Section 1. Identification

In case of emergency call:	ChemTel (800) 255-3924 (24/7)
For more information call:	Bensalem, PA 19020 215-638-1111 (Mon-Fri, 9:00am-5:00pm)
Company:	ChemPenn, LLC 351 Camer Dr, Suite B
Product Use:	HVAC Systems using R32 Refrigerant
GHS product identifier:	R32

Section 2. Hazards Identification

OSHA/HSC status:	This material is considered hazardous by the OSHA Hazard Communication Standard. (29 CFR 1910.1200). Flammable Gases, Category 1, H220 Gases under pressure, Liquefied gas, H280	
Classification of the: Substance of mixture		
	GHS label elements	
Hazard pictograms:		
Signal word:	DANGER	
Hazard statements:	H220 : Extremely flammable gas. H280 : Contains gas under pressure; may explode if heated.	
Supplemental Hazard Statemen	ts: Overheating or overpressurizing may cause gas release or violent cylinder bursting. May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products. May cause frostbite. May displace oxygen and cause rapid suffocation. May cause headache, nausea, dizziness, drowsiness, loss of consciousness. May cause cardiac sensitization/cardiac arrhythmia.	
<u>Precautionary statements</u> General:	Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use.	

Section 2. Hazards Identification (continue)

	Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position.
Prevention:	P210 : Keep away from heat/sparks/open flames/hot surfaces No smoking.
Response:	P377 : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 : Eliminate all ignition sources if safe to do so.
Storage:	P403 : Store in a well-ventilated place. P410 : Protect from sunlight.
Hazards not otherwise:	Liquid : Contact with liquid or refrigerated gas can cause cold burns and frostbite. Vapor: Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. If inhaled: Central nervous system effects: headache, nausea, dizziness, drowsiness, loss of consciousness. Stress induced heart effects: Inhalation may cause an increase in the sensitivity of the heart to adrenaline, which could result in irregular or rapid heartbeats and reduced heart function.

Section 3. Composition/information on ingredients

Substance/mixture: Other mean of identification:	Substanc None	e		
	CA	S number/other identifiers		
CAS number: Product Code:	75-10-5 111037			
Chemical name		% Total	GHS Classification	CAS number

100%

Section 4. First aid measures

Methane, difluoro

Eye contact:Immediately flush eyes with plenty of water, occasionally lifting the upper and
lower eyelids. Check for and remove any contact lenses. Continue to rinse for at
least 10 minutes. Get medical attention if irritation occurs.Inhalation:Remove victim to fresh air and keep at rest in a position comfortable for
breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs,
provide artificial respiration or oxygen by trained personnel. It may be dangerous

75-10-5

H220. H280

Section 4. First aid measures (continue)

Skin contact:	to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do ot rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.
nigestion.	ingestion is not applicable - product is a gas at ambient temperatures.
	Most important symptoms/effects, acute and delayed
Potential acute health	effects
Eye contact	: Liquid cause burns like frostbite.
Inhalation	: No known significant effects or critical hazards.
Skin contact	: Dermal contact with rapidly evaporating liquid could result in freezing of the tissue or frostbite.
Frostbite	: Try to warm up the frozen tissues and seek medical attention.
Ingestion	: Ingestion of liquid can cause burns like frostbite.
Over-exposure sign/sv	mptoms
Eye contact	. Adverse symptoms may frostbite
Inhalation	: No data recorded
Skin contact	: Adverse symptoms may frostbite
Ingestion	: Adverse symptoms may frostbite
Indication of in	mmediate medical attention and special treatment needed, if necessary
Notes to physician	· Treat symptomatically. Contact poison treatment specialist immediately
	if large quantities have been ingested or inhaled
Specific treatments	: Do not give drugs from adrenaline-ephedrine group
Protection on first-aide	rs : No action shall be taken involving any personal risk or without suitable
	training. It may be dangerous to the person providing aid to give mouth- to-mouth resuscitation.

Section 5. Fire-Fighting measures

Extinguishing media

Suitable Extinguishing media	: Water spray, Carbon dioxide (CO2), Dry chemical
Unsuitable Extinguishing media	: None Known.
Protective equipment:	Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self- contained breathing apparatus (pressure demand / NIOSH approved or equivalent).

Section 5. Fire-Fighting measures (continue)

Further firefighting advice:	Fight fire with large amounts of water from a safe distance. Stop the flow of gas if possible. Water mist should be used to reduce vapor concentrations in air. Cool closed containers exposed to fire with water spray. Closed containers of this material may explode when subjected to heat from surrounding fire. After a fire, wait until the material has cooled to room temperature before initiating clean-up activities. Fire fighting equipment should be thoroughly decontaminated after use.
Fire and explosion hazards:	May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products. Liquid and gas under pressure, overheating or over pressurizing may cause gas release and/or violent cylinder bursting. Container may explode if heated due to resulting pressure rise. Some mixtures of HCFCs and/or HFCs, and air or oxygen may be combustible if pressurized and exposed to extreme heat or flame. When burned, the following hazardous products of combustion can occur: Carbon oxides Hydrogen fluoride Carbonyl halides

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders:	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".
Environmental precautions:	Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).



Section 7. Handling and storage

Precautions for safe handling

Protective measures:	Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
Advice on general	·
Occupational hygiene:	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage Including any incompatibilities:	Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Airborne Exposure Guidelines:	Methane, difluoro- (75-10-5)
US. OARS. WEELs Workplace	Environmental Exposure Level Guide
Time weighted average:	1,000 ppm (2,200 mg/m3)
Remarks:	Only those components with exposure limits are printed in this section. Limits with skin contact designation above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required. Limits with a sensitizer designation above mean that exposure to this material may cause allergic reactions.
Engineering controls:	Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Monitor carbon monoxide and oxygen levels in tanks and enclosed spaces. Consult ACGIH ventilation manual, NFPA Standard 91 and NFPA Standard 654 for design of exhaust system and safe handling.

Section 8. Exposure controls/personal protection (continue)

Respiratory protection:	Avoid breathing gas. Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components (full facepiece recommended). Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.
Skin protection:	Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Rinse immediately if skin is contaminated. Wash thoroughly after handling. Wash contaminated clothing and clean protective equipment before reuse.
Eye protection:	Use good industrial practice to avoid eye contact.

Section 9. Physical and chemical properties

Appearance

Physical state	:Gas. [Liquefied gas]
Color	:Colorless.
Boiling/condensation point	: -61.1 °C (-51.7 °F)
Melting/freezing point	: -213°C (-136°F)
Molecular weight	: 52.02 g/mol
% Volatiles	: 100 %
Odor	: Ether-like (slightly)
Odor threshold	: Not available.
рН	: Neutral.
Flash point	: Not available.
Burning time	: Not applicable.
Burning rate	: Not applicable.
Evaporation rate	: Not available.
Flammability(solid, gas)	: See GHS Classification in Section 2
Lower flammable limit (LFL)	: 14.4 %(V)
Upper flammable limits (ULF)	: 31.0 %(V)
Vapor pressure	: 11,429 mmHg (70.0 °F (21.1 °C))
Vapor density	: 1.81 kg/m3
Gas Density	: 0.96 g/cm3 (77 °F (25 °C))
Relative density	: Not applicable.





Section 9. Physical and chemical properties (continue)

Solubility Solubility in water	: Not available. : Not available.
n-octano/water	· Not available
Auto-ignition temperature	
Flash point	: Not available.
Decomposition temperature	: Not available.
SADT	: Not available.
Viscosity	: Not applicable.

Section 10. Stability and reactivity

Stability: Materials to avoid:	This material is chemically stable under normal and anticipated storage, handling and processing conditions. Alkaline earth metals Finely divided metals (aluminium, magnesium, zinc) Alkali metals Strong acids Strong oxidizing agents
Conditions / hazards to avoid:	Heat
	Hazardous decomposition products:
Thermal decomposition giving toxic and corrosive products :	Carbonyl halides Hydrogen fluoride Carbon oxides

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity		
Inhalation:	Practically nontoxic. (Rat) 4 h LC50 > 520000	ppm. signs: anesthetic
Sensitization:	Cardiac sensitization not observed. inhalation	. (Dog) signs: tremors
Repeated dose toxicity	Subchronic inhalation administration to Rat / I reported.	No adverse effects
Assessment in Vitro:	No genetic changes were observed in laborat animal cells, human cells	ory tests using: bacteria,
Date of issue: 11/2024	Version 1.02	ChemPenn, Ll



Section 11. Toxicological information *(continue)*

Assessment in Vivo: No genetic changes were observed in a laboratory test using: mice

Developmental toxicity: Exposure during pregnancy. inhalation (rat and rabbit) / No birth defects were observed.

Section 12. Ecological information

Biodegradation: Octanol Water Partition	Not readily biodegradable. (28 d) biodegradation 5 %
Coefficient:	log Pow = 0.21
Global Warming Potential:	GWP 543 (Global warming potential with respect to CO2 (time horizon 100 years))
Ozone Depletion Potential:	ODP 0 (Ozone depletion potential; ODP; (R-11 = 1))

Section 13. Disposal considerations

Disposal methods

: for the disposal of this product refer to the current EPA regulation.

Section 14. Transportation information

	DOT	TDG	Mexico	IMDG	IATA
UN#	UN3252	UN3252	UN3252	UN3252	UN3252
UN proper shipping name	Difluoromethane	Difluoromethane	Difluoromethane	DIFLUOROMETHANE (REFRIGERANT GAS R 32)	Difluoromethane
Transport hazard class	2.1	2.1	2.1	2.1	2.1
Packaging group	n/a	n/a	n/a	n/a	n/a
Environment	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

DOT Classification	:Limited quantity: Yes.
Quantity limitation	:Passenger aircraft/rail: Forbidden. Cargo aircraft: 150 kg.
Special provisions	:T50
TDG Classification	Product classified as per the following sections of the Transportation of
	Dangerous Goods Regulations: 2.13-2.17 (Class 2).
	Explosive Limit and Limited Quantity Index 0.125, ERAP Index 3000
	Passenger Carrying Vessel Index Forbidden
	Passenger Carrying Road or Rail Index Forbidden



Section 14. Transportation information (continue)

ΙΑΤΑ	: Quantity limitation Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: 150 kg.
Special precautions for user	: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S Federal regulations	: TSCA 8(a) CDR Exempt/Partial exemption: Not determined United States inventory (TSCA 8b): All components are listed or exempted
Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)	: Not listed.
Clean Air Act Section 602 Class I Substances	: Not listed.
Clean Air Act Section 602 Class II Substances	: Not listed.
DEA List I Chemicals (Precursor Chemicals)	: Not listed.
DEA List II Chemicals (Essential Chemicals)	: Not listed.
SARA Title III – Section 302 Extremely Hazardous Chemicals: regulated or regulated but prese	The components in this product are either not SARA Section 302 ent in negligible concentrations.
SARA Title III - Section 311/312 Hazard Categories:	2 Acute Health Hazard, Sudden Release of Pressure Hazard, Fire Hazard
SARA Title III – Section 313 Toxic Chemicals:	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
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Reportable Quantity (RQ):	The components in this product are either not CERCLA regulated, regulated but present in negligible concentrations, or regulated with no assigned reportable quantity.



R<u>3</u>2

Section 15. Regulatory information (continue)

State regulations	
New Jersey Pennsvlvania	: None of the components are listed. : Chemical Name: Methane. difluoro. CAS-No 75-10-5
California Prop. 65	This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.
International regulations	: n/a.

Section 16. Other information

Canada Label Requirements

: Class A: Compressed Gas.

Hazardous Material Information System (U.S.A.)

Health /	1
Flammability	4
Physical hazards	1

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.



Section 16. Other information (continue)

Procedure used to derive the classification

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nt

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Date of issue/ revision	: 11/20/2024
Previous issue	: n/a
Version	: 1.02

Section 16. Other information

Key to abbreviation	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Internediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
	marine pollution) UN = United Nations