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

Product Identifier

Product Name: SiSiB® PC5420
 Chemical Name: Tetraethoxysilane
 CAS-No.: 78-10-4
 EC-No.: 201-083-8

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

Relevant applications identified For industrial use
 Surface modifier
 Crosslinking agents

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
Eye irritation	Category 2	H319
Acute toxicity (Inhalation)	Category 4	H332
Specific target organ toxicity- single exposure (Respiratory system)	Category 3	H335

Label elements

Labeling as per (EU) 1272/2008)

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



Signal word Warning
 Hazard statement:
 H226 Flammable liquid and vapor.

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H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
Precautionary statement Prevention:	
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P280	Wear protective gloves/protective clothing/eye protection.
Precautionary statement Reaction:	
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.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
Precautionary statement Storage:	
P403 + P235	Store in a well-ventilated place. Keep cool.
Precautionary statement Disposal:	
P501	Dispose of contents/container in accordance with local regulation.

Other hazards

A PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out.

SECTION 3: Composition/information on ingredients

Substances

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

Tetraethyl silicate

CAS-No.	78-10-4	
EC-No.	201-083-8	
Flammable liquids	Category 3	H226
Eye irritation	Category 2	H319
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Texts of H phrases see in Chapter 16.		

SECTION 4: First aid measures

Description of first aid measures

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Remove contaminated or saturated clothing.

Inhalation:

Following inhalation of aerosols or mist:

Possible discomfort: irritation of mucous lining (nose, throat, eyes) cough, sneezing, flow of tears.

Move victims into fresh air.

If symptoms persist, consult a physician for treatment.

Skin contact:

Wash off immediately with plenty of water.

If symptoms persist, consult a physician for treatment.

Eye contact:

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

Consult an ophthalmologist.

Ingestion:

Have the mouth rinsed with water.

Have patient drink plenty of water in small sips.

Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms:

Not known.

Indication of any immediate medical attention and special treatment needed

If required, therapy of irrigative effect.

If substance has been swallowed:

Early endoscopy was performed to assess mucosa lesions, which may appear in the esophagus and stomach. If necessary, aspirate leftover substance.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam
 Water spray jet
 Carbon dioxide (CO2)
 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.

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

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

In the case of fire, wear respiratory protective equipment independent of surrounding air and chemical protective suit.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.

Ensure adequate ventilation.

Environmental precautions:

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

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

Methods and material 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.

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

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

Do not inhale vapors / aerosols.

Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion

Take precautionary measures against static discharges.

Keep away from sources of ignition - No smoking.

Explosion protection equipment required.

Danger of explosion from residual product fumes; therefore avoid spark production through cutting, grinding, or welding work in the area of the container.

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.

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Protect from moisture.

Specific end use(s)

No further information available.

Applications; see Section 1.

SECTION 8: Exposure controls/personal protection**Control parameters****Other information**

No substance-specific limiting value being known.

Exposure controls**Engineering measures**

Provide good ventilation or extraction.

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 \geq 480 min

Glove material for example, Fluorinated rubber (Viton)

Material thickness 0,4 mm

Break through time \geq 480 min

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

Suitability for specific 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: chemical protective suit, disposable protective suit (Solvent-resistant)

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Flame retardant protective clothing

Hygiene measures

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

Remove immediately all contaminated 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
Physical state	liquid (20 °C) (1013 hPa)
Odor	faint inherent odor
Odor threshold:	not determined
pH	not determined
Melting point/range	-77 °C (1013 hPa)
Boiling point/range	167 °C (1013 hPa)
Method:	DIN 51 751
Flash point	45 °C
Method:	DIN 51 755
Evaporation rate	not determined
Lower explosion limit	1, 3 % (V)
Upper explosion limit	23 % (V)
Vapor pressure	1, 7 hPa (20 °C) (Literature value) 3, 5 hPa (30 °C) (Literature value) 11, 6 hPa (50 °C) (Literature value)
Vapor density	not determined

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Density	0,94 g/cm ³ (20 °C)
Method:	DIN 51757
Water solubility	not miscible
	Decomposition by hydrolysis
Partition coefficient: n-octanol/water	log Pow: -0,3 (Literature value)
Tested substance:	Ethanol
Thermal decomposition	not determined
Viscosity, dynamic	0,75 mPa.s (20 °C)
Method:	DIN 53 015
Explosiveness	not explosive
Other information	
Ignition temperature	225 °C
Method:	Not to be expected in view of the structure

SECTION 10: Stability and reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Maintain stability under recommended storage conditions.

Possibility of hazardous reactions

No dangerous reactions known.

Conditions to avoid

Keep away from heat and sources of ignition.

Incompatible materials

Oxidizing agents

Alkalinity

Acids

Water

Hazardous decomposition products

Ethanol in case of hydrolysis

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

SECTION 11: Toxicological information

Information on toxicological effects

Acute oral toxicity

LD50 Rat: > 2500 mg/kg

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Method:	OECD TG 423
Assessment:	The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	
LC50 Rat:	10 mg/l / 4 h / dust/mist
Method:	OECD Test Guideline 403
Assessment:	The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	No data available
Skin irritation	Rabbit
	No skin irritation
Method:	OECD Test Guideline 404
Eye irritation	Rabbit
	No eye irritation
Method:	OECD Test Guideline 405
Sensitization	
Buehler Test Guinea pig:	Does not cause skin sensitization.
Method:	OECD Test Guideline 406
Repeated dose toxicity	Oral Rat
Testing period:	28 d
NOAEL:	10 mg/kg
Method:	OECD TG 422
Inhalation (vapor) Mouse	
Testing period:	28 d
LOAEL:	0, 43 mg/l
Method:	OECD 412
Assessment of STOT single exposure	
Assessment:	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.
Assessment of STOT repeats exposure	
	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
Risk of aspiration toxicity	no aspiration toxicity classification
Gentoxicity in vitro	not mutagenic
Carcinogenicity	No evidence that cancer may be caused.
Toxicity to reproduction	animal testing did not show any effects on fertility.

SECTION 12: Ecological information

Toxicity

Toxicity to fish

LC50 Brachydanio rerio: > 245 mg/l / 96 h

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Method: OECD TG 203
 NOEC Brachydanio rerio: >= 245 mg/l / 96 h
 Method: OECD TG 203

Toxicity in aquatic invertebrates

EC50 Daphnia magna: > 75 mg/l / 48 h
 Method: OECD TG 202
 NOEC Daphnia magna: >= 75 mg/l / 48 h
 Method: OECD TG 202

Toxicity to algae

EC50 Pseudokirchneriella subcapitata: > 100 mg/l / 72 h
 Method: OECD TG 201
 Growth rate
 NOEC Pseudokirchneriella subcapitata: >= 100 mg/l / 72 h
 Method: OECD TG 201
 Growth rate

Toxicity to bacteria

EC50 Activated sludge: > 100 mg/l / 3 h
 Method: OECD TG 209

Persistence and degradability

Biodegradability

Exposure time: 28 d
 Result: 98 % readily biodegradable.
 Method: DOC Die Away test

Physic-chemical removability

Half-life period: 4, 4 hrs.
 Method: OECD Test Guideline 111

Hydrolysis, abiotic decomposition

Hydrolysis product

Silicic acid

Ethanol

Bio-accumulative potential

Bioaccumulation Not bio accumulative
 Log Pow: see chapter 9

Mobility in soil

Mobility 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

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

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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: Transportation information

Transport on land (ADR/RID/GGVSEB)

UN number	UN 1292
UN proper shipping name	TETRAETHYL SILICATE
Transport hazard class (es)	3
Packing group	III
Environmental hazards	--
Special precautions for user	Yes
ADR	Tunnel Restriction Code: (D/E)

Inland waterway transport (ADN/GGVSEB (Germany))

UN number:	UN 1292
UN proper shipping name	TETRAETHYL SILICATE
Transport hazard class (es)	3
Packing group	III
Environmental hazards	--
Special precautions for user:	No

Air transport ICAO-TI/IATA-DGR

UN number:	UN 1292
UN proper shipping name	TETRAETHYL SILICATE
Transport hazard class (es)	3

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Packing group	III
Environmental hazards	--
Special precautions for user:	Yes
IATA-C:	ERG-Code 3L Maximum Net Quantity per Package 220 L
IATA-P:	ERG-Code 3L Maximum Net Quantity per Package 60 L

Sea transport IMDG-Code/GGVSee (Germany)

UN number:	UN 1292
UN proper shipping name:	TETRAETHYL SILICATE
Transport hazard class(es):	3
Packing group:	III
Environmental hazards:	--
Special precautions for user:	No
EmS:	F-A, S-D

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: FLAMMABLE LIQUIDS (P5c)

Quantity: 5000t 50000t

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

No substance-related safety assessment is necessary / has been conducted for this product.

SECTION 16: Other information

Relevant H phrases from chapter 3

H225: Highly flammable liquid and vapor.

H226: Flammable liquid and vapor.

H319: Causes serious eye irritation.

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H332: Harmful if inhaled.

H335: May cause respiratory irritation.

Further information

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