



Material Safety Data Sheet

Material Name: Carbonyl Fluoride

MSDS ID: Hynote-0077

Section 1- Product and Company Identification

Synonyms: Fluoroformyl Fluoride

Chemical Name: Carbonyl Fluoride

Formula: COF_2

TDG (Canada) CLASSIFICATION: 2.3

WHMIS CLASSIFICATION: A, D1A, D2B, E



MIRAGAS

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Yichuan Town,

Luoyang, Henan, PRC.

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MSDS Information Email: maggie@miragases.com

MSDS Information Email: hynote@shtel.net.cn

EMERGENCY Telephone Numbers:

+86-379-69581179

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Section 2- Hazards Identification

GHS Classification

Gas under pressure, Liquefied gas

Acute Toxicity (Inhalation), Category 2

Skin Corrosion / Irritation, Category 1

Eye Damage / Irritation, Category 1

Specific Target Organ Toxicity - Single Exposure, Category 1 (lungs)

Specific Target Organ Toxicity - Repeated Exposure, Category 1 (kidneys and skeletal system)

Signal Word

DANGER

Hazard Statement(s)

Contains gas under pressure; may explode if heated

Fatal if inhaled

Causes severe skin burns and eye damage

Causes damage to lungs.

Causes damage to kidneys and skeletal system through prolonged or repeated exposure.

Precautionary Statement(s)

Prevention

Do not breathe gas. Use only outdoors or in a well-ventilated area. Wear respiratory



protection. Wash thoroughly after handling. Wear protective gloves/clothing and eye/face protection. Do not eat, drink, or smoke when using this product.

Response

IF exposed: Call a POISON CENTER or doctor/physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. Specific treatment is urgent, see first aid section of Safety Data Sheet. IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician. 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 or doctor/physician. IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

Storage

Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal

Dispose of in accordance with applications with applicable regulations.

Other Hazards which do not Result in Classification

May cause frostbite upon sudden release of compressed gas.

Section 3- Composition/information on ingredients

COMPOSITION: 99.0%

CAS NUMBER: 353-50-4

RTECS #: WS4550000

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Fluorides.

Section 4- First Aid Measures

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.

Skin

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 before reuse. Destroy contaminated shoes.

Eyes

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



Ingestion

If a large amount is swallowed, get medical attention.

Note to Physicians

For inhalation, consider oxygen.

Symptoms: Immediate respiratory tract burns, skin burns, eye burns, frostbite, lung damage

Symptoms: Delayed fluorosis, kidney damage

Section 5- Fire-Fighting Measures

See Section 9 for Flammability Properties

Specific Hazards Arising from the Chemical

Negligible fire hazard.

Extinguishing Media

regular dry chemical, carbon dioxide

Large fires: Use water spray, fog or foam.

Unsuitable Extinguishing Media

None known.

Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Fire Fighting Measures

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.

Section 6- Accidental Release Measures
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Personal Precautions

Wear personal protective clothing and equipment, see Section 8.

Environmental Precautions

Avoid release to the environment.

Methods for Containment

Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.

Cleanup Methods

Stop leak if possible without personal risk.



Section 7- Handling and Storage

Handling Procedures

Wash thoroughly after handling.

Storage Procedures

Store and handle in accordance with all current regulations and standards. Protect from sunlight. Store in a well-ventilated place. Store in a tightly closed container. Store locked up. Keep separated from incompatible substances.

Incompatibilities amines

Section 8- Exposure Controls/Personal Protection

Component Exposure Limits

CARBONYL FLUORIDE (353-50-4)

ACGIH: 2 ppm TWA

5 ppm STEL

OSHA (Final): 2.5 mg/m³ TWA (as F); 2.5 mg/m³ TWA (dust, related to Fluorides)

OSHA (Vacated): 2 ppm TWA; 5 mg/m³ TWA

5 ppm STEL; 15 mg/m³ STEL

NIOSH: 2 ppm TWA; 5 mg/m³ TWA

5 ppm STEL; 15 mg/m³ STEL

Component Biological Limit Values

CARBONYL FLUORIDE (353-50-4)

ACGIH: 2 mg/L Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific); 3 mg/L Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific, related to Fluorides)

Engineering Controls

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

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face

Wear splash resistant safety goggles with a faceshield. Contact lenses should not be worn.

Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Protective Clothing

For the gas: Wear appropriate chemical resistant clothing. For the liquid: Wear appropriate protective, cold insulating clothing.

Glove Recommendations

For the gas: Wear appropriate chemical resistant gloves. For the liquid: Wear insulated gloves.



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 or other positive-pressure mode.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

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.

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

Section 9- Physical and Chemical Properties

Physical State: Gas

Color: colorless

Odor: pungent odor

pH: Not available

Boiling Point: -83 ° C

Decomposition: Not available

LEL: Not available

Vapor Pressure: Not available

Specific Gravity (water=1): 1.139 @ -114 ° C

Log KOW: Not available

Auto Ignition: Not available

Molecular Weight: 66.01

Appearance: Colorless gas

Physical Form: gas

Odor Threshold: Not available

Melting/Freezing Point: -114 ° C

Flash Point: not flammable

Evaporation Rate: Not available

UEL: Not available

Vapor Density (air = 1): Not available

Water Solubility: hygroscopic, decomposes

Coeff. Water/Oil Dist: Not available

Viscosity: Not available

Molecular Formula: C-F2-O

Section 10- Stability and Reactivity

Chemical Stability

May decompose on contact with water or moist air.

Conditions to Avoid

Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

Possibility of Hazardous Reactions

Will not polymerize.

Incompatible Materials

Amines.

Decomposition Products

Miscellaneous decomposition products.



Section 11- Toxicological Information

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

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

CARBONYL FLUORIDE (353-50-4)

Inhalation LC50 Rat 360 ppm 1 h

RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints: CARBONYL FLUORIDE (353-50-4)

Inhalation: 360 ppm/1 hour Inhalation Rat LC50

Acute Toxicity Level

CARBONYL FLUORIDE (353-50-4)

Toxic: inhalation

Immediate Effects

Respiratory tract burns, skin burns, eye burns, frostbite, lung damage

Delayed Effects

Fluorosis, kidney damage

Irritation/Corrosivity Data

No animal testing data available for skin or eyes.

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Local Effects

CARBONYL FLUORIDE (353-50-4)

Corrosive: inhalation, skin, eye

Respiratory Sensitizer

No data available.

Dermal Sensitizer

No data available.

Carcinogenicity

Component Carcinogenicity

CARBONYL FLUORIDE (353-50-4)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (related to Fluorides)

Mutagenic Data

No data available.

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects Data

No data available.

Tumorigenic Data



No data available.

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Specific Target Organ Toxicity - Single Exposure

Respiratory system, skin, eye, lungs

Specific Target Organ Toxicity - Repeated Exposure

kidneys, skeletal system

Aspiration Hazard

Not applicable.

Medical Conditions Aggravated by Exposure

None known.

Section 12- Ecological Information

Component Analysis - Aquatic Toxicity

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

Persistence and Degradability

Readily hydrolyzes to form hydrogen fluoride.

Bioaccumulative Potential

No data available.

Mobility in Environmental Media

No data available.

Section 13- Disposal Considerations

Disposal Methods

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262.

Component Waste Numbers

CARBONYL FLUORIDE (353-50-4)

RCRA: waste number U033 (Reactive waste, Toxic waste)

Section 14- Transport Information

US DOT Information

Shipping Name: Carbonyl fluoride

UN/NA #: UN2417 Hazard Class: 2.3

Required Label(s): 2.3, 8

Additional Info.: Toxic-Inhalation Hazard Zone B

IMDG Information

Shipping Name: Carbonyl fluoride

UN #: UN2417 Hazard Class: 2.3

Required Label(s): 8



Section 15- Regulatory Information

Component Analysis

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 FLUORIDE (353-50-4)

CERCLA: 1000 lb final RQ; 454 kg final RQ

TSCA 12b: Section 5, 1 % de minimus concentration

OSHA (safety): 2500 lb TQ

SARA 311/312 Hazardous Categories

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

U.S. State Regulations

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

COMPONENT	CAS	CA	MA	MN	MJ	PA
CARBONYL FLUORIDE	353-50-4	YES	YES	YES	YES	YES

Not regulated under California Proposition 65

Component Analysis - Inventory

COMPONENT	CAS	US	CA	EU	AU	PH	JP	KR	CN
CARBONYL FLUORIDE	353-50-4	YES	NSL	EIN	NO	YES	YES	YES	YES

Section 16- Other Information

NFPA Ratings: Health: 4 Fire: 0 Reactivity: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

NOTICE TO READER

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