The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

"DYMEL" 152a Aerosol Propellant/Isobutane Blends
2056FR Revised 12-OCT-2008

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"DYMEL" is a registered trademark of DuPont.

Corporate MSDS Number : DU001249
Grade : AEROSOL

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- ("DYMEL" 152a)	75-37-6	100-
PROPANE, 2-METHYL- (ISOBUTANE)	75-28-5	0-100

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 depression with anesthetic effects such as dizziness,

(HAZARDS IDENTIFICATION - Continued)

headache, confusion, incoordination, and loss of consciousness. Higher exposures (>20% in air) 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 or abnormal kidney function. Fatality may occur 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 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 contact, flush skin with 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 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 only be used with special caution in situations of emergency life support.

FIRE FIGHTING MEASURES

Flammable Properties

Autodecomposition : 454 C (849 F)

Flash Point : "DYMEL" 152a : -50 deg C (-58 deg F)
Isobutane : -82.8 deg C (-117 deg F)
Not determined for mixtures

Flammability :

WT% "DYMEL" 152a	Lower	Upper
90	3.6	13.5
70	3.1	10.9
10	1.9	8.5

Autoignition : Not determined for mixtures

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.

Extinguishing Media

Water Spray, Water Fog, Dry Chemical.

"Alcohol" Foam. Carbon Dioxide (CO2). Halon.

Fire Fighting Instructions

Keep container cool with water spray. If gas exiting container ignites, stop flow of gas. Do not put fire out 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

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).

This material is an ICR (ignitable, corrosive, reactive) substance under CERCLA. A release of 100 lbs. may trigger the reporting requirements of CERCLA Section 103.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing high concentrations of vapors. Avoid liquid contact with skin or eyes. Use sufficient ventilation to keep employee exposure below recommended limits. Lines and equipment which will contain "DYMEL" 152a Aerosol Propellant/Isobutane Blends 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). Store away from ignition sources.

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 ventilation 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 I 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 rubber gloves and chemical splash goggles should be used when handling liquid. Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large spill or release occurs.

Exposure Guidelines

Applicable Exposure Limits

ETHANE, 1,1-DIFLUORO- ("DYMEL" 152a)

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: None Established
AEL *	(DuPont)	: 1000 ppm, 8 & 12 Hr. TWA
WEEL	(AIHA)	: 1000 ppm, 8 Hr. TWA

PROPANE, 2-METHYL- (ISOBUTANE)

TLV	(ACGIH)	: 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

% Volatiles	: 100 WT%
Solubility in Water	: Less than 0.3 WT% @ 25 C (77 F)
Odor	: Slight ethereal
Form	: Liquefied gas
Color	: Clear, colorless

"DYMEL" 152a	Isobutane	Liquid Density g/cc at 21.1 deg C	Vapor Pressure psia at 25 deg C	Vapor Density (Air=1)	Boiling Point deg C	Boiling Point deg F
100	0	0.91	86.8	2.3	-25.0	-13.0
80	20	0.80	96.0	2.2	-29.4	-21.0
70	30	0.76	97.0	2.2	-30.6	-23.0
50	50	0.69	93.0	2.1	-28.3	-19.0
40	60	0.66	90.0	2.1	-26.1	-15.0
20	80	0.60	78.0	2.1	-19.4	- 3.0
0	100	0.56	50.5	2.0	-11.8	10.9

NOTE: An azeotropic mixture is formed containing 70% by wt. of "DYMEL" 152a at 21 deg C (70 deg F).

STABILITY AND REACTIVITY

Chemical Stability

Material is stable. However, avoid open flames and high temperatures.

Incompatibility with Other Materials

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

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

"DYMEL" 152a

Inhalation 4-hour ALC: 383,000 ppm in rats
Oral ALD : >1,500 mg/kg in rats

Effects 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 for reproductive effects have not been performed. This compound does not produce damage in bacterial cell cultures but has not been tested in animals.

ISOBUTANE

Inhalation 15-minute LC50: 570,000 ppm in rats

Toxic effects noted in animals from exposure by inhalation

(TOXICOLOGICAL INFORMATION - Continued)

include cardiac sensitization, central nervous system effects, anesthetic effects, and respiratory effects. No animal test reports are available to define carcinogenic, embryotoxic, or reproductive hazards. Tests in bacterial or mammalian cell cultures demonstrate no mutagenic activity.

DISPOSAL CONSIDERATIONS

Waste Disposal

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

This material may be a RCRA regulated hazardous waste upon disposal due to the ignitability characteristic.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO

Proper Shipping Name	: LIQUEFIED GAS, FLAMMABLE, N.O.S. (CONTAINS DIFLUOROETHANE AND ISOBUTANE)
Hazard Class	: 2.1
UN No.	: 3161
DOT/IMO Label	: FLAMMABLE GAS

Shipping Containers

Tank Cars.
Tank Trucks.

Cylinders
Ton Tanks

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

(REGULATORY INFORMATION - Continued)

LISTS:

Extremely Hazardous Substance	-No
CERCLA Hazard Substance	-No
Toxic Chemicals	-No

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating

Health	: 1
Flammability	: 4
Reactivity	: 1

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