

1. Product and Company Identification

2. Hazards Identification

Emergency overview	DANGER Flammable gas. Contents under pressure. Containers may explode when heated.
Potential short term health effects	
Routes of exposure	Eye, Skin contact, Inhalation.
Eyes	Contact with liquid may cause frostbite.
Skin	Contact with liquid may cause frostbite.
Inhalation	Excessive intentional inhalation may cause respiratory tract irritation and central nervous system effects (headache, dizziness). Vapors may cause dizziness or suffocation.
Ingestion	Not a normal route of exposure.
Target organs	Eyes. Skin. Respiratory system.
Chronic effects	Prolonged or repeated exposure can cause drying, defatting and dermatitis.
Signs and symptoms	Symptoms may include redness, edema, drying, defatting and cracking of the skin.

3. Composition / Information on Ingredients

Ingredient(s)	CAS #	Percent
Ethane, 1,1-difluoro-	75-37-6	60 - 100

4. First Aid Measures

First aid procedures	
Eye contact	Immediately flush with cool water. Remove contact lenses, if applicable, and continue flushing for 15 minutes. Obtain medical attention immediately.
Skin contact	Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.

Inhalation	If symptoms develop, move victim to fresh air. If symptoms persist, obtain medical attention. If breathing has stopped, trained personnel should administer CPR immediately.
Ingestion	Do not induce vomiting. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.
General advice	Do not puncture or incinerate container. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.
	5. Fire Fighting Measures
Flammable properties Extinguishing media	Flammable by WHMIS/OSHA criteria. Containers may explode when heated.
Suitable extinguishing media	Do not extinguish burning gas if flow cannot be shut off immediately. Use water spray or

	Small Fires: Dry chemical. Carbon dioxide. Water spray. Fog.
Unsuitable extinguishing media	Not available
Protection of firefighters	
Specific hazards arising from the chemical	Contents under pressure. Pressurized container may explode when exposed to heat or flame. Cool containers with flooding quantities of water until well after fire is out.
Protective equipment for firefighters	Firefighters should wear full protective clothing including self contained breathing apparatus.
Hazardous combustion products	May include and are not limited to: Oxides of carbon. Fluoride gases.
Explosion data	
Sensitivity to mechanical impact	Not available
Sensitivity to static discharge	Not available

fog nozzle to keep cylinder cool

6. Accidental Release Measures

Methods for containmentEliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas.Methods for cleaning upBefore attempting clean up, refer to hazard data given above. Remove sources of ignition. Although the chance of a significant spill or leak is unlikely in aerosol containers, in the event of such an occurrence, absorb spilled material with a non-flammable absorbent such as sand or vermiculite.	Personal precautions	Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak.
ignition. Although the chance of a significant spill or leak is unlikely in aerosol containers, in the event of such an occurrence, absorb spilled material with a	Methods for containment	Stop leak if you can do so without risk. Prevent entry into waterways, sewers,
	Methods for cleaning up	ignition. Although the chance of a significant spill or leak is unlikely in aerosol containers, in the event of such an occurrence, absorb spilled material with a

7. Handling and Storage

HandlingAvoid breathing mists or aerosols of this product. Use good industrial hygiene practices
in handling this material.StorageKeep out of reach of children. Do not store at temperatures above 49 °C (120.2°F).
Keep away from heat, open flames or other sources of ignition.

8. Exposure Controls / Personal Protection

Exposure limits Ingredient(s)	Exposure Limits
Ethane, 1,1-difluoro-	ACGIH-TLV
	Not established
	OSHA-PEL
	Not established
Engineering controls	Use only under good ventilation conditions or with respiratory protection.
Personal protective equipment	
Eye / face protection	Wear safety glasses with side shields.

Hand protection	If there is constant skin contact, rubber gloves are recommended.
Skin and body protection	As required by employer code.
Respiratory protection	Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. Wash hands and face before breaks and immediately after handling the product.

Appearance	Clear.
Color	Colorless
Form	Liquefied gas
Odor	Slight ethereal.
Odor threshold	Not available
Physical state	Gas
рН	Not applicable
Melting point	Not available
Freezing point	Not available
Boiling point	-25 °C (-13.00 °F)
Flash point	-50 °C (-58.00 °F)
Pour point	Not available
Evaporation rate	Not available
Flammability limits in air, lower, % by volume	3.9
Flammability limits in air, upper, % by volume	16.9
Vapor pressure	599.43 kPa @25°C
Vapor density	2.4 @25°C (air=1)
Specific gravity	0.91
Relative density	0.9 g/cc @25°C
Octanol/water coefficient	Not available
Solubility (H2O)	Slightly
Auto-ignition temperature	454 °C (849.20 °F)
Percent volatile	100
	40. Otability and Description

9. Physical and Chemical Properties

10. Stability and Reactivity

Chemical stability	Stable under recommended storage conditions.
Conditions to avoid	Aerosol containers are unstable at temperatures above 49°C (120.2°F).
Incompatible materials	Alkaline materials. Alkaline earth metals.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon. Fluoride gases.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Component analysis - LC50		
Ingredient(s)	LC50	
Ethane, 1,1-difluoro-	> 64000 ppm rat	
Component analysis - Oral LD50		
Ingredient(s)	LD50	
Ethane, 1,1-difluoro-	1500 mg/kg rat	
Effects of acute exposure		
Eye	Contact with liquid may cause frostbite.	
Skin	Contact with liquid may cause frostbite.	

Inhalation	Excessive intentional inhalation may cause respiratory tract irritation and central nervous system effects (headache, dizziness). Vapors may cause dizziness or suffocation.
Ingestion	Not a normal route of exposure.
Sensitization	Non-hazardous by WHMIS/OSHA criteria.
Chronic effects	Non-hazardous by WHMIS/OSHA criteria.
Carcinogenicity	Non-hazardous by WHMIS/OSHA criteria.
Mutagenicity	Non-hazardous by WHMIS/OSHA criteria.
Reproductive effects	Non-hazardous by WHMIS/OSHA criteria.
Teratogenicity	Non-hazardous by WHMIS/OSHA criteria.
Synergistic Materials	Not available

12. Ecological Information

Ecotoxicity	Not available
Environmental effects	Not available
Aquatic toxicity	Not available
Persistence / degradability	Not available
Bioaccumulation / accumulation	Not available
Partition coefficient	Not available
Mobility in environmental media	Not available
Chemical fate information	Not available
Other adverse effects	Not available

13. Disposal Considerations

Waste codes	Not available
Disposal instructions	Review federal, state/provincial, and local government requirements prior to disposal.
Waste from residues / unused products	Not available
Contaminated packaging	Not available

14. Transport Information

U.S. Department of Transportati	on (DOT)	
Basic shipping requirement	s:	
Proper shipping name	1,1-Difluoroethane	
Hazard class	2.1	
UN number	1030	5.2
Additional information:		
Packaging exceptions	ORM-D (applicable to containers up to 1 L)	FLAMMABLE

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Transportation of Dangerous Goods (TDG - Canada)		
Basic shipping requirements:		
Proper shipping name	1,1-Difluoroethane	
Hazard class	2.1	
UN number	1030	
Additional information:		
Packaging exceptions	Limited quantity (containers up to 125mL)	



IATA/ICAO (Air)

Basic shipping requirements:	
Proper shipping name	1,1-Difluoroethane
Hazard class	2.1
UN number	1030
Additional information:	
Maximum net quantity packaging	Forbidden



15. Regulatory Information		
Canadian federal regulations	This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.	
Canada - CEPA - Schedule I - List of	Toxic Substances	
Ethane, 1,1-difluoro- 75	-37-6 Totally halogenated chlorofluorocarbons that have the molecular formula CnClxF(2n+2-x, (a) quantities that may be manufactured or imported; (b) Prohibition on manufacture, use sale, offer for sale, import or export except for authorized uses [SOR/89-351, s. 16; 90-453, s. 5; 94-408, s. 24; 92-507, s. 17; 96-237, s. 5]	
US Federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.	
	CERCLA/SARA Hazardous Substances - Not applicable.	
Occupational Safety and Health Ad	ministration (OSHA)	
29 CFR 1910.1200 hazardous chemical	Yes	
CERCLA (Superfund) reportable que None	antity	
Superfund Amendments and Reaut	horization Act of 1986 (SARA)	
Hazard categories	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - Yes Reactivity Hazard - No	
Section 302 extremely hazardous substance	No	
Section 311 hazardous chemica	al Yes	
Clean Air Act (CAA)	Not available	
Clean Water Act (CWA)	Not available	



State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. U.S. - Louisiana - Reportable Quantity List for Pollutants Ethane, 1,1-difluoro-75-37-6 5000 Lb final RQ; 2270 kg final RQ U.S. - Massachusetts - Right To Know List Ethane, 1.1-difluoro-75-37-6 Present U.S. - New Jersey - Right to Know Hazardous Substance List Ethane, 1,1-difluoro-75-37-6 sn 0715 Inventory name Country(s) or region Inventory name On inventory (yes/no)* Canada Domestic Substances List (DSL) Canada Non-Domestic Substances List (NDSL) United States & Puerto Rico Toxic Substances Control Act (TSCA) Inventory A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Disclaimer Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document. Issue date 28-Oct-2009 15-Oct-2009 Effective date 15-Oct-2012 Expiry date Dell Tech Laboratories Ltd. (519) 858-5021 Prepared by Other information For an updated MSDS, please contact the supplier/manufacturer listed on the first page of the document.

Yes

No

Yes