

Safety Data Sheet

Heptafluorobutyric anhydride

SECTION 1: Identification**1.1 Product identifier**

Product name	Heptafluorobutyric Anhydride
Product number	12203
Brand	CovaChem
Substance name	Heptafluorobutyric anhydride
EC no.	206-410-8
CAS no.	336-59-4

1.2 Other means of identification

HFBA; Perfluorobutyric anhydride; HFAA; HFAA Anhydride; Perfluorobutyric acid anhydride; 2,2,3,3,4,4,4-Heptafluoro-butanoic acid, 1,1'-anhydride; Heptafluorobutyric anhydride; Heptafluorobutyric acid anhydride; 2,2,3,3,4,4,4-Heptafluoro-butanoic anhydride; HFBA Anhydride

1.3 Recommended use of the chemical and restrictions on use

The intended use is as a derivatization reagent to prepare samples for analysis by gas chromatography or gc-ms. This compound may also be used in organic synthesis and in the manufacture of substances.

1.4 Supplier's details

Name	CovaChem, LLC.
Address	6260 East Riverside Blvd Suite 119 Loves Park, IL 61111 United States
Telephone	815-315-1271
Fax	815-315-1272
email	info@covachem.com

1.5 Emergency phone number(s)

PERS Professional Emergency Response Service
Company Code 11814
1-800-633-8253 (U.S. & Canada)
1-801-629-0667 (International)

SECTION 2: Hazard identification**2.1 Classification of the substance or mixture****GHS classification in accordance with: (US) OSHA (29 CFR 1910.1200)**

- Skin corrosion/irritation (chapter 3.2), Cat. 1
- Eye damage/irritation (chapter 3.3), Cat. 1

2.2 GHS label elements, including precautionary statements**Pictogram**

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Signal word

Danger

Hazard statement(s)

H314
H318

Causes severe skin burns and eye damage
Causes serious eye damage

Precautionary statement(s)

P261
P264
P280
P301+P330+P331
P303+P361+P353

P304+P340
P305+P351+P338

P310
P362+P364
P363
P405
P501

Avoid breathing dust/fume/gas/mist/vapors/spray.
Wash skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor.
Take off contaminated clothing and wash it before reuse.
Wash contaminated clothing before reuse.
Store locked up.
Dispose of contents/container in accordance with local, state, federal and international regulations.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	Heptafluorobutyric anhydride
EC no.	206-410-8
CAS no.	336-59-4
Formula	C ₈ F ₁₄ O ₃
Molecular weight	410.06
Other names / synonyms	HFBA; Perfluorobutyric anhydride; HFAA; HFAA Anhydride; Perfluorobutyric acid anhydride; 2,2,3,3,4,4,4-Heptafluoro-butanoic acid, 1,1'-anhydride; Heptafluorobutyric anhydride; Heptafluorobutyric acid anhydride; 2,2,3,3,4,4,4-Heptafluoro-butanoic anhydride; HFBA Anhydride
Impurities and stabilizing additives	No additional ingredients present known to the supplier, which are classified as hazardous to health or environment, which would require reporting herein.

Hazardous components

1. Perfluorobutyric anhydride

Concentration	95 - 100 %
EC no.	206-410-8
CAS no.	336-59-4

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

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General advice	In the event of exposure situation, move away from the dangerous area and contact a physician immediately. Show this safety data sheet to physician, as a reference.
If inhaled	IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. If symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician and be prepared to transport the victim to a hospital. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Respirator Recommendation.
In case of skin contact	IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. IMMEDIATELY call a hospital or poison control center even if no symptoms (such as redness or irritation) develop. IMMEDIATELY transport the victim to a hospital for treatment after washing the affected areas.
In case of eye contact	First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.
If swallowed	DO NOT INDUCE VOMITING. Corrosive chemicals will destroy the membranes of the mouth, throat, and esophagus and volatile chemicals have a high risk of being aspirated into the victim's lungs during vomiting. Thus, the risk of increasing the medical problems by inducing vomiting of a volatile corrosive chemical is very high. If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital.

4.2 Most important symptoms/effects, acute and delayed

Symptoms of exposure to this compound include irritation and burns of the skin, eyes and respiratory tract. It also causes irritation of the mucous membranes. It is corrosive and extremely destructive to tissues of the mucous membranes and upper respiratory tract, eyes and skin. Other symptoms of exposure include coughing, chest pains and difficulty in breathing. It may cause swelling of the eye, causing foggy vision and appearance of halos around lights. Eye contact may also cause pain. Exposure may cause smarting and reddening of the skin. High vapor concentrations can cause asphyxiation. Erythema and blistering have been reported. Topical application to skin can cause necrosis and vesiculation. Severe corneal damage may occur from contact with eyes. Repeated exposures may cause tracheitis, bronchitis, pneumonitis and pulmonary edema. Other eye effects from exposure to this compound include edema of the epithelium of the cornea and blue hazy vision due to a subtle temporary disturbance of the corneal epithelium. Ingestion of strong alkalis causes severe pain, vomiting, diarrhea and collapse. The vomitus contains blood and desquamated mucosal lining. If death does not occur in 24 hours, there may be improvement then sudden onset of severe abdominal pain, board-like abdominal rigidity and rapid fall of blood pressure indicating delayed gastric or esophageal perforation. Other symptoms include esophageal stricture and chronic dermatitis.

SECTION 5: Fire-fighting measures

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5.1 Suitable extinguishing media

Use water spray, dry powder, carbon dioxide or alcohol-resistant foam.

5.2 Specific hazards arising from the chemical

Material itself is not flammable. Material reacts exothermically with water.

5.3 Special protective actions for fire-fighters

Wear a self-contained breathing apparatus when appropriate.

Further information

Carbon oxides and Hydrogen fluoride (HF) may form upon combustion.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing vapors. Use in well ventilated area. Use air purifying respirator protection.

6.2 Environmental precautions

Prevent environmental release. Do not pour down drain or allow to enter waterways or sewers. Prevent further spillage of material when possible.

6.3 Methods and materials for containment and cleaning up

If you spill this chemical use absorbent paper to pick up all liquid spill material. Seal the absorbent paper, as well as any of your clothing which may be contaminated, in a vapor-tight plastic bag for eventual disposal. Wash any surfaces you may have contaminated with a soap and water solution. Do not reenter the contaminated area until the Safety Officer (or other responsible person) has verified that the area has been properly cleaned.

Reference to other sections

For disposal information refer to section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid breathing vapors, gas or mist. Wear respiratory protection.
Avoid contact with skin and eyes.
Store in a tightly closed container, and prevent leakage.

7.2 Conditions for safe storage, including any incompatibilities

Store container upright, in a well ventilated, dry location.

Recommended Storage Temperature: Room Temp (+15 - 25 °C)

Specific end use(s)

For laboratory use only. Intended for use as a research laboratory chemical or in the manufacturing of substances.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. Perfluorobutyric anhydride (CAS: 336-59-4 EC: 206-604-2)

Corrosive Liquid
- H312 H332, H412

8.2 Appropriate engineering controls

Use product in a well ventilated location, such as in a fume hood.

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8.3 Individual protection measures, such as personal protective equipment (PPE)

Pictograms



Eye/face protection

Use a face shield (minimum 8 inches) and government tested and approved safety goggles, such as NIOSH (US) or EN 166 (EU).

Skin protection

At a minimum, wear butyl or nitrile gloves. Avoid skin contact with product. If this chemical makes direct contact with your glove, or if a tear, puncture or hole develops, replace them at once.

Body protection

Complete chemical protective suit is recommended. The personal protective equipment should be selected based upon the concentration and amount of chemical at work station.

Respiratory protection

*RECOMMENDED RESPIRATOR: When working with this chemical, wear a NIOSH-approved full face chemical cartridge respirator equipped with the appropriate organic vapor cartridges. If that is not available, a half face respirator similarly equipped plus airtight goggles can be substituted. However, please note that half face respirators provide a substantially lower level of protection than do full face respirators.

Environmental exposure controls

Prevent product from entering drain.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance/form (physical state, color, etc.)	Liquid
Odor	Data unavailable
Odor threshold	Data unavailable
pH	Data unavailable
Melting point/freezing point	- 43.0 °C
Initial boiling point and boiling range	108 - 110 °C
Flash point	Data unavailable
Evaporation rate	Data unavailable
Flammability (solid, gas)	Data unavailable
Upper/lower flammability limits	Data unavailable
Upper/lower explosive limits	Data unavailable
Vapor pressure	433 hPa at 20 °C
Vapor density	Data unavailable
Relative density	1.674 g/mL @ 20 °C
Solubility(ies)	Data unavailable
Partition coefficient: n-octanol/water	Data unavailable
Auto-ignition temperature	Data unavailable
Decomposition temperature	Data unavailable
Viscosity	Data unavailable
Explosive properties	Data unavailable
Oxidizing properties	Data unavailable

SECTION 10: Stability and reactivity

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10.1 Reactivity

Reactive towards water, with a release of heat (exothermic).

10.2 Chemical stability

The chemical is stable under normal storage conditions.

10.3 Possibility of hazardous reactions

Data unavailable

10.4 Conditions to avoid

Do not expose to moisture or mix with water.

10.5 Incompatible materials

Water, Strong oxidizing agents and Strong bases

10.6 Hazardous decomposition products

Carbon oxides and Hydrogen fluoride (HF) may form under fire conditions.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Data unavailable

Skin corrosion/irritation

Data unavailable

Serious eye damage/irritation

Data unavailable

Respiratory or skin sensitization

Data unavailable

Germ cell mutagenicity

Data unavailable

Carcinogenicity

Data unavailable

Reproductive toxicity

Data unavailable

STOT-single exposure

Data unavailable

STOT-repeated exposure

Data unavailable

Aspiration hazard

Data unavailable

Additional information

This material is destructive to respiratory tract, and mucous membranes. Also destructive to tissue of the eyes and skin. Exposure may cause wheezing, shortness of breath, headaches, nausea, vomiting and dizziness. This material has not been thoroughly investigated to the best of our knowledge.

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SECTION 12: Ecological information

Toxicity

Data unavailable

Persistence and degradability

Data unavailable

Bioaccumulative potential

Data unavailable

Mobility in soil

Data unavailable

Results of PBT and vPvB assessment

Data unavailable

Other adverse effects

This chemical may cause environmental hazards. Do not allow material to enter the drain, sewer, or water ways.

SECTION 13: Disposal considerations

Disposal of the product

Generation of waste should be kept to a minimum when possible. Any waste generated should be recycled when possible. Please dispose any unused or used materials in accordance with applicable national, regional and local laws and regulations.

Disposal of contaminated packaging

Dispose in the same way as unused product.

Waste treatment

This product should be disposed of by a licensed waste management professional. Disposal through incineration with afterburner scrubbing is recommended.

Sewage disposal

Product should not enter the sewer.

SECTION 14: Transport information

DOT (US)

UN Number: 3265

Class: 8

Packing Group: II

Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (Heptafluorobutyric anhydride)

Marine pollutant: No

Poison inhalation hazard: No

IMDG

UN Number: 3265

Class: 8

Packing Group: II

EMS Number: F-A, S-B

Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Heptafluorobutyric anhydride)

IATA

UN Number: 3265

Safety Data Sheet

Heptafluorobutyric Anhydride

Class: 8

Packing Group: II

Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (Heptafluorobutyric anhydride)

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

SARA 302 Components

No chemical present in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA 311/312 Hazards

Acute health hazard / Chronic health hazard

SARA 313 Components

No chemical present in this material are subject to the reporting requirements of SARA Title III, Section 302

Pennsylvania Right To Know Components

Chemical name: Heptafluorobutyric anhydride

CAS number: 336-59-4

New Jersey Right To Know Components

Chemical name: Heptafluorobutyric anhydride

CAS number: 336-59-4

Massachusetts Right To Know Components

No components are subject to Massachusetts Right to Know Act

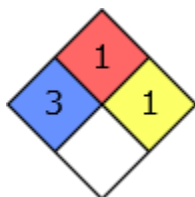
California Prop. 65 Components

This product does not contain any chemicals known to the state of California to cause cancer, birth defects or other forms of reproductive harm.

HMIS Rating

Heptafluorobutyric anhydride	
HEALTH	3
FLAMMABILITY	1
PHYSICAL HAZARD	1
PERSONAL PROTECTION	

NFPA Rating



SECTION 16: Other information

16.1 Further information/disclaimer

The information represented in this Safety Data Sheet is believed to be correct and is based on the current state of our knowledge. This document or any other document does not represent or suggest any type of warranty or guarantee of the product properties or characteristics of this material. CovaChem, LLC and its affiliates shall not be held liable for any damages that result from contact with the above product or handling this product or any others.