

SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Name: Germanium(IV) Chloride

CAS #: 10038-98-9

Relevant identified uses of the substance: Scientific research and development

Supplier details:

Stanford Advanced Materials

E-mail: sales@samaterials.com

Tel: (949) 407-8904

Address: 23661 Birtcher Dr., Lake Forest, CA 92630 U.S.A.

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

Acute Tox. 4 H332 Harmful if inhaled.

- Label elements
- GHS label elements

The substance is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms

- Signal word Danger
- Hazard-determining components of labeling:

germanium tetrachloride

· Hazard statements

H332 Harmful if inhaled.

H314 Causes severe skin burns and eye damage.

· Precautionary statements

P101 If medical advice is needed, have product container or label at hand. P102 Keep out of reach of children.

P103 Read label before use.

P231 Handle under inert gas.

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

Rinse skin

with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

present and easy to do. Continue rinsing.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P422 Store contents under inert gas.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Classification system:

· NFPA ratings (scale 0 - 4)

3

0

2

W—

Health = 3

Fire = 0

Reactivity = 2

The substance demonstrates unusual reactivity with water.

· HMIS-ratings (scale 0 - 4)

HEALTH

FIRE

REACTIVITY

4

0

2

Health = 4

Fire = 0

Reactivity = 2

- Other hazards
- Results of PBT and vPvB assessment:
- PBT: N/A.
- vPvB: N/A.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

· CAS No. Description

10038-98-9 Germanium tetrachloride

· Identification number(s)

· EC number: 233-116-7

SECTION 4. FIRST AID MEASURES

Description of first aid measures

· General information:

Immediately remove any clothing soiled by the product. Symptoms of poisoning may even occur after several hours; therefore medical observation for at least

48 hours

after the accident.

- If inhaled:

Supply fresh air. If not breathing, provide artificial respiration. Keep patient warm. Consult doctor if symptoms

persist.

In case of unconsciousness place patient stably in side position for transportation.

- In case of skin contact: Immediately wash with soap and water; rinse thoroughly.
- In case of eye contact: Rinse opened eye for several minutes under running water. Consult a physician.
- If swallowed: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- Most important symptoms and effects, both acute and delayed No information available.
- Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. FIREFIGHTING MEASURES

- Extinguishing media

- Suitable extinguishing media:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- For safety reasons unsuitable extinguishing media: Water
 - Special hazards arising from the substance or mixture No information available.
 - Advice for firefighters
 - Protective equipment: Mouth respiratory protective device.
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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

- Environmental precautions: No special measures required.
- Methods and material for containment and cleanup:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

- Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

- Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

- Information about protection against explosions and fires: No special measures required.

- Conditions for safe storage, including any incompatibilities

- Storage: Requirements to be met by storerooms and receptacles: No special requirements.

- Information about storage in one common storage facility: Not required.

- Further information about storage conditions:

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

- Specific end use(s) No information available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Additional information about design of technical systems: No further data; see item 7.

- Control parameters

- Components with limit values that require monitoring at the workplace: Not required.

· Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

· Personal protective equipment:

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use

respiratory protective device that is independent of circulating air.

· Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be

observed.

· Eye protection:

Tightly sealed goggles

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Liquid Color: Colorless

· Odor: Pungent

· Odor threshold: No data available.

· pH: No data available.

· Melting point/range: -49.5 °C (-57 °F)

Boiling point/range: 83 °C (181 °F)

· Flash point: N/A.

· Flammability (solid, gas): N/A.

· Ignition temperature:

Decomposition temperature: No data available.

· Auto igniting: No data available.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower: No data available.

Upper: No data available.

· Vapor pressure at 20 °C (68 °F): no data hPa

· Density at 20 °C (68 °F): 1.88 g/cm³ (15.689 lbs/gal)

· Relative density No data available.

· Vapor density No data available.

· Evaporation rate No data available.

· Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

· Partition coefficient (n-octanol/water): No data available.

· Viscosity:

Dynamic: No data available.

Kinematic: No data available.

Organic solvents: 0.0 %

· Other information No information available.

SECTION 10. STABILITY AND REACTIVITY

· Reactivity

· Chemical stability

· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· Possibility of hazardous reactions No dangerous reactions known.

· Conditions to avoid No information available.

· Incompatible materials: No information available.

· Hazardous decomposition products: No dangerous decomposition products known.

SECTION 11. TOXICOLOGICAL INFORMATION

· Information on toxicological effects

· Acute toxicity:

· Primary irritant effect:

· on the skin: Strong caustic effect on skin and mucous membranes.

· on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

· Sensitization: No sensitizing effects known.

· Additional toxicological information: Swallowing will lead to a strong caustic effect on mouth and

throat and to the danger of perforation of
esophagus
and stomach.

- Carcinogenic categories
- IARC (International Agency for Research on Cancer)

Substance is not listed.

- NTP (National Toxicology Program)

Substance is not listed.

- OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

SECTION 12. ECOLOGICAL INFORMATION

- Toxicity
 - Aquatic toxicity: No information available.
 - Persistence and degradability: No information available.
 - Bioaccumulative potential: No information available.
 - Mobility in soil: No information available.
 - Additional ecological information:
 - General notes: Must not reach bodies of water or drainage ditch undiluted or unneutralized.
 - Results of PBT and vPvB assessment:
 - PBT: N/A.
 - vPvB: N/A.
 - Other adverse effects No information available.
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SECTION 13. DISPOSAL CONSIDERATIONS

- Waste treatment methods
- Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage

system.

- Uncleaned packagings:
 - Recommendation: Disposal must be made according to official regulations.
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SECTION 14. TRANSPORT INFORMATION

- UN-Number
- DOT, IMDG, IATA UN1760
- UN proper shipping name
- DOT Corrosive liquids, n.o.s.
- IMDG, IATA CORROSIVE LIQUID, N.O.S.
- Transport hazard class(es)
- DOT
- Class 8 Corrosive substances
- Label 8
- IMDG, IATA

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- Class 8 Corrosive substances
- Label 8
- Packing group· DOT, IMDG, IATA II
- Environmental hazards:
- Marine pollutant: No
- Special precautions for user Warning: Corrosive substances
- EMS Number: F-A,S-B

· Transport in bulk according to Annex II of

MARPOL73/78 and the IBC Code N/A.

· Transport/Additional information:

- DOT
- Quantity limitations On passenger aircraft/rail: 1 L

On cargo aircraft only: 30 L

- IMDG
- Limited quantities (LQ) 1L
- Excepted quantities (EQ) Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

- UN "Model Regulation": UN1760, Corrosive liquids, n.o.s., 8, II
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SECTION 15. REGULATORY INFORMATION

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

· Sara

- Section 355 (extremely hazardous substances):

Substance is not listed.

- Section 313 (Specific toxic chemical listings):

Substance is not listed.

- TSCA (Toxic Substances Control Act):

Substance is listed.

- Proposition 65

- Chemicals known to cause cancer:

Substance is not listed.

- Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

- Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

- Chemicals known to cause developmental toxicity:

Substance is not listed.

- Carcinogenic categories

- EPA (Environmental Protection Agency)

Substance is not listed.

- TLV (Threshold Limit Value established by ACGIH)

Substance is not listed.

- NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

- GHS label elements

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- Hazard pictograms

- Signal word Danger

- Hazard-determining components of labeling:

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- Hazard statements

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present and easy to do. Continue rinsing.

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P422 Store contents under inert gas.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 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.