

MATERIAL SAFETY DATA SHEET (MSDS) of SCA-E87E

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY				
1.1	Production name:	SCA-E87E SILANE		
1.2	Generic Description:	oxy silane		
1.3	Chemical name:	3-Glycidoxypropyl-triethoxysilane		
1.4	HMIS	Flammability: 1	Reactivity: 1	Health: 2
1.5	NFPA	Flammability: 1	Reactivity: 1	Health: 2
1.6	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:	(0086-25)-86371193 Fax: (0086-25) 86371191-0		
	24Hour Emergency Telephone:	(0086-25)-86371192		
	Connect with:	Anhuanbu		
1.6	Use of the substance / Preparation	For industry use		
1.7	Function	Surface modifier, raw material.		

2. HAZARDS IDENTIFICATION
EMERGENCY OVERVIEW WARNING! Causes eye and skin irritation.
POTENTIAL HEALTH EFFECTS
INGESTION May cause the following effects: - dizziness, faintness, drowsiness, decreased awareness and responsiveness, euphoria, abdominal discomfort, nausea, vomiting, staggering gait, lack of coordination and coma Long-term repeated oral exposure to ethanol may result in the development of progressive liver injury with fibrosis. Repeated ingestion of ethanol by pregnant mothers has been shown to adversely affect the central nervous system of the fetus, producing a collection of effects which together constitute the fetal alcohol syndrome. These include mental and physical retardation, disturbances of learning, motor and language deficiencies, behavioral disorders, and small size head.
SKIN May cause slight irritation. May cause the following effects: - itching - local redness - possible swelling
INHALATION Short-term harmful health effects are not expected from vapor generated at ambient temperature. Prolonged exposure to high concentrations of ethanol at ambient temperature may result in dizziness, drowsiness

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and minor irritant effects.
EYES May cause irritation. May cause the following effects: - stinging - excess blinking - tear production - excess redness of the conjunctivae - swelling of the conjunctivae
MEDICAL CONDITIONS AGGRAVATED Repeated exposure to ethanol may aggravate liver injury produced from other causes.
SUBCHRONIC (TARGET ORGAN) None known.
CHRONIC EFFECTS / CARCINOGENICITY This product or one of its ingredients present at 0.1% or more is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.
ROUTES OF EXPOSURE Eyes; Dermal

3. COMPOSITION/INFORMATION ON INGREDIENTS

Information on ingredients / Hazardous components

3-Glycidoxypropyl-triethoxysilane			
CAS No.	2602-34-8	Concentration %	> 90 %
Ethanol			
CAS No.	64-17-5	Concentration %	< 1 %
Related silanes			
CAS No.	Not established	Concentration %	1 - 5 %

4. FIRST AID MEASURES

4.1	Eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
4.2	Skin:	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before re-use. Obtain medical attention.
4.3	Inhalation:	Remove to fresh air. Artificial respiration and/or oxygen may be necessary. Obtain medical attention immediately.
4.4	Ingestion:	If conscious, drink plenty of water. Induce vomiting if person is conscious. Obtain medical attention immediately.
4.5	Note to physician	Treatment is symptomatic and supportive.

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5. FIRE FIGHTING MEASURES	
Flash Point:	118 °C; 244 °F
METHOD:	Pensky-Martens closed cup ASTM D 93
FLAMMABLE LIMITS IN AIR - LOWER (%):	Not available
FLAMMABLE LIMITS IN AIR - UPPER (%):	Not available
SENSITIVITY TO MECHANICAL IMPACT:	No
SENSITIVITY TO STATIC DISCHARGE	Sensitivity to static discharge is not expected.
EXTINGUISHING MEDIA	All standard extinguishing agents are suitable.
SPECIAL FIRE FIGHTING PROCEDURES	Firefighters must wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus with full face mask and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES
<p>ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED</p> <p>Wipe, scrape or soak up in an inert material and put in a container for disposal. Wash walking surfaces with detergent and water to reduce slipping hazard. Wear proper protective equipment as specified in the protective equipment section.</p>

7. HANDLING AND STORAGE	
7.1	<p>PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE</p> <p>Avoid contact with skin and eyes. Keep away from children. Attention: Not for injection into humans.</p>
7.2	<p>FURTHER INFORMATION ON STORAGE CONDITIONS</p> <p>No data available</p>

8. EXPOSURE CONTROLS / PERSONAL PROTECTION	
Components with workplace control parameters	
Engineering measures	
Use only in an area equipped with a safety shower. Eye wash bottle with pure water General (mechanical) room	

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ventilation is expected to be satisfactory if handled at low temperatures or in covered equipment. Special, local ventilation is needed at points where vapors can be expected to escape to the workplace air.

RESPIRATORY PROTECTION

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

PROTECTIVE GLOVES

Impermeable or chemical resistant gloves.

EYE AND FACE PROTECTION

Safety glasses

OTHER PROTECTIVE EQUIPMENT

Safety shoes; Protective suit

Eye protection:

safety glasses

Skin and body protection:

Safety shoes

Protective suit

Exposure Guidelines

Component	CAS RN	Source	Value
Ethanol	64-17-5	ACGIH, TWA	1,000 ppm
Ethanol	64-17-5	OSHA Z1, PEL	1,000 ppm; 1,900 mg/m ³

Absence of values indicates none found

PEL - OSHA Permissible Exposure Limit; TLV - ACGIH Threshold Limit Value; TWA - Time Weighted Average

OSHA revoked the Final Rule Limits of January 19, 1989 in response to the 11th Circuit Court of Appeals decision (AFL-CIO v. OSHA)

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9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Liquid
Color:	Colorless, clear
Odor:	Mild
VOC EXCL. H2O & EXEMPTS (G/L):	970
BOILING POINT - C & F:	> 300 °C; > 572 °F
VAPOR PRESSURE (20 C) (MM HG):	< 1
VAPOR DENSITY (AIR=1):	>1
FREEZING POINT:	< 0 °C; < 32 °F
Solubility in Water:	Reacts slowly
Melting point:	< 0 °C; < 32 °F
VOLATILE ORGANIC CONTENT (VOL):	Not determined
DENSITY:	1.003 g/cm3
Evaporation rate:	<1

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 STABILITY	Stable
HAZARDOUS	Will not occur.
POLYMERIZATION	
HAZARDOUS THERMAL DECOMPOSITION / COMBUSTION PRODUCTS	Burning can produce the following combustion products:: Oxides of carbon.; 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.
10.2 INCOMPATIBILITY (MATERIALS TO AVOID)	Oxidizing agents. Bases. Aqueous acids. Reacts with water or moisture to form: Ethanol.
10.3 CONDITIONS TO AVOID	Ignition sources.

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11. TOXICOLOGICAL INFORMATION

OTHER

The following information is based on analogy with a similar material:; This organosilane ester was weakly mutagenic in the following in vitro procedures: Ames test, mouse lymphoma assay, and a sister chromatid exchange test. This weak in vivo mutagenic activity was reduced by the inclusion of metabolic activation in the test systems. Results of in vivo genotoxicity studies have shown mixed results. Repeated exposure of rats or rabbits to this material did not result in an increase in sister chromatid exchange, while single exposures of mice to a hydrolyzate of this material resulted in a significant increase in micronucleated polychromatic erythrocytes. It is unlikely that this material presents a significant genotoxic hazard, in that it lacks any local tumorigenic response to the chronic recurrent application to mouse skin. In a developmental toxicity study with rats given this organosilane

ester by gavage over the period of organogenesis, the only effect was minimal fetotoxicity at 3000 mg/kg/day (reduced ossification at one site) in the presence of maternal toxicity. There were no embryotoxic or teratogenic effects. No effects were seen at 500 and 1500 mg/kg/day. A subsequent developmental study in the rabbit, using gavage dosages of 50, 200 and 400 mg/kg/day given over gestational days 6 through 18, resulted in one maternal death at 400 mg/kg/day; there were no other indications of maternal toxicity at this or lower dosages. At no dosage was there any evidence for developmental toxicity (embryofetal toxicity or teratogenicity). Recurrent exposure of rats to an respirable aerosol of a hydrolyzate of this material did not cause any respiratory tract injury or evidence of systemic toxicity. The following information is based on ethanol:; The International Agency for Research on Cancer (IARC) has determined that the consumption of alcoholic beverages is causally related to the occurrence of malignant tumors of the oral cavity, pharynx, larynx, esophagus and liver in humans. The carcinogenic response attributed to drinking alcoholic beverages has not been verified in studies with laboratory animals. Established uses of denatured ethanol and non-beverage uses of pure ethanol are not considered to pose any significant cancer hazard.

SENSITIZATION

Test Type: Magnusson-Kligmann; Species: guinea pigs; Result: Negative. Method: OECD Test Guideline 406.

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 METHOD

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

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14. TRANSPORT INFORMATION

Further Information:

This product is not regarded as dangerous goods according to the national and international regulations on the transport of dangerous goods.

15. REGULATORY INFORMATION

Inventories

EU list of existing chemical substances	y (Positive listing)
Japan Inventory of Existing & New Chemical Substances (ENCS)	y (Positive listing)
China Inventory of Existing Chemical Substances	y (Positive listing)
TSCA list	y (Positive listing)
Korea Existing Chemicals Inventory (KECI)	q (quantity restricted)

US Regulatory Information

SARA (311,312) HAZARD CLASS

Acute Health Hazard

SARA (313) CHEMICALS

CALIFORNIA PROPOSITION 65

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

Canadian Regulatory Information

16. OTHER INFORMATION

OTHER

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is 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. C = ceiling limit NEGL = negligible EST = estimated NF = none found NA = not applicable UNKN = unknown NE = none established REC = recommended ND = none determined V = recommended by vendor SKN = skin TS = trade secret R = recommended MST = mist NT = not tested

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STEL = short term exposure limit ppm = parts per million ppb = parts per billion By-product= reaction by-product, TSCA inventory status not required under 40 CFR part 720.30(h-2).

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