



# Material Safety Data Sheet

## 1. Product and Company Identification

Product name : **Carbonyl Fluoride**

Chemical formula : C-F<sub>2</sub>-O

Synonyms : Carbonic Difluoride, Carbon Difluoride Oxide, Carbon Fluoride Oxide, Carbon Oxyfluoride, Carbonyl Difluoride, Fluorophosgene, Difluoroformaldehyde, Difluorooxomethane, Difluorophosgene, Fluoroformyl Fluoride; UN 2417

Company : Med-Tech Gases, Inc.  
20 Hall Street  
Medford, MA 02155

Telephone : 800-FINE-GAS

Emergency : 800-424-9300

## 2. Composition/Information on Ingredients

Components	CAS Number	% Volume
Carbonyl Fluoride	353-50-4	100%

## 3. Hazards Identification

### Emergency Overview

Containers may rupture or explode if exposed to heat. May react on contact with water.  
Harmful if inhaled, respiratory tract burns, skin burns, eye burns.

### Potential Health Effects

Inhalation : Irritation (possibly severe), vomiting, chest pain, difficulty breathing, dizziness, bluish skin color, lung congestion.

Eye contact : Irritation (possibly severe), frostbite, blurred vision.

Skin contact : Irritation (possibly severe), blisters, frostbite.

Ingestion : Frostbite.

Chronic Health Hazard : Not applicable.

## 4. First Aid Measures

General advice : None.

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Skin contact : Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing and shoes before reuse. Destroy contaminated shoes.

Ingestion : If a large amount is swallowed, get medical attention.

Inhalation : If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be

administered by qualified personnel. Get immediate medical attention.  
Note to physicians : For inhalation, consider oxygen.

## 5. Fire-Fighting Measures

Suitable extinguishing media : Regular dry chemical, carbon dioxide, water, regular foam.  
Large fires: Use regular foam or flood with fine water spray.  
Specific hazards : Negligible fire hazard.  
Fire fighting : Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Do not get water directly on material. Reduce vapors with water spray. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

## 6. Accidental Release Measures

Occupational spill/release : Stop leak if possible without personal risk. Keep unnecessary people away. Isolate hazard area and deny entry. Stay upwind and keep out of low areas. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).  
Additional advice : None.

## 7. Handling and Storage

### Handling

Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

### Storage

Store in accordance with all current regulations and standards. Keep separated from incompatible substances.

## 8. Exposure Controls / Personal Protection

### Exposure limits

ACGIH : 2 ppm TWA  
5 ppm STEL  
OSHA (final) : 2.5 mg/m<sup>3</sup> TWA F  
OSHA (vacated) : 5 ppm STEL; 15 mg/m<sup>3</sup> STEL  
2 ppm TWA; 5 mg/m<sup>3</sup> TWA  
NIOSH : 5 ppm STEL; 15 mg/m<sup>3</sup> STEL  
2 ppm TWA; 5 mg/m<sup>3</sup> TWA

### Engineering measures/Ventilation

Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

### Personal protective equipment

Respiratory protection : Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to

maximum. Consider warning properties before use. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand mode or other positive-pressure mode.

For unknown concentrations or immediately dangerous to life or health – Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

- Hand protection : Wear appropriate chemical resistant gloves.
- Eye protection : Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
- Skin and body protection : Wear appropriate chemical resistant clothing.

## 9. Physical and Chemical Properties

- Form : Gas.
- Color : Colorless.
- Change in color : Hygroscopic.
- Odor : Pungent odor.
- Molecular weight : 66.01
- Vapor pressure : Not available.
- Vapor density : Not available.
- Specific gravity : 1.139 @ -114°C (water = 1)
- Boiling point : -117°F (-83°C)
- Melting point : -173°F (-114°C)
- Water solubility : Decomposes.

## 10. Stability and Reactivity

- Stability : Stable at normal temperatures and conditions.
- Conditions to avoid : Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.
- Materials to avoid : Amines.
- Hazardous decomposition products : Thermal decomposition products: miscellaneous decomposition products.

## 11. Toxicological Information

The components of this material have been reviewed in various sources and the following selected endpoints are published:

- CARBONYL : Inhalation LC50 Rat: 360 ppm/1H
- FLUORIDE (353-50-4)

### Acute Toxicity Level

- CARBONYL : Toxic: inhalation
- FLUORIDE (353-50-4)

### Component Carcinogenicity

ACGIH : A4 – Not classifiable as a Human Carcinogen

### Local Effects

CARBONYL : Corrosive: inhalation, skin, eye.  
FLUORIDE (353-50-4)

## 12. Ecological Information

No LOLI ecotoxicity data are available for this product's components.

## 13. Disposal Considerations

Waste from residues : Dispose in accordance with all applicable regulations. Subject to disposal  
/ unused products regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U033.  
Contaminated : Return cylinder to supplier.  
packaging

## 14. Transport Information

### DOT (US only)

Proper shipping : Carbonyl Fluoride  
name  
Class : 2.3  
UN/ID No. : UN2417  
Labeling : 2.3; 8  
Additional Shipping : Toxic-Inhalation Hazard Zone B  
Description

## 15. Regulatory Information

### U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

CARBONYL : 1000 lb final RQ; 454 kg final RQ  
FLUORIDE (353-50-4)  
CARBONYL : CERCLA: 1000 lb final RQ; 454 kg final RQ  
FLUORIDE (353-50-4) TSCA 12b: Section 5, 1%  
OSHA (safety): 2500 lb TQ

### SARA 311/312

Acute: Yes  
Chronic: No  
Fire: No  
Reactive: Yes  
Pressure: Yes

### U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
CARBONYL FLUORIDE	353-50-4	Yes	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65.

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