

Australian statement of hazardous nature : Classified as hazardous according to criteria of Safe Work Australia

Section 1 - Identification

Product Name REGISIL (BSTFA)/1% TMCS

CAS No 25561-30-2

Product Code REG270121, REG270122

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Recommended Use Laboratory chemicals.

Uses advised against This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list. This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern.

Section 2 - Hazard(s) Identification

Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

Physical hazards

Flammable liquids

Category 3

Health hazards

Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation

Category 1 B
Category 1

Environmental hazards

No hazards identified

Label Elements



Signal Word**Danger****Hazard Statements**

H226 - Flammable liquid and vapor

H314 - Causes severe skin burns and eye damage

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.

No smoking

P264 - Wash hands and face thoroughly after handling

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

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

P332 + P313 - If skin irritation occurs: Get medical advice/attention

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

Other information

No information available

This product does not contain any known or suspected endocrine disruptors

Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Trimethylsilyl 2,2,2-trifluoro-N-(trimethylsilyl)acetimidate	25561-30-2	97-99.5
Trimethylchlorosilane	75-77-4	0.5-3.0

Section 4 - First Aid Measures

Inhalation	Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Keep patient warm and at rest.
Ingestion	Rinse mouth with water and afterwards drink plenty of water or milk. Do not induce vomiting without medical advice. Call a physician immediately.
Skin Contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash off immediately with soap and plenty of water. In the case of skin irritation or allergic reactions see a physician.
Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician. If eye irritation persists: Get medical advice/attention.
General Advice	This material may cause corrosive injury to any body tissue upon contact. Do not attempt to neutralize as it frequently makes matters worse.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
First Aid Facilities	Eyewash, safety shower and washroom.
Most important symptoms and effects	. Burns or severe irritation to body tissues - pain, itching, tearing, redness, blurred vision, lens damage, blistering, difficult breathing, shortness of breath, burning sensation, cough, sore throat, abdominal pain, collapse, photophobia
Notes to Physician	Treat symptomatically.

Section 5 - Fire Fighting Measures

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam. Water may be ineffective.

Extinguishing media which must not be used for safety reasons

No information available.

Hazardous Decomposition Products

Carbon oxides, Silicon dioxide, Nitrogen oxides (NO_x), Hydrogen fluoride, Hydrogen chloride, hexamethyldisiloxane (flammable), trifluoroacetamide, hydrochloric acid.

Specific Hazards Arising from the Chemical

Flammable. Corrosive material. Burning produces obnoxious and toxic fumes. May intensify fire; oxidizer. Hydrolyzes readily on contact with water, but not violently so, to produce hexamethyldisiloxane (flammable) and trifluoroacetamide. TMCS can readily react with water to form corrosive hydrochloric acid. Chlorosilanes may cause re-ignition to occur. A fire guard should be posted during any clean up operation.

Special protective equipment and precautions for fire fighters

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

Section 6 - Accidental Release Measures

Emergency procedures

Avoid contact with skin, eyes and inhalation of vapors. Evacuate personnel to safe areas.

Advice for emergency responders

Put on breathing apparatus. Protective equipment: see section 8.

Environmental Precautions

Prevent product from entering drains.

Methods for Containment and Clean Up**Clean-up methods - small spillage**

Ventilate the area. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not expose spill to water. Neutralize with sodium bicarbonate or other suitable neutralizing agent. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

Clean-up methods - large spillage

Typically only supplied in small quantities as packaged goods.

If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

Section 7 - Handling and Storage

Precautions for Safe Handling

Handle and store contents under nitrogen. Protect from moisture. Contact with water or moist air may readily generate hexamethyldisiloxane (flammable) and trifluoroacetamide, and possibly corrosive hydrochloric acid. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking and explosion proof. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous.

Conditions for Safe Storage, Including any Incompatibilities

Store in tinted glass bottle under nitrogen, in a cool, dry place with adequate ventilation, in area suitable for flammables and corrosives. Separate from water, combustibles and flammable materials. Protect containers from rough handling where the

inside glass containers may be cracked or broken. Protect from light. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. May be stored refrigerated.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

Section 8 - Exposure Controls and Personal Protection

Exposure limits

The product does not contain any hazardous materials with occupational exposure limits established.

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Exposure Controls

Engineering Measures

Handle only in a place equipped with local exhaust (or other appropriate exhaust). Showers, eyewash stations, and ventilation systems.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection

Wear safety glasses with side shields (or goggles) (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

Hand Protection

Compatible chemical-resistant gloves for acidic corrosives such as hydrochloric acid.

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Disposable gloves	See manufacturers recommendations	-	AS/NZS 2161	(minimum requirement)

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.

(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection

Long sleeved clothing

Respiratory Protection

Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of respiratory protective devices (or AUS/NZ equivalent)
When RPE is used a face piece Fit Test should be conducted

Hygiene Measures

Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.

Environmental exposure controls

No information available.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance

Clear, colorless

Physical State

Liquid

Odor	Strong pungent	
Odor Threshold	No data available	
pH	No data available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	147 °C / 296 °F	
Flash Point	20 °C / 67 °F	Method - Tag closed cup
Evaporation Rate	<1 (Butyl acetate = 1.0)	
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Vapor Pressure	<1 mmHg @ 20°C	
Vapor Density	>1	(Air = 1.0)
Specific Gravity / Density	0.969 g/cm3	
Bulk Density	No data available	
Water Solubility	Yes. Hydrolyzes readily, but no violently, to produce hexamethyldisiloxane (flammable) and trifluoroacetamide. TMCS reacts readily with water or moist air to produce hydrochloric acid.	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Trimethylchlorosilane	3	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties	No information available	
Oxidizing Properties	No information available	
Other information		
Molecular Formula	C ₈ H ₁₈ F ₃ NOSi ₂ + 1% (CH ₃) ₂ SiCl	
Molecular Weight	257.40 (BSTFA) + 108.66 (TMCS)	
Refractive index	1.3840 (22°C) (BSTFA)	

Section 10 - Stability and Reactivity

Reactivity	Readily hydrolyzes in contact with water for form hexamethyldisiloxane (flammable) and trifluoroacetamide. While BSTFA is reacts with water, it does not do so violently. TMCS reacts readily with water or moist air to produce hydrochloric acid
Stability	Stable if stored under nitrogen and protected from moisture.
Conditions to Avoid	Incompatible products, Ignitions sources - heat, sparks and open flames, Keep out of water supplies and sewers.
Incompatible Materials	Protect from light, Heat, Strong acids, Strong oxidizing agents, Alcohols, Peroxides, Alkaline, Compounds with liable or active hydrogen, Water, moisture, or humid air—readily hydrolyzes, but not violently, to hexamethyldisiloxane (flammable) and trifluoroacetamide and may produce hydrochloric acid.
Hazardous Decomposition Products	Carbon oxides. Silicon dioxide. Nitrogen oxides (NOx). Hydrogen fluoride. Hydrogen chloride. hexamethyldisiloxane (flammable), trifluoroacetamide, hydrochloric acid.
Hazardous Polymerization	No information available.

Section 11 - Toxicological Information

Information on Toxicological Effects

(a) acute toxicity;

Oral

Not available for mixture or BSTFA.

TMCS: oral rat LD50 5660uL/kg

Dermal

Not available for mixture or BSTFA.

TMCS: skin rabbit LD50 1780uL/kg

Inhalation

Not available for mixture or BSTFA.

TMCS: inhal rat LC50 3000ppm/1H;

TMCS: inhal mus LCLo 500mg/m³/10M

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Trimethylchlorosilane	100-300 mg/kg (Rat)	LD50 = 1500 mg/kg (Rabbit)	LC50 = 12.9 mg/L (Rat) 1 h

(b) skin corrosion/irritation;

Mixture of BSTFA + 1% TMCS - Corrosive range (DOT/IATA PG II) - Corrositex(r)

TMCS: skn rbt 500 uL mod

Test species

rabbit skin

(c) serious eye damage/irritation;

Not available for mixture or BSTFA.

TMCS: eye rbt 5uL mod

Test species

rabbit eye

(d) respiratory or skin sensitization;

Respiratory

No data available

Skin

No data available

(e) germ cell mutagenicity;

No data available

(f) carcinogenicity;

No data available

Not available for mixture or BSTFA. TMCS: Some studies have shown that TMCS may induce certain types of cancers.

(g) reproductive toxicity;

No data available

(h) STOT-single exposure;

No data available

(i) STOT-repeated exposure;

No data available

Target Organs

No information available.

(j) aspiration hazard;

No data available

Symptoms / effects, both acute and delayed

Burns or severe irritation to body tissues - pain, itching, tearing, redness, blurred vision, lens damage, blistering, difficult breathing, shortness of breath, burning sensation, cough, sore throat, abdominal pain, collapse, photophobia

Section 12 - Ecological Information

Ecotoxicity effects

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Trimethylchlorosilane	LC0 >=1000 mg/L Danio rerio 96h			

Persistence and Degradability
Bioaccumulative Potential

No information available

No information available

Component	log Pow	Bioconcentration factor (BCF)
Trimethylchlorosilane	3	No data available

Mobility	No information available.
Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors
Persistent Organic Pollutant	This product does not contain any known or suspected substance
Ozone Depletion Potential	This product does not contain any known or suspected substance

Section 13 - Disposal Considerations

Waste from Residues/Unused Products	Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.
Contaminated Packaging	Empty remaining contents. Dispose of in accordance with local regulations. Do not re-use empty containers.
Other Information	Chemical wastes should be disposed through a licensed commercial waste collection service.

Section 14 - Transport Information

IMDG/IMO

UN-No	UN 2920
Proper Shipping Name	Corrosive liquids, flammable, n.o.s., (trimethylchlorosilane, bis(trimethylsilyl)trifluoroacetamide).
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	II

ADG

UN-No	UN 2920
Proper Shipping Name	Corrosive liquids, flammable, n.o.s., (trimethylchlorosilane, bis(trimethylsilyl)trifluoroacetamide).
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	II

Component	Hazchem Code
Trimethylchlorosilane 75-77-4 (0.5-3.0)	4WE

IATA

UN-No	UN 2920
Proper Shipping Name	Corrosive liquids, flammable, n.o.s., (trimethylchlorosilane, bis(trimethylsilyl)trifluoroacetamide).
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	II

Environmental hazards	No hazards identified
Special Precautions	No special precautions required
Additional information	None known

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National Regulations

Australia

See section 8 for national exposure control parameters.

Standard for the Uniform Scheduling of Medicines and Poisons

No poison schedule number allocated.

Australian Industrial Chemicals Introduction Scheme (AICIS)

Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
Trimethylchlorosilane - 75-77-4	Present	-

Australian - Illicit Drug Precursors/Reagents Substance List

This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

Chemicals of Security Concern

This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

National pollutant inventory

Not applicable

Prohibition or notification/licensing requirements

Shown below are details of specific prohibition/notifications or licencing requirements when they apply.

This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction.

International Inventories

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	ISHL	IECSC	KECL
Trimethylsilyl 2,2,2-trifluoro-N-(trimethylsilyl)acetimidate	-	X	247-103-9	-	-	-	-	-	X		X	-
Trimethylchlorosilane	X	X	200-900-5	-	X	X	-	X	X	X	X	KE-05939

Legend: X - Listed. '-' - Not Listed. **KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

International Regulations

Ozone Depletion Potential

This product does not contain any known or suspected substance

Persistent Organic Pollutant

This product does not contain any known or suspected substance

Rotterdam Convention (PIC)

Not applicable

Basel convention on the control of transboundary movements of hazardous wastes and their disposal
Not applicable.

Component	CAS No	OECD HPV	Restriction of Hazardous Substances (RoHS)	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Trimethylsilyl 2,2,2-trifluoro-N-(trimethylsilyl)acetimidate	25561-30-2	Not applicable	Not applicable	Not applicable	Not applicable
Trimethylchlorosilane	75-77-4	Listed	Not applicable	Not applicable	Not applicable

Authorisation/Restrictions according to EU REACH

Not applicable

Section 16 - Other Information

Legend

AICS - Australian Inventory of Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - Chinese Inventory of Existing Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
NZS 5433:2020 - Transport of Dangerous Goods on Land
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
WEL - Workplace Exposure Limit
DNEL - Derived No Effect Level
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative
VOC - (Volatile Organic Compound)

NZIoC - New Zealand Inventory of Chemicals
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
CAS - Chemical Abstracts Service
ACGIH - American Conference of Governmental Industrial Hygienists
PNEC - Predicted No Effect Concentration
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
ADG - Australian Code for the Transport of Dangerous Goods by Road and Rail
OECD - Organisation for Economic Co-operation and Development
LC50 - Lethal Concentration 50%
ATE - Acute Toxicity Estimate
RPE - Respiratory Protective Equipment
NOEC - No Observed Effect Concentration
BCF - Bioconcentration factor
PBT - Persistent, Bioaccumulative, Toxic

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>
 Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Revision Date

14-Jul-2023

Revision Summary

Update to GHS format.

This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet