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SAFETY DATA SHEET

Section 1. Identification

Product Name: <u>Tetraethylgermane</u>

Product Type: Liquid
CAS Number: 597-63-7
Product Number: GE7637

Product Manufacturer: Ereztech LLC

11555 Medlock Bridge Road, Suite 100

Johns Creek, GA 30097

Product Information: (888) 658-1221

In Case of an Emergency: CHEMTREC: 1-800-424-9300 (USA);

+1 703-527-3887 (International); CCN836180
*** Contact manufacturer for all non-emergency calls.

Section 2. Hazards Identification

Appearance/Odor: Clear odorless liquid.

Classification: FLAMMABLE LIQUIDS - Category 3, H226

ACUTE TOXICITY, ORAL - Category 4, H302 SKIN CORROSION/IRRITATION - Category 2, H315

SERIOUS EYE DAMAGE/IRRITATION - Category 2A, H319

SPECIFIC ORGAN TOXICITY, SINGLE EXPOSURE; RESPIRATORY

TRACT IRRITATION - Category 3, H335

GHS Label Elements
Hazard Pictograms:





Signal Word: WARNING

Hazard Statements: H226: Flammable liquid and vapor.

H302: Harmful if swallowed.H315: Causes skin irritation.

H319: Causes serious eye irritation. H335: May cause respiratory irritation.

Section 2. Hazards Identification

Precautionary Statements

Response:

Storage:

Prevention: P210: Keep away from heat/sparks/open flames/hot surfaces. –

No smoking.

P233: Keep container tightly closed.

P240: Ground/Bond container and receiving equipment. P241: Use explosion-proof electrical/ ventilating/ lighting equipment.

P242: Use only non-sparking equipment.

P243: Take precautionary measures against static discharge. P261: Avoid breathing dust/fumes/gas/mist/vapors/spray. P264: Wash exposed skin thoroughly after handling.

P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well ventilated area.

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

P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P330: Rinse mouth.

P332 + P313: If skin irritation occurs: Get medical

advice/attention.

P337 + P313: If eye irritation persists: Get medical

advice/attention.

P362: Take off contaminated clothing and wash before reuse. P370 + P378: In case of fire: Use foam, carbon dioxide, dry

chemical.

P403 + P233 + P235: Store in a well-ventilated place. Keep

container tightly closed. Keep cool.

P405: Store locked up.

Disposal: P501: Dispose of contents/ container to an approved wasted

disposal plant.

General: None.

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Section 2. Hazards Identification

This material is considered hazardous by the OSHA Hazard OSHA/HCS Status:

Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified (HNOC):

None identified.

Section 3. Composition/Information on Ingredients

Substances

Formula : C₈H₂₀Ge **Molecular Weight** : 188. 48 : 597-63-7 CAS-No.

Ingredient Name	%	CAS Number
<u>Tetraethylgermane</u>	≥ 98	597-63-7

There are no additional ingredients present 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.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First Aid Measures

Description of Necessary First Aid Measures

General Advice: Move out of dangerous area. Call a POISON CENTER or doctor/physician

immediately if symptoms develop or if you feel unwell. Show this safety data

sheet to the doctor in attendance.

Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and

lower eyelids. Check for and remove any contact lenses. Continue rinsing. Seek

medical attention if eye irritation develops and persists.

Skin Contact: Take off contaminated clothing and shoes immediately. Wash off contaminated

skin with soap and plenty of water. Seek medical attention if irritation develops

and persists, if symptoms develop or if you feel unwell.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for

> breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Call a physician or POISON CONTROL CENTER if symptoms develop

or if you feel unwell.

Ingestion: Rinse mouth. Do NOT induce vomiting. Remove dentures if any. If vomiting

occurs, the head should be kept low so that vomit does not enter the lungs.

Never give anything by mouth to an unconscious person.

Section 4. First Aid Measures

Ingestion (cont.): If unconscious, place in recovery position and get medical attention immediately.

Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Call a physician or POISON CONTROL CENTER if symptoms develop

or if you feel unwell.

Most Important Symptoms/Effects, Acute and Delayed Potential Acute Health Effects

Eye Contact: Symptoms may include stinging, tearing, redness, swelling and blurred vision.

Inhalation: Product may be irritating to respiratory system. Symptoms may include

coughing, sneezing with phlegm production, sore throat, nausea, headache,

vomiting.

Skin Contact: Symptoms may include an itching or burning sensation, reddening, swelling and

blistering with tissue necrosis.

Product may be expected to be irritating to mucous membranes and may be Ingestion:

harmful if ingested. Symptoms may include cramping, localized pain, headache,

nausea and vomiting.

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Notes to Physician: Treat symptomatically.

No specific treatment. **Specific Treatments:**

Protection of First Responders: No action taken shall be taken involving any personal risk

> without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See Toxicological Information (Section 11)

Section 5. Fire Fighting Measures

Flammable/combustible material. **General Hazards:**

Suitable Extinguishing Media: THE MOST EFFECTIVE FIRE EXTINGUISHING AGENT IS DRY

> CHEMICAL POWDER PRESSURIZED WITH NITROGEN. For small fires, vermiculite, sand, dry chemical or carbon dioxide (CO2) may also be used. For large fires, large quantities of water (flooding) may be applied as a spray or a mist to

control the fire and cool affected containers.

Unsuitable Extinguishing Media: Water with full jet.

Unusual Fire and Explosion

Hazard:

None identified.

Product of Combustion: Carbon oxides (CO_x) and germanium oxide fumes. Irritating

fumes and organic acid vapors may be generated during

exposure to elevated temperatures or open flame.

Section 5. Fire Fighting Measures

Protection of Firefighters:

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Avoid contact with skin or eyes. Avoid breathing dusts, aerosols, vapors and gases.

Eliminate all local and distant ignition sources. Move containers from fire area if process can be accomplished without risk to firefighters. To reduce the possibility of explosion, use a water spray or fog to reduce direct vapors and to cool unopened containers. Do not cut, grind, drill or weld on or near product containers (even empty) of this product because an explosion may result.

Fire-fighters should wear appropriate protection equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in a positive pressure mode.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

For Non-Emergency Personnel:

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid the formation and inhalation of sprays, mists, vapors and gases. Provide adequate ventilation. Wear respiratory protection. Put on appropriate personal protective equipment.

For Emergency Responders:

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For Non-Emergency Personnel".

Environmental Precautions:

Do not allow dispersal of spilled material and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for Containment

General: Eliminate all local and distant ignition sources. Move containers

from spill area if safe to do so. Use spark-proof tools and

explosion-proof equipment.

Section 6. Accidental Release Measures

Small Spill: Contain and collect spillage with non-combustible, dry

absorbent material (e.g. sand, earth, vermiculite or diatomaceous earth) and place in dry, sealed container for disposal according to local regulations (see Section 13).

Dispose of via a licensed waste disposal contractor.

Large Spill: Approach release from upwind. Prevent entry into sewers,

water courses, basements or confined areas. Contain and collect spillage with non-combustible, dry absorbent material (e.g. sand, earth, vermiculite or diatomaceous earth) and place

in dry, sealed container for disposal according to local

regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may

pose the same hazard as the spilled product.

Note: see Section 1 for emergency contact information and

Section 13 for waste disposal.

Section 7. Handling and Storage

Precautions:

Keep away from all sources of ignition – NO SMOKING. Keep container tightly sealed. Avoid contact with skin, eyes and clothing. Avoid the formation and inhalation of sprays, mists, vapors and gases. Do not ingest. Avoid prolonged exposure.

Ensure adequate ventilation.

Protective Measures: Put on appropriate personal protective equipment (see Section

8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container kept tightly closed when not in use. Empty containers retain

product residue and can be hazardous. Do not reuse container.

General Occupational Hygiene: Eating, drinking and smoking should be prohibited in areas

where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective

equipment before entering eating areas. See also Section 8 for

additional information on hygiene measures.

Safe Storage Conditions: Store refrigerated at 2 – 8 °C. Keep away from all sources of

ignition – NO SMOKING. Store in original container protected from direct sunlight in a dry and well-ventilated area, away from incompatible materials and food and drink. Keep

container tightly closed and sealed until ready for use. Store

locked up.

Section 8. Exposure Controls/Personal Protection

Introductory Remarks: These recommendations provide general guidance for handling

this product. Because work environments and material handling practices vary, safety procedures should be developed for each

intended application. While developing safe handling

procedures, do not overlook the need to clean equipment and conduct regular repairs. Waste from these procedures should

be handled in accordance with Section 13.

Occupational Exposure Limits: Contains no products with occupational exposure limit values.

Engineering Controls: Properly operating chemical fume hood designed for

hazardous/flammable chemicals and having an average face

velocity of at least 100 feet per minute. Provide an

eyewash/shower station.

Environmental Exposure Controls: Emissions from ventilation or work process equipment should

be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable

levels.

Individual Protection Measures

Hygiene Measures:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Remove all soiled and contaminated clothing immediately. Do not inhale gases/fumes/vapors. Avoid contact with eyes and skin. Ensure that eyewash stations and safety showers are close to the

workstation location.

Eye/Face Protection: Safety eyewear complying with an approved standard should

be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles, faceshield (8-inch minimum). Refer

to 29 CFR 1910.133, ANSI Z87.1, or European Standard EN166.

Skin Protection

Hand Protection: Chemical-resistant, impervious gloves complying with an

approved standard should be worn at all times when handling

chemical products if a risk assessment indicates this is

necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still

retaining their protective properties.

Section 8. Exposure Controls/Personal Protection

Hand Protection (cont.):

It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Chemical-resistant gloves.

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. For full contact,

wear Neoprene or nitrile rubber gloves.

Other Skin Protection: Appropriate footwear and any additional skin protection

measures should be selected based on the task being

performed and the risks involved and should be approved by a

specialist before handling this product.

Respiratory Protection:

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Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose 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).

Section 9. Physical and Chemical Properties

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Physical State: Liquid
Color: Colorless
Odor: Odorless

Odor Threshold:No data available.pH:No data available.Melting Point:-90 °C (-130 °F)Boiling Point:165 °C (329 °F)Flash Point:29 °C (84 °F)

Auto-ignition temperature:No data available.Specific Gravity:1.1989 g/cm³ @ 20°CVapor Pressure:16.4 mmHg @ 25°CVapor Density:No data available.

apor Density: No data available

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Section 9. Physical and Chemical Properties

Water Solubility: Not miscible.

No data available. **Evaporation Rate:** No data available. **Viscosity: VOC Content:** No data available.

VOCs are calculated following the requirements under 40 CFR, Part 59, Subpart C for Consumer Products and Subpart D for Architectural Coatings.

Section 10. Stability and Reactivity

No data available. Reactivity:

Chemical Stability: Stable at normal ambient temperature and pressure and

under recommended storage conditions.

Conditions to Avoid: Exposure to sources of ignition (heat, flames, sparks,

electrostatic discharge), extremes of temperature and

direct sunlight.

Incompatible Materials: Strong oxidizing agents.

Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous

decomposition products should not be produced.

Hazardous decomposition products formed under fire

conditions: carbon oxides and metal oxide fumes.

Possibility of Hazardous Reactions: Under normal conditions of storage and use, hazardous

reactions will not occur.

Section 11. Toxicological Information

Information on Toxicological Effects

Acute Toxicity

Product/Ingredient Name	Test	Species	Dose	Exposure
Tetraethylgermane	LD50 Oral	Rat	700 mg/kg	-
	LD50 Oral	Mouse	2870 mg/kg	-
	LD50 IP	Rat	780 mg/kg	-
	LD50 IV	Rat	460 mg/kg	-

Irritation/Corrosion : No specific data available. Product is irritating to skin,

eyes and respiratory tract.

: No specific data available. Sensitization

: No effects known. **Germ Cell Mutagenicity**

Carcinogenity

IARC : No component of this product present at levels greater

than 0.1% is identified as probable, possible or

confirmed human carcinogen by IARC.

Section 11. Toxicological Information

ACGIH

: No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

: No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA

NTP

: No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity

Teratogenicity

Specific Target Organ Toxicity

(Single Exposure)

Aspiration Hazard

Specific Target Organ Toxicity

(Repeated Exposure)

Information on the Likely Routes of Exposure

: No specific data available.

: No specific data available.

: Respiratory tract irritation.

: No specific data available.

: No specific data available.

: Common routes of exposure: inhalation, dermal (failure to use skin protection), eye (failure to use safety eyewear). Less common: ingestion (failure to employ recommended hygiene measures (e.g. smoking or eating after handling product without washing hands or using hand protection).

Additional Information

: To the best of our knowledge, the chemical, physical and toxicological properties of this product have not been thoroughly investigated.

Section 12. Ecological Information

Numerical Measures of Toxicity

Toxicity to Fish

Toxicity to Daphnia and Other

Aquatic Invertebrates

Damaiatawaa amal Damuadahilit

Persistence and Degradability

Biodegradability

Toxicity to Algae

Bioaccumulative Potential

Mobility in Soil

Other Adverse Effects

: No specific data available.

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

Section 13. Disposal Considerations

Waste Treatment Methods

Product Dispose of in accordance with local, state, and federal

regulations. Refer to 40 CFR 260-299 for complete waste

disposal regulations. Consult your local, state, or federal agency

before disposing of any chemicals.

Empty containers retain product residue (liquid and/or vapor) **Contaminated Packaging**

and can be dangerous. Dispose of as unused product. DO NOT EXPOSE SUCH CONTAINERS TO AIR, MOISTURE, WATER AS FLAMMABLE/EXPLOSIVE GASES MAY BE GENERATED. DO NOT EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY

EXPLODE AND CAUSE INJURY OR DEATH.

Section 14. Transport Information

	DOT	IMDG	IATA
UN Number	UN 1993	UN 1993	UN 1993
UN Proper Shipping Name	FLAMMABLE LIQUID,	FLAMMABLE LIQUID,	FLAMMABLE LIQUID,
	N.O.S.	N.O.S.	N.O.S.
	(Tetraethylgermane)	(Tetraethylgermane)	(Tetraethylgermane)
Transport Hazard Classes	3	3	3
Packing Group	III	111	III
Environmental Hazards	_		
Additional Information	-	EMS: F-E, S-E	-

IMDG Notes

: Limited quantities (LQ): 5L. Excepted quantities(EQ): Code E1. Maximum net quantity per inner packaging: 30 ml.

Maximum net quantity per outer packaging: 1000 ml.

Special Precautions for User

: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an

accident or spillage.

Transporting in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

: Not applicable.

Section 15. Regulatory Information

TSCA (Toxic Substance Control Act):

This product is listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory).

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Section 15. Regulatory Information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard (Flammable liquid); Acute Health Hazard (Acute toxicity – ingestion; Skin corrosion or irritation; Serious eye damage or eye irritation; Specific Target Organ Toxicity (STOT), single exposure: respiratory irritation).

Massachusetts Right To Know Components

No components are subject to Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Tetraethylgermane CAS-No. Revision Date 597-63-7

New Jersey Right To Know Components

CAS-No. Revision Date

Tetraethylgermane 597-63-7

California Proposition 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16. Other Information

National Fire Protection Association (U.S.A.)



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Section 16. Other Information

Copyright © 2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

HMIS Rating

HEALTH	2
FLAMMABILITY	3
PHYSICAL HAZARD	0

History

: 4/22/2020 **Date of Printing** : 4/22/2020 Date of Issue/Date of Revision **Date of Previous Issue** : 1/8/16

: None available References

Abbreviations and Acronyms

ACGIH: American Conference of Governmental Industrial Hygienists.

ATE: Acute Toxicity Estimate

CAS: Chemical Abstracts Service (division of the American Chemical Society).

DOT: US Department of Transportation.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

HMIS: Hazardous Materials Identification System.

HNOC: Hazards Not Otherwise Classified.

IARC: International Agency for Research on Cancer.

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA). IDLH: Immediately Dangerous to Life or Health (US National Institute for Occupation Health and

Safety (NIOSH)). IMDG: International Maritime Code for Dangerous Goods.

NFPA: National Fire Protection Association.

NIOSH: National Institute of Occupational Safety and Health.

NTP: National Toxicology Program.

OSHA: Occupational Safety and Health Administration.

PEL: Permissible Exposure Limits. **REL**: Recommended Exposure Limits.

SARA: Superfund Amendments and Reauthorization Act.

STOT: Specific Target Organ Toxicity. TLV: Threshold Limit Values (ACGIH).

TWA: Time Weighted Average. VOC: Volatile Organic Compound.

Section 16. Other Information

Disclaimer

The information herein is believed to be accurate and is presented in good faith; however, no warranties or representations are made by Ereztech LLC regarding the accuracy or completeness of the information. Ereztech LLC shall not be liable for any damages resulting from the handling, or from the contact with the above product.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

