

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**Trade name **Bismuth (III) fluoride**

Stock number: 11844

CAS Number:

7787-61-3

EC number:

232-124-8

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



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

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



Xi; Irritant

R36/38: Irritating to eyes and skin.

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

GHS07

Signal word Warning

Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Precautionary statements

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

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P362 Take off contaminated clothing.

P321 Specific treatment (see on this label).

P332+P313 If skin irritation occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

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:**

7787-61-3 Bismuth (III) fluoride

Identification number(s):

EC number: 232-124-8

SECTION 4: First aid measures**4.1 Description of first aid measures****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.

Rub in Ca-gluconate solution or Ca-gluconate gel immediately.

Seek immediate medical advice.

After eye contact Rinse opened eye for several minutes under running water. Then consult doctor.**After swallowing** Seek medical treatment.**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)

Trade name **Bismuth (III) fluoride**

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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: Collect mechanically.

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.

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: Not required.

Further information about storage conditions:

Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

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/m ³ |
|--------------------|-------------------|
| 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 |
| 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 |

7787-61-3 Bismuth (III) fluoride (100,0%)

| | |
|---------------|---|
| AGW (Germany) | Long-term value: 1 E mg/m ³ 4(II); als Fluor berechnet; DFG, Y, H |
| PEL (USA) | Long-term value: 2,5 mg/m ³ as F |
| REL (USA) | Long-term value: 2,5 mg/m ³ as F |
| TLV (USA) | Long-term value: 2,5 mg/m ³ as F, BEI |

Ingredients with biological limit values:

7787-61-3 Bismuth (III) fluoride (100,0%)

| | |
|---------------|---|
| BGW (Germany) | 7,0 mg/g Kreatinin Untersuchungsmaterial: Urin Probennahmezeitpunkt: Expositionsende bzw. Schichtende Parameter: Fluorid |
| BEI (USA) | 4,0 mg/g Kreatinin Untersuchungsmaterial: Urin Probennahmezeitpunkt: vor nachfolgender Schicht Parameter: Fluorid |
| | 2 mg/L Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific) |
| | 3 mg/L Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific) |

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.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.

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Breathing equipment: Use breathing protection with high concentrations.

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: Powder

Colour: White

Smell: Odourless

Odour threshold: Not determined.

pH-value: Not applicable.

Change in condition

Melting point/Melting range: 727 °C

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: Not applicable.

Density at 20 °C 5,32 g/cm³

Relative density Not determined.

Vapour density Not applicable.

Evaporation rate Not applicable.

Solubility in / Miscibility with

Water: Insoluble

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

Viscosity:

dynamic: Not applicable.

kinematic: Not applicable.

9.2 Other information No further relevant information available.

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity: No effects known.

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: No sensitizing effect known.

Germ cell mutagenicity: No effects known.

Carcinogenicity:

IARC-3: Not classifiable as to carcinogenicity to humans.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

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.

Additional ecological information:

General notes:

Do not allow material to be released to the environment without proper governmental permits.

Generally not hazardous for water.

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.



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Consult state, local or national regulations for proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

| | |
|---|---|
| UN-Number ADR, IMDG, IATA | UN3260 |
| 14.2 UN proper shipping name ADR | 3260 CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Bismuth (III) fluoride) |
| IMDG, IATA | CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Bismuth (III) fluoride) |
| 14.3 Transport hazard class(es) ADR | |
|  | |
| Class Label IMDG, IATA | 8 (C2) Corrosive substances. 8 |
|  | |
| Class Label | 8 Corrosive substances. 8 |
| Packing group ADR, IMDG, IATA | III |
| 14.5 Environmental hazards: | Not applicable. |
| 14.6 Special precautions for user Kemler Number: Segregation groups | Warning: Corrosive substances. 80 Acids |
| 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 | E1 5 kg 3 E |
| UN "Model Regulation": | UN3260, CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Bismuth (III) fluoride), 8, III |

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: Generally not 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)