VIJAY
Petrochem Pvt. Ltd.

FREEZE-ON

SAFETY DATA SHEET

Preparation Date 23-Feb-2022 **Revision Date** 23-Feb-2022 **Version Number:**01

Section 1. IDENTIFICATION

Product Name Pentafluoroethane

Synonyms 1,1,1,2,2-pentafluoroethane, R-125, HFC-125

Recommended Use Manufacture of substances, Refrigerant

Uses Advised Against Only use for industrial or professional use.

Details of the Supplier of the Safety Data Sheet

Company

Khasra No. :2137/1750, 2139/1751 & 2169/1750, Syau
industrial Area, Govindgarh, Jaipur, Rajasthan- 303712
India

Telephone	+91-9928418296 (Admin)
E-mail address	vijaypetrochem09@gmail.com
Website	www.vijaypetrochem.com

Emergency Telephone Number

Company Phone Number +91-9928418296 (Admin)

Section 2. Hazard(s) Identification

GHS classification in accordance with the OSHA Hazard Communications Standard (29 CFR 1910.1200)

Gases under Pressure : Liquefied Gas

Simple Asphyxiant

GHS Label elements

Hazard Pictogram

Signal Word : Warning

Hazard Statement : **H280** Contains gas under pressure; may explode if heated.

May displace oxygen and cause rapid suffocation.

Preparation Date 23-Feb-2022 **Revision Date** 23-Feb-2022 **Version Number:**01

Precautionary Statement :

Storage:

P410+P403 Protect from sunlight. Store in a well-ventilated place.

Hazards not otherwise classified (HNOC)
Contact with evaporating liquid may cause frostbite or freezing of skin.

Asphyxiant in high concentrations.

Section 3. Composition/information on Ingredients

Substance/Mixture: Substance

Substance Name : Pentafluoroethane

CAS-No : 354-33-6

Chemical Name	CAS-No	Weight %
Pentafluoroethane	354-33-6	>99.5

Section 4. First aid measures

First-aid measures

Eye contact Rinse the eye with water immediately. Remove contact lenses, if present and easy to do. Continue rinsing. Flush thoroughly with water for at least 15 minutes. Get immediate medical assistance.

Skin contact Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Contact with evaporating liquid may cause frostbite or freezing of skin. If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Get medical attention if symptoms persisted.

Ingestion Due to its physical form, Ingestion is not considered a potential route of exposure. Do NOT induce vomiting unless instructed to do so by a physician.

Inhalation In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to fresh air and keep at rest in a position comfortable for breathing wearing self-contained breathing apparatus. Apply artificial respiration if breathing stopped. Get medical attention.

Most Important Symptoms and Effects, Both Acute and Delayed

Most Important Symptoms and Effects The most important known symptoms and effects are described in labelling (See section 2) and/or in section 11.

Eyes : Evaporating liquid can cause frostbite
Skin : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite
Inhalation : At a high concentration act as a simple asphyxiant
Ingestion : Ingestion is not a normal route of exposure

Indication of immediate medical attention and special treatment needed

Overexposure act as asphyxiant, could lead to respiratory arrest. Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.

Notes to physician Symptomatic treatment and supportive therapy as indicated. Adrenaline and similar sympathomimetic drugs should be avoided following exposure as cardiac arrhythmia may result with possible subsequent cardiac arrest.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media In case of fire use extinguishing agent appropriate to surrounding fire.

Unsuitable extinguishing media None Identified

Special hazards arising from the substance or mixture

Special Hazard Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous combustion products Thermal decomposition will evolve very toxic and corrosive vapours. (hydrogen fluoride) Containers may burst if overheated.

Protective equipment and precautions for firefighters

In case of fire: Evacuate area. Cool containers / tanks with water spray. Ensure a system for the rapid emptying of containers. In case of fire, remove exposed containers. Fight fire remotely due to the risk of explosion. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

NFPA Ratings

Health	Flammability	Instability	Special Hazard
2	0	0	N/A

Hazard Scale: 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with skin and eyes. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. In enclosed areas: ventilate or wear a self-contained breathing apparatus (risk of anoxia). Remove all sources of ignition. Do not smoke. Evacuate personnel to safe areas. For personal protection see section 8.

Environmental precautions Prevent liquid from entering drains, sewers, basements and work pits since the vapor may create a suffocating atmosphere.

Methods and material for containment and cleaning up

Methods for containment Sweep up or vacuum up spillage and collect in suitable container for disposal. Place in a suitable, labelled container for waste disposal. In case of large spill, dike if needed. Keep in suitable, closed containers for disposal. Wash area and prevent runoff into drains. Local authorities should be advised if significant spillages cannot be contained.

Reference to other sections Hazardous combustion products: see section 10. Personal Protective equipment: See section 8. Incompatible materials: see section 8. Incompatible Material: see section 10. Disposal Consideration: see section 13

Section 7. Handling and Storage

Precautions for safe handling

Handling Avoid inhalation of high concentrations of vapors. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Atmospheric concentrations well below the occupational exposure limit can be achieved by good occupational hygiene practice. The vapor is heavier than air, high concentrations may be produced at low levels where general ventilation is poor, in such cases provide adequate ventilation or wear suitable respiratory protective equipment with positive air supply. Avoid contact with naked flames and hot surfaces as corrosive and very toxic decomposition products can be formed. Avoid contact between the liquid and skin and eyes.

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.

Conditions for safe storage, including any incompatibilities

Storage Keep in a well-ventilated place away from fire risk and avoid sources of heat such as electric or steam radiators.
Avoid storing near to the intake of air conditioning units, boiler units and open drains. Keep away from open flames, hot surfaces and sources of ignition. Keep in a cool, well-ventilated place.

Protect full containers from sources of heat to avoid over pressurization. Keep away from direct sunlight. Containers should not be stored in conditions likely to encourage corrosion. Stored containers should be periodically checked for general conditions and leakage. 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.

Incompatible materials finely divided metals ,alkali metals (sodium , potassium) , alkaline earth metals (barium , magnesium), alloys containing more than 2% magnesium.

Section 8. Exposure Controls/Personal Protection

Exposure Guidelines : Apply technical measures to comply with occupational

Component	CAS Number	US WEEL
Pentafluoroethane	354-33-6	TWA (8hr) : 1000 ppm

Legend
WEEL - Workplace Environmental Exposure Levels (AIHA)

Engineering controls

Consider a work permit system e.g. for maintenance activities. Ensure adequate air ventilation. Provide adequate general and local exhaust ventilation. Keep concentrations well below occupational exposure limits. Systems under pressure should be regularly checked for leakages. Product to be handled in a closed system and under strictly controlled conditions. Use only permanent leak tight installations (e.g. welded pipes). Do not eat, drink or smoke when using the product.

Personal protective equipment

Eye/Face Protection

Tightly fitting safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperature should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.

Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hygiene Measure

Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs. Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	Colorless Liquified Gas
Physical state	Liquified Gas
Odor	Odorless, faint ethereal odor

Color	Colorless
Odor threshold	No information available.

Property	**VALUES**	**Remarks/ Method**
pH	No information available	
Melting point/freezing point	-103 °C at 101 325Pa	
Boiling Point/Range	- 48.5 °C at 101 325Pa	
Flash Point	No data available	
flammability (solid, gas)	Non flammable	
Flammability or Explosive limit		
Upper	No information available	
Lower	No information available	
Relative density (Water = 1)	4.1 (relative to air)	
Vapor density (Air = 1)	No information available	
Vapor pressure	1375.8 kPa at 25°C	
Water solubility	430 mg/L at 25°C	
Solubility in Other Solvents	1.48 at 20°C	
Partition coefficient: n-octanol/water	No information available	
Autoignition temperature	No information available	
decomposition temperature	No information available	
Viscosity	Not Applicable	
Oxidizing properties	No information available	
Explosive properties	No information available	
Volatile component	No information available	
Molecular Formula	C2HF5	
Molecular Weight	120 g/mol	

OTHER INFORMATION

Surface tension	No information available
Softening point	No information available
Voc g/L	No information available

SECTION 10. Stability and Reactivity

Reactivity

No further relevant information available.

Chemical stability

This product is stable at normal handling and storage conditions.

Possibility of hazardous reaction

Certain mixtures of HFCs and chlorine may be flammable or reactive under certain conditions.

Conditions to avoid

Protect from sunlight. Keep away from heat, spark and flames. Avoid high temperature.

Incompatible Materials

Finely divided metals, alkali metals (sodium, potassium), alkaline earth metals (barium, magnesium), alloys containing more than 2% magnesium.

Hazardous decomposition products

Thermal decomposition can lead to release of toxic/irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous decomposition products formed under fire conditions:
Hydrogen fluoride by thermal decomposition and hydrolysis.

11. Toxicological Information

Information on Toxicological Effects

Acute Toxicity

Component Information

Pentafluoroethane (CAS 354-33-6)			
	Oral LD50	:	Not available
	DERMAL LD50	:	Not available
	INHALATION LC50 (4H)	:	>800000 ppm

Product Information

Oral LD 50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg
Dermal LD 50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg
Inhalation LD 50	Based on ATE data, the classification criteria are not met. ATE > 5 mg/l

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation May cause frostbite

Sensitization Not classified based on available information

Carcinogenicity

Component	CAS number	IARC	NTP	OSHA
Pentafluoroethane	354-33-6	Not Listed	Not Listed	Not Listed

Mutagenic effect Not classified based on available information
Developmental effect Not classified based on available information
Tetragonality Not classified based on available information
STOT - Single Exposure None Known

Preparation Date 23-Feb-2022 **Revision Date** 23-Feb-2022 **Version Number:**01

STOT - repeated exposure	None known
Aspiration hazard	No information available
Symptoms/effects, both acute and delayed	No information available
Endocrine Disruptor Information	No information available
Other adverse effect	No information available

Section 12. Ecological Information

Ecotoxicity

No data available.

Component Toxicity

Component	CAS number	LC50 – Fish	EC50 – Daphnia	EC50-Alga
Pentafluoroethane	354-33-6	>100 mg/L	>100 mg/L	>100 mg/L

Persistence and Degradability

Not Readily biodegradable

Bioaccumulative Potential

Log Pow = 1.48

Low partition coefficient (octanol-water) indicates the low potential for bioaccumulation.

Mobility in Soil

No information available.

Other Adverse Effects

No information available.

Section 13. Disposal Considerations

Waste Treatment Methods

Waste Disposal Method	Avoid discharges to atmosphere. Do not discharge into any place where its accumulation could be dangerous. Best to recover and recycle. If this is not possible, destruction is to be in an approved facility which is equipped to absorb and neutralize acid gases and other toxic processing products.
Contaminated packaging	Disposal should be in accordance with applicable local/regional/national and international laws and regulations.

Section 14. Transport Information

IMDG/IMO

UN-No	UN 3220
Proper Shipping name	PENTAFLUOROETHANE
Hazard class	2.2
Packing group	-
Environmental Hazard	No

IATA/ICAO

UN-No	UN 3220
Proper Shipping name	PENTAFLUOROETHANE
Hazard class	2.2
Packing group	-
Environmental Hazard	No

Domestic Regulation

49CFR

UN/ID/NA number	UN 3220
Proper Shipping name	PENTAFLUOROETHANE
Hazard class	2.2
Packing group	-
ERG Code	No

Section 15. Regulatory Information

Safety, health and environmental regulations / legislation specific for the substance or mixture

U.S. Federal Regulations

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	Yes
Reactive Hazard	No

Refer to section 2: Hazard identification of this SDS for classification of substance.

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS TPQ.

Preparation Date 23-Feb-2022 **Revision Date** 23-Feb-2022 **Version Number:**01

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.

State Regulations

CALIFORNIA PROPOSITION 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

State Regulations

Component	CAS Number	Massachusetts	New Jersey	New York	Pennsylvania
Pentafluoroethane	354-33-6	Not Listed	Not Listed	Not Listed	Not Listed

International Inventories

TSCA	Y
EINECS/ELINCS	Y
DSL	Y
NDSL	Y
PICCS	Y
ENCS	Y
IENCS	Y
AICS	Y
KECL	Y

Legend

Y : All ingredients are on the inventory

N : Not determined or one or more ingredients are not on the inventory and are not exempt from listing.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

16. Other Information

Preparation Date	22-02-2022
Revision Date	23-02-2022
Revision Summary	-

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage,

processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

End of Safety Data Sheet