Material Safety Data Sheet

1. Product and Company Identification

Product name : **1,1-Difluoroethylene**

Chemical formula : C2H2F2

Synonyms : Vinylidene fluoride, 1,1-Difluoroethene

Company : Specialty Gases of America, Inc
6055 Brent Dr.
Toledo, OH 43611

Telephone : 419-729-7732

Emergency : 800-424-9300

2. Composition/Information on Ingredients

Components	CAS Number	% Volume
1,1-Difluoroethylene	75-38-7	99+%

3. Hazards Identification

Emergency Overview

Flammable gas.
Can cause rapid suffocation.
Can form explosive mixtures with air.
May cause frostbite to eyes and skin.

Potential Health Effects

Routes of entry : Inhalation.

Acute effects : Material acts as a simple asphyxiant by displacing air necessary for life. Pressure drop through valves and piping may cause extreme cold and frostbite on contact. Symptoms include rapid respiration, muscular incoordination, and vomiting. Overexposure may cause nausea, headache, dizziness, vomiting and weakness.

Chronic effects : None known.

Medical conditions aggravated by overexposure : None known.

Other effects of overexposure : None known.

4. First Aid Measures

General advice : None.

Eye contact : Do not allow victim to rub or keep eyes tightly shut. Immediately flush eyes, including under the eyelids, gently but thoroughly with plenty of running water for at least 15 minutes. Seek medical attention as soon as possible.

Skin contact : Immediately remove contaminated clothing. Rinse the affected area with flooding amounts of water and then wash it with soap and water. For reddened

		or blistered skin, consult a physician. If frostbite occurs, flush affected areas with lukewarm water.
Ingestion	:	None.
Inhalation	:	Immediately remove victim to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration.

5. Fire-Fighting Measures

Suitable extinguishing media	:	Carbon dioxide, foam, or dry chemical.
Specific hazards	:	Cylinder rupture may occur under fire conditions. May form explosive mixture in air. Emits toxic fumes under fire conditions. Vapors may travel a considerable distance to the source of ignition and flash back.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus and full protective clothing. If possible, stop the product flow. Keep fire exposed cylinders cool with water spray. Withdraw immediately if you hear a rising sound from venting safety device or notice any tank discoloration due to fire.

6. Accidental Release Measures

Personal precautions	:	None.
Environmental precautions	:	None.
Methods for cleaning up	:	Evacuate and ventilate area. Remove leaking cylinder to exhaust hood or safe outdoor area. Remove all sources of ignition.
Additional advice	:	None.

7. Handling and Storage

Handling

Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders. Use spark-proof tool and explosion-proof equipment.

Storage

Store in well ventilated areas. Keep valve protection cap on cylinders when not in use. Keep away from heat, flame, and sparks. Smoking, welding, open flame etc. should not be permitted in area of use or storage.

8. Exposure Controls / Personal Protection

Engineering measures

Provide adequate general and local exhaust ventilation to maintain concentrations below flammable limits.

Personal protective equipment

Respiratory protection	:	Use a self-contained breathing apparatus in case of emergency or non-routine use.
Hand protection	:	Use protective gloves to prevent contact with cold equipment.
Eye protection	:	Goggles. A safety shower and eyewash station should be readily available.
Skin and body protection	:	Wear protective clothing.
Special instructions for protection and hygiene	:	None.
Remarks	:	None.

9. Physical and Chemical Properties

Form	:	Gas.
Color	:	Colorless.
Odor	:	Slight ethereal odor.
Vapor pressure	:	@ 21 deg. C: 534 psia.
Vapor density	:	2.2 (air = 1)
Boiling point (C)	:	-83
Water solubility	:	Insoluble.
Specific gravity	:	Not available (H2O = 1).
Evaporation rate	:	Not applicable.

10. Stability and Reactivity

Stability	:	Stable under normal conditions.
Conditions to avoid	:	Exposure to heat, ignition sources, and incompatibles.
Materials to avoid	:	Alkaline materials and oxidizing agents. Hydrogen Chloride.
Hazardous decomposition products	:	Hydrogen fluoride may be given off. Explosive peroxides.

11. Toxicological Information

Acute Health Hazard

Ingestion	:	Not available.
Inhalation	:	Not available.
Skin	:	Not available.

12. Ecological Information

No adverse ecological effects are expected.

13. Disposal Considerations

Waste from residues / unused products	:	Return cylinders to supplier with any valve outlet plugs or caps secured and valve protection cap in place. Follow federal, state and local regulations. Non-returnable cylinders must not be refilled. Dispose of non-refillable cylinders in accordance with federal, state and local regulations.
Contaminated packaging	:	Return cylinder to supplier.

14. Transport Information

DOT (US only)

Proper shipping name	:	1,1-Difluoroethylene
Class	:	2.1
UN/ID No.	:	UN1959
Labeling	:	Flammable gas

Further information

Cylinders should be transported in a secure upright position in a well ventilated truck.

15. Regulatory Information

OSHA Hazard Communication Standard (29 CFR 1910.1200) Hazard Class(es)

Material is not listed in appendix A of 29 CFR 1910.119 as highly hazardous chemical.

TCSA

Material is listed in TSCA inventory.

SARA

The threshold planning quantity for material is 10,000 lbs.

Number in Annex 1 of DIR 67/548

Not listed in annex 1.

16. Other Information

Prepared by : Specialty Gases of America, Inc.

For additional information, please visit our website at www.americangasgroup.com.