

**Safety Data Sheet**  
according to OSHA HCS

Printing date 07/30/2016

Reviewed on 07/30/2016

**1 Identification**

- **Product name**
- **Trade name:** Beryllium foil (99.5%)
- **Item number:** 04-0080
- **CAS Number:**  
7440-41-7
- **EC number:**  
231-150-7
- **Index number:**  
004-001-00-7
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Strem Chemicals, Inc.  
7 Mulliken Way  
NEWBURYPORT, MA 01950  
USA  
info@strem.com
- **Information department:** Technical Department
- **Emergency telephone number:**  
EMERGENCY: CHEMTREC: + 1 (800) 424-9300  
During normal opening times: +1 (978) 499-1600

**2 Hazard(s) identification**

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 2 H300 Fatal if swallowed.  
Acute Tox. 2 H330 Fatal if inhaled.



GHS08 Health hazard

Carc. 1B H350 May cause cancer.  
STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.  
Eye Irrit. 2A H319 Causes serious eye irritation.  
Skin Sens. 1 H317 May cause an allergic skin reaction.  
STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**
- **GHS label elements**  
The substance is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

**Safety Data Sheet**  
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Printing date 07/30/2016

Reviewed on 07/30/2016

**Trade name: Beryllium foil (99.5%)**

(Contd. of page 1)

· **Hazard pictograms**



· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

*beryllium*

· **Hazard statements**

*H300+H330 Fatal if swallowed or if inhaled.*

*H315 Causes skin irritation.*

*H319 Causes serious eye irritation.*

*H317 May cause an allergic skin reaction.*

*H350 May cause cancer.*

*H335 May cause respiratory irritation.*

*H372 Causes damage to organs through prolonged or repeated exposure.*

· **Precautionary statements**

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

*P284 [In case of inadequate ventilation] wear respiratory protection.*

*P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.*

*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.*

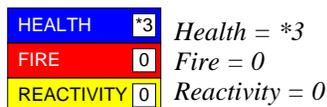
*P501 Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

**3 Composition/information on ingredients**

· **Chemical characterization: Substances**

· **CAS No. Description**

7440-41-7 beryllium

· **Identification number(s)**

· **EC number:** 231-150-7

(Contd. on page 3)

Printing date 07/30/2016

Reviewed on 07/30/2016

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· **Index number:** 004-001-00-7

(Contd. of page 2)

#### 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.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· **After inhalation:**

Supply fresh air or oxygen; call for doctor.

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

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:** Do not induce vomiting; immediately call for medical help.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

#### 5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **Special hazards arising from the substance or mixture** No further relevant information available.

· **Advice for firefighters**

· **Protective equipment:** Mouth respiratory protective device.

#### 6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.

· **Environmental precautions:**

Do not allow product to reach sewage system or any water course.

Inform respective authorities in case of seepage into water course or sewage system.

· **Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· **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.

US

(Contd. on page 4)

**Safety Data Sheet**  
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Printing date 07/30/2016

Reviewed on 07/30/2016

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(Contd. of page 3)

**7 Handling and storage**

- **Handling:**
- **Precautions for safe handling**  
Thorough dedusting.  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **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.
- **Specific end use(s)** No further relevant information available.

**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:**

**7440-41-7 beryllium**

PEL	Long-term value: 0.002 mg/m <sup>3</sup> Ceiling limit value: 0.005; 0.025* mg/m <sup>3</sup> as Be; *30 min peak per 8-hr shift
REL	Ceiling limit value: 0.0005 mg/m <sup>3</sup> as Be; See Pocket Guide App. A
TLV	Long-term value: 0.00005 mg/m <sup>3</sup> as Be; inhalable; RSEN; soluble comp.: Skin, DSEN

- **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.  
Store protective clothing separately.  
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

(Contd. on page 5)

**Safety Data Sheet**  
according to OSHA HCS

Printing date 07/30/2016

Reviewed on 07/30/2016

**Trade name: Beryllium foil (99.5%)**

(Contd. of page 4)

· **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

**9 Physical and chemical properties**

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· <b>Form:</b>	Foil
· <b>Color:</b>	Grey
· <b>Odor:</b>	Odorless
· <b>Odor threshold:</b>	Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

· <b>Melting point/Melting range:</b>	1278 °C (2332 °F)
· <b>Boiling point/Boiling range:</b>	2970 °C (5378 °F) (5mm)

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **Ignition temperature:**

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Not determined.

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

· **Explosion limits:**

· <b>Lower:</b>	Not determined.
· <b>Upper:</b>	Not determined.

· **Vapor pressure at 990 °C (1814 °F):** no data hPa

· **Density at 20 °C (68 °F):** 1.85 g/cm<sup>3</sup> (15.438 lbs/gal)

· **Relative density** Not determined.

· **Vapor density** Not applicable.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**

· **Water:** Insoluble.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

· **Dynamic:** Not applicable.

(Contd. on page 6)

**Safety Data Sheet**  
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Printing date 07/30/2016

Reviewed on 07/30/2016

**Trade name: Beryllium foil (99.5%)**

(Contd. of page 5)

<b>Kinematic:</b>	Not applicable.
<b>Solvent content:</b>	
<b>Organic solvents:</b>	0.0 %
<b>VOC content:</b>	0.0 g/l / 0.00 lb/gl
<b>Solids content:</b>	100.0 %
<b>Other information</b>	No further relevant information available.

**10 Stability and reactivity**

- **Reactivity** No further relevant information available.
- **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 further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

**11 Toxicological information**

- **Information on toxicological effects**
- **Acute toxicity:**

**LD/LC50 values that are relevant for classification:**

Dermal	LD50	496 mg/kg (rat)
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- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**

**Carcinogenic categories**

**IARC (International Agency for Research on Cancer)**

7440-41-7	beryllium	I
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**NTP (National Toxicology Program)**

7440-41-7	beryllium	K
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**OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

**12 Ecological information**

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.

(Contd. on page 7)

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Reviewed on 07/30/2016

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(Contd. of page 6)

- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

**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.

**14 Transport information**

· <b>UN-Number</b>	
· <b>DOT, IMDG, IATA</b>	UN1566
· <b>UN proper shipping name</b>	
· <b>DOT, IATA</b>	Beryllium compounds, n.o.s.
· <b>IMDG</b>	BERYLLIUM COMPOUND, N.O.S.
· <b>Transport hazard class(es)</b>	
· <b>DOT</b>	
	
· <b>Class</b>	6.1 Toxic substances
· <b>Label</b>	6.1
· <b>IMDG, IATA</b>	
	
· <b>Class</b>	6.1 Toxic substances
· <b>Label</b>	6.1
· <b>Packing group</b>	
· <b>DOT, IMDG, IATA</b>	II
· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Not applicable.
· <b>Danger code (Kemler):</b>	64
· <b>EMS Number:</b>	F-A,S-A
· <b>Stowage Category</b>	A
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.

(Contd. on page 8)

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Reviewed on 07/30/2016

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(Contd. of page 7)

**· Transport/Additional information:**

**· DOT**

**· Quantity limitations**

On passenger aircraft/rail: 25 kg

On cargo aircraft only: 100 kg

**· Hazardous substance:**

10 lbs, 4.54 kg

**· IMDG**

**· Limited quantities (LQ)**

.5kg

**· Excepted quantities (EQ)**

Code: E4

Maximum net quantity per inner packaging: 1 g

Maximum net quantity per outer packaging: 500 g

**· UN "Model Regulation":**

UN 1566 BERYLLIUM COMPOUNDS, N.O.S., 6.1, II

**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 listed.

**· TSCA (Toxic Substances Control Act):**

Substance is listed.

**· Proposition 65**

**· Chemicals known to cause cancer:**

Substance is 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)**

7440-41-7 | beryllium

B1, K/L(inh), CBD(oral)

**· TLV (Threshold Limit Value established by ACGIH)**

7440-41-7 | beryllium

AI

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

Substance is listed.

**· GHS label elements**

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

(Contd. on page 9)

**Safety Data Sheet**  
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(Contd. of page 8)

· **Hazard pictograms**



GHS06 GHS07 GHS08

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

*beryllium*

· **Hazard statements**

*H300+H330 Fatal if swallowed or if inhaled.*

*H315 Causes skin irritation.*

*H319 Causes serious eye irritation.*

*H317 May cause an allergic skin reaction.*

*H350 May cause cancer.*

*H335 May cause respiratory irritation.*

*H372 Causes damage to organs through prolonged or repeated exposure.*

· **Precautionary statements**

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

*P284 [In case of inadequate ventilation] wear respiratory protection.*

*P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.*

*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.*

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

· **National regulations:**

· **Additional classification according to Decree on Hazardous Materials:**

*Carcinogenic hazardous material group I (extremely dangerous).*

*Carcinogenic hazardous material group II (very dangerous).*

*Carcinogenic hazardous material group III (dangerous).*

· **Information about limitation of use:**

*Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.*

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

**16 Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Department issuing SDS:** *Technical Department.*

· **Contact:** *Technical Director*

· **Date of preparation / last revision** *07/30/2016 / -*

· **Abbreviations and acronyms:**

*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*ACGIH: American Conference of Governmental Industrial Hygienists*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

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

*NFPA: National Fire Protection Association (USA)*

(Contd. on page 10)

**Safety Data Sheet**  
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**Trade name: Beryllium foil (99.5%)**

(Contd. of page 9)

*HMIS: Hazardous Materials Identification System (USA)*  
*VOC: Volatile Organic Compounds (USA, EU)*  
*LC50: Lethal concentration, 50 percent*  
*LD50: Lethal dose, 50 percent*  
*PBT: Persistent, Bioaccumulative and Toxic*  
*vPvB: very Persistent and very Bioaccumulative*  
*NIOSH: National Institute for Occupational Safety*  
*OSHA: Occupational Safety & Health*  
*TLV: Threshold Limit Value*  
*PEL: Permissible Exposure Limit*  
*REL: Recommended Exposure Limit*  
*Acute Tox. 2: Acute toxicity, Hazard Category 2*  
*Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2*  
*Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A*  
*Skin Sens. 1: Sensitisation - Skin, Hazard Category 1*  
*Carc. 1B: Carcinogenicity, Hazard Category 1B*  
*STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3*  
*STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1*

US