

# SAFETY DATA SHEET

Date Updated: 01.06.2013  
Version: 4.6  
Regulation REACH (EC 1907/2006) & CLP (EC 1272/2008)

**ONICHEM**  
Onichem Specialities  
www.onichem.com

## Vinyltrimethoxysilane [ Organosilane VMO ]

### \*\*\*\* SECTION 1 - IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/ UNDERTAKING\*\*\*\*

SDS Name: **Vinyltrimethoxysilane (Organosilane VMO)**

Chemical Name: Vinyltrimethoxysilane 99%

Synonym(s): trimethoxyvinylsilane

IUPAC Name: ethenyl(trimethoxy)silane

Company Identification: Dalian Onichem Co., Ltd.

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 - HAZARDS IDENTIFICATION \*\*\*\*

#### EU-GHS Classifications

Classifications below according to Regulation (EU) No 1272/2008 on classification, labelling and packaging of Substances and Mixtures (CLP).

Flammable liquids Category 3 H226

Acute toxicity (inhalation) Category 4 H332

#### GHS-Labeling:

Globally Harmonized System of Classification and Labelling (GHS)

Symbol(s):



Hazard Pictogram: GHS02, GHS07

Signal Word: Danger

Hazard Statement:	H226 H332	Flammable liquid and vapor. Harmful if inhaled.
Precautionary Statement:	P210 P241 P261 P280 P303+P361+P353 P370+P378	Keep away from heat/sparks/open flames/hot surfaces. No smoking. Use explosion-proof electrical/ventilating/light/.../equipment. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. IF ON SKIN(or hair):Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. In case of fire: Use water spray, foam, CO2, dry powder for extinction.

Other Hazards Not a PBT, vPvB substance as per the criteria of the REACH Ordinance.

### \*\*\*\*\* SECTION 3 - COMPOSITION, INFORMATION ON INGREDIENTS \*\*\*\*

Ingredient (Chemical Name)	CAS#	EC#	Symbol(s)	R-phrases(s)	Hazard statements
Vinyltrimethoxysilane, 99% min	2768-02-7	220-449-8	F Xn	R10 R20	H226 H332

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## \*\*\*\* SECTION 4 - FIRST AID MEASURES \*\*\*\*

**General information:** Take persons to a safe place. Observe self-protection for first aid. Before seeking medical attention remove contaminated clothing and shoes. Take a copy of the Safety Data Sheet when going for medical treatment.

**Eyes:** I Immediately flush eyes with plenty of water for at least 15 minutes. Obtain medical attention if discomfort persists.

**Skin:** Flush skin with plenty of soap and water, Wash contaminated clothing before reuse. Get medical attention.

**Ingestion:** Have the mouth rinsed with water if patient is conscious. Consult a physician.

**Inhalation:** Remove from exposure to fresh air immediately. If respiratory problems, artificial respiration/oxygen. Call a physician or poison control center immediately.

### **Indication of any immediate medical attention and special treatment needed:**

Product may hydrolyse upon contact with body fluids in the gastrointestinal tract to produce additional methanol; therefore, consider the signs/symptoms of methanol poisoning and also observe the known latency period of several days

## \*\*\*\* SECTION 5 - FIRE FIGHTING MEASURES \*\*\*\*

**General Information:** 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.

**Suitable extinguishing media:** Use Alcohol-resistant foam, dry chemical, or carbon dioxide.

**Further information:** Do not direct a solid stream of water or foam into hot, burning pools: this may cause frothing and increase fire intensity. Cool closed containers exposed to fire with water spray.

**Unusual Fire and Explosion Hazards:** Vapors are heavier than air and may travel to a source of ignition and flash back. Static electricity will accumulate and may ignite vapors. Ensure that all equipment is electrically earthed. Prevent a possible fire hazard by bonding and grounding or inert gas purge. Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Silica, Carbon oxides and traces of incompletely burned carbon compounds. Formaldehyde.

**Flash Point:** 24 °C ( 75°F)

**Auto-ignition temperature:** 224°C ( 435°F)

**Explosion Limits, Lower:** 1.4%(V).

Upper: 19.9%(V)

**HMIS Classification**

**NFPA Rating**

Health 2

Health 2

Flammability 3

Fire 3

Physical hazard 1

Reactivity 1

**Advice for firefighters:** Water used to extinguish fire should not enter drainage systems, soil or stretches of water. Ensure there are sufficient retaining facilities for water used to extinguish fire. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulation

## \*\*\*\* SECTION 6 - ACCIDENTAL RELEASE MEASURES \*\*\*\*

**General Information:** Use proper personal protective equipment as indicated in Section 8. Keep out unprotected persons, ensure adequate ventilation.

**Spills/Leaks:** Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container, to be disposed of in compliance with existing regulations.

**Environmental precautions:** Do not flush into surface water, sanitary sewer system

## \*\*\*\* SECTION 7 - HANDLING AND STORAGE \*\*\*\*

**Handling:** Provide good ventilation or extraction. Take precautionary measures against static charges, keep away from sources of ignition. Explosion protection equipment required. Danger of explosion from residual product fumes; therefore avoid spark production through cutting, grinding, or welding work in the area of the container, When repairs of the production system are to be made, the section to be repaired must be essentially free of product.

**Storage:** Keep containers tightly closed in a cool, well-ventilated place. Protect from moisture

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### \*\*\*\* 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 (PPE)**

Personal Protective Equipment (PPE) for Routine Handling

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

Skin: Washing at mealtime and end of shift is adequate.

Suitable Gloves: 4H(R). Butyl Rubber. Neoprene Rubber(R). Nitrile Rubber. Polyvinylchloride. Inhalation:

Use respiratory protection unless adequate local exhaust ventilation is provided or air sampling data show exposures 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 recommended limits as determined by air sampling 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 (PPE) for Spills

Eyes: Use full face respirator.

Skin: Washing at mealtime and end of shift is adequate.

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. Do not breathe vapor. Keep container closed. Do not take internally.

Use reasonable care.

**Hygiene measures:** When using, do not eat, drink or smoke. Wash face and/or hands before break and end of work. Remove contaminated or saturated clothing. Wash contaminated clothing before re-use.

**Protective measures:** Handle in accordance with good industrial hygiene and safety practices. If workplace exposure limits are exceeded and/or larger amounts are released (leakage, spilling, dust) the indicated respiratory protection should be used. If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used. Do not breathe in vapors or aerosols. Avoid contact with skin and eyes. Do not breathe in vapors of aerosols

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

Appearance: Colorless and transparent liquid.

Odor: Ester like

pH: N/A.

Vapor Pressure: 11.97 hPa @ 20°C

Vapor Density: >1

Evaporation rate: <1

Viscosity, dynamic: 0.6 mPa.s @ 25°C

BP/BP range: 123 °C

Freezing/Melting Point: <-70°C

Decomposition Temperature: >123°C

Solubility: not miscible, decomposition by hydrolysis.

Specific Gravity: 0.967 g/cm<sup>3</sup> @ 20°C

Molecular Formula: C<sub>5</sub>H<sub>12</sub>O<sub>3</sub>Si

Molecular Weight: 148.23

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## \*\*\*\* SECTION 10 - STABILITY AND REACTIVITY \*\*\*\*

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Keep away from heat and sources of ignition. When heated, formation of explosive vapor/air mixtures.

**Materials to Avoid:** Halogens(chlorine) in the presence of sunlight or ultraviolet light. Peroxides.

Reacts with water or moisture to form: Methanol.

**Incompatibilities with Other Materials:** Alkalis, water, peroxide.

**Hazardous Decomposition Products:** Methanol in case of hydrolysis.

**Hazardous Polymerization:** Avoid contact with Peroxides, Catalytic metals, Polymerization catalysts

## \*\*\*\* SECTION 11 - TOXICOLOGICAL INFORMATION \*\*\*\*

Acute oral toxicity: LD50 rat, 7,120 mg/kg

Acute inhalation toxicity: LD50 rat, 16.8mg/l/4h/vapour

Acute dermal toxicity: LD50 rabbit, 3,540 mg/kg

Eye Irritation: Rabbit, not irritating.

Skin Irritation: Rabbit, not irritating.

Sensitization: Guinea pig, no sensitizing effects.

Component Toxicology Information

Exposure of pregnant rats to vinyltrimethoxysilane vapor during the period of major organogenesis produced minimal maternal toxicity and fetotoxicity (delayed ossification) at 312 and 97 ppm, but not at 25 ppm. In this study there was no evidence of embryotoxic or teratogenic effects. Primates exposed to vinyltrimethoxysilane vapors at 100 ppm for three months showed hematological changes (reduced number of red blood cells, hemoglobin and packed cell volume). The potential relevance of this effect to humans has not been determined.

Special Hazard Information on Components: No known applicable information

## \*\*\*\* SECTION 12 - ECOLOGICAL INFORMATION \*\*\*\*

Biodegradability: Exposure time: 28 days Result: 51% Not readily biodegradable.

Physico-chemical removability: Half-life period: 2.4 hours

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2,000	>2,000

## \*\*\*\* SECTION 13 - DISPOSAL CONSIDERATIONS \*\*\*\*

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

Do not reuse empty containers and dispose of in accordance with the regulation issued by the appropriate local authorities. If there is product residue in the emptied container, follow directions for handling on the container's label.

Incorrect disposal or reuse of this container is illegal and can be dangerous.

No waste key number as per the European Waste Typed List can be assigned to this product, since such classification is based on (as yet undetermined) use to which the product is put by the consumer.

The waste key number must be determined as per the European Waste Types List(EU Waste Types List 2000/532/EC) in cooperation with the disposal firm, producing firm or authority

## \*\*\*\* SECTION 14 - TRANSPORT INFORMATION \*\*\*\*

Shipping Name: FLAMMABLE LIQUID, N.O.S.

Technical name: Vinyltrimethoxysilane

DOT	Class	UN	PG		PI
	3	1993	II		
IATA/ICAO	Class	UN/ID	PG		PI
	3	1993	II		
IMDG	Class	UN	PG	EmS	PI
	3	1993	II	F-E,S-E	

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RID/ADR	Class	UN	PG		PI
	3	1993	II		

## \*\*\*\* SECTION 15 - REGULATORY INFORMATION \*\*\*\*

### European/International Regulations

European Labeling in accordance with EC Directives

Statutory basis/list: According to Directive 67/548/EEC or 1999/45/EC

Hazard Symbols:	F	Flammable.
	Xn	Harmful.
Risk Phrases:	R10	Flammable.
	R20	Harmful by inhalation.
Safety Phrases:	S7/9	Keep container tightly closed and in a well-ventilated place.
	S16	Keep away from sources of ignition.
	S23	Do not breathe gas/fumes/vapor/spray.
	S27/28.1	After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.
	S51	Use only in well-ventilated areas.
	S60	This material and its container must be disposed of as hazardous waste.
	S63	In case of accident by inhalation: remove casually to fresh air and keep at rest

### Other international regulations:

Listed on or in accordance with the following inventories

AICS - Listed/registered  
EINECS - Listed/registered  
ENCS - Listed/registered  
IECSC - Listed/registered  
KECL - Listed/registered  
DSL - Listed/registered  
PICCS - Listed/registered  
TSCA - Listed/registered

## \*\*\*\* 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