MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

SPECIALTY CHEMICAL PRODUCTS
1407 Pennsylvania Ave.
South Houston, Texas 77587
Information: 713-944-0900

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

PRODUCT NAME: HALOCARBON 41

TRADE NAMES/SYNONYMS:
METHYL FLUORIDE; FLUOROMETHANE; METHANE, FLUORO-; FREON 41; FLUOROMETHANE (CH3F);
CH3F; UN2454; 00232360

CHEMICAL FAMILY: halogenated, aliphatic

PRODUCT USE: industrial

RESTRICTIONS ON USE: none known

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
Flammable gas, Category 1 Gas under pressure, Liquefied gas

GHS SYMBOL:

GHS SIGNAL WORD: DANGER

GHS HAZARD STATEMENT:
Extremely flammable gas Contains gas under pressure; may explode if heated

GHS PRECAUTIONARY STATEMENTS: Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store in a well-ventilated place. Protect from sunlight.
EMERGENCY OVERVIEW:


POTENTIAL HEALTH EFFECTS:

INHALATION:
SHORT TERM EXPOSURE: nausea, vomiting, symptoms of drunkenness, suffocation, convulsions, 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, blurred vision
LONG TERM EXPOSURE: no information is available

INGESTION:
SHORT TERM EXPOSURE: frostbite
LONG TERM EXPOSURE: no information is available

3. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT: HALOCARBON 41
CAS NUMBER: 593-53-3
EC NUMBER (EINECS): 209-796-6
PERCENTAGE: 100

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: Flush eyes with plenty of water.

INGESTION: If a large amount is swallowed, get medical attention.

SYMPTOMS/EFFECTS:
ACUTE: suffocation, DELAYED: no data available

NOTE TO PHYSICIAN: For inhalation, consider oxygen.
5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

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

UNSUITABLE EXTINGUISHING MEDIA: None known.

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. 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 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.

FIRE FIGHTING PROTECTIVE EQUIPMENT: Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

HAZARDOUS COMBUSTION PRODUCTS:
Thermal decomposition or combustion products: halogenated compounds, oxides of carbon

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:
Wear personal protective clothing and equipment, see Section 8.

EMERGENCY PROCEDURES:
Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Reduce vapors with water spray.

ENVIRONMENTAL PRECAUTIONS: Avoid release to the environment.

METHODS AND MATERIALS FORContainment AND CLEANUP:
Stop leak if safe to do so - Prevent entry into waterways, drains, or confined areas. Eliminate all ignition sources if safe to do so. All equipment used when handling the product must be grounded. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Damaged cylinders should be handled only by specialists.
7. HANDLING AND STORAGE

HANDLING: Use only with adequate ventilation.


8. EXPOSURE CONTROLS/PERSOAL PROTECTION

EXPOSURE LIMITS: HALOCARBON 41:
No occupational exposure limits established.

BIOLOGICAL LIMIT VALUES: HALOCARBON 41:
No biological limit value(s) available.

ENGINEERING CONTROLS: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure 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: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

For Unknown Concentrations or Immediately Dangerous to Life or Health:
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. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas
COLOR: colorless
ODOR: sweet odor
MOLECULAR WEIGHT: 34.03
MOLECULAR FORMULA: C-H3-F
BOILING POINT: -78 C
FREEZING POINT: -142 C
FLASH POINT: extremely flammable
LOWER FLAMMABLE LIMIT: Not available
UPPER FLAMMABLE LIMIT: Not available
AUTOIGNITION: Not available
DECOMPOSITION POINT: Not available
VAPOR PRESSURE: 3810 kPa @ 21.1 C
VAPOR DENSITY (air=1): 1.195
SPECIFIC GRAVITY: Not applicable
DENSITY: 1.4397 g/L @ 20 C
WATER SOLUBILITY: 166% @ 15 C
PH: Not applicable
VOLATILITY: Not applicable
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
VISCOITY: 0.01086 cP @ 25 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable
OCTANOL/WATER PARTITION COEFFICIENT (LOG Kow): Not available
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, benzene, chloroform
10. STABILITY AND REACTIVITY

STABILITY: Stable at normal temperatures and pressure.

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.

INCOMPATIBILITIES: oxidizing materials

HAZARDOUS DECOMPOSITION: Thermal decomposition or combustion products: halogenated compounds, oxides of carbon

POSSIBILITY OF HAZARDOUS REACTIONS: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

HALOCARBON 41:
LIKELY ROUTES OF EXPOSURE: inhalation, skin, eyes

ASPIRATION HAZARD: Not applicable.

SENSITIZER: DERMAL: No data available. RESPIRATORY: No data available.

EFFECTS FROM EXPOSURE: IMMEDIATE: suffocation, DELAYED: No data available.

IRRITATION DATA: No animal testing data available for skin or eyes.

TOXICITY DATA: No data available.

CARCINOGEN STATUS: No data available.

LOCAL EFFECTS: No data available.

TARGET ORGANS: simple asphyxiant

CHRONIC EFFECTS: No data available.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

TUMORIGENIC DATA: No data available.

MUTAGENIC DATA: No data available.

REPRODUCTIVE EFFECTS DATA: No data available.

ADDITIONAL DATA: Stimulants such as epinephrine may induce ventricular fibrillation.
12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: No data available.
INVERTEBRATE TOXICITY: No data available.
ALGAL TOXICITY: No data available.

FATE AND TRANSPORT:

BIODEGRADATION: No data available.
MOBILITY: No data available.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Methyl fluoride
ID NUMBER: UN2454
HAZARD CLASS OR DIVISION: 2.1
LABELING REQUIREMENTS: 2.1

QUANTITY LIMITATIONS:

PASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: 150 kg
MARITIME TRANSPORT IMDG:

PROPER SHIPPING NAME: Methyl fluoride
UN NUMBER: UN2454
CLASS OR DIVISION: 2.1
15. REGULATORY INFORMATION

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes CHRONIC: No
FIRE: Yes REACTIVE: No SUDDEN RELEASE: Yes
STATE REGULATIONS:
California Proposition 65: Not regulated.
CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: AB
NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.
TSCA 12(b) EXPORT NOTIFICATION: Not listed.
CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=4 REACTIVITY=0

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