

MATERIAL SAFETY DATA SHEET (MSDS)

Organofunctional Silane KH-590

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1	Production	KH-590 SILANE
1.2	Generic Description:	Alkoxysilane
1.3	Physical form:	Liquid
1.4	Color:	Colorless
1.5	Odor:	Characteristic odor
1.6	NFPA Profile:	Health 2 Flammability 2 Instability/Reactivity 0
1.7	IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY	
	Manufacturer:	Nanjing Capatue Chemical Co., Ltd
	Address:	20 JiangJun Avenue, Jiangning Development Zone, Nanjing, Jiangsu Province, P. R. China P.C: 211100
	Telephone:	(+86-25)-86371193 Fax: (+86-25) 86371191-0
	24Hour Emergency Telephone:	(+86-25)-86371192
	Connect with:	Anhuanbu

2. HAZARDS IDENTIFICATION

Acute Effects

Eye:	Direct contact may cause moderate irritation.
Skin:	May cause moderate irritation.
Inhalation:	Vapor may irritate nose and throat. Vapor overexposure may cause drowsiness
Oral:	Overexposure by ingestion may cause effects similar to those listed under repeated exposure.

Prolonged/Repeated Exposure Effects

Skin:	Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis. Repeated skin contact may cause allergic skin reaction.
Inhalation:	Product generates methyl alcohol which may cause blindness and damage to nervous system.
Oral:	Product generates methyl alcohol which may cause blindness and possibly death if swallowed.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
4420-74-0	> 98.0	3-Mercaptopropyltrimethoxysilane

The above components are hazardous as defined in 29 CFR 1910.1200.

4. FIRST AID MEASURES

4.1	Eye:	Immediately flush with water for 15 minutes. Get medical attention.
4.2	Skin:	Remove from skin and immediately flush with water for 15 minutes. Get medical attention if irritation or ill effects develop or persist.
4.3	Inhalation:	Remove to fresh air. Get medical attention if ill effects persist.
4.4	Oral:	Get medical attention.
4.5	Notes to Physician:	Treat according to person's condition and specifics of exposure.

5. FIRE FIGHTING MEASURES

5.1	Flash Point:	> 176 °F / > 80 °C (Tag Closed Cup)
5.2	Autoignition Temperature:	Not determined.
5.3	Flammability Limits in Air:	Not determined.
5.4	Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide, dry chemical or water spray. Water can be used to cool fire exposed containers.
5.5	Extinguishing Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
5.6	Unusual Fire Hazards:	None

6. ACCIDENTAL RELEASE MEASURES

6.1	Containment/Clean up:	Determine whether to evacuate or isolate the area according to your local emergency plan. Observe all personal protection equipment recommendations described in Sections 5 and 8. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Clean area as appropriate since spilled materials, even in small quantities, may
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present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbent or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See section 8 for Personal Protective Equipment for Spills. Call Capatue Chemical, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Product evolves flammable methyl alcohol when exposed to water or humid air. Provide ventilation during use to control exposure within Section 8 guidelines or use air-supplied or self-contained breathing apparatus. Avoid eye contact. Avoid skin contact. Do not breathe vapor. Keep container closed. Do not take internally. Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge. Keep container closed and away from heat, sparks, and flame. Keep container closed and store away from water or moisture.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

There are no components with workplace exposure limits.

Engineering Controls

Local Ventilation: Recommended.

General Ventilation: Recommended.

Personal Protective Equipment for Routine Handling

Eyes: Use proper protection – safety glasses as a minimum.

Skin: Wash at mealtime and end of shift. If skin contact occurs, change contaminated clothing as soon as possible and thoroughly flush affected areas with cool water. Chemical protective gloves are recommended.

Suitable Gloves: Avoid skin contact by implementing good industrial hygiene practices and procedures. Select and use gloves and/or protective clothing to further minimize the potential for skin contact. Consult with your glove and/or personnel protective equipment manufacturer for selection of appropriate compatible materials.

Inhalation Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposure are within recommended exposure guidelines. Industrial Hygiene Personnel can assist in judging the adequacy of existing engineering controls.

Suitable Respirator: General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above

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recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators

Personal Protective Equipment for Spills

Eyes: Use full face respirator.

Skin: Wash at mealtime and end of shift. If skin contact occurs, change contaminated clothing as soon as possible and thoroughly flush affected areas with cool water. Chemical protective gloves are recommended.

Inhalation/Suitable Respirator: Respiratory protection recommended. Follow OSHA Respirator Regulations (29 CFR 1910.134) and use NIOSH/MHSA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Precautionary Measures: Avoid eye contact. Avoid skin contact. Do not breathe vapor, mist, dust or fumes. Keep container closed. Do not take internally. Use reasonable care.

Comments: Product evolves flammable methyl alcohol when exposed to water or humid air. Provide ventilation during use to control exposure within Section 8 guidelines or use air-supplied or self-contained breathing apparatus .

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions. For further information regarding aerosol inhalation toxicity, please refer to the guidance document regarding the use of silicone-based materials in aerosol applications that has been developed by the silicone industry or contact the Capatue Chemical customer service group.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Liquid
Color:	Colorless, transparent
Odor:	Characteristic odor
Specific Gravity @ 25°C:	1.057
Viscosity @ 25°C:	2 mPa s
Freezing/Melting Point:	Not determined.
Boiling Point:	> 90 °C
Vapor Pressure @ 25°C:	Not determined.
Vapor Density:	Not determined.
Solubility in Water:	Not determined.
pH:	Not determined.
Volatile Content:	Not determined

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Flash Point :	> 176 °F / > 80 °C (Tag Closed Cup)
Autoignition Temperature:	Not determined.
Flammability Limits in Air:	Not determined.
Note: The above information is not intended for use in preparing product specifications. Contact Capatue Chemical before writing specifications.	

10. STABILITY AND REACTIVITY

10.1	Chemical Stability:	Stable
10.2	Hazardous Polymerization:	Hazardous polymerization will not occur.
	Conditions to Avoid:	None
	Materials to Avoid:	Oxidizing material can cause a reaction. Water, moisture, or humid air can cause hazardous vapors to form as described in Section 8.
Hazardous Decomposition Products		
Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds, Silicon dioxide, Sulfur oxides, Formaldehyde.		

11. TOXICOLOGICAL INFORMATION

<u>Special Hazard Information on Components</u>			
<u>Sensitizers</u>			
<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>	
4420-74-0	> 98.0	3-Mercaptopropyltrimethoxysilane	Known skin sensitizer

12. ECOLOGICAL INFORMATION

<u>Environmental Fate and Distribution</u>			
Complete information is not yet available.			
<u>Environmental Effects</u>			
Complete information is not yet available.			
<u>Fate and Effects in Waste Water Treatment Plants</u>			
Complete information is not yet available.			
<u>Ecotoxicity Classification Criteria</u>			
Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

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This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? No

State or local laws may impose additional regulatory requirements regarding disposal. Call Capatue Chemical, if additional information is required.

14. TRANSPORT INFORMATION

14.1 DOT Road Shipment Information (49 CFR 172.101)

Proper Shipping Name	Combustible liquid, n.o.s
Hazard Technical Name	3-Mercaptopropyltrimethoxysilane
Hazard Class	9
UN-No	UN 3082
Packaging Group	III
Hazard Label(s)	none

14.2 Ocean Shipment (IMDG)

Not subject to IMDG code.

14.3 Air Shipment (IATA)

Call Capatue Chemical if additional information is required.

15. REGULATORY INFORMATION

Contents of this MSDS comply with OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Status : All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings

Section 302 Extremely Hazardous Substances (40 CFR 355):

None.

Section 304 CERCLA Hazardous Substances (40 CFR 302):

None.

Section 312 Hazard Class (40 CFR 370):

Acute: Yes

Chronic : Yes

Fire: Yes

Pressure: No

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Reactive: No

Section 313 Toxic Chemicals (40 CFR 372):

None present or none present in regulated quantities.

Note: Chemicals are listed under the 313 Toxic Chemicals section only if they meet or exceed a reporting threshold.

Supplemental State Compliance Information

California

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

None known

Massachusetts

No ingredient regulated by MA Right-to-Know Law present

New Jersey

CAS Number Wt % Component Name

4420-74-0 > 98.0 3-Mercaptopropyltrimethoxysilane

Pennsylvania

CAS Number Wt % Component Name

4420-74-0 > 98.0 3-Mercaptopropyltrimethoxysilane

16. OTHER INFORMATION

Prepared by: Nanjing Capatue Chemical Co., Ltd

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.