



8210 N. Austin Avenue, Morton Grove, IL 60053-3205, U.S.A.  
 847-967-6000 800-323-8144  
 (Monday - Friday: 7:30 a.m. - 4:00 p.m. CST)

**Emergency Contact:**  
 INFOTRAC 800-535-5053 [U.S.A.]

Name: REGISIL (BSTFA)/10% TMCS  
 Code: 1-270003-500, 1-270130-200, 1-270131-200, 1-270132-200, 1-270133-200, 1-270134-200, 1-270135-200

**SAFETY DATA SHEET**

**SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY**

- 1.1 Product Identifier
  - Name REGISIL (BSTFA)/10% TMCS
  - Code 1-270003-500, 1-270130-200, 1-270131-200, 1-270132-200, 1-270133-200, 1-270134-200, 1-270135-200
- 1.2 Use of Substance/Mixture
  - Use Analytical Reagent—GC Derivatization; Silylation Reagent
- 1.3 Details of Manufacturer/Supplier
  - Company Regis Technologies, Inc.  
 8210 N. Austin Avenue  
 Morton Grove, IL 60053  
 847-967-6000; 800-323-8144 (toll free)  
 Email: cservice@registech.com  
 www.registech.com
- 1.4 Emergency Telephone
  - INFOTRAC 800-535-5053 [U.S.A.]

**SECTION 2 HAZARDS IDENTIFICATION**

- 2.1 Classification of the Substance or Mixture
  - GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
  - Physical Hazards
    - Highly Flammable Liquid Category 2 H225
    - Substances and mixtures which in contact with water emit flammable gases Category 3 H261
  - Health Hazards
    - Skin Corrosion / Irritation Category 1B H314
    - Serious Eye Damage / Irritation Category 1 H318
  - Environmental Hazards - Not classified

GHS Label Elements  
 Pictograms or hazard symbols



Signal Word Danger

Hazard Statement
 

- H225 Highly flammable liquid and vapor.
- H314 Causes severe skin burns and eye damage.
- H261 In contact with water releases flammable gases

Precautionary Statements
 

- [Prevention] P210 – Keep away from heat and hot surfaces.  
 P264 – Wash thoroughly after handling.  
 P280 – Wear protective gloves/protective clothing/eye protection/face protection.
- [Response] P302+P352 – IF ON SKIN: Wash with plenty of water.  
 P305+P351+P338 – IF IN EYES: Rinse cautiously with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing.  
 PP313+P332+P337 – Get medical advice/attention if skin or eye irritation persists  
 P403+P235 –Store in a well-ventilated place. Keep cool.

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**SECTION 3..... COMPOSITION / INFORMATION ON INGREDIENTS.....**

Name REGISIL (BSTFA)/10% TMCS  
 Synonyms Bis(trimethylsilyl)trifluoroacetamide + 10% Trimethylchlorosilane; REGISIL RC-3;  
 Trimethylsilyl 2,2,2-trifluoro-N-(trimethylsilyl)acetimidate + 10% Chlorotrimethylsilane

Hazardous components

| Component  | Classification  | Concentration wt |
|--|---|------------------|
| Trimethylsilyl 2,2,2-trifluoro-N-(trimethylsilyl)acetimidate<br>CAS No. 25561-30-2<br>EC No. 247-103-9 | Flam. Liq. 3; Skin Irr. 2A; Eye Irr. 2;<br>STOT-SE 3; H226, H315, H319; H335  | 85-95.0 %        |
| Chlorotrimethylsilane<br>CAS No. 75-77-4<br>EC No. 200-900-5   | Flam. Liq. 2; Acute Tox. 3;<br>Acute Tox. 4; Acute Tox. 3;<br>Skin Corr. 1A; Eye Dam. 1; H225,<br>H261, H301 + H331, H312, H314 | 5-15.0 %         |

For full test of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4..... FIRST AID MEASURES .....**

- 4.1 Description of first aid measures  
 General: This material may cause corrosive injury to any body tissue upon contact. Do not attempt to neutralize as it frequently makes matters worse.  
 Inhalation: Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and keep person warm and at rest. Consult physician.  
 Skin contact: Immediately remove contaminated clothing and shoes, then wash skin with soap and plenty of water. If irritation persists or burns occur, consult physician.  
 Eye contact: Rinse eyes with plenty of water for at least 15 minutes; lift eyelids occasionally. If irritation persists or burns occur, consult physician.  
 Ingestion: Give large amounts of water or milk (maximum two glasses). Avoid vomiting. Consult physician immediately.
- 4.2 Most important symptoms and 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.*
- 4.3 Indication of immediate medical attention and special treatment needed.  
 No information available.

**SECTION 5..... FIRE-FIGHTING MEASURES.....**

- 5.1 Suitable Extinguishing Media  
 Carbon dioxide, dry chemical powder, dry sand, foam.  
 Water may be effective for cooling, but may not effect extinguishment for large fires.
- 5.2 Specific hazards arising from the chemical.  
 Highly flammable and corrosive liquid and vapor.  
 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.**  
 Exposure to oxidizers or acids could start or accelerate fire conditions.  
 Emits toxic fumes under fire conditions: carbon oxides, silicon oxides, nitrogen oxides, hydrogen fluoride, hydrogen chloride

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5.3 Advice for fire-fighters  
 Wear personal protective equipment for flammable organic/acid vapor conditions.

**SECTION 6 ACCIDENTAL RELEASE MEASURES** .....

6.1 Personal precautions, protective equipment, and emergency procedures  
 For non-emergency personnel – Avoid material contact or inhalation of flammable or corrosive mists. Evacuate unnecessary personnel from area.

For emergency responders – Wear protective clothing corrosive and flammable conditions to prevent contact with skin and eyes. Avoid breathing mists. Wear NIOSH/MSHA approved respirator for organic/acid gas, dust, and mists to prevent inhalation. See Section 8.3.

6.2 Environmental precautions  
 Prevent material from entering drains.

6.3 Methods of clean up  
 Evacuate unnecessary people from area. Isolate spilled material.  
 Ventilate area. Eliminate all ignition sources. Use spark proof tools.  
 Keep away from water. 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.  
 Contain and recover material when possible. Neutralize with sodium bicarbonate or other suitable neutralizing agent.  
 If neat or in solution, mix with sand or similar inert adsorbent material or spill pillow.  
 Sweep up, if not absorbed in pillow, seal in appropriate hazardous waste container, and hold for proper waste disposal.  
 Keep out of water supplies and sewers. Wash spill site after material pickup is complete.

**SECTION 7 HANDLING AND STORAGE** .....

7.1 Precautions for Safe Handling  
*Observe precautions in Section 2.*  
 Wear suitable protective equipment for flammables and corrosives to avoid contact with or inhalation of liquids or vapors.  
 Handle 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 containers or use inert gas purge when transferring or handling material. Use spark proof tools and explosion proof equipment. Empty containers retain product residue, (liquid/vapor), and can be dangerous.

7.2 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.  
 Protect from light and heat. May be stored refrigerated.  
 Store away from incompatible materials (See Section 10.).

**SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION** .....

8.1 Control parameters  
 Exposure limits TMCS or Trimethylchlorosilane (75-77-4) –  
 OSHA – PEL or ACGIH – TLV: No limits established.  
 Dow Corning Guide – Ceiling Limit 5 ppm (7 mg/m<sup>3</sup>)  
 Note: Hydrogen chloride [5ppm-(OSHA – PEL and NIOSH-REL); 2ppm (ACGIH – TLV)] is formed on contact with humid air or water  
 Environmental Do not empty into drains.

8.2 Appropriate engineering controls  
 Handle in accordance with good industrial hygiene and safety practice. Safety shower and eye wash.  
 Local exhaust and mechanical ventilation required. Hood recommended. Use adequate general and/or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Fume scrubber.

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- 8.3 Personal protection
- Eye/Face Tightly fitting safety glasses or safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US).
  - Hand Compatible chemical-resistant gloves for acidic corrosives such as hydrochloric acid.
  - Respiratory If exposure to mist or vapors likely: NIOSH/MSHA (US) approved respirator for organic/acid vapor and mists.
  - Dermal (not hand) Protective Clothing (e.g., lab coat)
  - Hygiene Avoid inhalation, ingestion; contact with eyes, skin, and clothing; Avoid prolonged or repeated exposure. Remove contaminated clothing and discard contaminated footwear. Wash thoroughly after handling.

**SECTION 9 ..... PHYSICAL AND CHEMICAL PROPERTIES .....**

9.1 Information on physical and chemical data

|  |  |               |
|--|--|---------------|
| Chemical Formula                                 | C <sub>8</sub> H <sub>18</sub> F <sub>3</sub> NOSi <sub>2</sub> + 10% (CH <sub>3</sub> ) <sub>2</sub> SiCl   |               |
| Molecular Weight                                 | 257.40 (BSTFA) + 108.66 (TMCS)   |               |
| Form   | liquid   |               |
| Appearance                                       | clear, colorless   |               |
| Odor   | strong, pungent odor   |               |
| Odor threshold                                   | Not available  |               |
| pH   | Not available  |               |
| Melting/freezing point                           | Not available  |               |
| Boiling point:                                   | 45-50°C (113-112°F) at 19 hPa (14 mmHg) - lit.   |               |
| Flammability (liquid)                            |  |               |
| Flash Point                                      | -9°C; 16°F;  | Method: tcc   |
| Flammable limits (%v/v)                          | UEL (upper explosive limit)  | Not available |
|  | LEL (lower explosive limit)  | Not available |
| Autoignition temperature                         | Not available  |               |
| Decomposition temperature                        | Not available  |               |
| OSHA Flammability Class                          | IB   |               |
| Evaporation Rate (BuAc = 1.0)                    | <1   |               |
| Vapor pressure (mmHg)                            | <1 (20°C)  |               |
| Vapor density (air=1):                           | >1   |               |
| Relative density (g/cm <sup>3</sup> )            | 0.969  |               |
| Water Solubility/Reactive                        | 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 (other)                               | Not available  |               |
| Partition coefficient: N-octanol/water           | Kow (Pow) = Not available  |               |
| Viscosity  | Not available  |               |
| Refractive Index (n <sub>D</sub> <sup>20</sup> ) | 1.3840 (22°C) (BSTFA)  |               |

**SECTION 10 ..... STABILITY AND REACTIVITY .....**

- 10.1 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.
- 10.2 Chemical Stability  
 Stable if stored under nitrogen and protected from moisture.
- 10.3 Possibility of hazardous reactions  
 Highly flammable liquid and vapor—protect from heat and ignition sources.
- 10.4 Conditions to avoid

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Avoid incompatibilities.

Protect from static, heat, flames, sparks, and ignition sources. Keep out of water supplies and sewers.

10.5 Incompatible materials

Heat, light

Strong acids, strong oxidizers, alcohols, peroxides, alkalis, and 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.

10.6 Hazardous decomposition products

Combustion carbon oxides, silicon oxides, nitrogen oxides, hydrogen fluoride, hydrogen chloride

Decomposition hexamethyldisiloxane (flammable), trifluoroacetamide, hydrochloric acid

**SECTION 11 ..... TOXICOLOGICAL INFORMATION.....**

11.1 Toxicological Information

Acute toxicity

Oral LD50

Not available for mixture or BSTFA.

TMCS: orl rat LD50 5660uL/kg

Inhalation LC50

Not available for mixture or BSTFA.

TMCS: ihl rat LC50 3000ppm/1H;

TMCS: ihl mus LCLo 500mg/m3/10M

Dermal LD50

Not available for mixture or BSTFA.

TMCS: skn rbt LD50 1780uL/kg

Other acute toxicity

Not available for mixture or BSTFA.

Skin corrosion/irritation

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

TMCS: skn rbt 500 uL mod

Serious eye damage/irritation

Not available for mixture or BSTFA.

TMCS: eye rbt 5 uL mod

Respiratory irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC

No data available.

NTP

No data available

OSHA

No data available

Other

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

Reproductive toxicity

No data available

(Including teratogenicity)

Specific target organ toxicity (STOT)

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Aspiration hazard

No data available

RTECS Number

Not available for mixture or BSTFA. RTECS number for TMCS is VV2710000.

11.2 Further Information

Potential health effects

Eye

Can cause eye burns, lacrimation, and destruction of mucous membranes.

Skin

Can cause severe irritation, dryness, and skin burns.

Inhalation

Can be extremely destructive to mucous membranes and respiratory tract.

Symptoms: coughing, shortness of breath, difficulty breathing, headache.

Ingestion

Can be very destructive if in contact with mucous membranes of the GI system.

Symptoms

See above route. Pre-existing conditions that may be aggravated: not determined.

Miscellaneous

No data available.

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**SECTION 12 ..... ECOLOGICAL INFORMATION.....**

12.1 Ecotoxicity No data available for this product.  
 Toxicity to Bacteria TMCS: *Water danger/protection*: WGH Salmonella typhimurium TA97, TA98, TA100, TA1353, TA1537 without metabolic activation positive.  
 TMCS: *Aquatic toxicity*: Tlm96: 100-10 ppm.  
 12.2 Persistence and degradability No data available for this product.  
 12.3 Bioaccumulative potential BCF = No data available for this product.  
 12.4 Motility in soil Log Kow = No data available for this product.  
 12.5 Other adverse effects No data available for this product.

**SECTION 13 ..... DISPOSAL CONSIDERATIONS.....**

13.1 Disposal methods  
 U . S. EPA Waste Codes D001, D002, D003  
 Waste Characterization RCRA Hazard Class (40CFR 261): Ignitable, Corrosive, Reactive  
 (per U. S. regulations) Generator is responsible for proper waste characterization. NOTE: U. S. Federal and state hazardous waste regulations may differ considerably.  
 Waste Disposal That which cannot be recovered or recycled, should be disposed of in accordance with all applicable international, national, regional, state, and local laws. Do NOT dump into any sewer, on ground, or into any body of water.

**SECTION 14 ..... TRANSPORT INFORMATION .....**

14.1 UN number UN 2920  
 14.2 UN proper shipping name Corrosive liquids, flammable, n.o.s., (trimethylchlorosilane, bis(trimethylsilyl)trifluoroacetamide).  
 14.3 Transport Hazard Class 8+3  
 14.5 Packing group PG II  
 14.6 Environmental hazards Not applicable  
 14.6 Special precautions for user See Section 8 for exposure/personal protection guidance.

**SECTION 15 ..... REGULATORY INFORMATION.....**

15.1 Safety, health and Environmental regulations specific for the product in question.  
 NFPA: H3 F3 R1 W (avoid water) HMIS: H3 F3 R1

15.2 Chemical Inventory Lists

*Reviews, Standards, and Regulations*

|  |            |             |                          |
|--|------------|-------------|--------------------------|
|  | BSTFA      | TMCS        | REGISIL (BSTFA)/10% TMCS |
| CAS Number   | 25561-30-2 | 75-77-4     | NE                       |
| TSCA:  | NL         | Y           | NL                       |
| <i>RC-3 is sold strictly for research and development use, however, some components may be listed on TSCA Inventory.</i> |            |             |                          |
| EINECS:  | Y          | Y           | NL                       |
| Number   | 247-102-9  | 200-900-5   | NL                       |
| CERCLA [Section 103 (40 CFR 302.4)]:   | NL         | NL          | NL                       |
| RQ (lbs)   | NA         | NA          | NA                       |
| RCRA Waste Code  | D001,D002  | D001,D002   | D001,D002                |
|  |            | D003        |                          |
| OSHA Process Safety [29 CFR 1910.119]:   | NL         | NL          | NL                       |
| TQ (lbs)   | NA         | NA          | NA                       |
| State Lists:   | NL         | Y           | NL                       |
| States   | NL         | NJ,FL,PN,MA | NL                       |
| On CA 65 Significant Risk Level  | NL         | NL          | NL                       |

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*Reviews, Standards, and Regulations*

|   | BSTFA      | TMCS    | REGISIL (BSTFA)/10% TMCS |
|---|------------|---------|--------------------------|
| CAS Number                                      | 25561-30-2 | 75-77-4 | NE                       |
| SARA Title III Notification [40 CFR 302.4]:     |            |         |                          |
| Section 302/304 (EHS) Ingredient [40 CFR 355.3] | NL         | Y       | NL                       |
| TPQ (lbs)                                       | NA         | 1,000   | NA                       |
| RQ (lbs)  | NA         | 1,000   | NA                       |
| Section 313 Ingredient [40 CFR 372.65]          | NL         | Y       | NL                       |
| SARA Hazards                                    |            |         |                          |
| Acute   | N          | Y       | N                        |
| Chronic   | N          | N       | N                        |
| Fire  | Y          | Y       | Y                        |
| Pressure  | N          | N       | N                        |
| Reactivity                                      | N          | Y       | Y                        |

**SECTION 16 OTHER INFORMATION**

16.1 Full test of H-Statements referred to under Section 2 and 3.

|            |  |
|------------|--|
| Acute Tox. | Acute toxicity                                   |
| Eye Dam.   | Serious eye damage                               |
| Eye Irr.   | Eye Irritant                                     |
| Flam. Liq. | Flammable liquids                                |
| H225       | Highly flammable liquid and vapour.              |
| H226       | Flammable liquid and vapour.                     |
| H261       | In contact with water releases flammable gases.  |
| H301+ H331 | Toxic if swallowed or if inhaled                 |
| H312       | Harmful in contact with skin.                    |
| H314       | Causes severe skin burns and eye damage.         |
| H315       | Causes skin irritation.                          |
| H319       | Causes severe eye irritation                     |
| H335       | May cause respiratory irritation.                |
| Skin Corr. | Skin corrosion.                                  |
| Skin Irr.  | Skin Irritant                                    |
| STOT-SE    | Specific Target Organ Toxicity – Single Exposure |

The above information is believed to be correct to the best of our present state knowledge, but does not purport to be all-inclusive and shall be used only as a guide. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

**Prepared by: Regis Technologies**

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