

## Chemical Safety Data Sheet MSDS / SDS

**ANTIMONY PENTAFLUORIDE**Revision Date:2025-02-01 Revision Number:1

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : ANTIMONY PENTAFLUORIDE  
CBnumber : CB5716957  
CAS : 7783-70-2  
EINECS Number : 232-021-8  
Synonyms : SbF<sub>5</sub>,Antimony pentafluoride

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

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

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 3

**Label elements****Pictogram(s)**

Signal word : Warning

**Hazard statement(s)**

H411 Toxic to aquatic life with long lasting effects

**Precautionary statement(s)**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

**Prevention**

P273 Avoid release to the environment.

**Response**

none

**Storage**

none

#### Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

#### Other hazards

no data available

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## SECTION 3: Composition/information on ingredients

### Substance

Product name	: ANTIMONY PENTAFLUORIDE
Synonyms	: SbF <sub>5</sub> , Antimony pentafluoride
CAS	: 7783-70-2
EC number	: 232-021-8
MF	: F <sub>5</sub> Sb
MW	: 216.75

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## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Fresh air, rest. Half-upright position. Refer immediately for medical attention. See Notes.

#### Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer immediately for medical attention. Apply calcium gluconate to the burn areas.

#### Following eye contact

Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.

#### Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

### Most important symptoms and effects, both acute and delayed

The compound is irritating to eyes, skin, and lungs. Contact with eyes or skin causes severe burns. The compound is extremely toxic with a probable oral lethal dose of 5-50 mg/kg or between 7 drops and one teaspoonful for a 150 pound person (antimony salts). (EPA, 1998)

### Indication of any immediate medical attention and special treatment needed

#### Absorption, Distribution and Excretion

Distribution in rats after chronic poisoning by inhalation of antimony pentafluoride showed high antimony concn in blood. levels in liver, kidneys, spleen and pancreas were similar. the antimony was retained for a long time and could be detected in organs under examination one month after experiment discontinued.

## SECTION 5: Firefighting measures

### Extinguishing media

Approach fire from upwind to avoid hazardous vapors & toxic decomposition products. Use dry chemical, carbon dioxide or flooding quantities of water as spray on fire involved material.

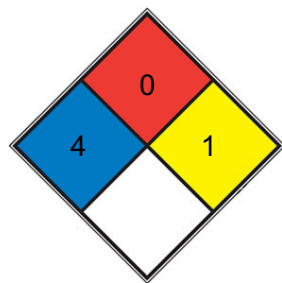
### Specific Hazards Arising from the Chemical

Reacts violently with water, to form poisonous hydrogen fluoride fumes. If confined and wet can cause explosion. May cause fire in contact with combustible material. Hazardous polymerization may not occur. (EPA, 1998)

### Advice for firefighters

Use powder, carbon dioxide. NO water. NO hydrous agents. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact with water.

### NFPA 704



■ HEALTH 4 Very short exposure could cause death or major residual injury (e.g. hydrogen cyanide, phosgene, methyl isocyanate, [hydrofluoric acid](#))

■ FIRE 0 Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

■ REACT 1 Normally stable, but can become unstable at elevated temperatures and pressures (e.g. [propene](#))

☐ SPEC.  
☐ HAZ.

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Do NOT wash away into sewer. Do NOT absorb in saw-dust or other combustible absorbents. Do NOT let this chemical enter the environment. Then store and dispose of according to local regulations.

### Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Do NOT wash away into sewer. Do NOT absorb in saw-dust or other combustible absorbents. Do NOT let this chemical enter the environment. Then store and dispose of according to local regulations.

## Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## SECTION 7: Handling and storage

### Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### Conditions for safe storage, including any incompatibilities

Separated from combustible substances, reducing agents and food and feedstuffs. Dry. Well closed. Keep in a well-ventilated room. Do NOT store or transport in containers made from metal or glass. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access. Store in a cool, dry, well-ventilated location. Outside or detached storage is preferred. Separate from organic or siliceous materials.

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

TLV: 0.5 mg/m<sup>3</sup>, as TWA. MAK: carcinogen category: 2; germ cell mutagen group: 3B

#### Biological limit values

no data available

### Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### Individual protection measures

#### Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use ventilation, local exhaust or breathing protection.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

## Information on basic physicochemical properties

Physical state	Shiny Flakes or Powder
Colour	White to off-white
Odour	SHARP ODOR
Melting point/freezing point	7°C(lit.)
Boiling point or initial boiling point and boiling range	148-150°C(lit.)
Flammability	Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	149.5°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.768 cp @ 24.4 deg C (est)
Solubility	liquid sulfur dioxide: slightly soluble(lit.)
Partition coefficient n-octanol/water	no data available
Vapour pressure	10 mm Hg ( 25 °C)
Density and/or relative density	2.993g/mL at 25°C(lit.)
Relative vapour density	2.2 (vs air)
Particle characteristics	no data available

## SECTION 10: Stability and reactivity

### Reactivity

Decomposes on heating and on burning. This produces toxic and corrosive fumes including antimony and fluorine. Reacts violently with water. This produces toxic and corrosive hydrogen fluoride (see ICSC 0283). Attacks many metals. This produces a combustible/explosive gas (hydrogen - see ICSC 0001).

### Chemical stability

no data available

### Possibility of hazardous reactions

ANTIMONY PENTAFLUORIDE is strongly acidic. Reacts vigorously with bases. When heated to decomposition, it emits highly toxic fumes of fluorides and metallic antimony. Reacts with ammonia to form a diammoniate.

### Conditions to avoid

no data available

### Incompatible materials

Reacts violently with water. also forms a solid dihydrate, which reacts violently with more water to form a clear soln.

## Hazardous decomposition products

When heated to decomp it emits very toxic fumes of /hydrogen fluoride/ and antimony.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

A4; Not classifiable as a human carcinogen. Fluorides, as F

### Reproductive toxicity

no data available

### STOT-single exposure

Corrosive. Inhalation may cause severe swelling of the throat. This may result in asphyxia. Inhalation may cause lung oedema, but only after initial corrosive effects on eyes and/or airways have become manifest. Exposure at high levels could cause severe lung damage. See Notes. Medical observation is indicated.

### STOT-repeated exposure

The substance may have effects on the cardiovascular system and respiratory tract. This may result in impaired functions.

### Aspiration hazard

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

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## SECTION 12: Ecological information

### Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

### **Persistence and degradability**

no data available

### **Bioaccumulative potential**

no data available

### **Mobility in soil**

no data available

### **Other adverse effects**

no data available

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## SECTION 13: Disposal considerations

### **Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### **UN Number**

ADR/RID: UN1732 (For reference only, please check.)

IMDG: UN1732 (For reference only, please check.)

IATA: UN1732 (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: ANTIMONY PENTAFLUORIDE (For reference only, please check.)

IMDG: ANTIMONY PENTAFLUORIDE (For reference only, please check.)

IATA: ANTIMONY PENTAFLUORIDE (For reference only, please check.)

### **Transport hazard class(es)**

ADR/RID: 8 (For reference only, please check.)

IMDG: 8 (For reference only, please check.)

IATA: 8 (For reference only, please check.)

**Packing group, if applicable**

ADR/RID: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (For reference only, please check.)

**Environmental hazards**

ADR/RID: No

IMDG: No

IATA: No

**Special precautions for user**

no data available

**Transport in bulk according to IMO instruments**

no data available

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## SECTION 15: Regulatory information

**Safety, health and environmental regulations specific for the product in question****European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

**EC Inventory**

Listed.

**United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

**China Catalog of Hazardous chemicals 2015**

Listed.

**New Zealand Inventory of Chemicals (NZIoC)**

Listed.

**PICCS**

Listed.

**Vietnam National Chemical Inventory**

Listed.

**IECSC**

Listed.

**Korea Existing Chemicals List (KECL)**

Listed.

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## SECTION 16: Other information

**Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

## References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

## Other Information

Reacts violently with fire extinguishing agents such as water. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered. See ICSC 0283. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.