

Material Safety Data Sheet

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1. IDENTIFICATION OF SUBSTANCE:

Product Code: SiSiB® PC5410

Chemical Name: Tetramethoxysilane

Manufacturer / Supplier: Power Chemical Corporation.

Post Address: #117, Guanghua Road, Nanjing 210007, P.R.China

Emergency Telephone Number: +86-25-8468-0092

2. COMPOSITION/DATA ON COMPONENTS:

Chemical characterization:

Description: tetramethoxysilane (CAS# 681-84-5); 100%

Identification number(s):

EINECS Number: 211-656-4

3. HAZARDS IDENTIFICATION

Hazard description: T Toxic

Information pertaining to particular dangers for man and environment

R 10 Flammable.

R 22 Harmful if swallowed.

R 23 Toxic by inhalation.

R 38 Irritating to skin.

R 41 Risk of serious damage to eyes.

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

Health (acute effects) = 2

Flammability = 3

Reactivity = 2

4. FIRST AID MEASURES

General information

Immediately remove any clothing soiled by the product. Remove breathing apparatus only after contaminated clothing has been completely removed. In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly. Seek immediate

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medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Seek immediate medical advice.

5. FIRE FIGHTING MEASURES

Suitable extinguishing agents

Extinguishing powder. Do not use water.

CO₂. Do not use water.

Sand. Do not use water.

For safety reasons unsuitable extinguishing agents Water

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6. ACCIDENTAL RELEASE MEASURES

Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation.

Keep away from ignition sources

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Keep away from ignition sources.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7. HANDLING AND STORAGE

Handling

Information for safe handling:

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Handle under protective gas.

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires:

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Storage

Requirements to be met by storerooms and receptacles:

No special requirements.

Information about storage in one common storage facility:

Store away from water/moisture.

Store away from oxidizing agents.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Store under lock and key and with access restricted to technical experts or their assistants only.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Tetramethoxysilane	ppm
ACGIH TLV	1
Belgium TWA	1
Denmark TWA	1-STEEL
Finland TWA	5, 10-STEEL
France TWA	1
Ireland TWA	1, 5-STEEL
Netherlands TWA	1
Switzerland TWA	1
United Kingdom TWA	1, 5-STEEL

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Additional information:

No data .

Personal protective equipment .

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work. Store protective clothing separately. Avoid contact with the skin.

Avoid contact with the eyes and skin. .

Breathing equipment:

Use suitable respirator when high concentrations are present. .

Protection of hands:

Impervious gloves .

Eye protection:

Safety glasses

Tightly sealed goggles .

Body protection:

Protective work clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Form:	Liquid
Color:	Yellowish to colorless
Odor:	Alcohol-like
Melting point/Melting range:	-2°C
Boiling point/Boiling range:	121°C
Sublimation temperature / start:	Not determined
Flash point:	28°C
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures is possible.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined

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Vapor pressure: Not determined
Density: at 20°C 1.03 g/cm³
Solubility in / Miscibility with Water: Not determined.

10. STABILITY AND REACTIVITY

Thermal decomposition / conditions to be avoided:

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Water/moisture

Acids

Oxidizing agents

Dangerous reactions

Reacts with water and acids

Reacts with oxidizing agents

Dangerous products of decomposition:

Carbon monoxide and carbon dioxide

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

LD/LC50 values that are relevant for classification:

Oral: LD50: 1000 mg/kg (mam)

Inhalative: LCLo/4H: 250 ppm/4H (rat)

Irritation of eyes: severe: 250 µg/24H (rbt)

Primary irritant effect:

On the skin:

Irritant to skin and mucous membranes.

On the eye:

Strong irritant with the danger of severe eye injury.

Irritating effect.

Sensitization:

No sensitizing effects known.

Subacute to chronic toxicity:

Tetramethoxysilane is toxic and irritating. Can cause severe eye injury including conjunctivitis and necrosis of the cornea. May cause permanent blindness. May affect the function of the kidney. Irritating to the respiratory tract. Hydrolysis results in the formation of methyl alcohol so that symptoms associated with methanol exposure should be considered.

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Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12. ECOLOGICAL INFORMATION:

General notes:

Do not allow material to be released to the environment without proper governmental permits.

13. DISPOSAL CONSIDERATIONS

Product:

Recommendation

Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14. TRANSPORT INFORMATION

DOT regulations:

Hazard class: 6.1
Identification number: UN2606
Packing group: I
Poison inhalation hazard:

Yes

Proper shipping name (technical name):

Methyl orthosilicate

Land transport ADR/RID (cross-border)

ADR/RID class: 6.1 Toxic substances
Item: 8a
Danger code (Kemler): 663
UN-Number: 2606
Description of goods: Methyl orthosilicate

Maritime transport IMDG:

IMDG Class: 6.1
Page: 6198-1
UN Number: 2606
Packaging group: I

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EMS Number: F-E,S-D
MFAG: 360
Proper shipping name: Methyl orthosilicate

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 6.1
UN/ID Number: 2606
Packaging group: I
Proper shipping name: Methyl orthosilicate

15. REGULATIONS

Product related hazard informations:

Hazard symbols: T Toxic

Risk phrases:

- 10 Flammable.
- 22 Harmful if swallowed.
- 23 Toxic by inhalation.
- 38 Irritating to skin.
- 41 Risk of serious damage to eyes.

Safety phrases:

- 4 Keep away from living quarters.
- 9 Keep container in a well-ventilated place.
- 20 When using do not eat or drink.
- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 28 After contact with skin, wash immediately with plenty of soap and water
- 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- 45 In case of accident or if you feel unwell, seek medical advice immediately.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

Information about limitation of use:

For use only by technically qualified individuals.

16. OTHER INFORMATION:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This

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information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.