

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Identifier:** (4N) 99.99% Germanium(IV) Methoxide

**Product Code:** GE-MTOX-04

**CAS Number:** 992-91-6

**Relevant identified uses of the substance:** Scientific research and development

Supplier details:

American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351  
Emergency telephone number:  
+1 800-424-9300

## SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226

Acute toxicity, Oral (Category 3), H301

Acute toxicity, Inhalation (Category 3), H331

Acute toxicity, Dermal (Category 3), H311

Skin irritation (Category 2), H315

Eye irritation (Category 2A), H319

Specific target organ toxicity - single exposure (Category 1), H370

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

2.2 GHS Label elements, including precautionary statements



Pictogram

Signal word Danger

Hazard statement(s)

H226 Flammable liquid and vapor.

H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled

H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H370 Causes damage to organs.  
Precautionary statement(s)  
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 tools.  
P243 Take precautionary measures against static discharge.  
P260 Do not breathe dust/ fume/ gas/ mist/ Vapors/ spray.  
P264 Wash 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 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.  
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.  
P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician.  
P322 Specific measures (see supplemental first aid instructions on this label).  
P330 Rinse mouth.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P361 Remove/Take off immediately all contaminated clothing.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.  
P501 Dispose of contents/ container to an approved waste disposal plant.  
2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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

### **3.2 Mixtures**

Synonyms : Tetramethoxygermanium

Formula : C<sub>4</sub>H<sub>12</sub>GeO<sub>4</sub>

Molecular weight : 196.78 g/mol

Hazardous components

Component Classification Concentration

Germanium (IV) methoxide

CAS-No.

992-91-6

Flam. Liq. 3; Acute Tox. 3;

Skin Irrit. 2; Eye Irrit. 2A;

STOT SE 3; H226, H301 +

H311 + H331, H315, H319,  
H335  
≥ 90 - ≤ 100  
%  
Methanol  
CAS-No.  
EC-No.  
Index-No.  
Registration number  
67-56-1  
200-659-6  
603-001-00-X  
01-2119433307-44-XXXX  
Flam. Liq. 2; Acute Tox. 3;  
STOT SE 1; H225, H301 +  
H311 + H331, H370  
≥ 5 - < 10 %

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## SECTION 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides, Germanium oxides

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

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

### **6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid breathing Vapors, mist or gas. Ensure adequate ventilation.

Remove all sources

of ignition. Evacuate personnel to safe areas. Beware of Vapors accumulating to form explosive concentrations.

Vapors can accumulate in low areas.

For personal protection see section 8.

### **6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### **6.3 Methods and materials for containment and cleaning up**

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in

container for disposal according to local regulations (see section 13).

### **6.4 Reference to other sections**

For disposal see section 13.

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

### **7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of Vapor or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

### **7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully

resealed and kept upright to prevent leakage.

Moisture sensitive.

### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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

### **8.1 Control parameters**

Components with workplace control parameters

Component CAS-No. Value Control

parameters

Basis

Methanol 67-56-1 TWA 200.000000

ppm

USA. ACGIH Threshold Limit Values

(TLV)

Remarks Headache

Nausea

Dizziness

Eye damage

Substances for which there is a Biological Exposure Index or Indices  
(see BEI® section)

Danger of cutaneous absorption

STEL 250.000000

ppm

USA. ACGIH Threshold Limit Values  
(TLV)

Headache

Nausea

Dizziness

Eye damage

Substances for which there is a Biological Exposure Index or Indices  
(see BEI® section)

Danger of cutaneous absorption

TWA 200.000000

ppm

260.000000

mg/m<sup>3</sup>

USA. NIOSH Recommended  
Exposure Limits

Potential for dermal absorption

ST 250.000000

ppm

325.000000

mg/m<sup>3</sup>

USA. NIOSH Recommended  
Exposure Limits

Potential for dermal absorption

TWA 200.000000

ppm

260.000000

mg/m<sup>3</sup>

USA. Occupational Exposure Limits  
(OSHA) - Table Z-1 Limits for Air  
Contaminants

The value in mg/m<sup>3</sup> is approximate.

Biological occupational exposure limits

Component CAS-No. Parameters Value Biological  
specimen

Basis

Methanol 67-56-1 Methanol 15.0000

mg/l

Urine ACGIH - Biological  
Exposure Indices

(BEI)

Remarks End of shift (As soon as possible after exposure ceases)

8.2 Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate

government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with 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.

#### Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

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).

#### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- a) Appearance Form: liquid
- b) Odor No data available
- c) Odor Threshold No data available
- d) pH No data available
- e) Melting point/freezing point  
Melting point/range: -18 °C (0 °F) - lit.
- f) Initial boiling point and boiling range  
66 - 67 °C (151 - 153 °F) at 48 hPa (36 mmHg) - lit.
- g) Flash point 41 °C (106 °F)
- h) Evaporation rate No data available
- i) Flammability (solid, gas) No data available
- j) Upper/lower flammability or explosive limits  
No data available
- k) Vapor pressure No data available
- l) Vapor density No data available
- m) Relative density 1.325 g/mL at 25 °C (77 °F)
- n) Water solubility No data available
- o) Partition coefficient: noctanol/water  
No data available
- p) Auto-ignition temperature  
No data available
- q) Decomposition

temperature  
No data available  
r) Viscosity No data available  
s) Explosive properties No data available  
t) Oxidizing properties No data available  
9.2 Other safety information  
No data available

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

10.1 Reactivity  
No data available  
10.2 Chemical stability  
Stable under recommended storage conditions.  
10.3 Possibility of hazardous reactions  
No data available  
10.4 Conditions to avoid  
Heat, flames and sparks.  
10.5 Incompatible materials  
No data available  
10.6 Hazardous decomposition products  
Other decomposition products - No data available  
In the event of fire: see section 5

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## **SECTION 11. TOXICOLOGICAL INFORMATION**

11.1 Information on toxicological effects  
Acute toxicity  
No data available  
Inhalation: No data available  
Dermal: No data available  
No data available  
Skin corrosion/irritation  
No data available  
Serious eye damage/eye irritation  
No data available  
Respiratory or skin sensitisation  
No data available  
Germ cell mutagenicity  
No data available  
Carcinogenicity  
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.  
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.  
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.  
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.  
Reproductive toxicity  
No data available

No data available  
Specific target organ toxicity - single exposure  
No data available  
Specific target organ toxicity - repeated exposure  
No data available  
Aspiration hazard  
No data available  
Additional Information  
RTECS: Not available  
Stomach - Irregularities - Based on Human Evidence  
Central nervous system - Breathing difficulties - Based on Human Evidence  
Stomach - Irregularities - Based on Human Evidence (Germanium (IV) methoxide)  
Stomach - Irregularities - Based on Human Evidence (Methanol)

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## **SECTION 12. ECOLOGICAL INFORMATION**

12.1 Toxicity  
No data available  
12.2 Persistence and degradability  
No data available  
12.3 Bioaccumulative potential  
No data available  
12.4 Mobility in soil  
No data available  
12.5 Results of PBT and vPvB assessment  
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted  
12.6 Other adverse effects  
No data available

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

13.1 Waste treatment methods  
Product  
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.  
Contaminated packaging  
Dispose of as unused product.

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## **SECTION 14. TRANSPORT INFORMATION**

DOT (US)  
UN number: 1993 Class: 3 Packing group: III  
Proper shipping name: Flammable liquids, n.o.s. (Germanium (IV) methoxide, Methanol)  
Poison Inhalation Hazard: No  
IMDG  
UN number: 1993 Class: 3 Packing group: III EMS-No: F-E, S-E  
Proper shipping name: FLAMMABLE LIQUID, N.O.S. (Germanium (IV) methoxide, Methanol)



IATA

UN number: 1993 Class: 3 Packing group: III

Proper shipping name: Flammable liquid, n.o.s. (Germanium (IV) methoxide, Methanol)

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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

The following components are subject to reporting levels established by SARA Title III, Section 313:

Methanol

CAS-No.

67-56-1

Revision Date

2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Methanol

CAS-No.

67-56-1

Revision Date

2007-07-01

Pennsylvania Right To Know Components

Methanol

CAS-No.

67-56-1

Revision Date

2007-07-01

Germanium (IV) methoxide 992-91-6

New Jersey Right To Know Components

Methanol

CAS-No.

67-56-1

Revision Date

2007-07-01

Germanium (IV) methoxide 992-91-6

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Methanol

CAS-No.

67-56-1

Revision Date

2012-03-16

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## 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The

information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.