



Section 1 – Chemical Product and Company Identification

Product Name	HFC-125
Chemical Name	1,1,1,2,2-pentafluoroethane
Synonym	Pentafluoroethane; HFC-125; R-125; MH125™; FE-25™
Product Use	Fire extinguishing agent
Manufacturer	Shanghai Waysmos Fine Chemical Co., Ltd.
Address	2501 Zhouzhu Road, Pudong New Area, Shanghai 201322, China
Email	sales@waysmos.com
Telephone	+86-571-85069383
Fax	+86-571-85069385

Section 2 – Hazard Identification

OSHA/HCS status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Classification of the substance or mixture	Gases under pressure - Liquefied gas
GHS label elements	
Hazard pictograms	 
Signal word	Warning
Hazard statements	H280: Contains gas under pressure; may explode if heated P210: Keep away from heat/sparks/open flame. – No smoking P233: Keep container tightly closed in a cool/well-ventilated place
Precautionary statements	P260: Do not breathe dust/fumes/gas/vapours/spray P273: Avoid release to the environment P280: Wear protective gloves/protective clothing/eye protection/face protection P403: Use and store only in a well-ventilated area May cause frostbite May displace oxygen and cause rapid suffocation
Other Hazard	Overheating and over pressurizing may cause gas release or violent cylinder bursting In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation

Section 3 – Composition/Information on Ingredients

Ingredient name	CAS No.	%(weight)
Pentafluoroethane	354-33-6	≥99.00

Section 4 – First Aid Measures

Inhalation	Remove to fresh air Oxygen or artificial respiration if needed If unconscious, place in recovery position and get medical attention immediately
Skin	Flush exposed skin with lukewarm water (not hot), or use other means to warm skin slowly Remove contaminated clothing and shoes Get medical attention if frostbitten by liquid or if irritation persists
Eyes	Immediately flush with large amounts of water for at least 15 minutes Get medical attention if irritation occurs
Ingestion	As this product is a gas, refer to the inhalation section
Note to physician	Immediate medical attention is not required When symptoms persist or in all cases of doubt seek medical advice

Section 5 – Fire Fighting Measures

Extinguishing media	Pentafluoroethane is a fire extinguishing media. Use media appropriate for surrounding material
Special hazards arising from the substance or mixture	Thermal decomposition can lead to release of irritating or toxic gases/vapors: carbon oxides, halogenated compounds Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode
Special protective equipment for firefighters	Wear self-contained breathing apparatus with a full face-piece operated in positive pressure mode and chemical-protective clothing. Prevent fire extinguishing water from contaminating surface water or the ground water system

Section 6 – Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Refer to SECTION 8 for personal protective equipment. Prevention of skin and eye contact. Ensure adequate ventilation. Remove all sources of ignition. Shut off gas supply if this can be done safely. Isolate area until gas has dispersed
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Environmental precautions	Do not discharge into drains/surface waters/groundwater
Methods and material for containment and cleaning up	Evacuate area. Keep upwind. Stop leak if without risk. Ventilate area especially low places remove open flames and heating elements. Disperse gas with floor level forced air
Reference to other SECTIONS	See SECTION 7 for information on safe handling See SECTION 8 for information on personal protection equipment See SECTION 13 for information on disposal

Section 7 – Handling and Storage

Handling	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.
Storage	Keep container tightly closed and in a cool, well-ventilated place. Keep out of direct sunlight. Keep away from heat and ignition sources.
Packing material	Steel drum

Section 8 –Exposure Controls/Personal Production

8.1 Control parameters

Occupational exposure limit values	8-h TWA WEEL: 1000 ppm. American Industrial Hygiene Association, Workplace Environmental Exposure Limit (WEEL) Committee
DNEL (Derived No Effect Level) for workers and the general population	Not available
PNEC (Predicted No Effect Concentration) values	Not available

8.2 Exposure controls

Appropriate engineering controls	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits
Personal protective equipment	
Respiratory Protection	In case of inadequate ventilation wear respiratory protection
Skin Protection	Wear protective gloves/clothing to prevent contact
Eye Protection	Safety glasses/chemical splash goggles
Environmental exposure controls	Do not empty into drains

Section 9 – Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Liquefied gas
Color	colorless
Odour	inodorous
pH	Not available
Melting point	-103 °C
Boiling point	-48.5 °C
Flash point	Not available
Evaporation rate	Not available
Flammability (solid, gas)	Not flammable
Upper/lower flammability or explosive limits	Not available
Vapour pressure(25°C)	1310Kpa
Liquid density(25°C)	1.19 g/cm ³
Solubility(ies)	Not available
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available
Viscosity	Not available
Explosive properties.	May explode if heated
Oxidising properties	Not available

9.2 Other information

No data available.

Section 10 – Stability and Reactivity

Reactivity	Stable under recommended storage and handling conditions (see SECTION 7, handling and storage).
Chemical stability	Stable under normal conditions of use.
Possibility of hazardous reactions	No known hazardous reactions
Conditions to avoid	Keep away from heat and ignition sources. Protect from sunlight
Incompatible materials	Strong oxidizing materials
Hazardous decomposition products	Thermal decomposition can lead to release of irritating or toxic gases/vapors: carbon oxides, halogenated compounds.

Section 11 – Toxicological Information
11.1 Information on toxicological effects
Acute Toxicity

Ingredient name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Pentafluoroethane	Not data available	Not data available	2,910 ppm/4h (rat).

Skin corrosion/irritation No information available

Serious eye damage/irritation	No information available
Respiratory or skin sensitization	No information available
Germ cell mutagenicity	No information available
Reproductive toxicity	No information available
STOT-single exposure	No information available
STOT-repeated exposure	No information available
Aspiration hazard	No information available
Carcinogenicity	Not listed as a carcinogen by NTP, IARC, or OSHA
Cardiac sensitization threshold limit	No information available

Section 12 – Ecological Information






Toxicity	
Algae 96h(EC50)	142mg/L
Daphnia magna 48h	> 200 mg/L
Degradability	Atmospheric lifetime is approximately 29 years
Bioaccumulation/ Accumulation	Bioaccumulation is not expected (Log Kow < 3)
Mobility in Environmental Media	Not available
Other adverse effects	Ozone Depletion Potential (CFC 11 = 1.0): 0.00 Global Warming Potential (CO2 = 1.0): 3,450

Section 13 –Disposal Considerations

Waste Disposal Method

Disposal must be made according to local and national regulations. Empty containers should be taken for local recycling, recovery or waste disposal.

Section 14—Transport Information

Item	DOT	TDG	Mexico	IMDG	IATA / ICAO
UN-Number	3220	3220	3220	3220	3220
UN proper shipping name	Pentafluoroethane	Pentafluoroethane	Pentafluoroethane	Pentafluoroethane	Pentafluoroethane
Hazard class	2.2	2.2	2.2	2.2	2.2
Label					
Packaging Group	-	-	-	-	-

Special precautions for user

Avoid transportation in vehicles where the load space is not separated

from the driver's compartment. Ensure valves are closed and not leaking 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

Section 15—Regulatory Information

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

Listed in international inventories:

Ingredient name	TSCA	DSL	NDSL	ELINCS	ENCS	CHINA	KECL	PICCS	AICS
Pentafluoroethane	YES	YES	NDA	YES	YES	YES	YES	YES	YES

15.2. Other regulations

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

- not regulated.

Section 16 – Other Information

In accordance with good practices of personal cleanliness and hygiene handle with the care and avoid unnecessary contact with this product.

This information is being supplied to you under OSHA Hazard Communication Standard 29 CFR 1910.1200 and is offered in good faith as typical values and not as a product specification. The information contained herein is based on the data available to us and is believed to be true and accurate.

No warranty expressed or implied regarding the accuracy of this data. The hazards connected with the use of the material or the results to be obtained from the use thereof are made. Shanghai Waysmos Fine Chemical Co., Ltd. assumes no responsibility for damage or injury from the use of the product described herein



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MATERIAL SAFETY DATA SHEET

Pentafluoroethane

SECTION I " PRODUCT AND MANUFACTURER INFORMATION

TRADE NAME / LABEL NAME	MH125 , HFC125,
CAS NUMBER	354-33-6
CHEMICAL FAMILY	Halogenated alkane
CHEMICAL NAME	Pentafluoroethane
MANUFACTURER'S NAME	Shanghai Waysmos Fine Chemical Co., Ltd.
MANUFACTURER'S ADDRESS	2501 Zhouzhu Road, Nanhui, Shanghai China, 201322
PHONE	800-633-8253 If outside USA call +1-801-629-0667
DATE OF PREPARATION	July.24, 2010
PRODUCT USE	Fire/explosion extinguishing, suppression and prevention (inerting) agent for use in total flooding systems or portable extinguishers. THIS PRODUCT IS NOT SUITABLE FOR USE AS AN ACTIVE PHARMACEUTICAL INGREDIENT, PHARMACEUTICAL EXCIPIENT OR DOSAGE AGENT.

SECTION II " COMPOSITION AND INGREDIENT INFORMATION

CHEMICAL NAME	Pentafluoroethane
CAS Number	354-33-6
% w/w	≥ 99.8%
OSHA PEL TWA mg/m ³	Not established
OSHA PEL STEL mg/m ³	Not established
OSHA PEL CEIL mg/m ³	Not established
ACGIH TLV TWA mg/m ³	Not established
ACGIH TLV STEL mg/m ³	Not established
ACGIH TLV CEIL mg/m ³	Not established
TOXICITY DATA	N/A

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SECTION III " PHYSICAL AND CHEMICAL CHARACTERISTICS

GENERAL	Colorless, odorless gas
BOILING POINT	-48.45iC/-55.30iF
VAPOR PRESSURE(@ 21iC / 70iF)	1.244Mpa/180.4psia
GAS DENSITY(@ 21iC / 70iF, 1ATM)	5.041kg/m ³
SPECIFIC GRAVITY (Air =1)(@ 21iC / 70iF, 1ATM)	4.2
PERCENT VOLATILE BY VOLUME	100
EVAPORATION RATE(Butyl acetate = 1)	High
WATER SOLUBILITY (v/v @ 20iC / 68iF)	N/A

SECTION IV " FIRE AND EXPLOSION HAZARDS

FLASH POINT	N/A
FLAMMABLE LIMIT (in air; % by volume)	N/A
AUTO-IGNITION TEMPERATURE	N/A
EXTINGUISHING MEDIA	All are suitable. While product is non-flammable and extinguishes fires at sufficient concentration, can undergo thermal decomposition if involved in fires where quantity of product is insufficient to extinguish. Thermal decomposition products may be toxic or corrosive.
UNUSUAL FIRE AND EXPLOSION HAZARDS	Container rupture possible if pressure and temperature relief valves should fail.
SPECIAL FIRE FIGHTING PROCEDURES	Employ water spray from a safe distance to prevent container rupture. If containers should rupture, use self contained breathing apparatus. Product is non-flammable, but denser than air, posing asphyxiation risk. Thoroughly ventilate affected area to remove product and any decomposition products before allowing re-entry.

SECTION V " REACTIVITY DATA

STABILITY	Stable
CONDITIONS TO AVOID	N/A
HAZARDOUS POLYMERIZATION	N/A
INCOMPATIBLE MATERIALS	Powdered metals such as aluminum, magnesium or zinc; strong alkaline agents; oxidizing agents; reducing agents.
HAZARDOUS DECOMPOSTION PRODUCTS	Thermal decomposition products may include hydrogen fluoride, carbon monoxide and carbon dioxide.

SECTION VI " HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	N/A
POTENTIAL EXPOSURE ROUTES	Inhalation " Yes Eye contact " Yes Skin contact - Yes Ingestion " No
SIGNS AND SYMPTOMS OF OVEREXPOSURE	Inhalation of excessive concentrations in air may induce symptoms of hypoxia (headache, nausea, dizziness, loss of consciousness) or cardiac sensitization (irregular pulse or arrhythmia). Product is a cryogenic gas. Direct skin contact at point of release may cause symptoms of frostbite due to evaporative cooling (cold, white, discolored skin that, in severe cases, may exhibit blistering).
MEDICAL CONDITIONS POTENTIALLY AGGRAVATED BY EXPOSURE	Pre-existing cardiac, respiratory or CNS disorders may be exacerbated by overexposure. Epinephrine or sympathomemetic drugs may increase susceptibility to cardiac irregularities upon overexposure.
CARCINOGENICITY	NTP Program " No IARC Monographs " No OSHA " No ACGIH " No Other " No
MUTAGENICITY	S. typhimurium assay " No Mouse lymphoma assay " No Mouse micronuclei assay " No



LC ₃₀ 4 hour rate, EMERGENCY AND FIRST AID PROCEDURES	> 800,000 ppm Inhalation " Move to fresh air. Artificial respiration if not breathing. Administer oxygen if breathing is labored. Seek medical attention. Eye contact " Flush/irrigate with fresh water. Seek medical attention. Skin contact " Flush/irrigate (spray) with water. Apply sterile dressing as necessary.. Seek medical treatment for symptoms of frostbite. Ingestion " N/A NOTE TO PHYSICIANS: In treating cases of overexposure through inhalation, use of epinephrine, sympathomimetics or other stimulants is contraindicated as such compounds increase susceptibility to cardiac sensitization (irregular pulse or arrhythmia).
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SECTION VII " SPILL/LEAK PROCEDURES AND SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS	Store in a cool, dry, well-ventilated area separate from incompatible materials. Protect containers from mechanical damage. Follow fire equipment manufacturer's instructions for operation, inspection, maintenance and repair of portable extinguishers and fixed extinguishing systems.
OTHER PRECAUTIONS	Prohibit backfeed into containers.
RELEASE OR SPILL PROCEDURES	Evacuate and ventilate the affected area. Prohibit general entry into areas where high concentrations may exist, particularly confined or poorly ventilated areas. Keep in mind that this product is denser than air and that concentrations will be higher at lower levels (sewers, basements or pits). Trained personnel should use self-contained breathing apparatus when entering areas where high concentrations may exist.
WASTE DISPOSAL	Product can be reclaimed unless contaminated. Contact distributor to arrange reclamation. Otherwise, disposal should be in accordance with applicable law, generally by incineration at a qualified facility with an appropriate scrubber and other emission control technology.

SECTION VIII " SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION	NIOSH/MSHA approved self-contained breathing apparatus for entry into areas where high concentrations may exist.
VENTILATION	Passive ventilation (windows, doors, etc.) generally adequate for small areas. Mechanical ventilation for control of large areas and storage or filling facilities.
DERMAL PROTECTION	Lined, neoprene gloves for handling liquid product.
EYE PROTECTION	Shatterproof chemical splash goggles when handling liquid or working on pressurized containers.
OTHER PROTECTIVE EQUIPMENT	Clothing to minimize contact with liquid product or at potential points of release.
OTHER PROTECTIVE PRACTICES	Employ prudent confined space entry and related procedures (confirm equipment is free of product and has been ventilated, etc.). As with all chemical products, wash thoroughly after handling and wash contaminated clothing before re-use.



HAZARDOUS MATERIAL IDENTIFICATION SYSTEM RATINGS

HEALTH = 1	FLAMMABILITY = 0	REACTIVITY = 0
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HAZARD INDEX:

*0 = MINIMAL HAZARD, 1 = SLIGHT HAZARD, 2 = MODERATE HAZARD,
3 = SERIOUS HAZARD AND 4 = SEVERE HAZARD*

SHIPPING INFORMATION " U.S. DOT GENERAL

DOT SHIPPING NAME	Pentafluoroethane
DOT ID NUMBER	UN3220
DOT HAZARD CLASS	2.2 NON-FLAMMABLE, COMPRESSED GAS

AIR TRANSPORT " ICAO OR IATA

PROPER SHIPPING NAME	Pentafluoroethane
ID NUMBER	UN3220
HAZARD CLASS	2.2 NON-FLAMMABLE, COMPRESSED GAS

WATER - IMDG

PROPER SHIPPING NAME	Pentafluoroethane
ID NUMBER	UN3220
HAZARD CLASS	2.2 NON-FLAMMABLE, COMPRESSED GAS