

# Praxair Material Safety Data Sheet

## 1. Chemical Product and Company Identification

<b>Product Name:</b> Oxidizing solid, toxic, n.o.s. (Xenon difluoride) (MSDS No. P-19-6387)	<b>Trade Names:</b> Not applicable.
<b>Chemical Name:</b> Xenon difluoride	<b>Synonyms:</b> Xenon fluoride, Xenon (II) fluoride
<b>Chemical Family:</b> Inorganic fluoride	<b>Product Grades:</b> None assigned.
<b>Telephone:</b> <b>Emergencies:</b> 1-800-645-4633* <b>CHEMTREC:</b> 1-800-424-9300* <b>Routine:</b> 1-800-PRAXAIR	<b>Company Name:</b> Praxair, Inc. 39 Old Ridgebury Road Danbury, CT 06810-5113

*\*Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier, Praxair sales representative, or call 1-800-PRAXAIR (1-800-772-9247).*

## 2. Hazards Identification

### EMERGENCY OVERVIEW

**DANGER! Oxidizing, toxic, corrosive solid.**  
**May ignite or explode on contact with combustible materials.**  
**Contact with water or moisture generates toxic fumes.**  
**Corrosive to the skin, eyes, respiratory tract, and mucous membranes.**  
**Self-contained breathing apparatus and protective clothing must be worn by rescue workers.**  
**Under ambient conditions, this is a white solid with an ozone-like odor.**

**OSHA REGULATORY STATUS:** This material is considered hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

### POTENTIAL HEALTH EFFECTS:

#### Effects of a Single (Acute) Overexposure

**Inhalation.** Material is corrosive to the tissue of the mucous membranes and upper respiratory tract. Inhalation may result in irritation, nausea, difficulty breathing, asthma lung congestion, or pulmonary edema.

**Skin Contact.** Solid is corrosive to the skin. Solid causes skin burns as the result of the formation of hydrofluoric acid upon contact.

**Swallowing.** Swallowing may result burns, rash, nausea, diarrhea, stomach pain, difficulty breathing, irregular heartbeat, headache, tingling sensation, visual disturbances, dilated pupils, bluish skin color, paralysis, convulsions, and coma.

**Eye Contact.** Solid is corrosive to the eyes. Solid causes painful burns and ulcerations.

**Effects of Repeated (Chronic) Overexposure.** Repeated or prolonged exposure of the skin may cause fluorosis, an abnormal calcification pattern of the skeletal system.

**Other Effects of Overexposure.** None known.

**Medical Conditions Aggravated by Overexposure.** Central nervous system disorder, bone, joint or tooth disorders, eye disorders, kidney disorder, respiratory disorders, skin disorders, and allergies.

**CARCINOGENICITY:** This material is not listed by NTP, OSHA, or IARC.

**POTENTIAL ENVIRONMENTAL EFFECTS:** None known. For further information, see section 12, Ecological Information.

### 3. Composition/Information on Ingredients

See section 16 for important information about mixtures.

COMPONENT	CAS NUMBER	CONCENTRATION
Xenon difluoride	13709-36-9	>99%*

\*The symbol > means "greater than."

### 4. First Aid Measures

**INHALATION:** Immediately remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Get immediate medical attention, even if no symptoms are present. Call a physician.

**SKIN CONTACT:** In case of skin contact, flush with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing, shoes, and gloves. Call a physician.

**SWALLOWING:** Keep the victim calm, and get immediate medical aid. If conscious, the victim may be given water. Do not induce vomiting unless directed to do so by medical personnel.

**EYE CONTACT:** Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are thoroughly flushed. See a physician, preferably an ophthalmologist, immediately.

**NOTES TO PHYSICIAN:** *There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.*

### 5. Fire Fighting Measures

**FLAMMABLE PROPERTIES:** Oxidizing agent; vigorously accelerates combustion. Contact with flammable materials may cause fire or explosion.

**SUITABLE EXTINGUISHING MEDIA:** Water. Do not use CO<sub>2</sub>, dry chemical, or halogenated extinguishing agents.

**PRODUCTS OF COMBUSTION:** Unknown. See section 10 for products of decomposition.

**PROTECTION OF FIREFIGHTERS: DANGER! Oxidizing, toxic, corrosive solid.** Evacuate all personnel from danger area. Do not approach without a self-contained breathing apparatus and protective clothing. Immediately deluge containers with water spray from maximum distance until cool; then move them away from fire area if without risk. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

**Specific Physical and Chemical Hazards.** If involved in a fire, this product may emit irritating and potentially toxic fumes. Fumes and vapors may spread from leak. Vapors are heavier than air and may collect in low spots.

**Protective Equipment and Precautions for Firefighters.** Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

## 6. Accidental Release Measures

### STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

**DANGER! Oxidizing, toxic, corrosive solid.**

**Personal Precautions.** Avoid breathing dust. Immediately evacuate all personnel from danger area. Do not approach without a self-contained breathing apparatus and protective clothing. Ventilate area or move container to a well-ventilated area and wash spill site after material pick-up is complete.

**Environmental Precautions.** Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local supplier for assistance.

## 7. Handling and Storage

**PRECAUTIONS TO BE TAKEN IN HANDLING:** Solid is corrosive to the skin, eyes, and respiratory tract. Use only with adequate ventilation or respiratory protection. Do not get dust in eyes, on skin, or on clothing. Avoid contact with combustible materials, water, and moisture. Use only in a closed system under a dry, inert atmosphere. Have safety showers and eyewash fountains immediately available. After working with this material, wash face and hands thoroughly with soap and water before eating, drinking, smoking, applying cosmetics, or using the toilet. Protect containers from damage. For other precautions in using this product, see section 16.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Store and use with adequate ventilation. Store in a cool, dry place away from combustible materials. Keep storage containers closed. Store only where temperature will not exceed 125°F (52°C). Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

**RECOMMENDED PUBLICATIONS:** For further information on storage, handling, and use, see NFPA 430, *Code for the Storage of Liquid and Solid Oxidizing Materials*.

## 8. Exposure Controls/Personal Protection

COMPONENT	OSHA PEL	ACGIH TLV-TWA (2008)
Xenon difluoride *Fluorides, as F	2.5 mg/m <sup>3</sup> *	2.5 mg/m <sup>3</sup> *

TLV-TWAs should be used as a guide in the control of health hazards and not as fine lines between safe and dangerous concentrations.

IDLH = Not available.

**ENGINEERING CONTROLS:**

**Local Exhaust.** See Special.

**Mechanical (General).** See Special.

**Special.** Use only in a closed system. This material is moisture-sensitive. It should be maintained under a dry, inert atmosphere and used in an enclosed device such as a glove box.

**Other.** See Special.

**PERSONAL PROTECTIVE EQUIPMENT:**

**Skin Protection.** Wear work gloves when handling containers; heavy rubber gloves where contact with product may occur. Metatarsal shoes for container handling. Protective clothing where needed. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133.

**Eye/Face Protection.** Wear safety glasses when handling containers. Select eye protection in accordance with OSHA 29 CFR 1910.133.

**Respiratory Protection.** A respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable) requirements must be followed whenever workplace conditions warrant respirator use. Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure (e.g., an organic vapor cartridge). For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus.

<b>9. Physical and Chemical Properties</b>
--

<b>APPEARANCE:</b>	White solid
<b>ODOR:</b>	Ozone-like
<b>ODOR THRESHOLD:</b>	Not available.
<b>PHYSICAL STATE:</b>	Solid at normal temperature and pressure
<b>pH:</b>	Not applicable.
<b>MELTING POINT</b> at 1 atm:	264°F (129°C)
<b>BOILING POINT</b> at 1 atm:	Not available.
<b>FLASH POINT</b> (test method):	Not available.
<b>EVAPORATION RATE</b> (Butyl Acetate = 1):	Not applicable.
<b>FLAMMABILITY:</b>	Not applicable.
<b>FLAMMABLE LIMITS IN AIR</b> , % by volume:	<b>LOWER:</b> Not applicable. <b>UPPER:</b> Not applicable.
<b>VAPOR PRESSURE:</b>	0.051 kPa (3.8 mm Hg)
<b>VAPOR DENSITY</b> at 70°F (21.1°C) and 1 atm:	>1
<b>SPECIFIC GRAVITY</b> (H <sub>2</sub> O = 1):	4.32
<b>SPECIFIC GRAVITY</b> (Air =1) at 70°F (21.1°C) and 1 atm:	Not available.
<b>SOLUBILITY IN WATER</b> 68°F (20°C):	Reacts
<b>PARTITION COEFFICIENT: n-octanol/water:</b>	Not available.

<b>AUTOIGNITION TEMPERATURE:</b>	Not available.
<b>DECOMPOSITION TEMPERATURE:</b>	Not available.
<b>PERCENT VOLATILES BY VOLUME:</b>	Not available.
<b>MOLECULAR WEIGHT:</b>	169.29
<b>MOLECULAR FORMULA:</b>	XeF <sub>2</sub>

### 10. Stability and Reactivity

**CHEMICAL STABILITY:**  Unstable  Stable

**CONDITIONS TO AVOID:** Combustible materials, water, and moisture.

**INCOMPATIBLE MATERIALS:** Combustible materials, reducing agents.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Thermal decomposition may result in producing hydrogen and toxic fluoride compounds.

**POSSIBILITY OF HAZARDOUS REACTIONS:**  May Occur  Will Not Occur

Contact with water or moisture forms toxic gases or vapors.

### 11. Toxicological Information

**ACUTE DOSE EFFECTS:** LC<sub>50</sub>, 2 hr, mouse = 445 mg/m<sup>3</sup>; LD<sub>50</sub>, oral, mouse = 90 mg/kg

**STUDY RESULTS:** None known.

### 12. Ecological Information

**ECOTOXICITY:** No known effects.

**OTHER ADVERSE EFFECTS:** None known. This material does not contain any Class I or Class II ozone-depleting chemicals.

### 13. Disposal Considerations

**WASTE DISPOSAL METHOD:** Do not attempt to dispose of residual or unused quantities. Return container to supplier.

### 14. Transport Information

**DOT/IMO SHIPPING NAME:** Oxidizing solid, toxic, n.o.s. (Xenon difluoride)

HAZARD CLASS:	PACKING GROUP/Zone:	IDENTIFICATION NUMBER:	PRODUCT RQ:
5.1	II	UN3087	None

**SHIPPING LABEL(s):** OXIDIZER, TOXIC, CORROSIVE

**PLACARD (when required):** OXIDIZER, TOXIC, CORROSIVE

**MARINE POLLUTANTS:** This material is not listed as a marine pollutant by DOT.

## 15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state, and local regulations.

### U.S. FEDERAL REGULATIONS:

EPA (ENVIRONMENTAL PROTECTION AGENCY)

CERCLA: COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (40 CFR Parts 117 and 302):

**Reportable Quantity (RQ):** None

SARA: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

**SECTIONS 302/304:** Requires emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of Extremely Hazardous Substances (EHS) (40 CFR Part 355):

**TPQ:** None

**EHS RQ (40 CFR 355):** None

**SECTIONS 311/312:** Requires submission of MSDSs and reporting of chemical inventories with identification of EPA hazard categories. The hazard categories for this product are as follows:

**IMMEDIATE:** Yes

**DELAYED:** No

**PRESSURE:** No

**REACTIVITY:** Yes

**FIRE:** Yes

**SECTION 313:** Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

This material is not subject to reporting under Section 313.

**40 CFR 68: RISK MANAGEMENT PROGRAM FOR CHEMICAL ACCIDENTAL RELEASE PREVENTION:** Requires development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

This material is not listed as a regulated substance.

**TSCA: TOXIC SUBSTANCES CONTROL ACT:** This material is listed on the TSCA inventory.

**OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:**

29 CFR 1910.119: PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS: Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

This material is not listed in Appendix A as a highly hazardous chemical.

### STATE REGULATIONS:

**CALIFORNIA:** This material is not listed by California under the SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (Proposition 65).

**PENNSYLVANIA:** This material is subject to the PENNSYLVANIA WORKER AND COMMUNITY RIGHT-TO-KNOW ACT (35 P.S. Sections 7301-7320).

## 16. Other Information

Be sure to read and understand all labels and instructions supplied with all containers of this product.

**OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE: Oxidizing, toxic, corrosive solid.** Use only with compatible materials and equipment. Store and use with adequate ventilation at all times.

**Mixtures.** When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Remember, chemicals have properties that can cause serious injury or death.

### HAZARD RATING SYSTEMS:

#### NFPA RATINGS:

HEALTH = 3  
FLAMMABILITY = 0  
INSTABILITY = 2  
SPECIAL = OX

#### HMIS RATINGS:

HEALTH = 3  
FLAMMABILITY = 0  
PHYSICAL HAZARD = 2

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

---

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Praxair, Inc., it is the user's obligation to determine the conditions of safe use of the product.

---

Praxair MSDSs are furnished on sale or delivery by Praxair or the independent distributors and suppliers who package and sell our products. To obtain current MSDSs for these products, contact your Praxair sales representative or local distributor or supplier, or download from [www.praxair.com](http://www.praxair.com). If you have questions regarding Praxair MSDSs, would like the form number and date of the latest MSDS, or would like the names of the Praxair suppliers in your area, phone or write the Praxair Call Center (**Phone:** 1-800-PRAXAIR; **Address:** Praxair Call Center, Praxair, Inc., PO Box 44, Tonawanda, NY 14151-0044).

*Praxair* and the *Flowing Airstream* design are trademarks or registered trademarks of Praxair Technology, Inc. in the United States and/or other countries.



Praxair, Inc.  
39 Old Ridgebury Road  
Danbury, CT 06810-5113