MATERIAL SAFETY DATA SHEET

Performix 1251

Updated : Jan 2005

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY

1.1. Trade Name : PERFORMIX 1251

1.2. Chemical nature : Modified Vinyltrimethoxysilane

1.3. Company : Alchemix Pte Ltd
45 Kian Teck Drive
Singapore 628859

1.4. Emergency Contact : (65) 62623393

2. COMPOSITION / INFORMATION ON INGREDIENTS

Methanol (CAS : 67-56-1)	:	< 0.5% by weight
Hazard	:	R11, R23/24/25, R39/23/24/25
Danger Symbols	:	F T
Vinyltrimethoxysilane (CAS : 2768-02-7)	:	> 70% by weight
Hazard	:	R10, R20, R28
Danger Symbols	:	Xn

3. HAZARD IDENTIFICATION

3.1. **Main hazards and effects** : Flammable. Harmful by inhalation. Irritating to skin. Harmful or fatal if swallowed due to methanol production in the stomach. Prolonged storage above 55°C may result in exothermic reaction and fire.

4. FIRST AID MEASURES

4.1. **Swallowing** : Induce vomiting. Obtain medical attention immediately. If medical advice is delayed, and if the person has swallowed a moderate volume of material (50 ml or more), then give 100 ml of hard liquor. For children, give proportionally less liquor, according to weight.

4.2. **Inhalation** : Provide fresh air. Give artificial respiration if not breathing. If breathing is difficult, oxygen may be given by qualified personnel. Obtain medical attention.

4.3. **Skin contact** : Remove contaminated clothing. Wash skin with soap and water. If irritation persists or if contact has been prolonged, obtain medical attention.

4.4. **Eye contact** : Immediately flush eyes with water and continue washing for several minutes. Obtain medical attention.

4.5. **Notes to physician** : This product reacts with moisture in the acid contents of the stomach to form methanol.

5. FIRE-FIGHTING MEASURES

5.1. **Extinguisher media** :

Suitable media : alcohol OR universal-type foams, C02 and dry chemical
Unsuitable media : NONE.

5.2. **Special fire fighting procedures** : Use water spray to cool fire-exposed containers and structures. Use remote spray monitors or fight fire from behind shields.

5.3. **Special protective equipment for fire-fighters** : Self-contained breathing apparatus. Body covering protective clothing.

5.4. **Unusual fire and explosion hazards** : Vapours form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point. 'When this material is exposed to extreme heat, as in a fire, it may polymerize and rupture a closed container. Flammable liquid. Vapour may be ignited by static sparks. Use proper bonding and grounding during material transfer.

6. ACCIDENTAL RELEASE MEASURES

6.1. **Personal precautions** : Wear suitable protective equipment.

6.2. **Environmental precautions** : Prevent runoff.

6.3. **Methods for cleaning up** : Cover with absorbent or contain. Collect for disposal. Extinguish and do not turn on any ignition source until the area is determined to be free from fire or explosion hazards.

7. HANDLING AND STORAGE

7.1. **Advice on safe handling** : Do not swallow. Electrically bond and ground all containers and equipment. Avoid breathing vapour. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

7.2. **Ventilation** : stored product in closed container to keep vapours in and keep moisture out. General mechanical room ventilation is expected to be satisfactory. Special, local ventilation is needed at points where vapours can be expected to escape to the workplace air.

7.3. **Storage requirements** : Keep away from heat, sparks and flame. Keep container closed. Do not store or stow drums of this product at temperature: > 55 ℃. Exposure to these elevated temperatures may result in exothermic reaction and fire. Prolonged storage above 30℃ may affect product performance and shorten the expected shelf- life of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. **Exposure limits** : No exposure limits have been established

8.2. **Respiratory protection** : Self-contained breathing apparatus in high vapour concentrations.

8.3. **Recommended material of protective** gloves : Butyl, Neoprene, Nitrile (NBR), PVC-coated.

8.4. **Eye protection** : Safety glasses.

8.5. **Other protective equipment** : Chemical apron, Eye bath, Safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	:	Liquid
Colour	:	Clear, straw
Odour	:	Ester

Other properties (typical)

Boiling point	:	116℃ at 1.013 hPa
Melting point	:	< -70 ℃ (estimated)
Flash point	:	26℃ (estimated)
Explosion limits	:	Upper explosion limits : 19.9 %(V) @ 82℃ Lower explosion limits : 1.4 %(V) @ 54℃
Relative Density	:	0.98 at 25 ℃ (estimated)
Vapour pressure	:	13.3 hPa at 20 ℃ (approximately)
Vapour density	:	Heavier than air (air = 1)
Solubility in water	:	Reacts slowly
Molecular weight	:	Mixture

10. STABILITY AND REACTIVITY

10.1. **Stability** : Stable under normal conditions.

10.2. **Incompatible materials** : Mineral acids. Oxidizing agents. Reducing agents. Transition metal salts. Reacts with water or moisture to form: Methanol.

10.3. **Hazardous combustion products** : Burning can produce the following combustion products: oxides of carbon, oxides of tin, oxides of silicon. Acute overexposure to the products of combustion may result in irritation of the respiratory tract. Carbon monoxide may be emitted during combustion and it is highly toxic if inhaled.

10.4. **Polymerization** : May occur.

10.5. **Conditions to avoid** : Oxidizing agents. Water. Polymerization catalysts. Reducing agents. Storage where temperatures exceed: > 55 °C

11. TOXICOLOGICAL INFORMATION

11.1. SWALLOWING

Acute effects : May cause burning or painful sensations.
May be affected : mouth, throat, chest and abdomen.
This product hydrolyses in the stomach to form methanol.

Acute oral toxicity ; Vinyltrimethoxysilane : LD50 - Rats
Result: > 7.300 mg/kg
Very low order of toxicity

11.2. SKIN ABSORPTION

Acute effects : No evidence of harmful effects from available information.

Acute dermal toxicity, Vinyltrimethoxysilane : LD50 - Rabbit
Result: > 3.400 mg/kg
Very low order of toxicity

11.3. INHALATION

Acute effects : Low vapour concentrations may cause respiratory tract irritation, eye irritation, nasal discomfort and discharge, chest pain, coughing. Prolonged overexposure may result in the inhalation of harmful or potentially fatal amounts of material.

Effects of repeated overexposure : Vapour may cause injury to the lungs, injury to the kidney, anaemia.

Acute inhalation toxicity, Vinyltrimethoxysilane : LC50 - Rats
Result: 16.79 mg/l
Exposure time: 4 h
Slight order of toxicity

11.4. SKIN CONTACT

Acute effects : Causes irritation, discomfort, local redness, possible swelling. Effects may be prolonged.

Effects of repeated overexposure through skin contact : may cause severe cumulative dermatitis

Skin irritation, Vinyltrimethoxysilane : Moderate irritation

11.5. EYE CONTACT

Acute effects : Liquid or vapour causes irritation, excess blinking, tear production, excess redness of the conjunctivae, swelling of the conjunctivae.

Eye irritation, Vinyltrimethoxysilane : Minimal irritation

Sensitisation, Vinyltrimethoxysilane : Species: - Guinea pigs
Result: did not elicit a delayed contact hypersensitivity response

11.6. MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE

Overexposure may aggravate : an existing kidney / liver disease
Skin contact may aggravate : an existing dermatitis
Vapour / Mist may aggravate : asthma and inflammatory or fibrotic pulmonary disease

12. ECOLOGICAL INFORMATION

12.1. General : 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

13.1. This product should be disposed of as a dilute solution. Dissolve in a suitable solvent. Incinerate in a furnace where permitted under national and local regulations.

14. TRANSPORT INFORMATION

14.1. ADR/RID

Proper shipping name	FLAMMABLE LIQUID, N.O.S.	
Technical description	Modified Vinyltrimethoxysilane	
Class	3, 31c	
Substance identification	1993	
Kemler number	30	
Label	3	

14.2. IMDG

Proper shipping name	FLAMMABLE LIQUID, N.O.S.	
Technical description	Modified Vinyltrimethoxysilane	
Class	3.3	
UN	1993	
Packing group	III	
EMS-number	3-07	
MFAG-number	SUBS. 4.2	
Label	3 (Flammable)	
Stowage Regulations	Passenger	CAT. A
	Cargo	CAT. A

14.3. ICAO

Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Technical description	Modified Vinyltrimethoxysilane
Class	3
Subsidiary risk	
UN	1993
Packing group	III
Label	3 (Flammable)
Passenger Packing	309 (Max quantities per package 220L)
Cargo Packing	310 (Max quantities per package 220L)

15. Regulatory Information

15.1. EC classification

Danger symbol(s) : Xn

Risk phrases : R10 Flammable
R20 Harmful by inhalation.
R38 Irritating to skin.

Safety phrases : S36/37 Wear suitable protective clothing and gloves. If swallowed seek medical advice immediately and show this container or label. Swallowed product will hydrolyse in the stomach and produce methanol, which is toxic. Do not store or stow at temperatures above 55℃.

Contains : Vinyltrimethoxysilane

16. OTHER INFORMATION

16.1. **Recommended uses and restrictions :** Please consult the product and/or application information bulletins for this product.

The opinions expressed herein are provided in the best of our knowlwdge. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and of these opinions and the conditions of use of this product are not within the control of Alchemix Pte Ltd, it is the user's obligation to determine the conditions of safe use of the products.