

## MATERIAL SAFETY DATA SHEET

### HEPTAFLUOROPROPANE

#### SECTION 1 “PRODUCT INFORMATION”

TRADE NAME / LABEL NAME	HFC 227 ea
CAS NUMBER	431890
CHEMICAL FAMILY	Halogenated alkane, Hydro fluorocarbon
CHEMICAL NAME	1,1,1,2,3,3,3 - Heptafluorocarbon
SYNONYMS	2H – Heptafluoropropane, HFC – 227 ea, R 227 , FM – 200 , EF 227
DISTRIBUTOR NAME	TABRIGAS EGYPT
DISRTIBUTOR ADDRESS	Plot 6055 – 6 <sup>th</sup> , District – Al Merag City New Maddi – Zahraa Al Maadi Road Ring Road – Cairo
PHONE	29178914 – 29179505 – 29179502
FAX	01288756069
DATE OF PREPARTATION	SEPT, 24 , 2007
PRODUCT USE	Fire / explosion extinguishing, suppression and prevention (inerting) agent for use in total flooding systems or portable extinguishers, <b>THIS PRODUCT IS NOT SUITABLE FOR USE AS AN ACTIVE PHARMACEUTICAL INGREDIENT, PHARMACEUTICAL EXIPIENT OR DOSAGE AGENT</b>

#### SECTION II “COMPOSITION & INGREDIENT INFORMATION”

CHEMICAL NAME	1,1,1,2,3,3,3 - Heptafluoropropane
CAS NUMBER	431890
% W/W	>99.9
OSHA PEL TWA mg/m <sup>3</sup>	Not established
OSHA PEL STEL mg/m <sup>3</sup>	Not established
OSHA PEL CEIL mg/m <sup>3</sup>	Not established
ACGIH PEL TWA mg/m <sup>3</sup>	Not established
ACGIH PEL STEL mg/m <sup>3</sup>	Not established
ACGIH PEL CEIL mg/m <sup>3</sup>	Not established
TOXICITY DATA	N/A

#### SECTION III “PHYSICAL & CHEMICAL CHARACTERISTICS

GENERAL	Colourless, odourless gas
BOILING POINT	-16.4iC / 3iF
VAPOR PRESSURE (@ 21iC / 70iF)	58.80 psia
VAPOUR DENISTY (AIR =1)	6.04
WATER REACTIVE	NO
SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.46
PERCENT VOLATILE (by volume)	N/A

EVAPORATION RATE (Butyl acetate=1)	N/A
VISCOSITY (@ 20iC / 68iF)	N/A
MELTING POINT	-131iC / -204iF
WATER SOLUBILITY (V/V @ 20iC / 68iF)	260 mg/L

#### SECTION IV “FIRE & EXPLSION HAZARDS”

<b>FLASH POINT</b>	N/A
<b>FLAMMABLE LIMIT (in air, % by volume)</b>	N/A
<b>AUTO – IGNITION TEMPRETURE</b>	N/A
<b>EXTINGISHING MEDIA</b>	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.
<b>UNUSUAL FIRE AND EXPLOSION HAZARDS</b>	Container rupture possible if pressure and temperature relief valves should fail
<b>SPECIAL FIRE FIGHTING PROCEDURES</b>	Employer 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”

<b>STABILITY</b>	Stable
<b>CONDITIONS TO AVOID</b>	N/A
<b>HAZARDS POLYMERIZATION</b>	N/A
<b>INCOMPLETE MATERIALS</b>	Powered metals such as aluminium, magnesium or zinc, strong alkaline agents, oxidizing agents is reducing agents
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b>	Thermal decomposition products may include hydrogen fluoride, carbon monoxide and carbon dioxide

#### SECTION VI “HEALTH HAZARD DATA”

<b>THRESHOLD LIMIT VALUE</b>	N/A
<b>POTENTIAL EXPOSURE ROUTES</b>	Inhalation Yes Eye contact Yes Skin contact Yes Ingestion Yes
<b>SIGNS AND SYPTOMS OF OVEREXPOSURE</b>	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, discoloured skin that in severe cases may exhibit blistering)
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**SECTION VI “HEALTH HAZARD DATA” Contd.**

MEDICAL CONDITIONS POTENTIALLY AGGRAVATED BY EXPOSURE	Pre – existing cardiac, respiratory or CNS disorders may be exacerbated by overexposure. Epinephrine or sympathomimetic 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 <sub>50</sub>	>C. 800,000 ppm
EMERGENCY & FIRST AID PROCEDURES	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 attention for symptoms of frostbite Ingestion “N/A

**SECTION VII “SPILL / LEAK PROCEDURES & SPECIAL PRECAUTIONS”**

HANDLING & STORAGE PRECAUTIONS	Store in a cool, dry, well – ventilated area separate from incompatible materials. Protect containers from mechanical damage. Follow fire equipment manufactures is instructions for operation, inspection, maintenance and repair of portable extinguishers and fixed extinguishing systems
OTHER PRECATUTIONS	Prohibit back feed 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 DISPOSABLE	Product can be reclaimed unless contaminated. Contact distributor to arrange reclamation, otherwise, disposable 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 products
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 SYATEM RATING**

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

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

**SHIPPING INFORMATION “U.S. DOT GENERAL”**

DOT SHIPPING NAME	HEPTAFLUOROPROPANE
DOT ID NUMBER	UN 3296
DOT HAZARD CLASS	2.2 NON – FLAMMABLE, COMPRESSED GAS
PACKING GROUP	N/A
PACKING INSTRUCTIONS	200
SPECIAL PROVISIONS	T50
NON – BULK PACKING	304
PASSENGER AIR / RAIL LIMIT	75 KG / Package
AIR CARGO LIMIT	150 KG / Package
VESSEL STOWAGE	A
REPORTABLE QUANTITY	None specified
LABEL	NON – FLAMMABLE GAS
PACKAGING EXCEPTIONS	306

BULK PACKING	314 / 315
OTHER STOWAGE	N/A

**AIR TRANSPORT “ICAO OR IATA”**

PROPER SHIPPING NAME	HEPTAFLUOROPROPANE
ID NUMBER	UN 3296
HAZARD CLASS	2.2 NON – FLAMMABLE, COMPRESSED GAS
SUBSIDIARY RISK	N/A
PACKING GROUP	N/A
PACKING INSTRUCTIONS	200
PACKING INSTRUCTIONS CARGO	200
SPECIAL PROVISIONS	N/A
AIR PASSANGER LIMIT	75 KG / Package
AIR CARGO LIMIT	150 KG / Package
LABEL	NON – FLAMMABLE GAS

**WATER – IMDG**

PROPER SHIPPING NAME	HEPTAFLUOROPROPANE
ID NUMBER	UN 3296
HAZARD CLASS	2.2 NON – FLAMMABLE, COMPRESSED GAS
SUBSIDIARY RISK	N/A
PACKING GROUP	N/A
MEDICAL / FIRST AID GUIDE	N/A

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