

Silver hexafluoroantimonate(V)

sc-253558



The Power is Question

Material Safety Data Sheet

Hazard Alert Code
Key:

EXTREME

HIGH

MODERATE

LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

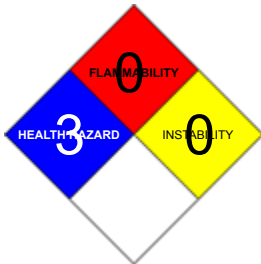
PRODUCT NAME

Silver hexafluoroantimonate(V)

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY

ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

AgSbF6, "silver hexa-fluoro-antimonate"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	0	4
Toxicity	2	4
Body Contact	4	4
Reactivity	0	4
Chronic	2	4

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Causes severe burns.

Risk of serious damage to eyes.

Harmful by inhalation and if swallowed.

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

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

■ Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident.

■ Antimony poisoning causes similar symptoms to arsenic poisoning although vomiting is more prominent. There may be changes in the rhythm of the heart beat.

■ Fluoride causes severe loss of calcium in the blood, with symptoms appearing several hours later including painful and rigid muscle contractions of the limbs.

Cardiovascular collapse can occur and may cause death with increased heart rate and other heart rhythm irregularities.

EYE

■ The material can produce severe chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.

■ If applied to the eyes, this material causes severe eye damage.

■ Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns.

Mild burns of the epithelia generally recover rapidly and completely.

SKIN

■ The material can produce severe chemical burns following direct contact with the skin.

■ Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.

■ Skin contact is not thought to produce harmful health effects (as classified under EC Directives using animal models).

Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions.

■ Skin contact with antimony compounds may result in redness and severe irritation with the formation of itchy papules, pustules, skin lesions/ small septic blisters (antimony spots) within a few hours.

Rhinitis may also result from dermal contact.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ Inhalation of dusts, generated by the material, during the course of normal handling, may be harmful.

■ The material can cause respiratory irritation in some persons.

The body's response to such irritation can cause further lung damage.

■ Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage.

There may be dizziness, headache, nausea and weakness.

■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic

bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.

■ Inhalation of antimony can cause breathing difficulties and gastrointestinal upset including sore throat, shallow breathing, dizziness, weight loss, gum bleeds and anaemia.

Lung swelling and congestion can occur.

■ Acute effects of fluoride inhalation include irritation of nose and throat, coughing and chest discomfort.

A single acute over-exposure may even cause nose bleed.

CHRONIC HEALTH EFFECTS

■ Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs. Chronic exposure may inflame the skin or conjunctiva.

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on X-ray.

Repeated or prolonged exposure to antimony and its compounds may produce inflammation of the mouth cavity, dry throat, metallic taste, gum infection, perforation of the nasal septum and throat, laryngitis, headache, difficulty breathing, indigestion, nausea, vomiting, diarrhoea, loss of appetite, anaemia, weight loss, tightness and pain in the chest, sleeplessness, muscular pain and weakness, dizziness, pharyngitis, bronchitis and pneumonia. Degenerative changes of the liver and kidney may occur. Chronic exposure to antimony compounds may result in itchiness, spots and pus blisters around sweat glands. Workers exposed to antimony can develop obstructive lung disease. Antimony crosses the placenta and is excreted in breast milk. There may be an increased incidence of spontaneous late abortions, premature births, and gynaecological problems among female antimony smelter workers. Antimony may be associated with an increased incidence of cancers of the lung and chest.

Extended exposure to inorganic fluorides causes fluorosis, which includes signs of joint pain and stiffness, tooth discolouration, nausea and vomiting, loss of appetite, diarrhoea or constipation, weight loss, anaemia, weakness and general unwellness. There may also be frequent urination and thirst. Redness, itchiness and allergy-like inflammation of the skin and mouth cavity can occur. The central nervous system may be involved.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
Silver hexafluoroantimonate(V)	26042-64-8	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE

If this product comes in contact with the eyes

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.

SKIN

If there is evidence of severe skin irritation or skin burns

- Avoid further contact. Immediately remove contaminated clothing, including footwear.
- Flush skin under running water for 15 minutes.
- Avoiding contamination of the hands, massage calcium gluconate gel into affected areas, pay particular attention to creases in skin.
- Contact the Poisons Information Centre.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

For massive exposures

- If dusts, vapours, aerosols, fumes or combustion products are inhaled, remove from contaminated area.
- Lay patient down.
- Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.

NOTES TO PHYSICIAN

■

- Chelation with British Anti-Lewisite (BAL) for serious antimony exposures should be employed.
- Dialyse as needed. The role of exchange diffusion is not clear.
- Be sure to monitor for dysrhythmias.

[Ellenhorn and Barceloux Medical Toxicology].

For acute or short term repeated exposures to strong acids

- Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
- Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
- Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
- Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the dessicating action of the acid on proteins in specific tissues.

For acute or short term repeated exposures to fluorides

- Fluoride absorption from gastro-intestinal tract may be retarded by calcium salts, milk or antacids.
- Fluoride particulates or fume may be absorbed through the respiratory tract with 20-30% deposited at alveolar level.
- Peak serum levels are reached 30 mins. post-exposure; 50% appears in the urine within 24 hours.
- For acute poisoning (endotracheal intubation if inadequate tidal volume), monitor breathing and evaluate/monitor blood pressure and pulse frequently since shock may supervene with little warning. Monitor ECG immediately; watch for arrhythmias and evidence of Q-T prolongation or T-wave changes. Maintain monitor. Treat shock vigorously with isotonic saline (in 5% glucose) to restore blood volume and enhance renal excretion.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not applicable
Specific Gravity (water=1)	Not available

Lower Explosive Limit (%) Not applicable

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Non combustible.
- Not considered to be a significant fire risk.
- Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.
- Heating may cause expansion or decomposition leading to violent rupture of containers.

Decomposition may produce toxic fumes of hydrogen fluoride, metal oxides.

FIRE INCOMPATIBILITY

None known.

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
- Check regularly for spills and leaks.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- **WARNING** To avoid violent reaction, ALWAYS add material to water and NEVER water to material.

RECOMMENDED STORAGE METHODS

- DO NOT use aluminium or galvanised containers
- Check regularly for spills and leaks

Store in a dark glass or other suitable light resistant container.

- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.

- Packing as recommended by manufacturer.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

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STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Canada - British Columbia Occupational Exposure Limits	silver hexafluoroantimonate (Silver and Compounds (as Ag))		0.01		0.03				
Canada - Northwest Territories Occupational Exposure Limits (English)	silver hexafluoroantimonate (Silver, soluble compounds (as Ag))		0.01		0.03				
US - Oregon Permissible Exposure Limits (Z-1)	silver hexafluoroantimonate (Silver, metal and soluble compounds (as Ag))	-	0.01						
Canada - Nova Scotia Occupational Exposure Limits	silver hexafluoroantimonate (Silver - Soluble compounds (as Ag))		0.01						TLV Basis argyria
US OSHA Permissible Exposure Levels (PELs) - Table Z1	silver hexafluoroantimonate (Silver, metal and soluble compounds (as Ag))		0.01						
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	silver hexafluoroantimonate (Silver, metal and soluble compounds (as Ag))		0.01						
US - Washington Permissible exposure limits of air contaminants	silver hexafluoroantimonate (Silver, metal dust and soluble compounds (as Ag))		0.01		0.03				

Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	silver hexafluoroantimonate (Silver, metal and soluble compounds (as Ag))	-	0.01	-	0.03
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	silver hexafluoroantimonate (Silver soluble compounds, (as Ag))		0.01		0.03
US - Michigan Exposure Limits for Air Contaminants	silver hexafluoroantimonate (Silver, metal and soluble compounds (as Ag))		0.01		
US - Hawaii Air Contaminant Limits	silver hexafluoroantimonate (Silver, metal and soluble compounds (as Ag))		0.01		
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	silver hexafluoroantimonate (Silver, metal and soluble compounds (as Ag))		0.01		
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	silver hexafluoroantimonate (Silver, metal and soluble compounds (as Ag))		0.01		
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	silver hexafluoroantimonate (Silver, metal and soluble compounds (as Ag))		0.01		
US NIOSH Recommended Exposure Limits (RELs)	silver hexafluoroantimonate (Silver (metal dust and soluble compounds, as Ag))		0.01		
US - Minnesota Permissible Exposure Limits (PELs)	silver hexafluoroantimonate (Silver, metal and soluble compounds (as Ag))		0.01		
US - Idaho - Limits for Air Contaminants	silver hexafluoroantimonate (Silver, metal and		0.01		

	soluble compounds (as Ag))		
Canada - Alberta Occupational Exposure Limits	silver hexafluoroantimonate (Silver - Soluble compounds, as Ag)	0.01	
US - California Permissible Exposure Limits for Chemical Contaminants	silver hexafluoroantimonate (Silver, soluble compounds, as Ag)	0.01	
US ACGIH Threshold Limit Values (TLV)	silver hexafluoroantimonate (Silver Soluble compounds, as Ag)	0.01	TLV® Basis Argyria
Canada - Prince Edward Island Occupational Exposure Limits	silver hexafluoroantimonate (Silver Soluble compounds, as Ag)	0.01	TLV® Basis Argyria
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	silver hexafluoroantimonate (Silver Soluble compounds (as Ag))	0.01	
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5	
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5	
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5	
US - Oregon Permissible Exposure Limits (Z-1)	silver hexafluoroantimonate (Antimony & Compounds (as Sb))	- 0.5	
US - Michigan Exposure Limits for Air Contaminants	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5	

Canada - Nova Scotia Occupational Exposure Limits	silver hexafluoroantimonate (Antimony - Compounds)	0.5				Measured as Sb. TLV Basis skin & upper respiratory tract irritation
Canada - Northwest Territories Occupational Exposure Limits (English)	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5		1.5		
US - Alaska Limits for Air Contaminants	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5				
US - Washington Permissible exposure limits of air contaminants	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5		1.5		
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	silver hexafluoroantimonate (Antimony and compounds (as Sb))	-	0.5	-	0.75	
US - Hawaii Air Contaminant Limits	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5				
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	silver hexafluoroantimonate (Antimony and compounds, (as Sb))	0.5		1.5		
Canada - Prince Edward Island Occupational Exposure Limits	silver hexafluoroantimonate (Antimony and compounds, as Sb)	0.5				TLV® Basis Skin & URT irr
US - Minnesota Permissible Exposure Limits (PELs)	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5				
Canada - British Columbia Occupational Exposure Limits	silver hexafluoroantimonate (Antimony and compounds, as Sb)	0.5				
US - Idaho - Limits for Air Contaminants	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5				

US - California Permissible Exposure Limits for Chemical Contaminants	silver hexafluoroantimonate (Antimony and compounds, as Sb)	0.5		
Canada - Alberta Occupational Exposure Limits	silver hexafluoroantimonate (Antimony & compounds, as Sb)	0.5		
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	silver hexafluoroantimonate (Antimony, metal and compounds (as Sb))	0.5		
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	silver hexafluoroantimonate (Antimony and compounds(as Sb))	0.5		
US ACGIH Threshold Limit Values (TLV)	silver hexafluoroantimonate (Antimony and compounds, as Sb)	0.5		TLV® Basis Skin & URT irr
US OSHA Permissible Exposure Levels (PELs) - Table Z1	silver hexafluoroantimonate (Antimony and compounds (as Sb))	0.5		
US ACGIH Threshold Limit Values (TLV)	silver hexafluoroantimonate (Fluorides, as F)	2.5		TLV® Basis Bone dam; fluorosis ; BEI
Canada - Prince Edward Island Occupational Exposure Limits	silver hexafluoroantimonate (Fluorides, as F)	2.5		TLV® Basis Bone dam; fluorosis ; BEI
US - Hawaii Air Contaminant Limits	silver hexafluoroantimonate (Fluorides (as F))	2.5		(CAS (Varies with compound))
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	silver hexafluoroantimonate (Fluoride, (as F))	2.5	5	
US - Alaska Limits for Air Contaminants	silver hexafluoroantimonate (Fluorides (as F))	2.5		
Canada - Nova Scotia Occupational Exposure Limits	silver hexafluoroantimonate (Fluorides (as F))	2.5		TLV Basis bone damage; fluorosis. BEI

US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	silver hexafluoroantimonate (Fluorides (as F))	2.5	
US - Michigan Exposure Limits for Air Contaminants	silver hexafluoroantimonate (Fluorides (as F))	2.5	
Canada - Northwest Territories Occupational Exposure Limits (English)	silver hexafluoroantimonate (Fluoride (as F))	2.5	5

PERSONAL PROTECTION



RESPIRATOR

- Acid vapour Type B cartridge/ canister. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure
- Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted
- Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.
- Alternatively a gas mask may replace splash goggles and face shields.

HANDS/FEET

- Elbow length PVC gloves

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.

ENGINEERING CONTROLS

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Mixes with water.

Corrosive.

Acid.

State	DIVIDED SOLID	Molecular Weight	343.62
Melting Range (°F)	Not available	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not Applicable	pH (1% solution)	Not available.
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not applicable	Relative Vapour Density (air=1)	Not applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

APPEARANCE

Crystalline powder which may discolour on exposure to air; mixes with water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Contact with alkaline material liberates heat
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

STORAGE INCOMPATIBILITY

- Inorganic acids are generally soluble in water with the release of hydrogen ions. The resulting solutions have pH's of less than 7.0.
- Inorganic acids neutralise chemical bases (for example amines and inorganic hydroxides) to form salts - neutralisation can generate dangerously large amounts of heat in small spaces.
- The dissolution of inorganic acids in water or the dilution of their concentrated solutions with additional water may generate significant heat.
- The addition of water to inorganic acids often generates sufficient heat in the small region of mixing to cause some of the water to boil explosively. The resulting "bumping" can spatter the acid.
- **WARNING** Avoid or control reaction with peroxides. All transition metal peroxides should be considered as potentially explosive. For example transition metal complexes of alkyl hydroperoxides may decompose explosively.
- The pi-complexes formed between chromium(0), vanadium(0) and other transition metals (haloarene-metal complexes) and mono-or poly-fluorobenzene show extreme sensitivity to heat and are explosive.
- Avoid reaction with borohydrides or cyanoborohydrides
- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
- These trifluorides are hypergolic oxidisers. They ignites on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
- The state of subdivision may affect the results.
- Silver or silver salts readily form explosive silver fulminate in the presence of both nitric acid and ethanol. The resulting fulminate is much more sensitive and a more powerful detonator than mercuric fulminate.
- Silver and its compounds and salts may also form explosive compounds in the presence of acetylene and

nitromethane.

Salts of inorganic fluoride

- react with water forming acidic solutions.
- are violent reactive with boron, bromine pentafluoride, bromine trifluoride, calcium disilicide, calcium hydride, oxygen difluoride, platinum, potassium.
- in aqueous solutions are incompatible with sulfuric acid, alkalis, ammonia, aliphatic amines, alkanolamines, alkylene oxides, amides, epichlorohydrin, isocyanates, nitromethane, organic anhydrides, vinyl acetate.
- corrode metals in presence of moisture

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

silver hexafluoroantimonate

TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

No significant acute toxicological data identified in literature search.

CARCINOGEN

Fluorides, as F	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A4
CAS~	US - Maine Chemicals of High Concern List	Carcinogen	A4
CAS~	Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens	Notes	TLV® Basis Bone dam; fluorosis ; BEI

Section 12 - ECOLOGICAL INFORMATION

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

This material and its container must be disposed of as hazardous waste.

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information

Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.

- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.

For small quantities:

- Cautiously dissolve in water
- Neutralise with sodium carbonate or if product does not dissolve completely add a small quantity of hydrochloric acid followed by sodium carbonate
- Add excess calcium chloride to precipitate the fluoride and/ or carbonate
- Remove solids to site approved for hazardous waste

Recycle wherever possible.

- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Treat and neutralise at an approved treatment plant. Treatment should involve: Mixing or slurring in water; Neutralisation with soda-lime or soda-ash followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION



DOT:

Symbols:	None	Hazard class or Division:	8
Identification Numbers:	UN3260	PG:	II
Label Codes:	8	Special provisions:	IB8, IP2, IP4, T3, TP33
Packaging: Exceptions:	154	Packaging: Non-bulk:	212
Packaging: Exceptions:	154	Quantity limitations: Passenger aircraft/rail:	15 kg
Quantity Limitations: Cargo aircraft only:	50 kg	Vessel stowage: Location:	B
Vessel stowage: Other:	None		

Hazardous materials descriptions and proper shipping names:

Corrosive solid, acidic, inorganic, n.o.s.

Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	None
UN/ID Number:	3260	Packing Group:	II
Special provisions:	A3		
Cargo Only			
Packing Instructions:	863	Maximum Qty/Pack:	50 kg
Passenger and Cargo		Passenger and Cargo	
Packing Instructions:	859	Maximum Qty/Pack:	15 kg
Passenger and Cargo Limited Quantity		Passenger and Cargo Limited Quantity	
Packing Instructions:	Y844	Maximum Qty/Pack:	5 kg

Shipping name:CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.(contains silver hexafluoroantimonate)

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	3260	Packing Group:	II
EMS Number:	F-A,S-B	Special provisions:	274
Limited Quantities:	1 kg	Marine Pollutant:	Yes
Shipping name:CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.(contains silver hexafluoroantimonate)			

Section 15 - REGULATORY INFORMATION

silver hexafluoroantimonate (CAS: 26042-64-8) is found on the following regulatory lists;

"Canada Non-Domestic Substances List (NDSL)","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Section 16 - OTHER INFORMATION**LIMITED EVIDENCE**

■ Cumulative effects may result following exposure*.

■ Limited evidence of a carcinogenic effect*.

* (limited evidence).

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

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