

MATERIAL
SAFETY
DATA SHEET

PRODUCT NAME Tetrafluoromethane	CAS# 75-53-0
TRADE NAME AND SYNONYMS Tetrafluoromethane	DOT I.D. NO. UN 1982
CHEMICAL NAME AND SYNONYMS Tetrafluoromethane	DOT HAZARD CLASS Division 2.2
ISSUE DATE AND REVISIONS Revised March 2007	FORMULA CF ₄

HEALTH HAZARD DATA

<p>EMERGENCY OVERVIEW</p> <p>Tetrafluoromethane is an odorless, colorless non-flammable, liquefied gas. Tetrafluoromethane can cause central nervous system depression after inhalation exposures. Symptoms of such over-exposure can include drowsiness, fatigue, and weakness. At high concentration, the gas can act as an asphyxiant, by displacing oxygen. Therefore, exposure to high concentration of this gas can be fatal. Frostbite can be caused by contact with rapidly expanding gases or the liquefied gas. This gas is not flammable and not reactive in normal emergency response situations. However, if involved in a fire, this product can decompose to produce toxic gases (i.e. hydrogen fluoride, phosgene).</p>
<p>SYMPTOMS OF OVER-EXPOSURE</p> <p>Effects of over-exposure of Tetrafluoromethane include light-headedness, giddiness, shortness of breath and in extreme cases, irregular heartbeats, cardiac arrest, and death.</p> <p>High concentrations of this gas can cause an oxygen-deficient environment. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Death may occur under some circumstances of over-exposure.</p>
<p>TOXICOLOGICAL PROPERTIES</p> <p>Tetrafluoromethane is nontoxic but the liberation of a large amount in a confined area could displace the amount of oxygen in air necessary to support life.</p> <p>Tetrafluoromethane is not listed in the IARC, NTP, FEDERAL OSHA Z LIST or CAL/OSHA.</p> <p>No mutagenicity or teratogenicity effects on humans have been described for Tetrafluoromethane.</p>
<p>RECOMMENDED FIRST AID TREATMENT</p> <p>PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO TETRAFLUOROMETHANE. RESCUERS SHOULD BE EQUIPPED WITH ADEQUATE PERSONAL PROTECTIVE APPARATUS.</p> <p><u>Inhalation:</u> Victim(s) should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Further treatment should be symptomatic and supportive.</p>

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

None

PHYSICAL DATA

BOILING POINT -128°C	CRITICAL TEMPERATURE -45.6°C
MOLAR SPECIFIC HEAT (25 oC, 1 bar abs, constant volume) 52.949J/mol°K	CRITICAL PRESSURE 37.4 bar abs
SOLUBILITY IN WATER 0.0015%(by weight)	SPECIFIC VOLUME(21.1 oC, 1 bar abs) 274.7 dm ³ /kg
EVAPORATION RATE N/A	SPECIFIC GRAVITY (AIR=1) 3.038 at 70°F
APPEARANCE AND ODOR Colorless, odorless gas	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) N/A	AUTO IGNITION TEMPERATURE N/A	FLAMMABLE LIMITS % BY VOLUME LEL N/A UEL N/A
EXTINGUISHING MEDIA Nonflammable. Use extinguishing media appropriate for surrounding fire.		
SPECIAL FIRE FIGHTING PROCEDURES Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. In the event of fire, cool containers of this product with water to prevent failure. Use a water spray or fog to reduce of direct vapors. If unruptured cylinders are exposed to heat, the cylinder may rupture or explode and release the content. It may be prudent to remove potentially heat-exposed cylinders from the area surrounding a fire, if it is safe for fire-fighters to do so.		
UNUSUAL FIRE AND EXPLOSION HAZARDS When involved in a fire, this material may decompose and produce toxic gases (i.e. hydrogen fluoride and carbonyl fluoride). Tetrafluoromethane does not burn, however, containers, when involved in fire, may rupture or explode in the heat of the fire.		

REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
Unstable		N/A
Stable	X	
INCOMPATIBILITY (Materials to avoid) None		
HAZARDOUS DECOMPOSITION PRODUCTS None		
HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur		N/A
Will Not Occur	X	

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Uncontrolled releases should be responded by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of an accidental release, evacuate all personnel upwind and away from affected area, protect people, and respond with trained personnel.
WASTE DISPOSAL METHOD Waste disposal must be in accordance with appropriate Federal, State, and local regulations. For emergency disposal assistance, contact HSG for specific advice.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.	
VENTILATION See Local Exhaust	SPECIAL N/A
MECHANICAL (Gen.) N/A	OTHER N/A
LOCAL EXHAUST To prevent accumulation of high concentrations so as to reduce the oxygen level in the air to less than 19.5 percent.	
PROTECTIVE GLOVES Any material	
EYE PROTECTION Safety goggles or glasses	
OTHER PROTECTIVE EQUIPMENT Safety shoes	

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION DOT Shipping Name: Tetrafluoromethane DOT Shipping Label: Nonflammable Gas	DOT Hazard Class: Division 2.2 I.D. No.: UN 1982
SPECIAL WORK AND HYGIENE RECOMMENDATIONS As with all chemicals, avoid getting this product in you. Do not eat or drink while handling this product. Be aware of any signs of dizziness or fatigue, exposures to fatal concentrations of this product could occur without any significant warning symptoms.	
SPECIAL HANDLING AND STORAGE RECOMMENDATIONS Cylinders should be stored in dry, well-ventilated areas away from sources of heat, compressed gases can present significant safety hazards. Store containers away from heavily trafficked areas and emergency exits. Do not use this product with or near incompatible chemicals like sodium, potassium, calcium, zinc, magnesium and powdered aluminum. Acceptable materials for construction for equipment used in the handling of this product includes most commonly used metals (steel, cast iron, brass, copper, tin, lead, and aluminum).	
OTHER RECOMMENDATIONS OR PRECAUTIONS Protect cylinders against physical damage. Store in cool, dry, well-ventilated area, away from sources of heat, ignition and direct sunlight. Do not allow area where cylinders are stored to exceed 125°F. Use a check valve or trap in the discharge line to prevent hazardous backflow. Cylinders should be stored upright and be firmly secured to prevent falling or being knocked over.	

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