



Safety Data Sheet

Material Name: METHYL FLUORIDE

SDS ID: MAT14490

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

METHYL FLUORIDE

Synonyms

FLUOROMETHANE; METHANE, FLUORO-; FREON 41; FLUOROMETHANE (CH₃F); CH₃F;
HALACARBON 41; UN2454

Chemical Family

halogenated, aliphatic

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.

Flammable Gases - Category 1

Gases Under Pressure - Liquefied gas

Specific Target Organ Toxicity - Single Exposure - Category 3 (central nervous system)

GHS Label Elements

Symbol(s)



Signal Word

Danger

Hazard Statement(s)

Extremely flammable gas.

Contains gas under pressure; may explode if heated.

May cause drowsiness or dizziness.

Precautionary Statement(s)

Prevention

Keep away from heat, sparks, open flame, and hot surfaces - No smoking.

Do not extinguish, unless leak can be stopped safely.

Avoid breathing dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Response



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Leaking gas fire.

Eliminate all ignition sources if safe to do so.

Storage

Store in a well-ventilated place.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Other Hazards

Frostbite may occur from rapid evaporation of the liquified gas.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
593-53-3	METHYL FLUORIDE	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

Flush eyes with plenty of water.

Ingestion

If swallowed, get medical attention.

Most Important Symptoms/Effects**Acute**

Frostbite, suffocation, central nervous system effects

Delayed

No information on significant adverse effects

Note to Physicians

For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES**Extinguishing Media****Suitable Extinguishing Media**

carbon dioxide, regular dry chemical, Large fires: Flood with fine water spray.

Unsuitable Extinguishing Media

None known.

Special Hazards Arising from the Chemical

Extremely flammable gas. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

Hazardous Combustion Products

halogenated compounds, Oxides of carbon

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. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following



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precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. 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: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Evacuate if fire gets out of control or containers are directly exposed to fire. Evacuation radius: 500 meters (1/3 mile). 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

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Stop leak if safe to do so. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304).

Environmental Precautions

Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Do not extinguish, unless leak can be stopped safely.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place.

Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.

Incompatible Materials

oxidizing materials

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

METHYL FLUORIDE	593-53-3
ACGIH:	2.5 mg/m3 TWA as F (related to Fluorides)
NIOSH:	250 mg/m3 IDLH as F (related to Fluorides)
OSHA (US):	2.5 mg/m3 TWA as F (related to Fluorides)
Mexico:	2.5 mg/m3 TWA VLE-PPT as F (related to Fluorides)

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

METHYL FLUORIDE (593-53-3)

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)



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Provide local exhaust ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. 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

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

Glove Recommendations

For the gas: Wear insulated gloves. For the liquid: Wear appropriate protective, cold insulating clothing.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Not available	Physical State	gas
Odor	sweet odor	Color	colorless
Odor Threshold	Not available	pH	Not available
Melting Point	-142 °C (-224 °F)	Boiling Point	-78 °C (-108 °F)
Boiling Point Range	Not available	Freezing point	Not available
Evaporation Rate	Not available	Flammability (solid, gas)	Flammable gas
Autoignition Temperature	Not available	Flash Point	(Flammable)
Lower Explosive Limit	Not available	Decomposition temperature	Not available
Upper Explosive Limit	Not available	Vapor Pressure	3810 kPa @ 21.1 °C
Vapor Density (air=1)	1.195	Specific Gravity (water=1)	Not available
Water Solubility	166 % (@ 15 °C)	Partition coefficient: n-octanol/water	Not available
Viscosity	0.01086 cp	Kinematic viscosity	Not available
Solubility (Other)	Not available	Density	1.4397 g/L at 20 °C
Physical Form	Liquified gas	Molecular Formula	C-H3-F



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Molecular Weight	34.03		
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Solvent Solubility

Soluble

alcohol, ether, Benzene, chloroform

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

Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.

Incompatible Materials

oxidizing materials

Hazardous decomposition products

halogenated compounds, Oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation

May cause drowsiness or dizziness, nausea, vomiting, symptoms of drunkenness, suffocation, convulsions, coma

Skin Contact

blisters, frostbite

Eye Contact

frostbite, blurred vision

Ingestion

frostbite

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and no selected endpoints have been identified.

Product Toxicity Data

Acute Toxicity Estimate

No data available.

Immediate Effects

Frostbite, suffocation, central nervous system effects

Delayed Effects

No information on significant adverse effects

Irritation/Corrosivity Data

No animal testing data available for skin or eyes.

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Component Carcinogenicity



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

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

No target organs identified

Aspiration hazard

Not applicable.

Medical Conditions Aggravated by Exposure

None known.

Additional Data

Stimulants such as epinephrine may induce ventricular fibrillation.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

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

Fish Toxicity

No data available.

Invertebrate Toxicity

No data available.

Algal Toxicity

No data available.

Persistence and Degradability

No information available for the product.

Bioaccumulative Potential

No information available for the product.

Mobility

No information available for the product.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose in accordance with all applicable regulations.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION

US DOT Information:

Shipping Name: METHYL FLUORIDE

Hazard Class: 2.1

UN/NA #: UN2454

Required Label(s): 2.1



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TDG Information:

Shipping Name: METHYL FLUORIDE

Hazard Class: 2.1

UN#: UN2454

Required Label(s): 2.1

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

None of this product's components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories

Flammable; Gas Under Pressure; 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
METHYL FLUORIDE	593-53-3	Yes	No	No	Yes	No

Not listed under California Proposition 65

Canada Regulations

Canadian WHMIS Ingredient Disclosure List (IDL)

The components of this product are either not listed on the IDL or are present below the threshold limit listed on the IDL.

WHMIS Classification

AB

Component Analysis - Inventory

METHYL FLUORIDE (593-53-3)

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 (Draft)
Yes	NSL	EIN	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No

Section 16 - OTHER INFORMATION

NFPA Ratings

Health: 1 Fire: 4 Reactivity: 0

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

Summary of Changes

Updated: 01/08/2016

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 -



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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; F - Background (for Venezuela Biological Exposure Indices); 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; Ne- Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL - Non-Domestic Substance List (Canada); 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; Sc - Semi-quantitative; 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 (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information**Disclaimer:**

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