

MATERIAL SAFETY DATA SHEET

Date Updated: 12.12.2003

Version: 2.1

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Organosilane S4****** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ******

MSDS Name: Organosilane S4

Chemical Name: Bis-[3-(triethoxysilyl)-propyl]-tetrasulfide

Company Identification: Onichem Specialities Co., Ltd.

218-220, No. 2 Gaoxin Street, Qixianling, Dalian 116023, P.R. China

Tel: 86-411-84794022, Fax: 86-411-84794077

For emergencies, call CHEMTREC 1-800-424-9300 or 1-202-483-7616

****** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ******

Chemical Name Bis-[3-(triethoxysilyl)-propyl]-tetrasulfide

CAS# 40372-72-3

Content 21.5% min (as content of sulfur)

EINECS# 64-17-5

****** SECTION 3 - HAZARDS IDENTIFICATION ********EMERGENCY OVERVIEW:** Moisture sensitive and can release ethanol.

Eye Contact: Will cause immediate or delayed severe eye irritation.

Skin contact: May produce irritation or contact dermatitis. Material generates ethanol on contact with water or moisture in skin, eyes and mucous membranes and has an irritating, dehydrating effect on overexposed tissue. Prompt and thorough washing with soap and water will reduce or eliminate potential dermal effects.

Inhalation: Inhalation may irritate the respiratory tract. Overexposure can cause lung damage.

Oral Toxicity - rat, LD50: 16,400 mg/kg

Inhalation Toxicity: not determined

Eye Irritation: not determined

Oral Toxicity: N/A

Chronic: N/A

****** SECTION 4 - FIRST AID MEASURES ********EYES:** In case of contact, immediately flush eyes with flowing water for at least 15 minutes.

Get medical attention.

SKIN: Flush with water, then wash with soap and water.**INHALATION:** Move exposed individual to fresh air. Offer oxygen if needed. Call a physician.**INGESTION:** Never give fluids or induce vomiting if patient is unconscious or having convulsions.

To conscious individual give one full cup of water to dilute ingested material. Get medical attention. Notes to Physician: This product reacts with water in the acid contents of the stomach to form methanol. The combination of visual disturbances, metabolic acidosis

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and formic acid in urine is evidence of methanol poisoning. The therapeutic intravenous administration of ethanol (10 mls/hour) allows methanol to be preferentially oxidized and reduces production of methanol metabolites. Acidosis must be treated with intravenous administration of sodium bicarbonate and methanol elimination may be increased by hemodialysis, as indicated. Treatment should be based on blood methanol levels and acid-base balance..

****** SECTION 5 - FIRE FIGHTING MEASURES ******

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Extinguishing Media: Water spray, foam, carbon dioxide, dry chemical.

Special Fire Fighting Procedures: Avoid eye and skin contact. Do not breathe fumes or inhale vapors.

Unusual Fire and Explosion Hazards: Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

Autoignition Temperature: N/A

Flash Point: 91 deg C

NFPA Rating: Not published.

Explosion Limits, Lower: N/A

Upper: N/A

****** SECTION 6 - ACCIDENTAL RELEASE MEASURES ******

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container.

****** SECTION 7 - HANDLING and STORAGE ******

Store in sealed containers.

Avoid contacting with water or moisture.

****** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ******

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protective Equipment

Eyes: Wear safety glasses and chemical goggles if splashing is possible.

Skin: Wear appropriate protective gloves and clothing to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

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Respirators: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

****** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ******

Appearance & Color: Pale yellow to amber liquid with sulfurous odor

Boiling Point: 250 deg. C (decomposed)

Melting Point: N/A

Specific Gravity: 1.095

Vapor Pressure, 25°C: <1mm

Vapor Density, air = 1: >1

Solubility in water: reacts

% volatiles: <5%

Evaporation rate: N/A

Molecular Weight: 538.94

****** SECTION 10 - STABILITY AND REACTIVITY ******

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Combustible; avoid contact with heat, sparks or open flame

Incompatibilities with Other Materials: Reacts with water and moisture in air liberating ethanol.

Avoid contact with peroxides, oxidizing agents, alcohols, acids.

Hazardous Decomposition Products: Ethanol, organic acid vapors and silicon dioxide.

Hazardous Polymerization: Has not been reported.

****** SECTION 11 - TOXICOLOGICAL INFORMATION ******

Oral Toxicity - rat, LD50: 16,400 mg/kg

Carcinogenicity: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

****** SECTION 12 - ECOLOGICAL INFORMATION ******

Ecotoxicity: N/A

****** SECTION 13 - DISPOSAL CONSIDERATIONS ******

Dispose of in a manner consistent with federal, state, and local regulations.

Not listed as a material banned from land disposal according to RCRA.

****** SECTION 14 - TRANSPORT INFORMATION ******

DOT SHIPPING NAME: CHEMICALS

DOT HAZARD CLASS: None required

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DOT LABEL: None required

DOT ID No: None required

******SECTION 15 - REGULATORY INFORMATION ******

N/A.

****** SECTION 16 - ADDITIONAL INFORMATION ******

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if we have been advised of the possibility of such damages.