

MATERIAL SAFETY DATA SHEET (MSDS)

Organofunctional Silane SCA-U60E

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1	Production	SCA-U60E SILANE		
1.2	Generic Description:	Alkoxysilane		
1.3	Physical form:	Liquid		
1.4	Color:	Clear, colorless		
1.5	Odor:	Alcohol		
1.6	HMS:	Flammability: 3	Reactivity: 1	Health: 2
1.7	NFPA:	Flammability: 3	Reactivity: 1	Health: 2

1.8 IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Manufacturer:	Nanjing Capatue Chemical Co., Ltd
Address:	No. 20 JiangJun Avenue, Jiangning Development Zone, Nanjing, Jiangsu Province, P. R. China 211100
Telephone:	(+86-25)-86371193 Fax: (+86-25) 86371191-0
24Hour Emergency Telephone:	(+86-25)-86371192
Connect with:	Anhuanbu

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

DANGER! Flammable. Harmful if inhaled. Contains Ethylcarbamate- a possible human carcinogen based on animal testing.

POTENTIAL HEALTH EFFECTS

INGESTION No evidence of harmful effects from available information.

Acute Effects

Eye: Causes slight irritation.

Skin: Causes minor irritation.

Inhalation: High vapor concentrations may cause a burning sensation in the throat and nose, stinging and watering in the eyes. At concentrations which cause irritation, dizziness, faintness, drowsiness, nausea and vomiting may also occur. Methanol vapor may cause dizziness, drowsiness, disturbances of vision, and tingling, numbness, and shooting pains in the hands and forearms. Long-term repeated overexposure to methanol vapor concentrations of 3000 ppm or greater may allow a cumulative effect to occur with resulting nausea, vomiting, headache, ringing in the ears, insomnia, trembling, unsteady gait, vertigo, clouded and double vision. Liver and/or kidney injury may occur. Prolonged overexposure at levels of 800-1000 ppm may result in severe eye damage in some persons.

[Http://www.capatue.com](http://www.capatue.com) E-mail: info@capatue.com

Tel: +86-25-8637 1192, 8637 1193, 5832 2140 Fax: +86-25-8637 1191-0

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MEDICAL CONDITIONS AGGRAVATED

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

SUBCHRONIC (TARGET ORGAN)

Liver; Kidney; Lungs

CHRONIC EFFECTS / CARCINOGENICITY

This product or one of its ingredients present at 0.1% or more is listed as a carcinogen by NTP, IARC or OSHA
X Yes ___ No

ROUTES OF EXPOSURE

Inhalation

3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
116912-64-2	30 - 60 %	Gamma-Ureidopropyltrialkoxysilane
598-55-0	< 1 %	Methyl Carbamate
64-17-5	10 - 30 %	Ethanol
67-56-1	30 - 60 %	Methanol
51-79-6	< 1 %	Ethyl Carbamate

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

4. FIRST AID MEASURES

4.1	Eye:	Immediately flush eyes with water and continue washing for several minutes. Obtain medical attention.
4.2	Skin:	Remove contaminated clothing. Wash skin with soap and water. If irritation persists or if contact has been prolonged, obtain medical attention.
4.3	Inhalation:	Remove to fresh air. Give artificial respiration if not breathing. If breathing is difficult, oxygen may be given by qualified personnel. Obtain medical attention.
4.4	Ingestion:	If patient is fully conscious, give two glasses of water. Induce vomiting. Obtain medical attention immediately.
4.5	Physician	The combination of visual disturbances, metabolic acidosis, and formic acid in the urine is evidence of methanol poisoning. The therapeutic intravenous administration of ethanol (10 ml per hour) allows it to be preferentially oxidized and reduces production of methanol metabolites. Acidosis

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must be treated by means of intravenous sodium bicarbonate, and methanol elimination may be increased by hemodialysis, as indicated. Treatment should be based on blood methanol levels and acid-base balance. Folates may be administered to enhance the metabolism of formaldehyde. 4-Methyl pyrazole has been suggested as an antidote: because of its alcohol dehydrogenase inhibiting effects, it reduces the production of formate and the development of metabolic acidosis. However, the value of this antidote remains to be proven in humans.

5. FIRE FIGHTING MEASURES

5.1	Flash Point:	14 °C; 57 °F
5.2	Method:	Pensky-Martens closed cup ASTM D 93.
5.3	Flammable Limits In Air - Lower (%):	6 %(V)
5.4	Flammable Limits In Air - Upper (%):	36 %(V)
5.5	Sensitivity to Static Discharge	Sensitivity to static discharge is expected; material has a flash point below 200 F.
5.6	Extinguishing Media	All standard extinguishing agents are suitable.
5.7	Special Fire Fighting Procedures	Firefighters must wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus with full face mask and full protective clothing.
5.8	Precautions for fire-fighting	Vapors form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point., Vapor may be ignited by static sparks., Use proper bonding and grounding during material transfer.

6. ACCIDENTAL RELEASE MEASURES

6.1	ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
	Warn other workers of spill. Remove all sources of ignition. Wear proper protective equipment as specified in the protective equipment section. Wipe, scrape, or soak up in an inert material and put in a container intended for flammable materials for disposal.

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7. HANDLING AND STORAGE		
7.1	Precautions to be Taken In Handling And Storage	Use ground strap and appropriate precautions for dispensing flammable liquids. Use only spark-proof and explosion-proof tools and equipment. Avoid contact with skin, eyes and clothing. Keep away from children. Attention: Not for injection into humans.
7.2	Storage	Store away from heat, sources of ignition, and incompatibles. Keep container closed. Store in original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION			
<u>Exposure Guidelines</u>			
<u>CAS Number</u>	<u>Component Name</u>	<u>Source</u>	<u>Value</u>
64-17-5	Ethanol	ACGIH, TWA	1,000 ppm
64-17-5	Ethanol	OSHA Z1, PEL	1,000 ppm; 1,900 mg/m3
67-56-1	Methanol	ACGIH, TWA	200 ppm
67-56-1	Methanol	ACGIH, STEL	250 ppm
67-56-1	Methanol	ACGIH, SKIN_DES	Can be absorbed through the skin.
67-56-1	Methanol	OSHA Z1, PEL	200 ppm; 260 mg/m3
PEL - OSHA Permissible Exposure Limit; TLV - ACGIH Threshold Limit Value; TWA - Time Weighted Average			
<u>Engineering Controls</u>			
Use only in an area equipped with a safety shower.; Eye wash bottle with pure water; Use product only in closed system.; Ensure adequate ventilation, especially in confined areas.; Special, local ventilation is needed at points where vapors can be expected to escape to the workplace air.			
<u>RESPIRATORY PROTECTION</u>			
Respirator with an ABEK filter; at high concentration use respiratory protection with independent air supply. If exposure limits are exceeded or respiratory irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Supplied air respirators may be required for non-routine or emergency situations. Respiratory protection must be provided in accordance with OSHA regulations (see 29CFR 1910.134).			
<u>PROTECTIVE GLOVES</u>			
Impermeable or chemical resistant gloves.			
<u>EYE AND FACE PROTECTION</u>			
Face-shield			
<u>OTHER PROTECTIVE EQUIPMENT</u>			
Long sleeved clothing; Safety shoes			

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9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Liquid
Color:	Clear, colorless
Odor:	Alcohol.
Vapor Density (AIR=1):	Heavier than air
Vapor Pressure (20 C) (MM HG):	< 97.74
Freezing/Melting Point:	Not determined.
Boiling Point:	> 65 °C; > 149 °F; Mixture
Solubility in Water:	Soluble
Evaporation Rate (Butyl Acetate=1):	5.90
Volatile Organic Content (VOL):	Not determined
Voc Excl. H2O & Exempts (G/L):	559

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.
Hazardous Thermal Decomposition / Combustion Products:	None Burning can produce the following combustion products;; Oxides of carbon.; Oxides of nitrogen.; Oxides of silicon.; Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant.; Acute overexposure to the products of combustion may result in irritation of the respiratory tract.
Materials to Avoid:	Strong oxidizing agents.
Conditions to Avoid:	None known

11. TOXICOLOGICAL INFORMATION

ACUTE ORAL

LD50; Species: Rat.; > 2,000 mg/kg; Remarks: Very low order of toxicity

ACUTE DERMAL

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LD50; Species: Rabbit.; > 2,000 mg/kg; Remarks: Very low order of toxicity

OTHER

Ethyl carbamate has been shown to be carcinogenic in mice, rats and hamsters following administration by the oral, inhalation, subcutaneous or intraperitoneal routes. It is carcinogenic in single dose experiments and following prenatal exposure. IARC has classified ethyl carbamate in Group 2B (possibly carcinogenic to humans).

SKIN IRRITATION

Species: Rabbit.; Result: Minor irritation

EYE IRRITATION

Species: Rabbit. ; Result: Mild irritation

OTHER EFFECTS OF OVEREXPOSURE

No adverse effects anticipated from available information.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGY

The product degrades through hydrolysis into alcohols and silanol- and/or siloxanol compounds.

13. DISPOSAL CONSIDERATIONS

Disposal should be made in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

14.1 DOT Road Shipment Information

Proper Shipping Name	Flammable liquids, toxic, n.o.s.(METHANOL, ETHANOL)
Hazard Class	3
UN-No	UN1992
Packaging Group	II
Hazard Label(s)	3, 6.1

14.2 Ocean Shipment (IMDG)

Proper Shipping Name	Flammable liquids, toxic, n.o.s.(METHANOL, ETHANOL)
Hazard Class	3
UN-No	UN1992
Packaging Group	II
Hazard Label(s)	3, 6.1
EMS No:	F-E; S-D

14.3 Air Shipment (IATA)

Proper Shipping Name	Flammable liquids, toxic, n.o.s. (METHANOL, ETHANOL)
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Hazard Class	3
UN-No	UN1992
Packaging Group	II
Call Capatue Chemical if additional information is required.	

15. REGULATORY INFORMATION

CERCLA

Reportable quantity: 400 lbs

PRODUCT COMPOSITION Chemical Cercla Reportable Quantity

SARA (311,312) Acute Health Hazard; Chronic Health Hazard; Fire Hazard

HAZARD CLASS

SARA (313) S22 67-56-1, Methanol51-79-6, Ethyl Carbamate

CHEMICALS

Canadian Regulatory Information

CALIFORNIA PROPOSITION 65

WARNING! This product contains a chemical known in the State of California to cause cancer.
64-17-5, Ethanol. 51-79-6, Ethyl Carbamate. 598-55-0, Methyl Carbamate.

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.