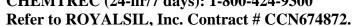


Section 1. Identification

Product Name: ROYALSIL HI-PURITY MTMO Product Use: Industrial Use Only. Used for coupling & crosslinking agent and surface modifier. Effective Date: 29 May 2019 Replaces: 12 November 2018 Supplier Information: ROYALSIL, Inc. 25 Lancelot Lane Mount Laurel, NJ 08054-1912 USA Emergency Phone Number: CHEMTREC (24-hr/7 days): 1-800-424-9300



Section 2. Hazard(s) Identification Emergency Overview: Clear to yellowish liquid. Causes skin irritation. Harmful to aquatic life. **GHS** Classification: **Skin Sensitization Category 1 Category 2** Acute aquatic toxicity **Chronic aquatic toxicity Category 2** Flammable liquid **Category 4** Acute toxicity (Oral) Category 4 **GHS Pictograms: GHS Label: WARNING POTENTIAL HEALTH EFFECTS: CODE OF HAZARD STATEMENTS: Physical Hazards** H227- Combustible liquid and vapor. **Health Hazards** H227- Combustible Liquid and vapor. H303- May be harmful if swallowed. H315- Causes skin irritation. H317- May cause an allergic skin reaction. **Environmental Hazards** H411- Toxic to aquatic life with long lasting effects. **CODE OF PRECAUTIONARY STATEMENTS:** General P101- Keep out of reach of children. P103- Read label before use.



Prevention Statements

P202- Do not handle until all safety precautions have been read and understood.

P210- Keep away from heat/sparks/open flames/hot surfaces. -NO SMOKING.

P242- Use non-sparking tools.

P262- Do not get in eyes, on skin or on clothing.

P264- Wash thoroughly after handling using this product.

P270- Do not eat, drink, or smoke when using this product.

P271- Use only outdoors or in a well-ventilated area.

P273- Avoid release to the environment.

P280- Wear protective gloves/protective clothing/eye protection/face protection.

Response Statements

P302- P352- IF ON SKIN (or hair): Wash with plenty water/soap.

P305- P310- P338- P351 - IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POSION CENTER or doctor/physician if you feel unwell.

P313- P333- If skin irritation or rash occurs: Get medical advice/attention.

P363- Wash contaminated clothing before reuse.

P370- P378- In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

P391- Collect spillage.

Storage

P235- P403- Store in well-ventilated place. Keep cool.

Disposal

P501- Dispose of contents/container to an approved waste disposal plant.

ROUTES OF ENTRY: Eye contact, skin adsorption, ingestion and inhalation.

CARCINOGENICITY: None.

Section 3. Composition/Information on Ingredients				
		1	1	
Ingredients	CAS No.	EINECS	%	Reach
		No.		No.
Mercaptopropyltrimethoxysilane	4420-74-0	224-588-5	<98.0%	No
2,2-dimethoxy-1-thia-2-silacyclopentane	26906-85-5	NA	<2 %	No

Section 4. First Aid Measures

General Advice: In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

Eye Contact: Flush eyes with water immediately while holding eyelids open. Remove contacts, if worn, after initial flushing and continue flushing for at least 15 minutes.

Seek medical attention if irritation persists.

Skin Contact: Use soap and water to remove from the skin, remove contaminated clothing, clean thoroughly before reuse. If irritation persists, contact a physician.



Inhalation: Move to fresh air. If not breathing, give rescue breathing. If breathing is difficult, give oxygen. Seek medical attention if breathing is still difficult. **Ingestion**: If swallowed, get medical attention immediately. DO NOT INDUCE VOMITING.

Never give anything by mouth to an unconscious person.

Note to Physician: Treat symptomatically and supportively.

Section 5. Fire Fighting Measures

Flash Point: 190.4°F (85°C) Combustible liquid

Flammability Limits: LEL: NE UEL: NE

Fire Fighting Media: Use foam, water spray, or carbon dioxide.

Special Fire Fighting Procedures: Eliminate all sources of ignition and ensure adequate ventilation. In case of fire cool endangered containers with water. First responders need to wear full-bunker gear with Self Contained Breathing Apparatus (SCBA), never enter a confined space unless fully protected with proper personal protective equipment (PPE).

Section 6. Accidental Release Measures

Use personal protective equipment, see section 8.

Clean-up Procedures: Avoid cutting the containers, ground to avoid explosive gases. Stop the source of the release if you are not put at risk. Use inert absorbent material (such as earth, diatomaceous earth, vermiculite) to absorb the spill, use non-sparking shovel to pick up absorbent for disposal. Assure sufficient ventilation.

Spills and Leaks: Dispose in accordance to local, state or Federal regulations.

Section 7. Handling and Storage

Handling: Provide good ventilation. Use non-sparking tools. Wear personal protective equipment, see section 8. Do not get into eyes, on skin and on clothing. Do not breathe vapors or mists. Use with adequate ventilation. Wash thoroughly after handling. **Storage**: Store in original labeled container. Keep in cool and dry areas.

Section 8. Exposure Controls/Personal Protection

Introductory Remarks: Use a local exhaust ventilation or other engineering controls to minimize airborne exposure. A safety shower and eye wash should be readily available. Mercaptopropyltrimethoxysilane permissible exposure limit (PEL) is 260 mg/m³.

Personal Protection:

Eyes: Wear safety goggles or face shield to prevent eye contact.

Body: Chemical apron, long sleeve shirts, long pants, socks, and rubber boots.

Hands: Chemical resistant gloves.

Respiratory: Wear an approved respirator that provides protection from this product if the airborne concentrations exceed the recommended exposure limits.





Section 9. Physical and Chemical Properties				
Physical State, Color,	Clear to yellowish	Freezing Point	-94°F (-70°C)	
Odor	liquid with ester odor			
Flash Point	190.4°F (85°C)	Boiling Point	190.4°F (85°C)	
Density(water=1)	1.06 g/ml @ 68°F	VOC Content	<5%	
	(20°C)			

Section 0 Develoal and Chamical Properties

Section 10. Stability and Reactivity

Chemical Stability: Considered stable under normal ambient temperatures. **Hazardous Decomposition:** In complete combustion, oxides of carbon and silicate are formed. **Hazardous Polymerization:** Will not occur.

Incompatibility- Materials to Avoid: Reacts with water, strong oxidizing agent & strong acids.

Section 11. Toxicological Information

Toxicology: Acute Oral LD_{50 (rat)} = > 933 mg/KG

Acute Dermal LD_{50 (rabbit)} = > 2,608 mg/KG

Skin Irritation: Mild.Eye Irritation: None.Reproductive Toxicity: None.Carcinogenic Effects: None.

Section 12. Ecological Information

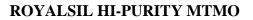
Excotoxicity: $LC_{50(Brach danio rerio)} = > 439 \text{ mg/L} (96 \text{ hour})$ $EC_{50(Daphnia)} = 6.7 \text{ g/L} (48 \text{ hour})$ Toxic to aquatic life with long lasting effects.

Section 13. Disposal Considerations

Waste Disposal Method: Whatever cannot be saved for recovery or recycling should be managed by the local, state or Federal Regulations.

Do not cut the metal drums with a torch.

Container Handling and Disposal: All containers should be triple rinsed and disposed of according to local, state and Federal regulations.





Section 14. Transport Information

Shipping Name: ROYALSIL HI-PURITY MTMO
Proper Shipping Description (Ground):
UN1993, Flammable liquid, N.O.S., (Mercaptopropyltrimethoxysilane, 2,2-dimethoxy-1-thia-2-silacyclopentane), 3, III
IATA: (Cargo aircraft only)
UN1993, Flammable liquid, N.O.S., (Mercaptopropyltrimethoxysilane, 2,2-dimethoxy-1-thia-2-silacyclopentane), 3, III
Use packing instruction 310. The maximum net quantity is 58.117 gallons (220 L).
IMO (Water):
UN1993, Flammable liquid, N.O.S., (Mercaptopropyltrimethoxysilane, 2,2-dimethoxy-1-thia-2-silacyclopentane), 3, III
UN1993, Flammable liquid, N.O.S., (Mercaptopropyltrimethoxysilane, 2,2-dimethoxy-1-thia-2-silacyclopentane), 3, III
UN1993, Flammable liquid, N.O.S., (Mercaptopropyltrimethoxysilane, 2,2-dimethoxy-1-thia-2-silacyclopentane), 3, III

Section 15. Regulatory Information

EPCRA 311/312 Categories:	Immediate (Acute) Health Effects:		
	Delayed (Chronic) Health Effects:	No	
	Fire Hazard:	Yes	
	Sudden Release of Pressure	No	
	Reactivity:	No	

Right to know classification: None are listed in the states of MA, NJ and PA.

TSCA: Mercaptopropyltrimethoxysilane, is on the TSCA active list.

Reportable Quantity (RQ): None.

Prop. 65: None.



WHMIS: Flammable and Combustible materials. These ingredients are listed in the DSL and NDSL list in Canada

Compounds are listed as chemical inventories of Australia, EU Japan, Korea, Philippines, United Kingdom and United States of America.



Abbreviations:

CAS #	Chemical Abstract Service Number			
°C Celsie	us Temperature Scale	°F	Fahrenheit Temperature Scale	
EINECS # European Inventory of Existing Chemical Substances Number				
hPa	hectopascal	LD_{50}	Lethal Dose Oral or Dermal	
LC50	Lethal Inhalation	LEL	Lower Explosive Limit	
UEL	Upper Explosive Limit	PEL	Permissible Exposure Limit	
PPE	Personal Protective Equipment	Prop.	Proprietary	
PSI	Pounds Per Square Inch	NA	Not Applicable	
ND	Not Determined	STEL	Short Term Exposure Limit	
TLV	Threshold Limit Value	TSCA	Toxic Substance Control Act	
TWA	Time Weighted Average	VOC	Volatile Organic Content	

Section 16. Other Information

Hazardous Material	
Information System	

National Fire Protection Association

HMIS		NFPA			
2	Health	2	Health		
2	Fire	2	Fire		
1	Reactivity	1	Instability		
Н	Personal Protection		NA		
Health Fire Reactivity/	$4 < 73 ^{\circ}C \qquad 3 <$	Extreme Danger (100 °C Explosive	 2 Dangerous 2 < 200 °C 2 Unstable 	1 Slight hazard 1 >200 °C 1 Normally stable	0 No hazard0 Will not burn0 Stable
Instability	i intraj detonato - 5 - 1		2 Chistable	i i contaity studie	0 54010

Prepared by: Dennis E. Belau

Reviewed by: Rosario A. Licciardello ROSARIO@ROYALSIL.com

This Safety Data Sheet (SDS) meets the requirements of the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200) this product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all information required by CPR.

This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief accurate and reliable as of the date compiled. However, no representation, warranty or guarantee, expressed or implied, is made as to its accuracy, reliability or completeness.



It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own use. We do not accept liability for any loss or damage that may occur from the use of this information.

Nothing herein shall be construed as a recommendation for uses which infringe on valid patents or as extending the license under valid patents. This SDS provides selected regulatory information on this product, including its components.

This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws related to the product being used.

DISCLAIMER

Strictly for Commercial or Research and Development use only. Not intended for drug, household or other noncommercial uses.

The use of "Qualitative Determinations of Organosilanes" is subject to many variables which can be environmentally or human caused which may allow the reading of results to be inaccurate.

The user of this information takes full responsibility in how these tests are performed and the seller in no way expressed, written or implied is responsible for the interpretation of the results. All use of these tests is the full responsibility of the user.

WARRANTY

The information above in the Safety Data Sheet is believed to be accurate and represents the best information currently available to ROYALSIL Inc and its supplier.

However, we make no warranty of merchantability or any other warranty, expressed 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 purposes. In no event shall ROYALSIL Inc. or its supplier 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, how so ever arising, even if ROYALSIL Inc and its supplier has been advised of the possibility of such damages. (REV: 9-4-16)