



Safety Data Sheet

TRIFLUOROMETHANE (HC-23)

Section 1: Product and Company Identification

Middlesex Gases & Technologies

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Product Code: TRIFLUOROMETHANE (HC-23)

Section 2: Hazards Identification



Warning

Hazard Classification:

Gases Under Pressure

Hazard Statements:

Contains gas under pressure; may explode if heated

Precautionary Statements

Storage:

Protect from sunlight.
Store in well-ventilated place.

Section 3: Composition/Information on Ingredients

| |
|--------------|
| CAS # |
| 75-46-7 |

| Chemical Substance | Chemical Family | Trade Names |
|--------------------------|-----------------|---|
| TRIFLUOROMETHANE (HC-23) | | Fluoroform; Arcton 1; Fluoryl; Freon F-23; Freon 23; Genetron 23; Methyl trifluoride; R 23; Trifluoromethane; CHF3; Arcton; Halocarbon 23; UN 1984; Carbon trifluoride; Genetron HFC23; Propellant 23; Refrigerant 23 |

Section 4: First Aid Measures

| Skin Contact | Eye Contact | Ingestion | Inhalation | Note to Physicians |
|----------------------------|--|-----------|--|--------------------|
| Flush with plenty of water | Flush with plenty of water for at least 15 minutes | Unlikely. | Move to fresh air. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention. | |

Section 5: Fire Fighting Measures

| Suitable Extinguishing Media | Products of Combustion | Protection of Firefighters |
|---|--|--|
| Non-flammable. Use extinguishing agent suitable for the surrounding fire. | Carbon dioxide, carbon monoxide, halogenated compounds, carbonyl halides | <ul style="list-style-type: none"> ▪ Fire-fighters wear appropriate protective equipment and self-contained breathing apparatus |

Section 6: Accidental Release Measures

| Personal Precautions | Environmental Precautions | Methods for Containment |
|--|---|-------------------------|
| Contact emergency personnel immediately. Keep unnecessary people away, isolate hazard area and deny entry. | Avoid dispersal of spilled material and runoff and contact with soil, waterways, and swerves. | Not available |

| Methods for Cleanup | Other Information |
|--|-------------------|
| Contact emergency personnel. stop leak if possible without risk. | Not available |

Section 7: Handling and Storage

| Handling | Storage |
|--|--|
| Store upright, with valve protection cap, and firmly secured to prevent falling. Cylinder temperature should not exceed 52 degs C. | High pressure gas. Do not puncture or incinerate container. Store and handle in accordance with all current regulations and standards. |

Section 8: Exposure Controls/Personal Protection

| Exposure Guidelines |
|---------------------|
| Not available |

Engineering Controls

No specific controls are needed.

| Eye Protection | Skin Protection | Respiratory Protection |
|---------------------------------------|--|------------------------|
| Use approved standard safety eyewear. | Use personal protective equipment based on task being performed. | |

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

| Physical State | Appearance | Color | Change in Appearance | Physical Form | Odor | Taste |
|----------------|-----------------------------------|-----------|----------------------|---------------|---------------------|-----------|
| Gas | Clear, colorless liquid and vapor | Colorless | | Gas | Faint ethereal odor | Not found |

| Flash Point | Flammability | Partition Coefficient | Autoignition Temperature | Upper Explosive Limits | Lower Explosive Limits |
|----------------|----------------|-----------------------|--------------------------|------------------------|------------------------|
| Not applicable | Not applicable | | 765 C | None | None |

| Boiling Point | Freezing Point | Vapor Pressure | Vapor Density | Specific Gravity | Water Solubility | pH | Odor Threshold | Evaporation Rate | Viscosity |
|---------------|----------------|------------------------|---------------|------------------|------------------|---------|----------------|----------------------|-----------|
| -82.1 C | -155 C | 623.4 psia at 70 deg F | 2.4 (Air=1) | 21.1 C | Unknown | Neutral | Not found | >1 (butyl acetate=1) | |

| Molecular Weight | Molecular Formula | Density | Weight per Gallon | Volatility by Volume | Volatility | Solvent Solubility |
|------------------|-------------------|---------|-------------------|----------------------|---------------|--------------------|
| 70.013 | CHF3 | | | 100% | Not available | |

Section 10: Stability and Reactivity

| Stability | Conditions to Avoid | Incompatible Materials |
|-----------|---------------------|---|
| Stable | Stable | At very high temperatures and/or appropriate pressures, avoid freshly abraded aluminum surfaces and chemically reactive metals (potassium, calcium, powdered aluminum, magnesium, and zinc) |

| Hazardous Decomposition Products | Possibility of Hazardous Reactions |
|---|------------------------------------|
| Halogens, halogen acids and possibly carbonyl halides | Will not occur |

Section 11: Toxicology Information

Acute Effects

| Oral LD50 | Dermal LD50 | Inhalation |
|---------------|---------------|--|
| Not available | Not available | Symptoms of asphyxiation, loss of coordination, increased pulse rate, deeper respiration |

| Eye Irritation | Skin Irritation | Sensitization |
|--|--|--|
| Liquid contact causes severe irritation and frost bit. mist may irritate | Irritation. liquid contact can cause frostbite | Central nervous system depression cardiac arrhythmia |

Chronic Effects

| Carcinogenicity | Mutagenicity | Reproductive Effects | Developmental Effects |
|--|---|---|-----------------------|
| No known significant effects or critical hazards | At very high temperatures and/or appropriate pressures, avoid freshly abraded aluminum surfaces and chemically reactive metals (potassium, calcium, p | At very high temperatures and/or appropriate pressures, avoid freshly abraded aluminum surfaces and chemically reactive metals (potassium, calcium, p | No data |

Section 12: Ecological Information

Fate and Transport

| Eco toxicity | Persistence / Degradability | Bioaccumulation / Accumulation | Mobility in Environment |
|------------------------------|-----------------------------|--------------------------------|-------------------------|
| Fish toxicity: Not available | Not available | Not available | Not available |

| | | | |
|---|--|--|--|
| Invertebrate toxicity: not available Algal toxicity: not available Phyto toxicity: not available Other toxicity: not available | | | |
|---|--|--|--|

Section 13: Disposal Considerations

Must disposed of in accordance with appropriate federal, state, and local regulation.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

| Proper Shipping Name | ID Number | Hazard Class or Division | Packing Group | Labeling Requirements | Passenger Aircraft or Railcar Quantity Limitations | Cargo Aircraft Only Quantity Limitations | Additional Shipping Description |
|--|-----------|--------------------------|----------------|-----------------------|--|--|---------------------------------|
| TRIFLUOROMETHAN OR REFRIGERANT GAS R23 | UN1984 | 2.2 | NOT APPLICABLE | 2.2 | 75 kg | 150 kg | Not available |

Canadian Transportation of Dangerous Goods

| Shipping Name | UN Number | Class | Packing Group / Risk Group |
|--|-----------|-------|----------------------------|
| TRIFLUOROMETHAN OR REFRIGERANT GAS R23 | UN1984 | 2.2 | Not available |

Section 15: Regulatory Information

U.S. Regulations

| CERCLA Sections | SARA 355.30 | SARA 355.40 |
|-----------------|---------------|---------------|
| Not available | Not available | Not available |

SARA 370.21

| Acute | Chronic | Fire | Reactive | Sudden Release |
|---------------|---------------|---------------|---------------|----------------|
| Not available | Not available | NOT AVAILABLE | NOT AVAILABLE | NOT AVAILABLE |

SARA 372.65

NOT AVAILABLE

OSHA Process Safety

NOT AVAILABLE

State Regulations

CA Proposition 65

NOT AVAILABLE

Canadian Regulations

WHMIS Classification

Class A: Compressed Gas

National Inventory Status

| US Inventory (TSCA) | TSCA 12b Export Notification | Canada Inventory (DSL/NDSL) |
|---------------------|------------------------------|-----------------------------|
| Listed | Not listed | Not available |

Section 16: Other Information

| |
|--------------------|
| NFPA Rating |
|--------------------|

| |
|---|
| HEALTH:1, FLAMMABILITY: 0, INSTABILITY: 0 |
|---|

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard