MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.  
150 Allen Road Suite 302  
Basking Ridge, New Jersey 07920  
Information: 1-800-416-2505  
Emergency Contact:  
CHEMTREC 1-800-424-9300  
Calls Originating Outside the US:  
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: DICHLORODIFLUOROMETHANE

TRADE NAMES/SYNONYMS:  
MTG MSDS 37; CHLOROFLUOROCARBON 12; DICHLORODIFLUOROMETHANE(R-12); DICHLORODIFLUOROMETHANE (CCl2F2); DIFLUORODICHLOROMETHANE; ELECTRO-CF 12; CF 12; FC 12; CFC 12; FREON 12; FLUOROCARBON-12; HALON; F 12; HALON 122; R 12; R 12 (REFRIGERANT); RCRA U075; UN 1028; CCl2F2; MAT06880; RTECS PA8200000

CHEMICAL FAMILY: halogenated, gas

CREATION DATE: Jan 24 1989  
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: DICHLORODIFLUOROMETHANE  
CAS NUMBER: 75-71-8  
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2  FIRE=0  REACTIVITY=0

EMERGENCY OVERVIEW:  
COLOR: colorless  
PHYSICAL FORM: gas  
ODOR: faint odor, ether odor  
MAJOR HEALTH HAZARDS: central nervous system depression, difficulty breathing  
PHYSICAL HAZARDS: Containers may rupture or explode if exposed to heat.

POTENTIAL HEALTH EFFECTS:  
INHALATION:
SHORT TERM EXPOSURE: nausea, vomiting, difficulty breathing, irregular heartbeat, headache,
drowsiness, fatigue, dizziness, disorientation, mood swings, tingling sensation, loss of coordination,
suffocation, convulsions, unconsciousness, coma
LONG TERM EXPOSURE: no information is available

SKIN CONTACT:
SHORT TERM EXPOSURE: blisters, frostbite
LONG TERM EXPOSURE: no information is available

EYE CONTACT:
SHORT TERM EXPOSURE: frostbite, eye damage, blurred vision
LONG TERM EXPOSURE: no information is available

INGESTION:
SHORT TERM EXPOSURE: ingestion of a gas is unlikely
LONG TERM EXPOSURE: ingestion of a gas is unlikely

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 CONTACT: If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-
115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in
blankets. Get immediate medical attention.

EYE CONTACT: Contact with liquid: 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 PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Containers may rupture or explode if
exposed to heat.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

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.

HAZARDOUS COMBUSTION PRODUCTS:
Thermal decomposition or combustion products: phosgene, halogenated anilines, hydrochloric acid, carbonyl fluoride, chlorine, hydrogen fluoride, fluorocarbons, hydrogen chloride

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL 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).

7. HANDLING AND STORAGE


8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
DICHLORODIFLUOROMETHANE:
1000 ppm (4950 mg/m3) OSHA TWA
1000 ppm ACGIH TWA
1000 ppm (4950 mg/m3) NIOSH recommended TWA 10 hour(s)

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

EYE PROTECTION: For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

GLOVES: Wear insulated gloves.
RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

10,000 ppm
Any supplied-air respirator.

15,000 ppm
Any supplied-air respirator operated in a continuous-flow mode.
Any self-contained breathing apparatus with a full facepiece.
Any supplied-air respirator with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLH conditions -
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.

Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas
COLOR: colorless
ODOR: faint odor, ether odor
MOLECULAR WEIGHT: 120.91
MOLECULAR FORMULA: Cl2-C-F2
BOILING POINT: -21.6 F (-29.8 C) @ 760 mmHg
FREEZING POINT: -252 F (-158 C)
VAPOR PRESSURE: 4393 mmHg @ 21.1 C
VAPOR DENSITY (air=1): 4.2
SPECIFIC GRAVITY: Not applicable
DENSITY: 5.056 g/L @ 20 C
WATER SOLUBILITY: 0.028% @ 25 C
PH: Not applicable
VOLATILITY: 100%
ODOR THRESHOLD: Not available
EVAPORATION RATE: 380 (butyl acetate=1)
VISCOSITY: 0.0117 cP @ 4.4 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, acetic acid, ketones, esters, hydrocarbons, oils, chlorinated solvents, organic acids
Insoluble: glycols, glycerol, phenols
10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: metals, combustible materials, aluminum, acids

HAZARDOUS DECOMPOSITION:
Thermal decomposition or combustion products: phosgene, halogenated anilines, hydrochloric acid, carbonyl fluoride, chlorine, hydrogen fluoride, fluorocarbons, hydrogen chloride

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

DICHLORODIFLUOROMETHANE:
TOXICITY DATA: 80 pph/30 minute(s) inhalation-rabbit LC50
CARCINOGEN STATUS: ACGIH: A4 -Not Classifiable as a Human Carcinogen
ACUTE TOXICITY LEVEL:
Relatively Non-toxic: inhalation
TARGET ORGANS: central nervous system
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: heart or cardiovascular disorders
ADDITIONAL DATA: Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

FATE AND TRANSPORT:
KOW: 0.334 (log = -0.478) estimated

KOC: 356 (log = 2.55) estimated

HENRY'S LAW CONSTANT: 3.4 E -1

BIOCONCENTRATION: 0.26 (estimated from Kow)

ENVIRONMENTAL SUMMARY: Leaches through the soil or the sediment at a moderate rate. Accumulates very little in the bodies of living organisms. Highly volatile from water.
13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U075.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Dichlorodifluoromethane
ID NUMBER: UN1028
HAZARD CLASS OR DIVISION: 2.2
LABELING REQUIREMENTS: 2.2

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Dichlorodifluoromethane
UN NUMBER: UN1028
CLASS: 2.2

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
DICHLORODIFLUOROMETHANE (CFC-12): 5000 LBS RQ


SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: No
FIRE: No
REACTIVE: No
SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65):
DICHLORODIFLUOROMETHANE (CFC-12)

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: A.

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Listed on DSL.

16. OTHER INFORMATION

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