**

Closed container may rupture if strongly heated.

In case of fire cool endangered containers with water.

### **Advice for firefighters**

Water used to extinguish fire should not enter drainage systems, soil or stretches of water.

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Ensure there are sufficient retaining facilities for water used to extinguish fire.

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

In case of fire: wear a self-contained respiratory apparatus

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.

Keep out unprotected persons.

Do not inhale vapors / aerosols.

Leave room immediately.

Alert all persons!

Keep away from sources of ignition - No smoking.

### Environmental precautions

Do not allow entrance in sewage water, soil stretches of water, groundwater, drainage systems.

Should not be released into the environment.

Cover over drainage system. Avoid penetration into drainage system or in rooms situated at a lower level because of danger of explosion.

### Methods and materials for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Fill into marked, sealable containers.

To be disposed of in compliance with existing regulations.

Suitable absorbents:

diatomaceous earth

universal absorbent

### Reference to other sections

Wear personal protective equipment; see section 8.

Disposal considerations; see section 13.

## SECTION 7: Handling and storage

### Precautions for safe handling

Open the containers with caution.

If possible, use material transfer/filling, metering and blending plants that are closed, or provide for local suction devices.

### Conditions for safe storage, including any incompatibilities

### Advice on protection against fire and explosion

Take precautionary measures against static discharges.

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Keep away from sources of ignition - No smoking.

Explosion protection equipment required.

When repairs of the production system are to be made (e.g. welding work), the section to be repaired must be essentially free of product.

### Storage

Keep containers tightly closed in a cool, well-ventilated place.

Protect from moisture.

Comply with storage regulations and regulations prohibiting storage of hazardous substances in non-stationary containers in the same room (TRGS 510).

### Specific end use(s)

For more details see annexes Exposure scenario.

## SECTION 8: Exposure Controls/Personal Protection

### Control parameters

#### DNEL/DMEL values

End Use	Worker
Routes of exposure	Inhalation
Possible health damage	Long-term systemic effects
Remarks	No hazard identified.
End Use	Worker
Routes of exposure	Inhalation
Possible health damage	Acute systemic effects
Remarks	No hazard identified.
End Use	Worker
Routes of exposure	Inhalation
Possible health damage	Long-term local effects
Value	93 mg/m <sup>3</sup>
Remarks	Repeated dose toxicity
End Use	Worker
Routes of exposure	Inhalation
Possible health damage	Acute local effects
Remarks	No hazard identified.
End Use	Worker
Routes of exposure	dermal
Possible health damage	Long-term systemic effects
Value	0,3 mg/kg bodyweight/day
Remarks	Repeated dose toxicity
End Use	Worker
Routes of exposure	dermal

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Possible health damage	Acute systemic effects
Remarks	No hazard identified.
End Use	Worker
Routes of exposure	dermal
Possible health damage	Long-term local effects
Remarks	Low hazard (no threshold derived).
End Use	Worker
Routes of exposure	dermal
Possible health damage	Acute - local effects
Remarks	Low hazard (no threshold derived).
End Use	Worker
Routes of exposure	eye
Possible health damage	Local effects
Remarks	Medium hazard (no threshold derived).
End Use	Consumers
Routes of exposure	Inhalation
Possible health damage	Acute systemic effects
Remarks	No hazard identified.
End Use	Consumers
Routes of exposure	Inhalation
Possible health damage	Long-term systemic effects
Remarks	No hazard identified.
End Use	Consumers
Routes of exposure	Inhalation
Possible health damage	Long-term local effects
Remarks	No hazard identified.
End Use	Consumers
Routes of exposure	Inhalation
Possible health damage	Acute local effects
Remarks	No hazard identified.
End Use	Consumers
Routes of exposure	dermal
Possible health damage	Long-term systemic effects
Remarks	No hazard identified.
End Use	Consumers
Routes of exposure	dermal
Possible health damage	Acute systemic effects
Remarks	No hazard identified.
End Use	Consumers
Routes of exposure	dermal

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Possible health damage	Long-term local effects
Remarks	No hazard identified.
End Use	Consumers
Routes of exposure	dermal
Possible health damage	Acute - local effects
Remarks	No hazard identified.

### PNEC values

	<b>Fresh water</b>
Value	5 mg/l
	<b>Marine water</b>
Value	0,5 mg/l
	<b>water - intermittent releases</b>
Value	50 mg/l
	<b>Fresh water sediment</b>
Value	20 mg/kg dry weight
	<b>Marine sediment</b>
Value	2,0 mg/kg dry weight
	<b>Soil</b>
Value	1,12 mg/kg dry weight
	<b>sewage treatment plant (STP)</b>
Value	>1 mg/l

### Exposure controls

#### Engineering measures

If possible, use material transfer/filling, metering and blending plants that are closed, or provide for local suction devices.

Priority should be given to closed-system units.

#### Personal protective equipment

##### Respiratory protection

In case of dusts/vapors/aerosols being formed or if the limit values like TLV are exceeded: use respiratory equipment with suitable filter (filter type ABEK) or wear a self-contained respiratory apparatus. Use only respiratory protection equipment with CE-symbol including four digit test number. The filter class for the respirator must be suitable for the maximum expected contaminant concentration

(gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

Note time limit for wearing respiratory protective equipment.

##### Hand protection

Glove material	for example, butyl-rubber
Material thickness	0,5 mm
Break through time	>= 480 min

Selection of protective gloves to meet the requirements of specific workplaces. Suitability for specific

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workplaces should be clarified with protective glove manufacturers. The information is based on our own tests, references from the literature and information from glove manufacturers, or derived by analogy with similar materials. Please observe that the daily duration of usage of a chemical protective glove is in practice far shorter due to the many influencing factors (e.g. temperature, mechanical strain on the glove material) than the permeation time determined acc. EN 374.

### Eye protection

close-fitting protective goggles (e.g. closed goggles)

### Skin and body protection

When handling larger quantities:

Wear protective clothing made from non-flammable fibers.

### Hygiene measures

When using, do not eat, drink or smoke. Wash face and/or hands before break and end of work.

Remove contaminated or saturated clothing.

Wash contaminated clothing before re-use.

### Protective measures

Handle in accordance with good industrial hygiene and safety practice.

The personal protective equipment used must meet the requirements of directive 89/686/EEC and amendments (CE certification).

If workplace exposure limits are exceeded and/or larger amounts are released (leakage, spilling, dust) the indicated respiratory protection should be used.

If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used.

Do not breathe in vapors or aerosols.

Avoid contact with skin and eyes.

## SECTION 9: Physical and Chemical Properties

### Information on basic physical and chemical properties

Appearance	Form: liquid
Color	colorless to yellowish
Odor	aromatic
Odor Threshold	no data available
pH	no data available
Melting point/range	3 °C Method: OECD TG 102
Boiling point/range	122 °C (1013 hPa) Method: DIN 51 751
Flash point:	26°C Method: DIN EN ISO 13736
Evaporation rate	no data available
Lower explosion limit	0,88 %(V) (90 °C)



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Upper explosion limit	Method: DIN 51649 23,8 %(V) (113 °C)
Vapor pressure:	Method: DIN 51649 1800 Pa (25 °C)
Density	Method: EC Method A.4 1,03 g/cm <sup>3</sup> (20 °C)
Water solubility	Method: DIN 51757 not miscible decomposition by hydrolysis
Partition coefficient: n-octanol/ water	log Pow: -0,5 (20 °C) Method: QSAR-Method
Autoinflammability	245 °C (1013 hPa) Method: DIN 51 794
Thermal decomposition	no data available
Viscosity, dynamic	0,7 mPa.s (20 °C) Method: DIN 53 015
Explosiveness	not explosive
<b>Other information</b>	
Ignition temperature	no data available

## SECTION 10: Stability And Reactivity

### Reactivity

No dangerous reaction known under conditions of normal use.

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Exothermic reaction with:

Acids  
alkalines

### Conditions to avoid

Keep away from heat and sources of ignition.

### Incompatible materials

Incompatibility with, water, humidity

### Hazardous decomposition products

Methanol in case of hydrolysis.

Alcohol formed by hydrolysis lowers the flash point of the product.

## SECTION 11: Toxicological Information

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**Information on toxicological effects**

Acute oral toxicity	LD50 Rat: > 2500 mg/kg Method: OECD Test Guideline 423 Test substance: Structurally similar substance Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	LC50 Rat: 0,392 mg/l / 4 h / dust/mist Method: OECD Test Guideline 403
Acute dermal toxicity	No data available
Skin irritation	Rabbit Skin irritation Method: OECD Test Guideline 404
Eye irritation	Rabbit Risk of serious damage to eyes. Method: no OECD method.
Sensitization	Buehler Test Guinea pig: Does not cause skin sensitization. Method: OECD Test Guideline 406 Test substance: Structurally similar substance
Repeated dose toxicity	Oral Rat NOAEL: 10 mg/kg Method: OECD TG 422 Test substance: Structurally similar substance
Repeated dose toxicity	Species: Rat Application Route: inhalative NOAEC: 62 mg/m³ Method: OECD TG 412 Test substance: Structurally similar substance
Assessment of STOT single exposure	Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.
Assessment of STOT repeat exposure	Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
Risk of aspiration toxicity	No evidence of aspiration toxicity
Gentoxicity in vitro	Ames test S. typhimurium / E. coli negative Method: OECD TG 471 chromosomal aberration CHO-cells negative Method: OECD TG 473 Test substance: Structurally similar substance

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	gene mutation CHO-cells negative Method: OECD TG 476 Test substance: Structurally similar substance
Gentotoxicity in vivo	Micronucleus test Rat Inhalative negative Method: OECD TG 474
Carcinogenicity	No evidence that cancer may be caused.
Toxicity to reproduction	Screening for reproductive/developmental toxicity Oral Rat(female) NOAEL (No Observed Adverse Effect Level) of parents:50 mg/kg Method: OECD TG 422 Test substance: Structurally similar substance Screening for reproductive/developmental toxicity Oral Rat(male) NOAEL (No Observed Adverse Effect Level) of parents: 10 mg/kg Method: OECD TG 422 Test substance: Structurally similar substance Screening for reproductive/developmental toxicity Oral Rat NOAEL F1: >= 100 mg/kg Method: OECD TG 422 Test substance: Structurally similar substance
Teratogenicity	Oral Rat NOAEL (No Observed Adverse Effect Level) teratogenesis: >= 100 mg/kg NOAEL maternal (No Observed Adverse Effect Level): 50 mg/kg Method: OECD TG 422 Test substance: Structurally similar substance

**SECTION 12: Ecological Effects**

<b>Toxicity</b>	
Toxicity to fish	LC50 Danio rerio (zebra fish): > 245 mg/l / 96 h Test substance: Tetramethoxysilane Method: OECD TG 203
Toxicity in aquatic invertebrates	EC50 Daphnia magna (Water flea): > 100 mg/l / 48 h Test substance: Tetramethoxysilane

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Toxicity to algae	Method: OECD Test Guideline 202 EC50 Pseudokirchneriella subcapitata (green algae): > 100 mg/l / 72 h Test substance: Tetramethoxysilane
Toxicity to bacteria	Method: OECD TG 201 growth rate EC50 local activated sludge: > 100 mg/l / 3 h Test substance: Tetramethoxysilane Method: OECD TG 209
<b>Persistence and degradability</b>	
Biodegradability	Exposure time: 28 d Result: 98 % Readily biodegradable. Test substance: Structurally similar substance Method: DOC Die Away test

**Bioaccumulative potential**

not bioaccumulative  
log Pow: see chapter 9

**Mobility in soil**

Adsorption on the floor: low.

**Results of PBT and vPvB assessment**

Not a PBT, vPvB substance as per the criteria of the REACH Regulation.

**Other adverse effects**

The data we have at our disposal do not necessitate identification concerning environmental hazard.

**SECTION 13: Disposal considerations****Waste treatment methods****Product:**

With respect to local regulations, e.g. dispose of to suitable waste incineration plant.

**Uncleaned packaging**

Do not reuse empty containers and dispose of in accordance with the regulations issued by the appropriate local authorities.

If there is product residue in the emptied container, follow directions for handling on the container's label.

Incorrect disposal or reuse of this container is illegal and can be dangerous.

Other countries: observe the national regulations.

**Waste Key Number**

No waste key number as per the European Waste Types List can be assigned to this product, since such classification is based on the (as yet undetermined) use to which the product is put by the consumer.

The waste key number must be determined as per the European Waste Types List (decision on EU Waste Types List 2000/532/EC) in cooperation with the disposal firm / producing firm / official authority.

**SECTION 14: Transport Information****Transport on land (ADR/RID/GGVSEB)**

- 14.1. UN number: UN 2606  
 14.2. UN proper shipping name: METHYL ORTHOSILICATE  
 14.3. Transport hazard class(es): 6.1 (3)  
 14.4. Packing group: I  
 14.5. Environmental hazards: --  
 14.6. Special precautions for user: Yes

ADR: Tunnel Restriction Code: (C/D)

USA: "Poison-Inhalation Hazard" "Hazard Zone B"

Keep separate from foodstuffs, luxury foods, feedstuffs

Very toxic by inhalation.

**Inland waterway transport (ADN/GGVSEB (Germany))**

- 14.1. UN number: UN 2606  
 14.2. UN proper shipping name: METHYL ORTHOSILICATE  
 14.3. Transport hazard class(es): 6.1 (3)  
 14.4. Packing group: I  
 14.5. Environmental hazards: --  
 14.6. Special precautions for user: Yes

USA: "Poison-Inhalation Hazard" "Hazard Zone B"

Keep separate from foodstuffs, luxury foods, feedstuffs

Very toxic by inhalation.

**Air transport ICAO-TI/IATA-DGR**

- 14.1. UN number: UN 2606  
 14.2. UN proper shipping name: Methyl orthosilicate  
 14.3. Transport hazard class(es): 6.1  
 14.4. Packing group: --  
 14.5. Environmental hazards: --  
 14.6. Special precautions for user: Yes

IATA-C: Transport prohibited.

IATA-P: Transport prohibited.

USA: "Poison-Inhalation Hazard" "Hazard Zone B"

Keep separate from foodstuffs, luxury foods, feedstuffs

Very toxic by inhalation.

**Sea transport IMDG-Code/GGVSee (Germany)**

- 14.1. UN number: UN 2606  
 14.2. UN proper shipping name: METHYL ORTHOSILICATE  
 14.3. Transport hazard class(es): 6.1 (3)

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- 14.4. Packing group: I  
 14.5. Environmental hazards: --  
 14.6. Special precautions for user: Yes

EmS: F-E,S-D

Clear of living quarters.

USA: "Poison-Inhalation Hazard" "Hazard Zone B"

Keep separate from foodstuffs, luxury foods, feedstuffs

Very toxic by inhalation.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:  
for transport approval see regulatory information

## SECTION 15:Regulatory Information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### National legislation

Major Accident Hazard Legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

listing: ACUTE TOXIC (H1)

quantity: 5 t 20 t

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

listing: FLAMMABLE LIQUIDS (P5c)

quantity: 5000 t 50000 t

ATTENTION: Classification into hazard category P5c is a minimum classification. Only the operator may estimate if the product is covered by hazard category P5a or P5c. For P5a and P5b different qualifying quantities are valid.

#### Chemical Safety Assessment

A substance safety assessment was carried out for this product.

## SECTION 16:Other Information

### Relevant H phrases from chapter 3

- H226: Flammable liquid and vapor.  
 H315: Causes skin irritation.  
 H318: Causes serious eye damage.  
 H330: Fatal if inhaled.

#### Further information

It must be recognized that the physical and chemical properties of any product may not be fully

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understood and that new, possibly hazardous products may arise from reactions between chemicals. The information given in this data sheet is based on our present knowledge and shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.