

Safety Data Sheet
Polyether Amine T-5000

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name: Polyether Amine T-5000

Synonym(s): Glycerol tris[poly(propylene glycol), amine terminated] ether; Poly(oxy(methyl-1,2-ethanediyl)), alpha,alpha',alpha"-1,2,3-propanetriyltris(omega-(2-aminomethylethoxy)-); Poly[oxy(methyl-1,2-ethanediyl)], 1,2,3- propanetriyltris(2-aminomethylethoxy)

1.2 Relevant identified uses of the substance or mixture and uses advised against

General use: Industrial and laboratory applications

Uses advised against: None specified

1.3 Details of the supplier and of the safety data sheet

Manufacturer/Distributor

Silver Fern Chemical, Inc.
2226 Queen Anne Avenue North, Suite C
Seattle, WA 98109 USA
1-866-282-3384
Website - www.silverfernchemical.com; email address - info@silverfernchemical.com

1.4 Emergency telephone number

+1-800-535-5053; Outside USA & Canada +1-352-323-3500

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Product definition: Mixture

Classification in accordance with 29 CFR 1910 (OSHA HCS) and Regulation EC No. 1272/2008

Skin Irritation - Category 2 [H315]

Eye Damage - Category 1 [H318]

Aquatic Toxicity, Chronic - Category 3 [H412]

2.2 Label elements

Hazard symbol(s):



GHS05

Signal word:

Danger

Hazard statement(s):

H315 - Causes skin irritation
H318 - Causes serious eye damage
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements

[Prevention]

P264 - Wash hands and other exposed skin areas thoroughly after handling.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing and eye protection.

[Response]

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
P321 - Specific treatment: Contact a POISON CENTER or doctor. Refer to Section 4 of this SDS.
P332 + P313 - If skin irritation occurs: Get medical attention.
P362 - Take off contaminated clothing and wash before reuse.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

None as defined under 29 CFR 1910.1200.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

| % by Weight | Ingredient | CAS Number | EC Number | Index Number | GHS Classification |
|-------------|---|------------|-----------|--------------|--------------------|
| ≤ 100 | Glycerol tris[poly(propylene glycol), amine terminated] ether | 64852-22-8 | 613-700-1 | ----- | H315, H318, H412 |

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identify and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with the applicable provisions of paragraph (i).

There are no additional ingredients present in this product which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

3.2 Mixtures

Not applicable

SECTION 4 – FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: If product mist or vapor causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. If unconscious, maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If irritation persists or if the victim feels unwell, seek medical attention.

Eyes: Immediately flush eyes with large amounts of water or saline solution for at least 20 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do, after first 2 minutes and continue rinsing. Seek immediate medical attention, preferably from an ophthalmologist.

Skin: Flush skin with large amounts of water while removing contaminated clothing. Wash the affected area with soap and water followed by thorough rinsing. Wash contaminated clothing and shoes before reuse. If irritation persists or if the victim feels unwell, seek medical attention.

Ingestion: Rinse mouth with water if the victim is conscious. Remove dentures if present. Give 1 - 2 cups of water to drink if the victim is conscious, alert, able to swallow and not having breathing difficulty. DO NOT induce vomiting unless directed to do so by medical personnel. Vomiting may occur spontaneously. To prevent aspiration of material into the lungs, lay the victim on one side with the head lower than the waist. Never give anything by mouth to an unconscious or convulsing person. Do not leave the victim unattended. Seek immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Potential health symptoms and effects

Eyes: Causes severe eye irritation and serious eye damage. Symptoms may include inflammation, swelling, pain, tearing and blurred vision. May cause permanent eye and tissue damage. Risk of blindness! Mist or spray can cause serious eye irritation.

Skin: Causes skin irritation with localized redness, itching and discomfort.

Inhalation: Vapor or mist causes irritation of the upper respiratory tract. May cause headache, sore throat, cough and shortness of breath. May be harmful if inhaled.

Ingestion: Causes irritation of the digestive tract with headache, nausea, vomiting, abdominal pain and diarrhea. Harmful if swallowed.

Chronic: Persons with pre-existing skin disorders and respiratory impairment may be more susceptible to the effects of this substance.

4.3 Indication of any immediate medical attention and special treatment needed

Advice to doctor and hospital personnel

Treat symptomatically and supportively.

SECTION 5 – FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable methods of extinction: Use extinguishing media such as dry chemical, carbon dioxide, alcohol-resistant foam, water spray or water fog.

Unsuitable methods of extinction: Water jets or streams can spread the fire.

5.2 Special hazards arising from the substance or mixture

Closed containers may rupture due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Obtain medical attention.

Explosion hazards: This product is not considered to be an explosion hazard.

5.3 Advice to firefighters

Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. Water contaminated by this material must be contained from being discharged to any waterway, sewer or drain to prevent environmental contamination.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate non-essential personnel. Wear appropriate protective clothing and equipment designated in Section 8.2. Ventilate the area. Remove all sources of ignition. NO SMOKING. Clean up spills immediately. Spill creates a slip hazard.

6.2 Environmental precautions

Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements.

6.3 Methods and materials for containment and cleaning up

Approach spill from upwind direction. DO NOT FLUSH SPILL DOWN THE DRAIN. Cover drains and contain spill. Cover spill with a large quantity of inert absorbent. Do not use combustible material such as sawdust. Collect material using non-sparking tools and place into an approved container for proper disposal. Observe possible material restrictions (Sections 7.2 and 10.5). Do not allow material or runoff from rinsing contaminated areas to enter floor drains or storm drains and ditches that lead to waterways. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

For indications about waste treatment, see Section 13.

SECTION 7 – STORAGE AND HANDLING

7.1 Precautions for safe handling

Wear all appropriate personal protective equipment specified in Section 8.2. Do not get in eyes or on skin or clothing. NO SMOKING. Do not breathe vapor or mist. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator. Wash contaminated clothing and shoes thoroughly after use.

Advice on protection against fire and explosion

This material is not considered to be a fire or explosion hazard.

7.2 Conditions for safe storage, including any incompatibilities

Store in a dry, well-ventilated area away from incompatible materials (see Section 10.5), food and drink. Do not store near acids. Do not store in direct sunlight. Transfer only to approved containers having correct labeling. Keep container tightly closed when not in use. Protect containers from physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Containers of this material are hazardous when empty as they contain product residues. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Keep out of reach of children.

7.3 Specific end uses

Apart from the uses mentioned in Section 1.2, no other specific uses are stipulated.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Engineering measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable. Refer to Section 7.1.

Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.

Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.

Eye/face protection: Wear protective splash goggles or safety glasses with unperforated side shields during use. A face shield is recommended if splashing is anticipated during use.

Hand protection: Wear gloves recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period.

Skin protection: Wear protective clothing, if needed. Wear protective boots if the situation requires.

Respiratory protection: Always use an approved respirator when vapor/aerosols exceed permissible exposure limits. Where risk assessment shows air-purifying respirators are appropriate use a half-mask respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Follow OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

Environmental exposure controls: Do not empty into drains.

PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean fit and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection



SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|------------------------|-------------------------|
| Appearance | Clear, colorless liquid |
| Odor | Ammoniacal |
| Odor Threshold | No data available |
| Molecular Weight | No data available |
| Chemical Formula | No data available |
| pH | 11.2 |
| Freezing/Melting Point | No data available |

| | |
|--|--------------------------------|
| Boiling Point | No data available |
| Evaporation Rate | No data available |
| Flammability (solid, gas) | Not applicable |
| Flash Point | 213 °C (415.4 °F) PMCC |
| Autoignition Temperature | No data available |
| Decomposition Temperature | No data available |
| Lower Explosive Limit (LEL) | No data available |
| Upper Explosive Limit (UEL) | No data available |
| Vapor Pressure | < 0.01333 hPa [literature] |
| Vapor Density | > 1 [Air = 1] |
| Relative Density | 1 [literature] |
| Viscosity, Kinematic | 819 mm ² /s @ 25 °C |
| Solubility in Water | Insoluble |
| Partition Coefficient (n-octanol/water) | No data available |
| Oxidizing Properties | Not applicable |
| Explosive Properties | Not applicable |
| Volatiles by Weight @ 21 °C | No data available |

9.2 Other Data

No data available

SECTION 10 – STABILITY AND REACTIVITY

10.1 Reactivity

This material is stable under normal handling conditions and use.

10.2 Chemical Stability

This material is stable under recommended storage conditions. Do not store in direct sunlight.

10.3 Possibility of hazardous reactions

Reacts violently with acids. Hazardous polymerization will not occur.

10.4 Conditions to avoid

Temperature extremes, direct sunlight, contact with incompatible materials

10.5 Incompatible materials

Strong oxidizing agents, acids

10.6 Hazardous decomposition products

Thermal decomposition products include oxides of carbon, nitrogen oxides (NO_x) and ammonia.

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity

LD₅₀, rat: 2,690 mg/kg

Acute inhalation toxicity

No data available

Acute dermal toxicity

LD₅₀, rat: > 12,500 mg/kg

Skin irritation

Causes skin irritation.

Eye irritation

Causes serious eye damage. Risk of blindness!

Sensitization

No data available

Carcinogenicity

No data available

Germ cell mutagenicity

No data available

Reproductive toxicity

No data available

Specific organ toxicity - single exposure

May cause respiratory irritation.

Specific organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available



Marine Pollutant

11.2 Further information

This product contains no substances present at levels greater than or equal to possible, potential or confirmed carcinogens by ACGIH, IARC, NTP or OSHA. This product, nor is there any available data that indicates that it causes adverse effects (de minimis) that are identified as a probable, possible, or suspected carcinogen regarding the mutagenicity or teratogenicity of fertility effects.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12 - ECOLOGICAL INFORMATION**12.1 Toxicity**

This material is harmful to aquatic life with long lasting effects. Report spills or large discharges to respective regulatory agencies.

Toxicity to fish: LC₅₀ - Oncorhynchus mykiss (Rainbow trout), 96 h: 68 mg/l

12.2 Persistence and degradability

This material is not readily biodegradable.

12.3 Bioaccumulation potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other effects**Additional ecological information**

Do not allow material to run into surface waters, wastewater or soil.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13 – DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Methods of disposal: The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

RCRA F-Series: No listings above the reportable threshold (de minimis)

RCRA U-Series: No listings above the reportable threshold (de minimis)

SECTION 14 – TRANSPORTATION INFORMATION

Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

| | |
|--|--|
| USA DOT (Ground Transportation) | NOT REGULATED FOR TRANSPORT |
| IMO/IMDG (Water Transportation) | |
| Proper Shipping Name | Environmentally hazardous substances, liquid, n.o.s. (Glycerol tris[poly(propylene glycol), amine terminated] ether) |
| Hazard Class | 9 |
| UN | UN3082 |
| Packing Group | III |
| Marine Pollutant | YES |
| EMS Number | F-A, S-F |
| ICAO/IATA (Air Transportation) | |
| Proper Shipping Name | Environmentally hazardous substances, liquid, n.o.s. (Glycerol tris[poly(propylene glycol), amine terminated] ether) |
| Hazard Class | 9 |
| UN | UN3082 |
| Packing Group | III |
| Quantity Limitations | 49 CFR 175.27 and 175.75 - Cargo Aircraft Only: No limit; Passenger Aircraft: No limit |

RID/ADR (Rail Transportation)

| | |
|-----------------------------|--|
| Proper Shipping Name | Environmentally hazardous substances, liquid, n.o.s. (Glycerol tris[poly(propylene glycol), amine terminated] ether) |
| Hazard Class | 9 |
| UN | UN3082 |
| Packing Group | III |

SECTION 15 - REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for substance or mixture****U. S. Federal Regulations**

OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910-1200.

OSHA Process Safety Management Standard: This product is not regulated under OSHA PSM Standard 29 CFR 1910.119.

EPA Risk Management Planning Standard: This product is not regulated under EPA RMP Standard (RMP) 40 CFR Part 68.

EPA Federal Insecticide, Fungicide and Rodenticide Act: This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

Toxic Substance Control Act (TSCA) Inventory: All substances in this product are listed on the TSCA Inventory. This product is not subject to TSCA 12(b) Export Notification.

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b)) and 1310.4(f)(2)) and Chemical Code Number
No listings

Drug Enforcement Administration (DEA) Lists 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number: No listings

Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals: No listings

Superfund Amendments and Reauthorization Act (SARA)

SARA Section 311/312 Hazard Categories: Causes skin irritation and eye damage

SARA 313 Information: This material is not subject to reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986.

SARA 302/304 Extremely Hazardous Substance: None of the components of this product exceed the threshold (de minimis) reporting levels established by these sections of Title III of SARA.

SARA 302/304 Emergency Planning & Notification: None of the components of this product exceed the threshold (de minimis) reporting levels established by these sections of Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): No components of the product exceed the threshold (de minimis) reporting levels for hazardous wastes established by CERCLA.

Clean Air Act (CAA)

This product does not contain any Hazardous Air Pollutants (HAPs) designated in CAA Section 112 (b).

This product does not contain Class 1 ozone depletors.

This product does not contain Class 2 ozone depletors.

Clean Water Act (CWA)

This product does not contain any Hazardous Substances listed under the CWA.

This product does not contain any Priority Pollutants.

This product does not contain any Toxic pollutants.

U.S. State Regulations**California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986**

This product contains no chemical(s) known to the state of California to cause cancer birth defects or reproductive harm in concentrations that exceed the threshold (de minimis) reporting levels established under Proposition 65.

Other U.S. State Inventories

None of the components of this product exceed the threshold (de minimis) reporting levels established under State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists.

Canada

WHMIS Hazard Classification: No data available

Canadian National Pollutant Release Inventory (NPRI): None of the components of this product are listed on the NPRI.

European Economic Community

WGK, Germany (Water danger/protection): 1 (slightly hazardous to water)

Global Chemical Inventory Lists

| Country | Inventory Name | Listed |
|---------------|--|--------|
| Canada | Domestic Substance List (DSL) | Yes |
| Canada | Non-Domestic Substance List (NDSL) | No |
| Europe | Inventory of New and Existing Chemicals (EINECS) | Yes |
| United States | Toxic Substance Control Act (TSCA) | Yes |
| Australia | Australian Inventory of Chemical Substances (AICS) | Yes |

| | | |
|--------------------|--|-----|
| New Zealand | New Zealand Inventory of Chemicals (NZIoC) | Yes |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | Yes |
| Korea | Existing Chemicals List (KECI) | Yes |
| Philippines | Philippines Inventory of Chemicals and Chemical Substances (PICCS) | Yes |

*Yes - All components of this product comply with the inventory requirements administered by the governing country.
 No - One or more components of this product are not on the inventory or are exempt from listing.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16 - OTHER INFORMATION

Hazardous Material Information System (HMIS)

| | |
|---------------------|---|
| HEALTH | 3 |
| FLAMMABILITY | 1 |
| PHYSICAL HAZARD | 0 |
| PERSONAL PROTECTION | C |

C = safety glasses, gloves & apron

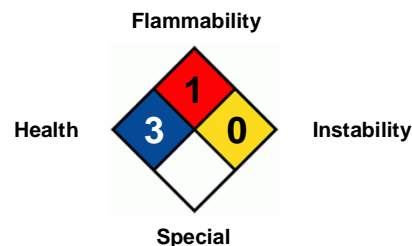
HMIS Hazard Rating Legend

0 = Minimal 1 = Slight 2 = Moderate
 3 = Serious 4 = Severe
 * = Chronic Health Hazard

NFPA Hazard Rating Legend

0 = Insignificant 1 = Slight 2 = Moderate
 3 = High 4 = Extreme

National Fire Protection Association (NFPA)



Abbreviation Key

| | | | |
|-------------------------|---|------------------------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists | LD₅₀ | Lowest Lethal Dose |
| ADR | Accord Dangereux Routier (European regulations concerning the international transport of dangerous goods by road) | mppcf | Millions of Particles Per Cubic Foot |
| CAS | Chemical Abstract Services | NA | North America |
| CFR | Code of Federal Regulations | NAERG | North American Emergency Response Guide Book |
| COC | Cleveland Open Cup | NIOSH | National Institute for Occupational Safety & Health |
| DOT | Department of Transportation | NTP | National Toxicology Program |
| EC₅₀ | Half maximal effective concentration | OSHA | Occupational Safety and Health Administration |
| EMS | Emergency Response Procedures for Ships Carrying | PBT | Persistent, Bioaccumulating and Toxic |
| EPA | Environmental Protection Agency | PEL | Permissible exposure limit |
| ErC₅₀ | Reduction of Growth Rate | PMCC | Pensky-Martens Closed Cup |
| ERG | Emergency Response Guide Book | ppm | Parts Per Million |
| FDA | Food and Drug Administration | RCRA | Resource Conservation and Recovery Act |
| GHS | Globally Harmonized System of Classification and Labelling of Chemicals (GHS) | RID | Dangerous Goods by Rail |
| HCS | Hazard Communication Standard | RQ | Reportable Quantity |
| IARC | International Agency for Research on Cancer | TCC/Tag | Tagliabue Closed Cup |
| IATA | International Air Transport Association | TLV | Threshold Limit Value |
| IC₅₀ | Half Maximal Inhibitory Concentration | TSCA | Toxic Substance Control Act |
| ICAO | International Civil Aviation Organization | TWA | Time-weighted Average |
| IDLH | Immediately Dangerous to Life and Health | UN | United Nations |
| IMDG | International Maritime Dangerous Goods | VOC | Volatile Organic Compounds |
| IMO | International Maritime Organization | vPvB | Very Persistent and Very Bioaccumulating |
| LC₅₀ | 50% Lethal Concentration | WHMIS | Workplace Hazardous Materials Information System |
| LD₅₀ | 50% Lethal Dose | | |

DISCLAIMER OF RESPONSIBILITY

The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume damage or expense arising out of or in any way responsibility and expressly disclaim liability for loss, connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this SDS information may not be applicable.

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