ORGANOSILANE A301

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ***
MSDS Name: Organosilane A301
Chemical Name: 3-Aminopropyltrimethoxysilane, 98%
3-Trimethoxysilylpropylamine, 98%
Company Identification: Dalian Onichem 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 ****

CAS#	Chemical Name, %
13822-56-5	3-Aminopropyltrimethoxysilane, 98% min
67-56-1	Methanol, 0.5% max

**** SECTION 3 - HAZARDS IDENTIFICATION ****
3.1 Hazards Classifications
HMIS® rating (product as packaged):
Health: 2 Fire: 2 Reactivity: 2 PPE: X
Canadian WHMIS Classification: B3, D2B, D1B

3.2 Emergency Overview And Potential Hazards
Signal Word: WARNING
Physical Hazards: Combustible liquid and vapor.
Eye contact: Causes eye irritation. May cause permanent eye damage and blindness.
Skin contact: May cause skin irritation.
Inhalation: Inhalation is not expected due to low vapor pressure.
Ingestion: Ingestion of the product may lead to blindness or death. Ingestion is not expected in industrial use.
Addtional information on acute health effects: Inhalation exposure to high levels of hydrolysis by-products may cause central nervous system effects.

3.3 Further information:
Chronic health effects: none known .
Medical conditions which may be aggravated by exposure: Methanol may aggravate existing liver and/or kidney diseases.
Target organs affected: Liver, kidneys, brain, nervous system, heart, circulatory system.
Carcinogens/Reproductive toxins: There are no carcinogenic ingredients present at or over 0.1% in this material. This material does not contain any reproductive toxins at or above OSHA or WHMIS reportable levels. See Section 11 for Toxicological Information, if any.

**** SECTION 4 - FIRST AID MEASURES ****
General information: Get medical attention immediately. Before seeking medical attention remove contaminated clothing and shoes. Take a copy of the Safety Data Sheet when going for medical treatment.
After inhalation: Hydrolysis product(s): If inhaled remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult give oxygen.
After contact with the skin: immediately flush skin with plenty of water for at least 15 min.
After contact with the eyes: immediately hold eyelids apart and flush with plenty of water for at least 15 min. Continue to bathe eyes during transport to medical practitioner.
After swallowing: For Ingestion, if conscious, give no more than two glasses of water and induce vomiting. Vomiting can be induced by giving Syrup of Ipecac. Give fluids until the vomitus is clear. Get medical attention immediately. Indicate the possible formation of: methanol . Designate the

product.
Advice for the physician: In case of contact with water material splits off (also in gastrointestinal tract) methanol in larger amounts; therefore consider poisoning on methanol and also observe known period of latency of several days.

**** SECTION 5 - FIRE FIGHTING MEASURES ****
5.1 Flammable properties/ Method
Flash point: 79 °C (174 °F) (EN 22719)
Boiling point / boiling range: 210 °C (410 °F) at 1013 hPa
Lower explosion limit (LEL): not determined
Upper explosion limit (UEL): not determined
Ignition temperature: 300 °C (572 °F) (DIN 51794)
NFPA Hazard Class (comb./flam.liquid): IIIA

5.2 Fire and explosion hazards:
Caution! Combustible liquid and vapor. Hydrolyzes on contact with moisture releasing ignitable vapors. Explosion limits for hydrolysis product: 5.5-44% v/v (methanol) . Consider possible formation of explosive mixtures with air, for example in uncleaned containers.

5.3 Recommended extinguishing media:
carbon dioxide , dry chemical or alcohol-resistant foam.

5.4 Unsuitable extinguishing media:
water

5.5 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:

5.6 Fire fighting procedures:
Fire fighters should wear full protective clothing including a self-contained breathing apparatus. Cool endangered containers with water.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****
6.1 Precautions:
Wear personal protection equipment (see section 8). Keep unprotected persons away. Avoid contact with eyes and skin. Avoid inhaling mists and vapours. If material is released indicate risk of slipping.
HAZWOPER PPE Level: D

6.2 Containment:
Prevent material from entering surface waters, drains or sewers and open soil. Contain any fluid that runs out using suitable material (e.g. earth). Retain contaminated water/extinguishing water. Dispose of in prescribed marked containers. Spills of material which could reach surface waters must be reported to the United States Coast Guard National Response Center's toll free phone number (800) 424-8802.

6.3 Methods for cleaning up:
Do not flush away with water. For small amounts: Absorb with a liquid binding material such as diatomaceous earth and dispose of according to local/state/federal regulations. Contain larger amounts and pump up into suitable containers. Clean any slippery coating that remains using a detergent / soap solution or another biodegradable cleaner. Exhaust vapours.

6.4 Further information:
Eliminate all sources of ignition.

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

7.1 Handling
Precautions for safe handling: Avoid formation of aerosols. In case of aerosol formation special protective measures are required (exhausting by suction, respiratory protection). Ensure adequate ventilation. Keep away from incompatible substances in accordance with section 10.2. Spilled substance increases risk of slipping.
Precautions against fire and explosion: Product can separate methanol. Vapours may form in closed rooms with air mixtures, leading to explosion in the presence of sources of ignition, even in empty, uncleaned vessels. Keep away from sources of ignition and do not smoke. Take precautionary measures against electrostatic charging. Cool endangered containers with water.

7.2 Storage
Conditions for storage rooms and vessels: normal
Advice for storage of incompatible materials: Avoid contact with acids.
Further information for storage: Protect against moisture. Keep container tightly closed and store in a cool, well ventilated place.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****
8.1 Engineering controls
Ventilation: Use only with adequate ventilation.
Local exhaust: To maintain concentration below TLV. Local exhaust ventilation which meets the requirements of ANSI Z9.2 is recommended to control airborne contaminants at the point of use.

8.2 Associate substances with specific control parameters such as limit values
Maximum airborne concentrations at the workplace

CAS No.	Material	Type	mg/m3	ppm	Dust fract.
67-56-1	Methanol	OSHA PEL	260.0	200.0	
67-56-1	Methanol	ACGIH TWA		200.0	

Re Methanol: STEL is 250 ppm, skin notation (ACGIH); STEL is 250 ppm, skin notation (NIOSH).

8.3 Personal protection equipment (PPE)
Respiratory protection: Respiratory protection is only necessary if long term or high level exposures are likely to occur. Recommendation in case of long or strong exposure: Alternatively use a positive pressure, air-supplied respirator.
Hand protection: butyl rubber protective gloves .
Eye protection: tight fitting chemical safety goggles .
Other protective clothing or equipment: Additional skin protection, such as SARANEX coated Tyvek apron, over-sleeves, lab coat, coveralls, or protective suit should be worn if splashing could occur. Provide eye bath and safety shower.

8.4 General hygiene and protection measures:
Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****
Physical state / form: liquid
Colour: colourless
Odour: characteristic
Melting point / melting range: < -60 °C (< -76 °F)
Boiling point / boiling range: 210 °C (410 °F) at 1013 hPa
Flash point: 79 °C (174 °F) (EN 22719)
Ignition temperature: 300 °C (572 °F) (DIN 51794)
Lower explosion limit (LEL): not determined
Upper explosion limit (UEL): not determined
Vapour pressure: < 1.33 hPa at 20 °C (68 °F)
Density: 1.014 g/cm3 at 25 °C (77 °F)

Water solubility / miscibility: Not applicable. Reacts violently with water.
pH-Value: not determined
Viscosity (dynamic): no data at hand

**** SECTION 10 - STABILITY AND REACTIVITY ****
If stored and handled in accordance with standard industrial practices no hazardous reactions are known.
Conditions to avoid: moisture . Heat, open flames, and other sources of ignition.
Materials to avoid: Reacts violently with water and acids to form heat and methanol .
Hazardous decomposition products: methanol
Hazardous polymerization: not occur.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****
The toxicology results listed below are based on tests with a similar material.
Toxicological data: Reference points for mutagenic (carcinogenic) potential:

Test system	Effect	Source
Bacterial Reverse Mutation Test	not mutagenic	literature

Additional information / remarks:
Oral toxicity: Ingestion of methanol or methanol releasing compounds may result in delayed damage to the optic nerves, causing permanent blindness, and if untreated may cause other potentially fatal toxic effects.

**** SECTION 12 - ECOLOGICAL INFORMATION ****
12.1 Information on elimination (persistence and degradability)
Biodegradation / further information: The product of hydrolysis (methanol) is highly biodegradable.
Further information: Contact with water liberates: silanol- and/or siloxanol-compounds and Methanol
Silicone content: Elimination by adsorption in activated sludge.

12.2 Behaviour in environmental compartments
Mobility: -
Further information: -

12.3 Ecotoxicological effects:

Species	Test method	Exp. Time	Result	Source
minnow (Pimephales promelas)	acute		1264 mg/l (LC50)	literature
Daphnia magna	acute		302 mg/l (EC50)	literature

No expected damaging effects to water organisms.
Effects in sewage treatment plants (bacteria toxicity: respiration-/reproduction inhibition):

Test system	Exp. Time	Result	Source
sludge		3400 mg/l (EC50)	literature

Do not introduce large amounts into purification plants.

12.4 Further ecological information
Other harmful effects: -
General information: No environmental problems expected if handled and treated in accordance with standard industrial practices and local regulations where applicable.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****
13.1 Product disposal
Recommendation: Dispose of according to regulations by incineration in a special waste incinerator. Observe local/state/federal regulations.

13.2 Packaging diposal
Recommendation: Completely discharge containers (no tear drops, no powder rest, scraped carefully).

Containers may be recycled or re-used. Observe local/state/federal regulations.

**** SECTION 14 - TRANSPORT INFORMATION ****
14.1 US DOT & CANADA TDG SURFACE
Valuation: Not regulated for transport
Other Information: DOT regulated as a Combustible Liquid when packaged in bulk containers (> 119 Gallons). Not regulated in containers up to 119 Gal./450 L each

14.2 Transport by sea IMDG-Code
Valuation: Not regulated for transport

14.3 Air transport ICAO-TI/IATA-DGR
Valuation: Not regulated for transport

****SECTION 15 - REGULATORY INFORMATION ****
15.1 U.S. Federal regulations
TSCA inventory status and TSCA information: This material or its components are listed on or are in compliance with the requirements of the TSCA Chemical Substance Inventory.
TSCA 12(b) Export Notification: This material does not contain any TSCA 12(b) regulated chemicals.
CERCLA Regulated Chemicals:

CAS No.	Chemical	RQ	Upper limit wt. %
67-56-1	Methanol	5,000 LB	2.0

SARA 302 EHS Chemicals: This material does not contain any SARA extremely hazardous substances.
SARA 311/312 Hazard Class: Fire hazard. Immediate (acute) health hazard.
SARA 313 Chemicals:

CAS No.	Chemical	Upper limit wt. %
67-56-1	Methanol	2.0

SARA 313 information included on this MSDS should be included in all MSDSs that are copied from and distributed for this material.
HAPS: 67-56-1 Methanol

15.2 U.S. State regulations
California Proposition 65 Carcinogens: This material does not contain any chemicals known to the state of California to cause cancer.
California Proposition 65 Reproductive Toxins: This material does not contain any chemicals known to the state of California to cause reproductive effects.
Massachusetts Substance List: 67-56-1 Methanol
New Jersey Right-to-Know Hazardous Substance List: 67-56-1 Methanol
Pennsylvania Right-to-Know Hazardous Substance List: 67-56-1 Methanol

15.3 Canadian regulations
This product has been classified in accordance with the Hazard criteria of the CPR and the MSDS contains all the information required by the CPR.
WHMIS Hazard Classes: B3, D2B, D1B
DSL Status: This material or its components are listed on the Canadian Domestic Substances List.
Non-DSL Chemicals: This material does not contain any non-DSL chemicals.
Canadian Ingredient Disclosure List: 67-56-1 Methanol

15.4 Other international regulations
EU Hazard Symbols: Xi Irritant
EU Risk Phrases:
R-Phrase/Description
R36: Irritating to eyes.

EU Safety Phrases:
S-Phrase/Description
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Material Safety Data Sheet
Details of international registration status
Listed on the following inventories:
IECSC - China
PICCS - Philippines
ENCS - Japan
ECL - Korea
EINECS - Europe
AICS – Australia

**** 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.

N/A: not available