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DuPont
Material Safety Data Sheet

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3024FR "FORMACEL" Z-2 BLOWING AGENT
Revised 15-SEP-2004

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"FORMACEL" is a registered trademark of DuPont.

Corporate MSDS Number : DU002936
CAS Number : 75-37-6
Formula : CH3CHF2
CAS Name : ETHANE, 1,1-DIFLUORO-

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont Fluoroproducts
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.
302-774-1000)
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S.
703-527-3887)
Medical Emergency : 1-800-441-3637 (outside the U.S.
302-774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
ETHANE, 1,1-DIFLUORO- (HFC 152a)	75-37-6	100

HAZARDS IDENTIFICATION

Potential Health Effects

Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness, or death. Intentional misuse or deliberate inhalation may cause death without warning. Vapor reduces oxygen available for breathing and is heavier than air. Liquid contact can cause frostbite.

HUMAN HEALTH EFFECTS:

Contact with the liquid may cause frostbite. Overexposure by inhalation may include nonspecific discomfort, such as nausea, headache, or weakness; or temporary nervous system

(HAZARDS IDENTIFICATION - Continued)

depression with anesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness. Higher exposures (>20%) may cause temporary lung irritation effects with cough, discomfort, difficulty breathing, or shortness of breath; or temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation; abnormal kidney function as detected by laboratory tests; or fatality from gross overexposure.

Individuals with preexisting diseases of the central nervous or cardiovascular system may have increased susceptibility to the toxicity of excessive exposures.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

If high concentrations are inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

In case of skin contact, flush with plenty of water for 15 minutes. Treat for frostbite if necessary by gently warming affected area. Get medical attention if irritation is present.

EYE CONTACT

In case of eye contact, immediately flush eyes with plenty of water for 15 minutes. Call a physician.

INGESTION

Ingestion is not considered a potential route of exposure.

Notes to Physicians

Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution only in situations of emergency life support.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point : <-50 C (<-58 F)
Flammable limits in Air, % by Volume
LEL : 3.9
UEL : 16.9
Autoignition : 454 C (849 F)

Fire and Explosion Hazards:

Flammable. Cylinders are equipped with temperature and pressure relief devices but may still rupture under fire conditions. Use water spray to cool cylinders and tanks.

HFC-152a fire decomposition by-products will include hydrofluoric acid, and possibly carbonyl fluoride. Avoid contact with these materials, which are toxic and irritating. Evacuate personnel immediately in the event of a fire involving HFC-152a.

HFC-152a ("FORMACEL" Z-2) is a flammable gas which permeates rapidly from polystyrene and polyethylene foams. Foam articles produced with this blowing agent are typically aged in a warehouse before being placed on a trailer for shipment. If however, the foam products are placed in an enclosed space, such as a trailer without adequate aging, it is possible for the "FORMACEL" Z-2 permeating from the foam to build up in the trailer and reach the lower explosive limit. If you have any questions regarding your inventory practices consult your "FORMACEL" Z-2 Sales Representative.

Extinguishing Media

Water Spray, Water Fog, Foam, Dry Chemical.

Carbon Dioxide (CO2).

Fire Fighting Instructions

Keep container cool with water spray. If gas exiting container ignites, stop flow of gas. Do not put out the fire unless leak can be stopped immediately. Self-contained breathing apparatus (SCBA) is required if containers rupture and contents are released under fire conditions.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures

If a spill can cause a concentration in excess of 1000 ppm, turn off valves and ignition sources. Evacuate area. Ventilate area, especially low or enclosed places where heavy vapors might collect. Wear self-contained breathing apparatus (SCBA).

If this product is spilled and not recovered, or is recovered as a waste for treatment or disposal, the CERCLA Reportable Quantity is 100 lbs. (Release of an unlisted Hazardous Waste characteristic of ignitability).

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing high concentrations of vapors and avoid liquid contact with skin or eyes. Use with sufficient ventilation to keep employee exposure below recommended limits. Lines and equipment which will contain "FORMACEL" Z-2 Blowing Agent should be pretested with nitrogen using soapy water to detect leaks.

Storage

Clean, dry area. Do not heat above 52 deg C (125 deg F).

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical exhaust should be used in low or enclosed places. Ground all equipment and cylinders before use. Use explosion-proof electrical equipment rated Class I, Group D in Division 1 locations. In Division 2 locations, all spark-producing electrical equipment must be explosion-proof and rated Class I, Group D. Non-sparking motors need not be explosion-proof.

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

Personal Protective Equipment

Impervious gloves and chemical splash goggles should be worn when handling the liquid. Fire protective clothing (NOMEX) with antistatic control should be worn when handling this product. Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

Exposure Guidelines

Exposure Limits

"FORMACEL" Z-2 BLOWING AGENT

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
AEL * (DuPont)	: 1000 ppm, 8 Hr. TWA
WEEL (AIHA)	: 1000 ppm, 8 Hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Boiling Point	: -25 C (-13 F)
Vapor Pressure	: 87 psia at 25 deg C (77 deg F)
Vapor Density	: 2.4 (Air = 1.0) at 25 deg C (77 deg F)
% Volatiles	: 100 WT%
Solubility in Water	: 0.28 WT% @ 25 C (77 F) (87 psia)
Odor	: Slight ethereal
Form	: Gas
Color	: Clear, colorless
Density	: 0.90 g/cc at 25 deg C (77 deg F) - Liquid

STABILITY AND REACTIVITY

Chemical Stability

Stable.

However, avoid open flames and high temperatures.

Incompatibility with Other Materials

Incompatible with alkali or alkaline earth metals- powdered Al, Zn, Be, etc.

(STABILITY AND REACTIVITY - Continued)

Polymerization

Polymerization will not occur.

Other Hazards

Decomposition : Decomposition products are hazardous. This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid, and possibly carbonyl fluoride.

TOXICOLOGICAL INFORMATION

Animal Data

Inhalation 4-hour ALC: 383,000 ppm in rats
Oral ALD : >1500 mg/kg in rats

The compound is untested for skin or eye irritancy, and for animal sensitization. Effects in animals from single high exposure by inhalation include labored breathing, lung irritation, lethargy, incoordination, and loss of consciousness. Cardiac sensitization occurred in dogs exposed to a concentration of 150,000 ppm in air and given an intravenous epinephrine challenge. Effects of repeated exposure include increased urinary fluorides, reduced kidney weight, and reversible kidney changes. The effects of a single high oral dose include weight loss and lethargy.

Tests in animals demonstrate no carcinogenic activity or developmental effects. Tests in animals for reproductive effects have not been performed. This compound does not produce genetic damage in bacterial cell cultures but has not been tested in animals.

DISPOSAL CONSIDERATIONS

Waste Disposal

Reclaim by distillation, incinerate or remove to permitted waste facility. Comply with Federal, State, and local regulations.

This material may be a RCRA Hazardous Waste upon disposal due to the ignitability characteristic.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO
Proper Shipping Name : 1,1-DIFLUOROETHANE
Hazard Class : 2.1
UN No. : 1030
DOT/IMO Label : FLAMMABLE GAS
Special Information : CARGO AIRCRAFT ONLY

Shipping Containers

Cylinders Tank Truck
Ton Tanks Tank Car

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : No
Fire : Yes
Reactivity : No
Pressure : Yes

LISTS:

SARA Extremely Hazardous Substance -No
CERCLA Hazardous Substance - *
SARA Toxic Chemicals -No

*See Disposal Information.

HFC 152a is a flammable gas as defined by OSHA in 29CFR 1910.1200(c). Use of this product may require compliance with 29CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals.

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating
Health : 1
Flammability : 4
Reactivity : 1

(Continued)

Personal Protection rating to be supplied by user depending on use conditions.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : MSDS Coordinator
> : DuPont Fluoroproducts
Address : Wilmington, DE 19898
Telephone : (800) 441-7515

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS