



MATERIAL SAFETY DATA SHEETS

459

Oxygen difluoride

1. CHEMICAL IDENTITY

Chemical Name : Oxygen difluoride

Chemical Classification: Oxidizing

Trade Name :

Synonyms: Fluorine monoxide, Fluorine oxide, Oxygen fluoride

Formula : OF₂

CAS No: 7783-41-7

UN No: 2190

Regulated Identification

Shipping Name : Oxygen difluoride

Hazchem Code : 2PE

Codes / Label : Class 2.3, Oxidizing

Hazardous Waste ID No :

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S. No.
1 Oxygen difluoride	7783-41-7	3	
2		4	

2. PHYSICAL / CHEMICAL DATA

Boiling Pt. °C: -144.75

Physical State: Gas

Appearance: Colourless.

Melting Pt °C: -223.8

Vapour Pressure @ 35°C mmHg: >760

Odour: Foul

Vapour Density(Air =1): 1.8

Solubility in water at 30°C g/100ml: 6.8 ml gas/100 ml water @ 0 deg C . Insoluble in hot water.

Others: Slightly soluble in alkali & acid.

Specific Gravity (Water =1): 1.90 at -224 deg C (liq.)

pH :

3. FIRE / EXPLOSION HAZARD DATA

Flammability : No

LEL:

Flash Point °C in OC:

TDG Flammability:

UEL:

Flash Point °C in CC:

Autoignition Temperature °C :

Explosion sensitivity to impact: Stable

Explosion sensitivity to static Electricity: Mixtures with water or combustible gases are explosion sensitive.

Hazardous Combustion Products : When decomposed, hydrogen fluoride and carbon monoxide may be released.

Hazardous Polymerization :

Combustible Liquid: No

Explosive Material: No

Corrosive Material No

Flammable Material: No

Oxidiser : Yes

Others:

Pyrophoric Material: No

Organic Peroxide : No

4. REACTIVITY DATA

Chemical Stability : Stable but at temperature greater than 250 °C will decompose

Incompatibility with other material : Combustible materials, chlorine, bromine, iodine, platinum, metal oxides, moist air, hydrogen sulfide, hydrocarbons, water (Reacts very

slowly with water to form hydrofluoric acid).

Reactivity : Explosive reactions with absorbents (silica gel, alumina), diborane, metal halides, aluminium chloride, nitrogen oxide (liquid), charcoal. Forms spark sensitive explosive mixtures with water or combustible gases.

Hazardous :

Reaction Products

5. HEALTH HAZARD DATA

Routes of entry: Inhalation and Skin & Eye contact

Effects of Exposure / Symptoms:

Systemic effects by inhalation are chronic pulmonary edema or congestion and severe headache. Causes irritation of skin, eyes and mucous membranes. Contact of the gas under pressure with skin would cause burns. Attacks lungs with delayed appearance of symptoms.

Emergency Treatment :

Inhalation: Move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method

Skin: Remove and isolate contaminated clothing and shoes. Immediately flush with running water for at least 20 minutes. In case of contact with liquefied gas, thaw frosted parts with lukewarm water. Effects may be delayed.

Eyes: Irrigate exposed eyes with copious amounts of tepid water for at least 15 minutes. If irritation, pain, swelling, lacrimation, or photophobia persist, the patient should be seen in a health care facility.

Ingestion:

LD50 (oral-rat) mg/kg:		STEL:	
LC50 (rat) mg/kg:	136 ppm/4 hr	Odour Threshold:	0.1 mg/m ³
Permissible Exposure Limit:	0.05 ppm (0.1 mg/m ³)	TLV (ACGIH) :	0.05 ppm (0.1 mg/m ³)

NFPA Hazard	Health	Flammability	Reactivity	Special
Signals		0	2	

6. PREVENTIVE MEASURES

Personal Protective Equipment : Self-contained breathing apparatus and impervious clothing

Handling : All chemicals should be considered hazardous. Avoid direct physical contact. Use appropriate, approved safety equipment. Untrained individuals should not handle this chemical or its container. Handling should occur in a chemical fume hood.

Storage : Store in a cool, dry location away from heat.

Precautions :

7. EMERGENCY / FIRST AID MEASURES

FIRE:

Fire Extinguishing Media :

Special Procedure : If the containers are exposed to heat, keep them cool by spraying water.

Unusual Hazards :

EXPOSURE: First Aid Measures:

Inhalation: Move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method

Skin: Remove and isolate contaminated clothing and shoes. Immediately flush with

running water for at least 20 minutes. In case of contact with liquefied gas, thaw frosted parts with lukewarm water. Effects may be delayed.

Eyes: Irrigate exposed eyes with copious amounts of tepid water for at least 15 minutes. If irritation, pain, swelling, lacrimation, or photophobia persist, the patient should be seen in a health care facility.

Ingestion:

Antidotes / Dosages:

SPILLS :

Steps To Be Taken : Ventilate area of leak to disperse gas. Stop flow of gas. If source of leak is a cylinder and the leak cannot be stopped, remove the cylinder to open air and allow the cylinder to empty with a mixed solution of caustic soda and slaked lime.

Waste Disposal Method:

8. ADDITIONAL INFORMATION / REFERENCES

Oxygen difluoride is used as a oxidiser in rocket propellants.

9. MANUFACTURERS / SUPPLIERS DATA

NAME OF FIRM :	Contact person
MAILING ADDRESS :	in Emergency :
TELEPHONE / TELEX NOS :	Local Bodies involved :
TELEGRAPHIC ADDRESS :	Standard Packing :
OTHERS :	Trem Card Details / Ref :

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