Material Safety Data Sheet

DuPont™ DYMEL® 152a aerosol propellant

Version 2.1

Revision Date 08/13/2012 Ref. 130000000071

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	DuPont™ DYMEL® 152a aerosol propellant
Tradename/Synonym	:	Fluorocarbon 152a 1,1-Difluoroethane HFC-152a
MSDS Number	:	130000000071
Product Use	:	Propellant
Manufacturer	:	DuPont 1007 Market Street Wilmington, DE 19898
Product Information	:	1-800-441-7515 (outside the U.S. 1-302-774-1000)
Medical Emergency	:	1-800-441-3637 (outside the U.S. 1-302-774-1139)
Transport Emergency	:	CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Potential Health Effects

Skin

1,1-Difluoroethane : Contact with liquid or refrigerated gas can cause cold burns and frostbite.

Eyes

1,1-Difluoroethane : Contact with liquid or refrigerated gas can cause cold burns and frostbite.

Inhalation

1,1-Difluoroethane : Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects.
Other symptoms potentially related to misuse or inhalation abuse are: Anaesthetic effects, Light-headedness, dizziness, confusion, incoordination, drowsiness, or unconsciousness, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Carcinogenicity

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
1,1-Difluoroethane	75-37-6	100 %

SECTION 4. FIRST AID MEASURES

Skin contact : Take off all contaminated clothing immediately. Flush area with lukewarm water. Do not use hot water. If frostbite has occurred, call a physician.

Eye contact : Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Inhalation : Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.

Ingestion : Is not considered a potential route of exposure.

General advice	:	Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.
Notes to physician	:	Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

SECTION 5. FIREFIGHTING MEASURES

Flammable Properties Flash point	:	< -50 °C (< -58 °F)
Ignition temperature	:	454 °C (849 °F)
Lower explosion limit/ lower flammability limit	:	Type : lower flammability limit , 3.9 vol%
Upper explosion limit/ upper flammability limit	:	Type : upper flammability limit , 16.9 vol%
Fire and Explosion Hazard	:	Flammable. Cylinders are equipped with pressure and temperature relief devices, but may still rupture under fire conditions. This substance's 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 this substance. Vapours may form explosive mixtures with air. Vapours are heavier than air and may spread along floors. Vapours or gases may travel considerable distances to ignition source and flash back.
Suitable extinguishing media	:	Water spray, water fog, Dry chemical, Alcohol-resistant foam, Carbon dioxide (CO2)
Firefighting Instructions	:	Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire. Exposure to decomposition products may be a hazard to health. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Cool containers / tanks with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

Safeguards (Personnel)	:	Evacuate personnel to safe areas. Ventilate the area. Refer to protective measures listed in sections 7 and 8.
Spill Cleanup	:	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 with the Characteristic of Ignitability).
Accidental Release Measures	:	Should not be released into the environment. Wear self-contained breathing apparatus (SCBA).

SECTION 7. HANDLING AND STORAGE

Handling (Personnel)	:	Avoid breathing vapours or mist. Avoid contact with skin, eyes and clothing. Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8. Lines and equipment should be pre-tested with nitrogen using soapy water to detect leaks. Handle in accordance with good industrial hygiene and safety practice.
Handling (Physical Aspects)	:	Vapours are heavier than air and may spread along floors. Vapours may form flammable mixture with air. The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. No sparking tools should be used. Take measures to prevent the build up of electrostatic charge. Keep away from open flames, hot surfaces and sources of ignition. When using do not smoke.
Storage	:	Keep container tightly closed in a dry and well-ventilated place. Store in original container. No materials to be especially mentioned.
Storage temperature	:	< 52 °C (< 126 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls : Ensure adequate ventilation, especially in confined areas. 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. Ground all equipment and cylinders before use.

Personal protective equipment

Respiratory protection : For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Hand protection : Additional protection: Heat insulating gloves, and, Impervious gloves

Eye protection : Wear coverall chemical splash goggles. Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.

Skin and body protection : Fire protective clothing (NOMEX) with antistatic control should be worn when handling this product.
Wear protective clothing which covers any other exposed areas of the arms, legs, and torso.

Protective measures : When using do not smoke. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

Exposure Guidelines

Exposure Limit Values

1,1-Difluoroethane			
AEL *	(DUPONT)	1,000 ppm	8 & 12 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Compressed gas
Color	:	clear, colourless
Odor	:	slight, ether-like
pH	:	neutral
Boiling point	:	-25 °C (-13 °F) at 1,013 hPa
% Volatile	:	100 %
Vapour Pressure	:	5,960 hPa at 25 °C (77 °F)
Density	:	0.90 g/cm3 at 25 °C (77 °F) (as liquid)
Water solubility	:	0.2 g/l at 25 °C (77 °F) at 1,013 hPa
Vapour density	:	2.4 at 25 °C (77 °F) (Air = 1.0)

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	:	Material is stable. Avoid open flames and high temperatures.
Incompatibility	:	Incompatible products Alkali metals, Alkaline earth metals, Powdered metals, Powdered metal salts
Hazardous decomposition products	:	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.
Hazardous reactions	:	Polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

1,1-Difluoroethane

Inhalation 4 h LC50	:	> 437500 ppm , rat
Inhalation 4 h No Observed Adverse Effect Concentration (NOAEC)	:	66400 ppm , rat
Inhalation 4 h Low	:	175200 ppm , rat

Observed Adverse Effect Concentration (LOAEC)		Respiratory effects Anaesthetic effects Central nervous system depression narcosis
Inhalation Low Observed Adverse Effect Concentration (LOAEC)	:	150000 ppm , dog Cardiac sensitization
Inhalation No Observed Adverse Effect Concentration (NOAEC)	:	50000 ppm , dog Cardiac sensitization
Skin irritation	:	No skin irritation, Not tested on animals Not expected to cause skin irritation based on expert review of the properties of the substance.
Eye irritation	:	No eye irritation, Not tested on animals Not expected to cause eye irritation based on expert review of the properties of the substance.
Skin sensitization	:	Does not cause skin sensitization., Not tested on animals Not expected to cause sensitization based on expert review of the properties of the substance.
Repeated dose toxicity	:	Inhalation rat No toxicologically significant effects were found.
Carcinogenicity	:	Animal testing did not show any carcinogenic effects.
Mutagenicity	:	Did not cause genetic damage in animals. Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others. Did not cause genetic damage in cultured bacterial cells.
Teratogenicity	:	Evidence suggests the substance is not a developmental toxin in animals.
Further information	:	Cardiac sensitisation threshold limit : 405215 mg/m3

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity
1,1-Difluoroethane

96 h LC50	:	Fish (unspecified species) 295.783 mg/l
96 h EC50	:	Algae 47.755 mg/l (calculated)
48 h EC50	:	Daphnia 146.695 mg/l

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal	:	Can be used after re-conditioning. Reclaim by distillation, incinerate, or remove to permitted waste facility. Comply with applicable Federal, State/Provincial and Local Regulations. May be a RCRA Hazardous waste due to the ignitability characteristic.
Environmental Hazards	:	Empty pressure vessels should be returned to the supplier.

SECTION 14. TRANSPORT INFORMATION

DOT	UN number	: 1030
	Proper shipping name	: 1,1-Difluoroethane
	Class	: 2.1
	Labelling No.	: 2.1
IATA_C	UN number	: 1030
	Proper shipping name	: 1,1-Difluoroethane
	Class	: 2.1
	Labelling No.	: 2.1
IMDG	UN number	: 1030
	Proper shipping name	: 1,1-DIFLUOROETHANE
	Class	: 2.1
	Labelling No.	: 2.1

DuPont™ DYMEL® 152a aerosol propellant

Version 2.1

Revision Date 08/13/2012 Ref. 130000000071

SECTION 15. REGULATORY INFORMATION

SARA 313 Regulated Chemical(s)	:	SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
California Prop. 65	:	Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known
NJ Right to Know Regulated Chemical(s)	:	Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): 1,1-Difluoroethane

SECTION 16. OTHER INFORMATION

		HMIS
Health	:	1
Flammability	:	4
Reactivity/Physical hazard	:	1
PPE	:	Personal Protection rating to be supplied by user depending on use conditions.

DYMEL is a registered trademark of E. I. duPont de Nemours and Company
Before use read DuPont's safety information.
For further information contact the local DuPont office or DuPont's nominated distributors.
® DuPont's registered trademark

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.

DuPont™ DYMEL® 152a aerosol propellant

Version 2.1

Revision Date 08/13/2012 Ref. 130000000071