# CARBON OXYFLUORIDE

CXY

## CAUTIONARY RESPONSE INFORMATION

| Common Synonyms | | | |
|---|---|---|---|
| Carbonic difluoride<br>Carbonyl difluoride<br>Carbonyl fluoride<br>Fluophosgene<br>Fluoroformyl fluoride<br>Fluorophosgene | Liquified compressed gas | Colorless gas or light yellow liquid | Pungent Odor |

Keep people away. AVOID CONTACT WITH LIQUID AND VAPOR.
Avoid inhalation.
Wear goggles and self-contained breathing apparatus.
Evacuate area in case of large discharge.
Stay upwind and use water spray to ``knock down'' vapor.
Notify local health and pollution control agencies.

| | |
|---|---|
| **Fire** | Not flammable.<br>POISONOUS GASES ARE PRODUCED WHEN HEATED.<br>Wear goggles and self-contained breathing apparatus.<br>Cool exposed containers and protect men effecting shutoff with water. |
| **Exposure** | CALL FOR MEDICAL AID.<br><br>VAPOR<br>POISONOUS IF INHALED.<br>Irritating to eyes, nose and throat.<br>Effects may be delayed.<br>Move to fresh air.<br>If breathing has stopped, give artificial respiration (but NOT mouth-to-mouth).<br>If breathing is difficult, give oxygen.<br>Maintain absolute rest until medical aid arrives. |
| **Water Pollution** | Effect of low concentrations on aquatic life is unknown.<br>May be dangerous if it enters water intakes.<br>Notify local health and wildlife officials.<br>Notify operators of local water intakes. |

### 1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Do not burn

### 2. CHEMICAL DESIGNATIONS

**2.1 CG Compatibility Group:** Not listed.
**2.2 Formula:** $CF_2O$
**2.3 IMO/UN Designation:** 2.3/2417
**2.4 DOT ID No.:** 2417
**2.5 CAS Registry No.:** 353-50-4
**2.6 NAERG Guide No.:** 125
**2.7 Standard Industrial Trade Classification:** 51626

### 3. HEALTH HAZARDS

**3.1 Personal Protective Equipment:** Approved respirator; protective clothing.
**3.2 Symptoms Following Exposure:** Irritates lungs, causing delayed pulmonary edema. Slight gassing produces dryness or burning sensation in the throat, numbness, pain in the chest, bronchitis, and shortness of breath.
**3.3 Treatment of Exposure:** INHALATION: Remove victim from contaminated area; enforce absolute rest; call a doctor.
**3.4 TLV-TWA:** 2 ppm
**3.5 TLV-STEL:** 5 ppm
**3.6 TLV-Ceiling:** Not listed.
**3.7 Toxicity by Ingestion:** Not pertinent
**3.8 Toxicity by Inhalation:** Currently not available.
**3.9 Chronic Toxicity:** Severe delayed pulmonary edema.
**3.10 Vapor (Gas) Irritant Characteristics:** Vapors cause severe irritation of eyes and throat and can cause eye and lung injury. They cannot be tolerated even at low concentrations.
**3.11 Liquid or Solid Characteristics:** Severe irritant to all tissues.
**3.12 Odor Threshold:** Currently not available
**3.13 IDLH Value:** Not listed.
**3.14 OSHA PEL-TWA:** Not listed.
**3.15 OSHA PEL-STEL:** Not listed.
**3.16 OSHA PEL-Ceiling:** Not listed.
**3.17 EPA AEGL:** Not listed

### 4. FIRE HAZARDS

**4.1 Flash Point:** Not flammable
**4.2 Flammable Limits in Air:** Not flammable
**4.3 Fire Extinguishing Agents:** Water to cool containers
**4.4 Fire Extinguishing Agents Not to Be Used:** Not pertinent
**4.5 Special Hazards of Combustion Products:** Toxic gas is generated when heated.
**4.6 Behavior in Fire:** Not pertinent
**4.7 Auto Ignition Temperature:** Not flammable
**4.8 Electrical Hazards:** Not pertinent
**4.9 Burning Rate:** Not flammable
**4.10 Adiabatic Flame Temperature:** Currently not available
**4.11 Stoichometric Air to Fuel Ratio:** Not pertinent
**4.12 Flame Temperature:** Currently not available
**4.13 Combustion Molar Ratio (Reactant to Product):** Not pertinent
**4.14 Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

### 5. CHEMICAL REACTIVITY

**5.1 Reactivity with Water:** Decomposes, but not vigorously
**5.2 Reactivity with Common Materials:** None
**5.3 Stability During Transport:** Stable
**5.4 Neutralizing Agents for Acids and Caustics:** Can be absorbed in caustic soda solution. One ton of Carbon Oxyfluoride requires 2,480 lbs. of caustic soda dissolved in 1,000 gal of water.
**5.5 Polymerization:** Not pertinent
**5.6 Inhibitor of Polymerization:** Not pertinent

### 6. WATER POLLUTION

**6.1 Aquatic Toxicity:** Currently not available
**6.2 Waterfowl Toxicity:** Currently not available
**6.3 Biological Oxygen Demand (BOD):** None
**6.4 Food Chain Concentration Potential:** None
**6.5 GESAMP Hazard Profile:** Not listed

### 7. SHIPPING INFORMATION

**7.1 Grades of Purity:** Commercial, 100%
**7.2 Storage Temperature:** Ambient
**7.3 Inert Atmosphere:** No requirement
**7.4 Venting:** Safety relief
**7.5 IMO Pollution Category:** Currently not available
**7.6 Ship Type:** Currently not available
**7.7 Barge Hull Type:** Currently not available

### 8. HAZARD CLASSIFICATIONS

**8.1 49 CFR Category:** Poison Gas
**8.2 49 CFR Class:** 2.3
**8.3 49 CFR Package Group:** Not pertinent.
**8.4 Marine Pollutant:** No
**8.5 NFPA Hazard Classification:**

| Category | Classification |
|---|---|
| Health Hazard (Blue)..... | 4 |
| Flammability (Red)..... | 0 |
| Instability (Yellow)..... | 0 |

**8.6 EPA Reportable Quantity:** 1000 pounds
**8.7 EPA Pollution Category:** C
**8.8 RCRA Waste Number:** U033
**8.9 EPA FWPCA List:** Not listed

### 9. PHYSICAL & CHEMICAL PROPERTIES

**9.1 Physical State at 15° C and 1 atm:** Gas
**9.2 Molecular Weight:** 66.01
**9.3 Boiling Point at 1 atm:** -117°F = -83°C = 190°K
**9.4 Freezing Point:** -173°F = -114°C = 159°K
**9.5 Critical Temperature:** Currently not available
**9.6 Critical Pressure:** Currently not available
**9.7 Specific Gravity:** 1.139 at -114°C
**9.8 Liquid Surface Tension:** Currently not available
**9.9 Liquid Water Interfacial Tension:** Currently not available
**9.10 Vapor (Gas) Specific Gravity:** 2.28
**9.11 Ratio of Specific Heats of Vapor (Gas):** Currently not available
**9.12 Latent Heat of Vaporization:** Currently not available
**9.13 Heat of Combustion:** Currently not available
**9.14 Heat of Decomposition:** Currently not available
**9.15 Heat of Solution:** Currently not available
**9.16 Heat of Polymerization:** Currently not available
**9.17 Heat of Fusion:** Currently not available
**9.18 Limiting Value:** Currently not available
**9.19 Reid Vapor Pressure:** Currently not available

**NOTES**

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| 9.20 SATURATED LIQUID DENSITY | | 9.21 LIQUID HEAT CAPACITY | | 9.22 LIQUID THERMAL CONDUCTIVITY | | 9.23 LIQUID VISCOSITY | |
|---|---|---|---|---|---|---|---|
| Temperature (degrees F) | Pounds per cubic foot | Temperature (degrees F) | British thermal unit per pound-F | Temperature (degrees F) | British thermal unit inch per hour-square foot-F | Temperature (degrees F) | Centipoise |
| | 7 | | CURRENTLY NOT AVAILABLE | | CURRENTLY NOT AVAILABLE | | CURRENTLY NOT AVAILABLE |

| 9.24 SOLUBILITY IN WATER | | 9.25 SATURATED VAPOR PRESSURE | | 9.26 SATURATED VAPOR DENSITY | | 9.27 IDEAL GAS HEAT CAPACITY | |
|---|---|---|---|---|---|---|---|
| Temperature (degrees F) | Pounds per 100 pounds of water | Temperature (degrees F) | Pounds per square inch | Temperature (degrees F) | Pounds per cubic foot | Temperature (degrees F) | British thermal unit per pound-F |
| | CURRENTLY NOT AVAILABLE | | CURRENTLY NOT AVAILABLE | | CURRENTLY NOT AVAILABLE | 0 | 0.152 |
| | | | | | | 25 | 0.155 |
| | | | | | | 50 | 0.159 |
| | | | | | | 75 | 0.162 |
| | | | | | | 100 | 0.165 |
| | | | | | | 125 | 0.168 |
| | | | | | | 150 | 0.171 |
| | | | | | | 175 | 0.174 |
| | | | | | | 200 | 0.177 |
| | | | | | | 225 | 0.180 |
| | | | | | | 250 | 0.183 |
| | | | | | | 275 | 0.186 |
| | | | | | | 300 | 0.189 |
| | | | | | | 325 | 0.192 |
| | | | | | | 350 | 0.195 |
| | | | | | | 375 | 0.198 |
| | | | | | | 400 | 0.201 |
| | | | | | | 425 | 0.204 |
| | | | | | | 450 | 0.207 |
| | | | | | | 475 | 0.210 |
| | | | | | | 500 | 0.213 |
| | | | | | | 525 | 0.216 |
| | | | | | | 550 | 0.219 |
| | | | | | | 575 | 0.222 |
| | | | | | | 600 | 0.226 |