MATHESON
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Safety Data Sheet

Material Name: DICHLORODIFLUOROMETHANE **SDS ID: MAT06880**

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
DICHLORODIFLUOROMETHANE
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); UN 1028; CCl2F2
Chemical Family
halogenated, Gas
Product Use
Industrial and Specialty Gas Applications.
Restrictions on Use
None known.
Details of the supplier of the safety data sheet
MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920
General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Gases Under Pressure - Liquefied gas
Acute Toxicity - Oral - Category 4
Specific target organ toxicity - Single exposure - Category 3
Specific target organ toxicity - Repeated exposure - Category 1
GHS Label Elements
Symbol(s)

Signal Word
Danger
Hazard Statement(s)
Contains gas under pressure; may explode if heated.
May cause drowsiness or dizziness.
Causes damage to nervous system through prolonged or repeated exposure.
Precautionary Statement(s)
Prevention
Do not breathe gas.
Use only outdoors or in a well-ventilated area.

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.

Response

Get medical advice/attention if you feel unwell.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.

Storage

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

Disposal

Dispose in accordance with all applicable regulations.

Statement(s) of Unknown Acute Toxicity

Oral 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

Other Hazards

May cause frostbite upon sudden release of liquefied gas.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
75-71-8	DICHLORODIFLUOROMETHANE	100

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

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.

Eyes

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion

If swallowed, get medical attention.

Most Important Symptoms/Effects

Acute

frostbite, central nervous system depression

Delayed

nervous system damage

Note to Physicians

For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

regular dry chemical, carbon dioxide, Large fires: Use water spray, fog or regular foam.

Unsuitable Extinguishing Media

Do not direct water at source of leak or safety devices; icing may occur.

Special Hazards Arising from the Chemical
Negligible fire hazard. Containers may rupture or explode if exposed to heat.
Hazardous Combustion Products
Phosgene, halogenated anilines, hydrochloric acid, CARBONYL FLUORIDE, Chlorine, Hydrogen fluoride, fluorocarbons, hydrogen chloride
Fire Fighting Measures
Use extinguishing agents appropriate for surrounding fire. 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. Apply water from a protected location or from a safe distance. Do not get water directly on material. 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). 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.
Special Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.
Methods and Materials for Containment and Cleaning Up
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. Do not touch or walk through spilled material. Do not direct water at spill or source of leak. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. If possible, turn leaking containers so that gas escapes rather than liquid. Prevent entry into waterways, sewers, basements, or confined areas. Allow substance to evaporate. Ventilate the area. Consider downwind evacuation if material is leaking. 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).
Environmental Precautions
Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
Do not breathe gas. Use only outdoors or in a well-ventilated area. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product.
Conditions for Safe Storage, Including any Incompatibilities
Protect from sunlight. Store in a well-ventilated place.
Keep container tightly closed.
Store locked up.
Store and handle in accordance with all current regulations and standards. Protect from sunlight. Store in a well-ventilated area. Keep container tightly closed. Keep locked up. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.
Incompatible Materials
metals, combustible materials, aluminum, Acids

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

DICHLORODIFLUOROMETHANE	**75-71-8**
ACGIH:	1000 ppm TWA
NIOSH:	1000 ppm TWA ; 4950 mg/m3 TWA
	15000 ppm IDLH
OSHA (US):	1000 ppm TWA ; 4950 mg/m3 TWA
Mexico:	1000 ppm TWA VLE-PPT ; 4950 mg/m3 TWA VLE-PPT
	1250 ppm STEL [PPT-CT]; 6200 mg/m3 STEL [PPT-CT]

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)
There are no biological limit values for any of this product's components.
Engineering Controls
Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.
Individual Protection Measures, such as Personal Protective Equipment
Eye/face 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.
Skin Protection
For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.
Respiratory Protection
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.
Glove Recommendations
For the gas: Protective gloves are not required. For the liquid: Wear insulated gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	colorless gas liquefied gas	**Physical State**	gas
Odor	faint odor ,ether odor	**Color**	colorless
Odor Threshold	Not available	**pH**	Not available
Melting Point	-158 °C (-252 °F)	**Boiling Point**	-29.8 °C (-22 °F)
Boiling Point Range	Not available	**Freezing point**	Not available

Evaporation Rate	380 (Butyl acetate = 1)	**Flammability (solid, gas)**	Not available
Autoignition Temperature	Not available	**Flash Point**	(Not flammable)
Lower Explosive Limit	Not available	**Decomposition temperature**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	4252.85 mmHg @ 20 °C
Vapor Density (air=1)	4.2	**Specific Gravity (water=1)**	Not available
Water Solubility	0.33 g/L (@ 20 °C)	**Partition coefficient: n-octanol/water**	Not available
Viscosity	0.0117 cp	**Kinematic viscosity**	Not available
Solubility (Other)	Not available	**Bioconcentration Factor (BCF)**	0.26
Density	1.33 g/cm3 at 20 °C	**Henry's Law Constant**	0.343
KOC	356 (Estimated)	**Log KOW**	2.16
Physical Form	liquefied gas	**Volatility**	100 %
Molecular Formula	Cl2-C-F2	**Molecular Weight**	120.91

Solvent Solubility

Soluble

alcohol, ether, acetic acid, ketones, esters, Hydrocarbons, oils, chlorinated solvents, organic acids

Insoluble

glycols, glycerol, phenols

Section 10 - STABILITY AND REACTIVITY

Reactivity

No reactivity hazard is expected.

Chemical Stability

Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

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

Incompatible Materials

metals, combustible materials, aluminum, Acids

Hazardous decomposition products

Phosgene, halogenated anilines, hydrochloric acid, CARBONYL FLUORIDE, Chlorine, Hydrogen fluoride, fluorocarbons, hydrogen chloride

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, fatigue, dizziness, Disorientation, mood swings, tingling sensation, loss of coordination, suffocation, convulsions, Unconsciousness, coma
Skin Contact
blisters, frostbite
Eye Contact
frostbite, eye damage, blurred vision
Ingestion
ingestion of a gas is unlikely
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:
DICHLORODIFLUOROMETHANE (75-71-8)
Oral LD50 Rat >1 g/kg
Inhalation LC50 Rat >800000 ppm 30 min
Product Toxicity Data
Acute Toxicity Estimate

Inhalation - Gas	> 20000 ppm
Oral	1000.1 mg/kg

Immediate Effects
frostbite, central nervous system depression
Delayed Effects
nervous system damage
Irritation/Corrosivity Data
No data available.
Respiratory Sensitization
No data available.
Dermal Sensitization
No data available.
Component Carcinogenicity

DICHLORODIFLUOROMETHANE	**75-71-8**
ACGIH:	A4 - Not Classifiable as a Human Carcinogen

Germ Cell Mutagenicity
No data available.
Tumorigenic Data
No data available
Reproductive Toxicity
No data available.
Specific Target Organ Toxicity - Single Exposure
central nervous system
Specific Target Organ Toxicity - Repeated Exposure
nervous system
Aspiration hazard
Not applicable.

Medical Conditions Aggravated by Exposure
heart or cardiovascular disorders
Additional Data
Stimulants such as epinephrine may induce ventricular fibrillation.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity
No LOLI ecotoxicity data are available for this product's components.
Persistence and Degradability
No data available.
Bioaccumulative Potential
Bioconcentration potential in aquatic organisms is low based on a BCF value of 25.
Mobility
Expected to have moderate mobility in soil.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose in accordance with all applicable regulations.
Component Waste Numbers

DICHLORODIFLUOROMETHANE	waste number U075

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: DICHLORODIFLUOROMETHANE
Hazard Class: 2.2
UN/NA #: UN1028
Required Label(s): 2.2

IMDG Information:
Shipping Name: DICHLORODIFLUOROMETHANE
Hazard Class: 2.2
UN#: UN1028
Required Label(s): 2.2
International Bulk Chemical Code
This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (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.

DICHLORODIFLUOROMETHANE	**75-71-8**
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ ; 2270 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories
Gas Under Pressure; Acute toxicity; Specific Target Organ Toxicity
U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
DICHLORODIFLUOROMETHANE	**75-71-8**	Yes	Yes	Yes	Yes	Yes

Not listed under California Proposition 65
Canada Regulations
Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

DICHLORODIFLUOROMETHANE	**75-71-8**
	1 %

WHMIS Classification
A
Component Analysis - Inventory
DICHLORODIFLUOROMETHANE (75-71-8)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN - NCI (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No

Section 16 - OTHER INFORMATION

NFPA Ratings
Health: 2 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
Summary of Changes
Updated: 05/01/2015
Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime

Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; NDSL – Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN NCI (Draft) - Vietnam National Chemicals Inventory (NCI) (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada) .

Other Information

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