

## MATERIAL SAFETY DATA SHEET (MSDS) of SCA-K02X

### 1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

|            |   |  |               |           |
|------------|---|--|---------------|-----------|
| <b>1.1</b> | <b>Production name:</b>                                   | SCA-K02X SILANE  |               |           |
| <b>1.2</b> | <b>Generic Description:</b>                               | Alk silane   |               |           |
| <b>1.3</b> | <b>Chemical name:</b>                                     | 1,2-Bis(triethoxysilyl)ethane  |               |           |
| <b>1.4</b> | <b>HMIS</b>   | Flammability: 1  | Reactivity: 1 | Health: 2 |
| <b>1.5</b> | <b>NFPA</b>   | Flammability: 1  | Reactivity: 1 | Health: 2 |
| <b>1.6</b> | <b>IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY</b> |  |               |           |
|            | <b>Manufacturer:</b>                                      | Nanjing Capatue Chemical Co., Ltd  |               |           |
|            | <b>Address:</b>   | No. 20 JiangJun Avenue, Jiangning Development Zone,<br>Nanjing, Jiangsu Province, P. R. China (211100) |               |           |
|            | <b>Telephone:</b>   | (0086-25)-86371193 Fax: (0086-25) 86371191-0   |               |           |
|            | <b>24Hour Emergency Telephone:</b>                        | (0086-25)-86371192   |               |           |
|            | <b>Connect with:</b>                                      | Anhuanbu   |               |           |
| <b>1.7</b> | <b>Use of the substance / Preparation</b>                 | For industry use   |               |           |
| <b>1.8</b> | <b>Function</b>   | Surface modifier, raw material.  |               |           |

### 2. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

WARNING! Harmful if swallowed.

Form: Liquid Color: Clear, pale Odor: Ester

#### POTENTIAL HEALTH EFFECTS

##### **INGESTION**

Moderately toxic. May cause irritation. May be affected: - mouth and throat May cause the following effects: - abdominal discomfort - nausea - vomiting - diarrhea This product hydrolyzes in the stomach to form ethanol. May cause: - 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**

Brief contact may cause slight irritation. May cause the following effects: - itching - local redness

##### **INHALATION**

Short-term harmful health effects are not expected from vapor generated at ambient temperature.

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### EYES

May cause the following effects: - mild discomfort - excess redness of the conjunctivae Injury to the cornea is not expected.

### MEDICAL CONDITIONS AGGRAVATED

Repeated exposure to ethanol may aggravate liver injury produced from other causes.

### SUBCHRONIC (TARGET ORGAN )

Liver

### 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

Ingestion

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Product composition           | CAS REG NO.  | WGT.%     |
|-------------------------------|--------------|-----------|
| 1,2-Bis(triethoxysilyl)ethane | 16068-37-4   | > 90 %    |
| Organosilane ester            | Trade secret | 10 - 30 % |
| Ethanol                       | 64-17-5      | < 1 %     |

See chapter 16 for text of risk phrases.

### 4. FIRST AID MEASURES

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

### 5. FIRE FIGHTING MEASURES

|   |                                     |
|---|-------------------------------------|
| <b>FLASH POINT:</b>                         | 107 °C; 225 °F                      |
| <b>METHOD:</b>                              | Pensky-Martens closed cup ASTM D 93 |
| <b>FLAMMABLE LIMITS IN AIR - LOWER (%):</b> | Not available                       |

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|   |   |
|---|---|
| <b>FLAMMABLE LIMITS IN AIR - UPPER (%):</b> | Not available   |
| <b>SENSITIVITY TO MECHANICAL IMPACT:</b>    | No  |
| <b>SENSITIVITY TO STATIC DISCHARGE</b>      | Sensitivity to static discharge is not expected.  |
| <b>EXTINGUISHING MEDIA</b>                  | All standard extinguishing agents are suitable.   |
| <b>SPECIAL FIRE FIGHTING PROCEDURES</b>     | Firefighters must wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus with full face mask and full protective clothing. |
| <b>PRECAUTIONS FOR FIRE-FIGHTING</b>        | Do not direct a solid stream of water or foam into hot, burning pools: this may cause frothing and increase fire intensity.                       |

### 6. ACCIDENTAL RELEASE MEASURES

**6.1 ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED**

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.

**6.2 Environment precautions:**

Do not flush into surface water or sanitary sewer system.

### 7. HANDLING AND STORAGE

**7.1 PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE**

Avoid contact with skin and eyes. Keep away from children. Attention: Not for injection into humans.

**7.2 Storage**

Keep container closed. Store in original container.

**7.3 FURTHER INFORMATION ON STORAGE CONDITIONS**

No data available

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**ENGINEERING CONTROLS**

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.

**Respiratory protection**

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 nonroutine or emergency situations.

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Respiratory protection must be provided in accordance with OSHA regulations (see 29CFR 1910.134).

### PROTECTIVE GLOVES

Impermeable or chemical resistant gloves.

### EYE AND FACE PROTECTION

Face-shield

### OTHER PROTECTIVE EQUIPMENT

Long sleeved clothing; Safety shoes

### 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 <sup>3</sup> |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|  |                             |
|--|-----------------------------|
| <b>Physical Form:</b>                          | Liquid                      |
| <b>Color:</b>                                  | Clear, pale                 |
| <b>Odor:</b>                                   | Ester                       |
| <b>FREEZING POINT:</b>                         | < 0 °C; < 32 °F             |
| <b>BOILING POINT - C &amp; F:</b>              | > 200 °C; > 392 °F; Mixture |
| <b>VAPOR PRESSURE (20 C)<br/>(MM HG):</b>      | < 1                         |
| <b>VAPOR DENSITY (AIR=1):</b>                  | > 1                         |
| <b>MELTING POINT:</b>                          | < 0 °C; < 32 °F             |
| <b>EVAPORATION RATE<br/>(BUTYL ACETATE=1):</b> | < 1                         |
| <b>DENSITY:</b>                                | 0.97 g/cm <sup>3</sup>      |
| <b>VOLATILE ORGANIC<br/>CONTENT (VOL):</b>     | Not determined              |
| <b>SOLUBILITY IN WATER (20<br/>C):</b>         | Reacts slowly               |

**Note:** The above information is not intended for use in preparing product specifications. Contact Capatue Chemical before writing specifications.

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| 10. STABILITY AND REACTIVITY |  |   |
|------------------------------|--|---|
| <b>10.1</b>                  | <b>STABILITY:</b>  | Stable  |
| <b>10.2</b>                  | <b>HAZARDOUS POLYMERIZATION:</b>                               | Will not occur.   |
| <b>10.3</b>                  | <b>HAZARDOUS THERMAL DECOMPOSITION / COMBUSTION PRODUCTS :</b> | 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. |
| <b>10.5</b>                  | <b>INCOMPATIBILITY (MATERIALS TO AVOID)</b>                    | Reacts with water or moisture to form: Ethanol.   |
| <b>10.6</b>                  | <b>CONDITIONS TO AVOID</b>                                     | Avoid contact with: Moisture.   |

| 11. TOXICOLOGICAL INFORMATION        |  |   |
|--------------------------------------|--|---|
| <b>Acute oral :</b>                  |  | LD50; Species: Rat.; 161 mg/kg; Remarks: Moderate order of toxicity     |
| <b>ACUTE DERMAL</b>                  |  | LD50; Species: Rat.; > 2,000 mg/kg; Remarks: Very low order of toxicity |
| <b>GENETIC TOXICITY IN VITRO:</b>    |  | Test Type: Ames bacterial assay; Result: Negative                       |
| <b>SKIN IRRITATION</b>               |  | Species: Rabbit.; Result: Slight irritation                             |
| <b>EYE IRRITATION</b>                |  | Species: Rabbit. ; Result: Mild irritation                              |
| <b>OTHER EFFECTS OF OVEREXPOSURE</b> |  | No adverse effects anticipated from available information.              |

| 12. ECOLOGICAL INFORMATION |   |
|----------------------------|---|
| <b>ECOTOXICOLOGY</b>       | All available ecological data have been taken into account for the development of the hazard and precautionary information contained in this Safety Data Sheet. |

| 13. DISPOSAL CONSIDERATIONS |  |
|-----------------------------|--|
| <b>DISPOSAL METHOD</b>      | Disposal should be made in accordance with federal, state and local regulations. |

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| 14. TRANSPORT INFORMATION |  |
|---------------------------|--|
| DOT SHIPPING NAME:        | TOXIC LIQUID, ORGANIC,<br>N.O.S.(1,2-Bis(triethoxysilyl)ethane)  |
| DOT HAZARD CLASS:         | 6.1  |
| DOT LABEL (S):            | 6.1  |
| UN/NA NUMBER:             | UN2810   |
| PACKING GROUP:            | III  |
| IMDG SHIPPING NAME:       | TOXIC LIQUID, ORGANIC,<br>N.O.S.(1,2-Bis(triethoxysilyl)ethane)  |
| CLASS:                    | 6.1  |
| IMDG-LABELS:              | 6.1  |
| UN NUMBER:                | UN2810   |
| PACKING GROUP:            | III  |
| EMS No:                   | F-A; S-A   |
| IATA:                     | TOXIC LIQUID, ORGANIC, N.O.S.<br>(1,2-Bis(triethoxysilyl)ethane) |
| CLASS:                    | 6.1  |
| ICAO-LABELS:              | 6.1  |
| PACKING GROUP:            | UN2810   |
| PACKING GROUP:            | III  |

| 15. REGULATORY INFORMATION                                   |                      |
|--|----------------------|
| <b><u>Inventories</u></b>                                    |                      |
| Australia Inventory of Chemical Substances (AICS)            | n (Negative listing) |
| Canada DSL Inventory   | n (Negative listing) |
| EU list of existing chemical substances                      | y (Positive listing) |
| Japan Inventory of Existing & New Chemical Substances (ENCS) | n (Negative listing) |
| China Inventory of Existing Chemical Substances              | y (Positive listing) |
| Korea Existing Chemicals Inventory (KECI)                    | n (Negative listing) |
| Philippines Inventory of                                     | n (Negative listing) |

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### Chemicals and Chemical Substances (PICCS)

|   |   |
|---|---|
| TSCA list                               | y (Positive listing)  |
| <b><u>US Regulatory Information</u></b> |   |
| SARA (311,312) HAZARD CLASS             | Acute Health Hazard; Chronic 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. |

### 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.