

SAFETY DATA SHEET

Section 1: Identification

Product name: Germanium (powder)
Product use: For laboratory research purposes.
Supplier: Trace Sciences International
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CANADA
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Section 2: Hazard(s) Identification

2.1 GHS Classification

Flammable solids (Category 1), H228
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure, Oral (Category 2), Kidney, H373
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 2), H411

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s):

H228 Flammable solid.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.
H400 Very toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s):

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P260 Do not breathe dust.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

Section 3: Composition/ Information on Ingredients

Formula : Ge
Molecular Weight : 72.64 g/mol

Material	CAS-No.	EC-No.	Index-No.	Concentration
Germanium	7440-56-4	231-164-3	-	<= 100%

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 person out of dangerous area if safe to do so.

If inhaled

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

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water for at least 15 minutes. Use chemical shower if available. Consult a physician.

In case of eye contact

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

If swallowed

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

Section 5: Fire-Fighting Measures

5.1 Conditions of flammability

Flammable in the presence of a source of ignition, through friction or retained heat. Keep away from heat/sparks/open flame/hot surface. No smoking.

5.2 Suitable extinguishing media

Use powder for metal fires, do not use water

5.3 Hazardous combustion products

Hazardous decomposition products formed under fire conditions: Germanium oxides

5.4 Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.5 Further information

No data available

Section 6: Accidental Release Measures

6.1 Personal precautions

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

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

Sweep up and shovel. 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. Keep in suitable, closed containers for disposal.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

7.2 Conditions for safe storage

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Section 8: Exposure Controls/Personal Protection

8.1 Components with workplace control parameters

No data available

8.2 Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) 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).

Hand 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.

Eye protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

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.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Specific engineering controls

Use mechanical exhaust or laboratory fume hood to avoid exposure.

Section 9: Physical and Chemical Properties

Appearance

Form	Powder
Colour	Grey

Safety Data

pH	No data available
Melting point/freezing point	937 °C (1,719 °F)
Boiling point	2,830 °C (5,126 °F)
Flash point	Not applicable
Flammability (solid, gas)	No data available
Ignition temperature	No data available
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	No data available
Density	5.35 g/mL at 25 °C (77 °F)
Water solubility	Insoluble
Partition coefficient: n-octanol/water	No data available
Relative vapour density	No data available
Odour	No data available
Odour Threshold	No data available
Evaporation rate	No data available

Section 10: Stability and Reactivity

10.1 Chemical stability

Stable under recommended storage conditions

10.2 Possibility of hazardous reactions

No data available

10.3 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.4 Materials to avoid

Strong oxidizing agents, Halogens

10.5 Hazardous decomposition products

See section 5

Section 11: Toxicological Information

Acute toxicity

Oral

LD50 Oral - Rat - female - > 2,000 mg/kg
(OECD Test Guideline 425)

Inhalation

LC50 Inhalation - Rat - male and female - 4 h - > 0.005 mg/l - dust/mist
(OECD Test Guideline 403)

Dermal

No data available

Other information on acute toxicity

No data available

Skin corrosion/irritation

Skin - EPISKIN Human Skin Model Test

Result: Based on available data the classification criteria are not met.

(OECD Test Guideline 439)

Serious eye damage/eye irritation

Eyes - In vitro study

Result: Based on available data the classification criteria are not met.

(OECD Test Guideline 492)

Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

Suspected human reproductive toxicant

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

Oral - The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2

- Kidney

Aspiration hazard

No data available

Signs and Symptoms of Exposure

Cough, Difficulty in breathing

Additional Information

RTECS: LY5200000

Section 12: Ecological Information

12.1 Toxicity

Toxicity to algae

Static test ErC50 - Navicula pelliculosa (Freshwater diatom) - 0.143 mg/l -
72 h
(OECD Test Guideline 201)

Static test NOEC - Navicula pelliculosa (Freshwater diatom) - 0.07 mg/l -
72 h
(OECD Test Guideline 201)

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 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

Section 13: Disposal Considerations

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.

Section 14: Transport Information

IATA

UN number: UN3089 Class: 4.1 Packing group: II
Proper shipping name: Metal powders, flammable, n.o.s. (Germanium)

Section 15: Regulatory Information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR

Section 16: Other Information

Further information

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for his or her particular purpose(s).

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