1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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

SUBSTANCE: TETRAFLUOROETHYLENE

TRADE NAMES/SYNONYMS:
MTG MSDS 133; PERFLUOROETHYLENE; PERFLUOROETHENE; TFE; TETRAFLUOROETHENE;
TETRAFLUOROETHYLENE, INHIBITED; UN 1081; MAT22980; RTECS KX4000000

CHEMICAL FAMILY: halogenated, aliphatic

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

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: TETRAFLUOROETHYLENE
CAS NUMBER: 116-14-3
PERCENTAGE: 99

COMPONENT: INHIBITORS
CAS NUMBER: Not assigned.
PERCENTAGE: 1

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2  FIRE=4  REACTIVITY=3

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: gas
ODOR: odorless

MAJOR HEALTH HAZARDS: eye irritation, difficulty breathing, suspect cancer hazard (in animals)
PHYSICAL HAZARDS: May explode when heated. Flammable gas. May cause flash fire. Flash back hazard. May polymerize. Containers may rupture or explode.
POTENTIAL HEALTH EFFECTS:

INHALATION:
SHORT TERM EXPOSURE: sore throat, nausea, vomiting, asthma, headache, suffocation, lung congestion, convulsions, coma
LONG TERM EXPOSURE: kidney damage, cancer

SKIN CONTACT:
SHORT TERM EXPOSURE: no information on significant adverse effects
LONG TERM EXPOSURE: no information on significant adverse effects

EYE CONTACT:
SHORT TERM EXPOSURE: irritation, tearing, difficulty breathing
LONG TERM EXPOSURE: same as effects reported in short term exposure

INGESTION:
SHORT TERM EXPOSURE: no information on significant adverse effects
LONG TERM EXPOSURE: no information on significant adverse effects

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: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: 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: Severe fire hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Vapor/air mixtures are explosive above flash point.

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. 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.

FLASH POINT: flammable
LOWER FLAMMABLE LIMIT: 10%
UPPER FLAMMABLE LIMIT: 50%
AUTOIGNITION: 392 F (200 C)

6. ACCIDENTAL RELEASE MEASURES

WATER RELEASE:
Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store in a well-ventilated area. Store outside or in a detached building. Avoid contact with light. Keep separated from incompatible substances. Provide fire protection and spill control systems suitable for the hazards of the material. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. See original container for storage recommendations.


8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
TETRAFLUOROETHYLENE: 2 ppm ACGIH TWA
VENTILATION: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Protective clothing is not required.

GLOVES: Wear appropriate chemical resistant 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.

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: odorless
MOLECULAR WEIGHT: 100.02
MOLECULAR FORMULA: C2-F4
BOILING POINT: -105 F (-76 C)
FREEZING POINT: -224 F (-142 C)
VAPOR PRESSURE: Not available
VAPOR DENSITY (air=1): 3.9
SPECIFIC GRAVITY (water=1): 1.5
WATER SOLUBILITY: insoluble
PH: Not applicable
VOLATILITY: Not applicable
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable

10. STABILITY AND REACTIVITY

REACTIVITY: May explode when heated.
CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: halogenated compounds, acid halides


11. TOXICOLOGICAL INFORMATION

TETRAFLUOROETHYLENE:
TOXICITY DATA: 40000 ppm/4 hour(s) inhalation-rat LC50
CARCINOGEN STATUS: NTP: Anticipated Human Carcinogen; IARC: Human No Adequate Data, Animal Sufficient Evidence, Group 2B; ACGIH: A3 -Confirmed Animal Carcinogen
LOCAL EFFECTS:
Irritant: eye
ACUTE TOXICITY LEVEL:
Slightly Toxic: inhalation
TUMORIGENIC DATA: Available.
REPRODUCTIVE EFFECTS DATA: Available.

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. D003.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Tetrafluoroethylene, stabilized
ID NUMBER: UN1081
HAZARD CLASS OR DIVISION: 2.1
LABELING REQUIREMENTS: 2.1
QUANTITY LIMITATIONS:
PASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: 150 kg

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.


SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: Yes
FIRE: Yes
REACTIVE: Yes
SUDDEN RELEASE: Yes


OSHA PROCESS SAFETY (29 CFR 1910.119):
TETRAFLUOROETHYLENE: 5000 LBS TQ

STATE REGULATIONS:
California Proposition 65:
Known to the state of California to cause the following:
TETRAFLUOROETHYLENE
Cancer (May 01, 1997)

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

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