



MSDS Number: 00155

Effective Date: 12/03/2001

Product Name: GLC-23 and GLC-23 Electronic Grade Page: 1 of 7

SECTION I - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: GLC-23 and GLC-23 Electronic Grade
Manufacturer: Great Lakes Chemical Corporation
Address: P.O. Box 2200 City: West Lafayette
State: Indiana Zip: 47996-2200
Emergency Telephone Number: 1-800-949-5167
Information Telephone Number: 1-765-497-6100 Fax: 1-765-497-6123
Chemtrec Phone: 1-800-424-9300; Internationally call 703-527-3887
Effective Date: 12/03/2001 Supersede Date: 1/5/98
MSDS Prepared By: Regulatory Affairs Department/Great Lakes Chemical Corporation
Synonyms: Fluoroform, carbon trifluoride, R-23
Product Use: GLC-23: Refrigerant, Blowing agent; Electronic Grade: Electronic manufacturing
Chemical Name: Trifluoromethane
Chemical Family: Halocarbon

Additional Information

No information available

SECTION II - COMPOSITION/INFORMATION ON INGREDIENTS

Table with 4 columns: INGREDIENT NAME, CAS No., %, EXPOSURE LIMITS. Row 1: Trifluoromethane, 75467, ~100, Y (Hazardous) Not established (OSHA PEL TWA) Not established (OSHA PEL STEL) Not established (OSHA PEL CEIL) Not established (ACGIH TLV TWA) Not established (ACGIH TLV STEL) Not established (ACGIH TLV CEIL)

*Indented chemicals are components of previous ingredient.

Additional Information

No information available

SECTION III - HAZARDS IDENTIFICATION

Emergency Overview: Colorless gas Practically odorless Direct eye or skin contact with the liquid or cold gas can cause chilling or possibly frostbite of exposed tissues. May cause central nervous system effects. Inhalation of high concentrations can be harmful or fatal due to oxygen deprivation and/or heart irregularities.
Relevant Routes of Exposure: Inhalation
Signs and Symptoms of Overexposure: Symptoms similar to oxygen deprivation (headache, nausea, dizziness or loss of consciousness) may result from overexposure by inhalation. Heart irregularities such as irregular pulse or heart palpitations may indicate cardiac sensitivity. Cold, white or discolored skin or in severe cases blistering, can be a sign of frostbite caused by cold liquids or gases.

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SECTION III - HAZARDS IDENTIFICATION

Medical Conditions Generally Aggravated By Exposure:

Persons with preexisting cardiac, respiratory, or central nervous system disorders may be more susceptible to effects of an overexposure. The use of epinephrine or similar compounds can increase susceptibility to heart irregularities caused by excessive exposure to these types of compounds.

Potential Health Effects: See Section XI for additional information.

Eyes: Direct eye contact with the liquid or cold gas can cause chilling or possibly frostbite of exposed tissues.

Skin: Direct skin contact with the liquid or cold gas can cause chilling or possibly frostbite of exposed tissues.

Ingestion: Not expected to be a hazard in normal industrial use.

Inhalation: Inhalation of high concentrations can be harmful or fatal due to oxygen deprivation and/or heart irregularities (arrhythmias). Misuse of the product by deliberately inhaling high concentrations of this gas could cause death without warning.

Chronic Health Effects: None known

Carcinogenicity:

NTP: No

ACGIH: No

IARC: No

OTHER: No

OSHA: No

Additional Information

No information available

SECTION IV - FIRST AID MEASURES

Eyes: Flush with large volumes of water for at least 15 minutes. Get medical attention.

Skin: Flush with water; if frostbite occurs get medical attention.

Ingestion: If conscious, give person 1 to 2 glasses of water. Get medical attention immediately.

Inhalation: Remove person to fresh air; if not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Antidotes: No information available

Notes to Physicians and/or Protection for First-Aiders:

The use of epinephrine or similar compounds can increase susceptibility to heart irregularities caused by excessive exposure to these types of compounds.

Additional Information

No information available

SECTION V - FIRE FIGHTING MEASURES

Flammable Limits in Air (% by Volume):

Not applicable

Flash Point: Nonflammable gas

Autoignition Temperature: Not available

Extinguishing Media: All conventional media are suitable.

Fire Fighting Instructions: Keep cylinders cool with a water spray applied from a safe distance. Use a self-contained breathing apparatus if containers rupture or release under fire conditions. Do not allow reentry into areas where

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SECTION V - FIRE FIGHTING MEASURES

Unusual Fire and Explosion Hazards:

this material has been released without first ventilating to remove products of combustion/decomposition.

**Flammability Classification:
Known or Anticipated
Hazardous Products of
Combustion:**

Although containers of our product are provided with pressure and temperature relief devices, containers can rupture if exposed to localized heat. Thermal decomposition will generate toxic and corrosive gases.

Nonflammable gas

Decomposition by elevated temperatures (fire conditions, glowing metal surfaces) may generate hazardous decomposition products common to other CFCs, HCFCs or HBFCs. These can include hydrogen fluoride (ACGIH TLV = 3 ppm), carbon monoxide, carbon dioxide and others.

Additional Information

No information available

SECTION VI - ACCIDENTAL RELEASE MEASURES

Accidental Release Measures:

Evacuate the area and ventilate. Do not enter areas where high concentrations may exist (especially confined or poorly ventilated areas) without appropriate protective equipment including a self-contained breathing apparatus.

Personal Precautions:

See Section VIII.

Environmental Precautions:

Avoid releasing to the environment.

Additional Information

No information available

SECTION VII - HANDLING AND STORAGE

Handling:

Use the same type of precautions as would be used in handling any cryogenic gas.

Use appropriate personal protection equipment.

Avoid eye, skin and clothing contact.

Do not breathe gas.

Storage:

Use only in a well ventilated area.

Store in a cool, dry, well-ventilated area away from incompatible materials.

Storage temperature should not exceed 125 degrees F.

Keep container tightly closed.

Protect containers against damage.

Store cylinders upright, secured to a rack or wall to prevent tipping.

Store with valve protection cap in place.

Use hand truck for moving cylinders.

Other Precautions:

No information available

Additional Information

No information available

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SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:	No information available
Ventilation Requirements:	Use local ventilation to minimize exposure to gas. Use mechanical ventilation for general area control.
Personal Protective Equipment:	
Eye/Face Protection:	Chemical splash goggles when handling liquid Do not wear contact lenses.
Skin Protection:	Use lined neoprene gloves if handling liquid. Clothing designed to minimize skin contact
Respiratory Protection:	Wear a NIOSH/MSHA approved self-contained breathing apparatus in emergency situations. Consult the OSHA respiratory protection information located at 29CFR 1910.134 and the American National Standard Institute's Practices of Respiratory Protection Z88.2.
Other Protective Clothing or Equipment:	No information available
Exposure Guidelines:	See Section II.
Work Hygienic Practices:	Wash thoroughly after handling. Wash contaminated clothing before reuse. Make sure piping is empty before doing maintenance work.

Additional Information

No information available

SECTION IX - PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Colorless gas	Percent Volatile:	100
Boiling Point:	-82.2 degrees C	pH Value:	Not available
Bulk Density:	Not available	pH Concentration:	Not available
Color:	Colorless	Physical State:	Gas
Decomposition Temperature:	Not available	Reactivity in Water:	Not water reactive
Evaporation Rate:	Not available	Saturated Vapor Concentration:	Not available
Freezing Point:	Not available	Softening Point:	Not available
Heat Value:	Not available	Solubility in Water:	Slightly soluble
Melting Point:	-163 degrees C	Specific Gravity or Density (Water=1):	1.52 at -100 degrees C
Molecular/Chemical Formula:	CHF3	Vapor Density:	2.4
Molecular Weight:	70.02	Vapor Pressure:	609 psia at 70 degrees F (21.1 degrees C)
Octanol/Water Partition Coefficient:	log Kow = 0.64	Viscosity:	Not available
Odor:	Practically odorless	Volatile Organic Compounds:	100
Odor Threshold:	Not available	Water/Oil Distribution Coefficient:	Not available
Particle Size:	Not available	Weight Per Gallon:	Not available

Additional Information

No information available

SECTION X - STABILITY AND REACTIVITY

Stability:	Stable under normal conditions of handling and use.
Conditions to Avoid:	High temperatures Open flames

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SECTION X - STABILITY AND REACTIVITY

Incompatibility With Other

Materials: None known

Hazardous Decomposition

Products: Thermal decomposition may produce the following:
Hydrogen fluoride
Carbon monoxide and carbon dioxide

Hazardous Polymerization: Will not occur

Conditions to Avoid: None

Additional Information

No information available

SECTION XI - TOXICOLOGICAL INFORMATION

VALUE (LD50 OR LC50)	ANIMAL	ROUTES	COMPONENTS
Not determined	Not determined	Not determined	Trifluoromethane

Toxicological Information:

The human health hazards of this product are expected to be similar to other liquefied gases including N₂, CO₂, CFCs, HCFCs, and HBFCs. Therefore, direct eye or skin contact with the liquid or cold gas can cause chilling or possibly frostbite of exposed tissues. High concentrations can exclude an adequate supply of oxygen to the lungs causing dizziness, confusion, deep breathing, possible nausea and unconsciousness. Concentrations above 20% may cause irregular pulse or palpitations. Through literature searches, RTECS reports trifluoromethane to be mutagenic in *Drosophila melanogaster* at 98 pph/10M.

Additional Information

No information available

SECTION XII - ECOLOGICAL INFORMATION

Ecological Information: Avoid releasing to the environment.

Additional Information

No information available

SECTION XIII - DISPOSAL CONSIDERATIONS

Disposal Considerations: Non-contaminated product is reclaimable. Contact Great Lakes Chemical Corporation for information. Otherwise, dispose of waste in an approved chemical incinerator equipped with a scrubber as allowed by current Local, State/Province, Federal/Canadian laws and regulations.

Additional Information

No information available

SECTION XIV - TRANSPORT INFORMATION

U.S. DOT

Proper Shipping Name:	Trifluoromethane	ID Number:	UN1984
Hazard Class:	2.2	Labels:	Nonflammable gas
Packing Group:	N/A	Packaging Exceptions:	306
Special Provisions:	N/A	Bulk Packaging:	314, 315
Non-Bulk Packaging:	304	Air Cargo Limit:	150 kg
Passenger Air/Rail Limit:	75 kg	Other Stowage:	N/A
Vessel Stowage:	A		
Reportable Quantity:	N/A		

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SECTION XIV - TRANSPORT INFORMATION

AIR - ICAO OR IATA

Proper Shipping Name:	Trifluoromethane	ID Number:	UN1984
Hazard Class:	2.2	Packing Group:	N/A
Subsidiary Risk:	N/A	Packing Instructions:	200
Hazard Labels:	Nonflammable gas	Packing Instruction - Cargo:	200
Air Passenger Limit Per Package:	75 kg	Special Provisions Code:	N/A
Air Cargo Limit Per Package:	150 kg		

WATER - IMDG

Proper Shipping Name:	Trifluoromethane	ID Number:	UN1984
Hazard Class:	2.2	Subsidiary Risk:	N/A
Packing Group:	N/A		
Medical First Aid Guide Code:	350		

Additional Information

EmS Code: 2-09

SECTION XV - REGULATORY INFORMATION

U.S. Federal Regulations:

The components of this product are either on the TSCA Inventory or exempt (i.e. impurities, a polymer complying with the exemption rule at 40 CFR 723.250) from the Inventory.

Users of this product as an Ozone Depleting Chemical replacement are responsible for obtaining EPA SNAP approvals. Consult 40 CFR Part 82.170 for approved SNAP uses or contact Great Lakes Chemical Corporation.

State Regulations:

New Jersey Right To Know Hazardous Substance List (1% reporting limit)

International Regulations:

This material (or each component) is listed on the following inventories:

Canada - DSL
EU - EINECS
Australia - AICS
Japan - ENCS
Korea - ECL
Philippines - PICCS
China - List I

Canadian WHMIS Hazard Class and Division = A.

SARA Hazards:

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

Additional Information

The above regulatory information represents only selected regulations and is not meant to be a complete list.

SECTION XVI - OTHER INFORMATION

NFPA Codes:

Health:	NR	Flammability:	NR
Reactivity:	NR	Other:	NR

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SECTION XVI - OTHER INFORMATION

HMIS Codes:

* indicates chronic health hazard.

Health: 1

Flammability: 0

Reactivity: 1

Protection: X

Label Statements:

Not available

Other Information:

Abbreviations:

(L) = Loose bulk density in g/ml

LOEC = Lowest observed effect concentration

MATC = Maximum acceptable toxicant concentration

NA = Not available

N/A = Not applicable

NL = Not limited

NOAEL = No observable adverse effect level

NOEC = No observed effect concentration

NOEL = No observable effect level

NR = Not rated

(P) = Packed bulk density in g/ml

PNOC = Particulates Not Otherwise Classified

PNOR = Particulates Not Otherwise Regulated

REL = Recommended exposure limit

TS = Trade secret

Additional Information

Information on this form is furnished solely for the purpose of compliance with OSHA's Hazard Communication Standard, 29CFR 1910.1200 and The Canadian Environmental Protection Act, Canada Gazette Part II, Vol. 122, No. 2 and shall not be used for any other purpose.

Revision Information:

Replaces GLC-23; Trifluoromethane

Section I - Product name

Section XVI - International inventories