

Product : **Germanium tetrafluoride**

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MSDS Nr : 330-00-2001BOC(A)

Version : 1

Date : 16/12/2008

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name	Germanium tetrafluoride
Chemical formula	GeF ₄
Company identification	see heading and/or footer
Emergency phone numbers	see heading and/or footer

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation	Substance.
Components/Impurities	Contains no other components or impurities which will influence the classification of the product.
CAS Nr	7783-58-6
EC Nr (from EINECS)	232-011-3

3 HAZARDS IDENTIFICATION

Hazards identification	Very toxic by inhalation. Very corrosive to eyes, respiratory system and skin. Compressed gas
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4 FIRST AID MEASURES

Inhalation	Very toxic by inhalation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
Skin/eye contact	May cause severe chemical burns to skin and cornea. Suitable first-aid treatment should be immediately available. Seek medical advice before using product. Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contaminated clothing. Drench affected area with water for at least 15 minutes Obtain medical assistance
Ingestion	Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES

Specific hazards	Non flammable Exposure to fire may cause containers to rupture/explode.
Hazardous combustion products	If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Germanium and its oxides Hydrogen fluoride
Suitable extinguishing media	All known extinguishants can be used.
Specific methods	If possible, stop flow of product. Move away from the container and cool with water from a protected position. Use of water may result in the formation of very toxic aqueous solutions. Specialist clean-up methods may be required.

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Special protective equipment for fire fighters

Use self-contained breathing apparatus and chemically protective clothing.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions

Evacuate area.
Use self-contained breathing apparatus and chemically protective clothing.
Ensure adequate air ventilation.

Environmental precautions

Try to stop release.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Reduce vapour with fog or fine water spray.

Clean up methods

Ventilate area.
Hose down area with water.
Wash contaminated equipment or sites of leaks with copious quantities of water.

7 HANDLING AND STORAGE

Handling and storage

Keep container below 50°C in a well ventilated place.
Refer to supplier's container handling instructions.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Do not allow backfeed into the container.
Suck back of water into the container must be prevented.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value for country

UK: Fluoride (inorganic as F) - LTEL: 2.5mg/m³ (EH40/2005)
Long-term exposure limit (LTEL): 8 hour TWA reference period

Personal protection

Keep suitable chemically resistant protective clothing readily available for emergency use.
Keep self contained breathing apparatus readily available for emergency use.
Protect eyes, face and skin from contact with product.
Do not smoke while handling product.
Ensure adequate ventilation.

9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight

148.634

Melting point

-15 °C

Boiling point

Sublimes

Critical temperature

93.66 °C

Relative density, gas

Heavier than air

Relative density, liquid

Not known

Vapour Pressure 20°C

No reliable data available.

Solubility mg/l water

Hydrolyses.

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Appearance/Colour	Colourless gas Gives off white fumes in moist air
Odour	Pungent Garlic like
Flammability range	Non flammable.
Other data	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 STABILITY AND REACTIVITY

Stability and reactivity	Reacts with water to form corrosive acids. May react violently with acids. With water causes rapid corrosion of some metals.
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11 TOXICOLOGICAL INFORMATION

General	Severe corrosion to skin, eyes and respiratory tract at high concentrations. Fatal intoxication possible with low concentrations./Irritation to eyes, skin and respiratory tract./Symptoms are headache, nausea and vomiting, which may lead to unconsciousness.
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12 ECOLOGICAL INFORMATION

General	May cause pH changes in aqueous ecological systems. Endangering to drinking water.
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13 DISPOSAL CONSIDERATIONS

General	Do not discharge into any place where its accumulation could be dangerous. Avoid discharge to atmosphere. Contact supplier if guidance is required.
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14 TRANSPORT INFORMATION

Proper shipping name	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S. (Germanium tetrafluoride)
UN Nr	3304
Class	2
Subsidiary risk	8
ADR/RID Classification code	1TC
ADR/RID Hazard Nr	268
Packing group	None
Labelling ADR	Label 2.3: toxic substance. Label 8: corrosive substance.
IMDG EmS codes	F-C, S-U
IMDG Marine pollutant	No
IATA passenger packing instruction	Forbidden
IATA passenger max. quantity/pack	Forbidden

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IATA cargo packing instruction

Forbidden

IATA cargo max. quantity/pack

Forbidden

Other transport information

Avoid transport on vehicles where the load space is not separated from the driver's compartment.

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

Before transporting product containers ensure that they are firmly secured and:

- cylinder valve is closed and not leaking
- valve outlet cap nut or plug (where provided) is correctly fitted
- valve protection device (where provided) is correctly fitted
- there is adequate ventilation.
- compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548

Not included in Annex I.

EC Classification

T+:R26(C);R35

-Symbols

T+: Very toxic

C: Corrosive

Labelling of cylinders

-Symbols

Label 2.3: toxic substance.

Label 8: corrosive substance.

-Risk phrases

R26 Very toxic by inhalation.

R35 Cause severe burns (eyes, respiratory system and skin).

-Safety phrases

S1 Keep locked up.

S9 Keep container in well ventilated place.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 After contact with skin, wash immediately with plenty of water.

S36 Wear suitable protective clothing.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

16 OTHER INFORMATION

Ensure all national/local regulations are observed.

Ensure operators understand the toxicity hazard.

Users of breathing apparatus must be trained.

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

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