

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**Trade name **Beryllium fluoride**

Stock number: 35827

CAS Number:

7787-49-7

EC number:

232-118-5

Index number:

004-002-00-2

1.2 Relevant identified uses of the substance or mixture and uses advised against.

Identified use: SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet**Manufacturer/Supplier:**

Thermo Fisher (Kandel) GmbH

Zeppelinstr. 7b

76185 Karlsruhe / Germany

Tel: +49 (0) 721 84007 280

Fax: +49 (0) 721 84007 300

Email: tech@alfa.com

www.alfa.com

Informing department: Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)

Poison Information Center Mainz

www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008



GHS06 skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 2 H330 Fatal if inhaled.



GHS08 health hazard

Carc. 1B H350i May cause cancer by inhalation.

STOT RE 1 H372 Causes damage to the lung and the blood system through prolonged or repeated exposure. Route of exposure: Inhalative.



GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H335 May cause respiratory irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T+; Very toxic

R26: Very toxic by inhalation.



T; Toxic

R49-25-48/23: May cause cancer by inhalation. Toxic if swallowed. Toxic: danger of serious damage to health by prolonged exposure through inhalation.



Xi; Irritant

R36/37/38: Irritating to eyes, respiratory system and skin.



Xi; Sensitising

R43: May cause sensitisation by skin contact.



N; Dangerous for the environment

R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information concerning particular hazards for human and environment: Not applicable**Other hazards that do not result in classification** No information known.**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008** The substance is classified and labelled according to the CLP regulation.**Hazard pictograms**

GHS06 GHS08 GHS09

Signal word Danger**Hazard statements**

H301 Toxic if swallowed.

H330 Fatal if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H350i May cause cancer by inhalation.

H335 May cause respiratory irritation.

H372 Causes damage to the lung and the blood system through prolonged or repeated exposure. Route of exposure: Inhalative.

H411 Toxic to aquatic life with long lasting effects.

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Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
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.
P320 Specific treatment is urgent (see on this label).
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Substances

CAS# Designation:

7787-49-7 Beryllium fluoride

Identification number(s):

EC number: 232-118-5

Index number: 004-002-00-2

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Instantly remove any clothing soiled by the product.
Remove breathing apparatus only after soiled clothing has been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Seek immediate medical advice.

After skin contact

Instantly wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

After eye contact Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing Do not induce vomiting; instantly call for medical help.

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

4.3 Indication of any immediate medical attention and special treatment needed No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents Product is not flammable. Use fire-fighting measures that suit the surrounding fire.

5.2 Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:

Hydrogen fluoride (HF)

Toxic metal oxide smoke

5.3 Advice for firefighters

Protective equipment:

Wear self-contained breathing apparatus.

Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

6.2 Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.

6.3 Methods and material for containment and cleaning up:

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Prevention of secondary hazards: No special measures required.

6.4 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 information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep containers tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation/exhaustion at the workplace.

Open and handle container with care.

Information about protection against explosions and fires: The product is not flammable

7.2 Conditions for safe storage, including any incompatibilities

Storage

Requirements to be met by storerooms and containers: No special requirements.

Information about storage in one common storage facility: No information known.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Store in a locked cabinet or with access restricted to technical experts or their assistants.

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters

Components with critical values that require monitoring at the workplace:

Fluorides (as F)

mg/m³

ACGIH TLV 2.5

Austria MAK 2.5

Belgium TWA 2.5

Finland TWA 2.5

France TWA 2.5

Germany MAK 2.5

Hungary TWA 1; 2-STEL

Netherlands MAC-K 3.5

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| | |
|--------------------|--------------|
| Norway TWA | 0.6 |
| Poland TWA | 1; 3-STEL |
| Sweden NGV | 2 |
| Switzerland MAK-W | 1.5; 3-KZG-W |
| United Kingdom TWA | 2.5 |
| Russia TWA | 2 |
| Denmark TWA | 2.5 |
| USA PEL | 2.5 |

Beryllium and compounds, as Be
mg/m³

| | |
|---------------------|--|
| ACGIH TLV | 0.0005; 0.0002-STEL (inhalable fraction); Confirmed human carcinogen |
| Austria | Carcinogen |
| Belgium TWA | 0.002; Carcinogen |
| Denmark TWA | 0.001 |
| Finland TWA | 0.002; 0.006-STEL; Carcinogen |
| France VME | 0.002; C2 Carcinogen |
| Germany | Carcinogen |
| Hungary TWA | 0.001; Carcinogen |
| Japan OEL | 0.002; 2A Carcinogen |
| Korea TLV | 0.002; 0.01-STEL; Confirmed human carcinogen |
| Netherlands MAC-TGG | 0.002; Carcinogen |
| Norway TWA | 0.001 |
| Poland TWA | 0.001; 0.003-STEL |
| Russia | 0.001-STEL; Carcinogen |
| Sweden NGV | 0.002; Carcinogen |
| Switzerland MAK-W | 0.002; Carcinogen |
| United Kingdom TWA | 0.002; Carcinogen |
| USA PEL | 0.002 |

7787-49-7 Beryllium fluoride (100,0%)

| | |
|--------------------------|--|
| MAK (Germany) | vgl.Abschn.XII |
| TRK (TRGS 900) (Germany) | Long-term value: 0,002 G mg/m ³ |
| PEL (USA) | Long-term value: 0,002 mg/m ³ Ceiling limit: 0,005; 0,025* mg/m ³ as Be: *30 min peak per 8-hr shift |
| REL (USA) | Ceiling limit: 0,0005 mg/m ³ as Be; See Pocket Guide App. A |
| TLV (USA) | Long-term value: 0,00005* mg/m ³ as Be;*inhalable; (SEN)NIC-DSEN;RSEN;Skin |

Additional information: No data

8.2 Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use self-contained respiratory protective device in emergency situations.

Protection of hands:

Check protective gloves prior to each use for their proper condition.

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.

Material of gloves: Impervious gloves

Eye protection:

Safety glasses

Face protection

Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

| | |
|-------------------------|-----------------|
| Form: | Chunks |
| Colour: | Colourless |
| Smell: | Not determined |
| Odour threshold: | Not determined. |

pH-value: Not applicable.

Change in condition

| | |
|---|----------------|
| Melting point/Melting range: | 800 °C ((sub)) |
| Boiling point/Boiling range: | Not determined |
| Sublimation temperature / start: | Not determined |

| | |
|--|-----------------|
| Flash point: | Not applicable |
| Inflammability (solid, gaseous) | Not determined. |
| Ignition temperature: | Not determined |
| Decomposition temperature: | Not determined |
| Self-inflammability: | Not determined. |

Danger of explosion: Product is not explosive.

Critical values for explosion:

| | |
|----------------------------------|-------------------------|
| Lower: | Not determined |
| Upper: | Not determined |
| Steam pressure at 291 °C: | 1,3 hPa |
| Density at 20 °C | 1,899 g/cm ³ |
| Relative density | Not determined. |
| Vapour density | Not applicable. |
| Evaporation rate | Not applicable. |

Solubility in / Miscibility with

Water: Soluble

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

Viscosity:

dynamic: Not applicable.

kinematic: Not applicable.

9.2 Other information No further relevant information available.

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SECTION 10: Stability and reactivity

10.1 Reactivity No information known.
10.2 Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions No dangerous reactions known
10.4 Conditions to avoid No further relevant information available.
10.5 Incompatible materials: No information known.
10.6 Hazardous decomposition products:
 Hydrogen fluoride
 Toxic metal oxide smoke

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity:
 Fatal if inhaled.
 Toxic if swallowed.
LD/LC50 values that are relevant for classification: No data
Skin irritation or corrosion: Causes skin irritation.
Eye irritation or corrosion: Causes serious eye irritation.
Sensitization: May cause an allergic skin reaction.
Germ cell mutagenicity: No effects known.
Carcinogenicity:
 May cause cancer.
 EPA-B2: Probable human carcinogen, sufficient evidence from animal studies; inadequate evidence or no data from epidemiologic studies.
 IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.
 NTP-R: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.
 ACGIH A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies of, or convincing clinical evidence in, exposed humans.
 The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.
Reproductive toxicity: No effects known.
Specific target organ system toxicity - repeated exposure:
 Causes damage to the lung and the blood system through prolonged or repeated exposure. Route of exposure: Inhalative.
Specific target organ system toxicity - single exposure: May cause respiratory irritation.
Aspiration hazard: No effects known.
Other information (about experimental toxicology): Tumorigenic effects have been observed on tests with laboratory animals.
Subacute to chronic toxicity: No effects known.
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.



SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.
12.2 Persistence and degradability No further relevant information available.
12.3 Bioaccumulative potential No further relevant information available.
12.4 Mobility in soil No further relevant information available.
Ecotoxicological effects:
Remark: Toxic for fish
Additional ecological information:
General notes:
 Do not allow material to be released to the environment without proper governmental permits.
 Toxic for aquatic organisms
 Water danger class 3 (Self-assessment): extremely hazardous for water.
 Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
 Danger to drinking water if even extremely small quantities leak into soil.
 Also poisonous for fish and plankton in water bodies.
 Toxic to aquatic life.
 May cause long lasting harmful effects to aquatic life.
 Avoid transfer into the environment.
12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
 Hand over to disposers of hazardous waste.
 Must be specially treated under adherence to official regulations.
 Consult state, local or national regulations for proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.
Recommended cleaning agent: Water, if necessary with cleaning agent.

SECTION 14: Transport information

| | |
|--|---|
| UN-Number ADR, IMDG, IATA | UN1566 |
| 14.2 UN proper shipping name ADR IMDG, IATA | 1566 BERYLLIUM COMPOUND, N.O.S. (beryllium fluoride) BERYLLIUM COMPOUND, N.O.S. (beryllium fluoride) |
| 14.3 Transport hazard class(es) ADR | |
|  | |
| Class Label IMDG, IATA | 6.1 (T5) Toxic substances. 6.1 |
|  | |
| Class Label | 6.1 Toxic substances. 6.1 |

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| | |
|---|--|
| Packing group ADR, IMDG, IATA | II |
| 14.5 Environmental hazards: | Environmentally hazardous substance, solid |
| 14.6 Special precautions for user Kemler Number: | Warning: Toxic substances. 60 |
| 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| Transport/Additional information: | |
| ADR Excepted quantities (EQ): Limited quantities (LQ) Transport category Tunnel restriction code | E4 LQ18 2 D/E |
| UN "Model Regulation": | UN1566, BERYLLIUM COMPOUND, N.O.S. (beryllium fluoride), 6.1, II |

SECTION 15: Regulatory information

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

Australian Inventory of Chemical Substances Substance is not listed.
Standard for the Uniform Scheduling of Drugs and Poisons Substance is not listed.

National regulations

Information about limitation of use:

Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.

Water hazard class: Water danger class 3 (Self-assessment): extremely hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances) Substance is not listed.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.

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

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department

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

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

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

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

vPvB: very Persistent and very Bioaccumulative

ACGIH: American Conference of Governmental Industrial Hygienists (USA)

OSHA: Occupational Safety and Health Administration (USA)

NTP: National Toxicology Program (USA)

IARC: International Agency for Research on Cancer

EPA: Environmental Protection Agency (USA)