FlameStop

SAFETY DATA SHEET

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SECTION 1 - IDENTIFICATION: PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

PRODUCT IDENTIFIER:

FM-200® (FIRE EXTINGUISHING AGENT WITH EXPELLANT AND NON-PRESSURIZED)

OTHER MEANS OF IDENTIFICATION:

HEPTAFLUOROPROPANE, HFC-227EA

RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST:

Use of substance / mixture: fire extinguishing agent

DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET:

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SAFETY DATA SHEET PREPARED IN ACCORDANCE WITH OSHA'S HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200) AND THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS)

SECTION 2 - HAZARD(S) IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:

Hazard Classification:
Gas under pressure – liquefied gas
Simple Asphyxiant

LABEL ELEMENTS

Hazard pictograms	
Pictogram code	GHS04 Gas Cylinder
Signal word	**WARNING**
Hazard statements	
H280 Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.	
Precautionary statements	
General	
Prevention	Do not enter confined space unless adequately ventilated. In case of inadequate ventilation wear respiratory protection.
Response	
Storage	Keep container tightly closed. Protect from sunlight and store in well-ventilated place.
Disposal	

OTHER HAZARDS:

Direct contact with the cold gas or liquid can cause freezing of exposed tissues. Exposure to vapor at high concentrations can cause cardiac sensitization and suffocation if air is displaced by vapors.

SPECIFIC CONCENTRATION LIMITS

The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity	0%
Acute dermal toxicity	0%
Acute inhalation toxicity	0%
Acute aquatic toxicity	0%

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

MIXTURE INGREDIENTS

This product is a substance.

Synonyms: Heptafluoropropane

Component	CAS No.	Percentage of Ingredients
1,1,1,2,3,3,3-Heptafluoropropane	431-89-0	>99.9%

Note: The expellant is nitrogen.

SECTION 4: FIRST AID MEASURES

DESCRIPTION OF FIRST AID MEASURES:

After inhalation

Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately.

After skin contact

Flush with water. Obtain medical attention if frostbite or blistering occurs or redness persists.

After eye contact

Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

After ingestion

Ingestion is not considered a potential route of exposure.

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE, DELAYED AND AGGREVATED

Aside from the information found under Description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Notes to Physicians

In case of frostbite, place the frostbitten part in warm water. If warm water is not available or impractical to use, wrap the affected parts gently in blankets. DO NOT USE HOT WATER.

The use of epinephrine or similar compounds can increase susceptibility to heart irregularities caused by excessive exposure to these types of compounds.

SECTION 5: FIREFIGHTING MEASURES

EXTINGUISHING MEDIA

FM-200® is used as an extinguishing agent and therefore is not a problem when trying to control a blaze. Use extinguishing agent appropriate to other materials involved. Keep containers and surroundings cool with water spray as containers may rupture or burst in the heat of a fire.

SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Containers may explode in heat of fire.

ADVICE FOR FIREFIGHTERS

Wear full protective clothing and self-contained breathing apparatus as appropriate for specific fire conditions.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

Wear full protective clothing and self-contained breathing apparatus. Remove leaking cylinder to a safe place. Ventilate the area. Leaks inside confined spaces may cause suffocation as vapors may displace air, and should not be entered without a self-contained breathing apparatus.

ENVIRONMENTAL PRECAUTIONS

Prevent the material from being released into the environment.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

Material evaporates.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

Precautions for safe handling

Wear appropriate protective clothing. Prevent skin and eye contact.

Conditions for safe storage

Pressurized containers should be properly stored and secured to prevent falling or being knocked over. Do not drag, slide or pressurized containers. Do not drop pressurized containers or permit them to strike against each other. Never apply flame or localized heat directly to any part of the pressurized or plastic container. Store pressurized and plastic containers away from high heat sources. Storage area should be: - cool - dry - well ventilated - under cover - out of direct sunlight

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

CONTROL PARAMETERS / OCCUPATIONAL EXPOSURE LIMIT VALUES

1,1,1,2,3,3,3-Heptafluoropropane

None assigned.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

EXPOSURE CONTROLS

Appropriate engineering controls:

Use with adequate ventilation. There should be local procedures for the selection, training, inspection and maintenance of this equipment. When used in large volumes or odor becomes apparent, use local exhaust ventilation.

Individual protective measures, e.g. Personal Protective Equipment:

Respiratory Protection

Not normally required under conditions of use as a portable fire extinguisher. For other applications creating oxygen deficient atmospheres, use a self contained breathing apparatus, as an air purifying respirator will not provide protection.

Skin Protection - Wear rubber gloves. Avoid contact with skin.

Eye/Face Protection - Chemical goggles or safety glasses with side shields. Avoid contact with eyes.

Body Protection - Normal work wear.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Non- Pressurized	
Appearance **Physical State** **Color**	 Liquefied gas under pressure Colorless
Odor	Slight ether like
Odor Threshold	No data available
pH	Neutral
Specific Gravity	1.46
Boiling Range/Point (°C/F)	-16.4oC/3 oF
Melting Point (°C/F)	-129.5oC/265 oF
Flash Point (PMCC) (°C/F)	Not flammable
Vapor Pressure	540 hPa at -30 °C 29,360 hPa at 123 °C
Evaporation Rate (BuAc=1)	Not applicable
Solubility in Water	0.23 g/l at 25oC
Vapor Density (Air = 1)	5.8
VOC (%)	Not applicable
Partition coefficient (n-octanol/water)	2289
Viscosity	Not applicable
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Upper explosive limit	Not explosive
Lower explosive limit	Not explosive
Flammability (solid, gas)	Not flammable

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Expellant - Nitrogen	
Appearance **Physical State** **Color**	 Compressed gas Colorless
Odor	None
Odor Threshold	No data available
pH	Not applicable
Specific Gravity	0.075 lb/ft3 @70ºF as vapor
Boiling Range/Point (°C/F)	-196ºC/-321 ºF
Melting Point (°C/F)	No data available
Flash Point (PMCC) (°C/F)	Not flammable
Vapor Pressure	838 psig @70ºF and 1 atmosphere (Carbon Dioxide)
Evaporation Rate (BuAc=1)	No data available
Solubility in Water	No data available
Vapor Density (Air = 1)	Not applicable
VOC (g/l)	None
VOC (%)	None
Partition coefficient (n-octanol/water)	No data available
Viscosity	Not applicable
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Upper explosive limit	Not explosive
Lower explosive limit	Not explosive
Flammability (solid, gas)	Not flammable

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY

Decomposes on heating. Containers may rupture or explode if exposed to heat.

CHEMICAL STABILITY

Stable under normal conditions.

POSSIBILITY OF HAZARDOUS REACTIONS

Hazardous polymerization will not occur.

CONDITIONS TO AVOID

Heat - High temperatures - Exposure to direct sunlight

SECTION 10 - STABILITY AND REACTIVITY (CONTINUED)

INCOMPATIBLE MATERIALS

Materials to avoid:

Powdered metals (ex. aluminum, zinc, etc.) - strong oxidizing agents – strong reducing agents – strong alkalis

HAZARDOUS DECOMPOSITION PRODUCTS

Oxides of carbon – hydrogen halides – fluorocarbons – carbonyl halides

SECTION 11 - TOXILOGICAL INFORMATION

ACUTE TOXICITY

FM-200®

4 hour LC50(rat) >788,698 ppm

Low Observed Adverse Effect Concentration (LOAEC)/dog : 105000 ppm

Cardiac sensitization

No Observed Adverse Effect Concentration (NOAEC)/dog : 90000 ppm

Nitrogen

Simple asphyxiant

SPECIFIC TARGET ORGAN TOXICITY (STOT) – SINGLE EXPOSURE

Nitrogen: Exposure to nitrogen gas at high concentrations can cause suffocation by reducing oxygen available for breathing. Breathing very high concentrations can cause dizziness

SPECIFIC TARGET ORGAN TOXICITY (STOT) – REPEAT EXPOSURE

No relevant studies identified.

SERIOUS EYE DAMAGE/IRRITATION

Not expected to cause eye irritation based on review of properties of the substance.

SKIN CORROSION/IRRITATION

No relevant studies identified.

RESPIRATORY OR SKIN SENSITIZATION

FM-200®: Not expected to cause skin sensitization based on review of properties of the substance. Did not cause respiratory sensitization in laboratory animals.

CARCINOGENICITY

Not considered carcinogenic by NTP, IARC, and OSHA.

SECTION 11 - TOXILOGICAL INFORMATION (CONTINUED)

GERM CELL MUTAGENICITY

FM-200®: Animal testing and testing on bacterial or mammalian cell cultures did not show mutagenic effects.

REPRODUCTIVE TOXICITY

FM-200®: Animal testing showed no reproductive toxicity. (Based on data obtained from similar substances.) Animal testing showed no developmental toxicity.

ASPIRATION HAZARD

Not an aspiration hazard.

OTHER

FM-200®: Cardiac sensitization threshold limit : 730190 mg/m3

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY

FM-200®

LC50 > 200 mg/l zebra fish 96h

EC50> 200 mg/l Water flea 48h

MOBILITY IN SOIL

No relevant studies identified.

PERSISTENCE/DEGRADABILITY

Not readily biodegradable.

BIOACCUMULATIVE POTENTIAL

No relevant studies identified.

OTHER ADVERSE EFFECTS

No relevant studies identified.

SECTION 13 - DISPOSABLE CONSIDERATIONS

DISPOSABLE METHODS

Dispose of container in accordance with all applicable local and national regulations. Do not cut puncture or weld on or near to the container. If spilled, contents will vaporize to the atmosphere.

SECTION 14 - TRANSPORT INFORMATION

Safety Data Sheet information is intended to address a specific material and not various forms or states of containment. Specific volumes, pressures or hardware configurations containing such materials can dictate various different hazard classifications for transportation and labelling requirements. Under Federal Regulations only trained and qualified individuals are permitted to label and ship products following the applicable Department of Transportation (DOT), Federal Aviation Administration (FAA), Transport Canada (TC), International Maritime Dangerous Goods (IMDG) or International Air Transport Association (IATA) requirements.

SECTION 15 - REGULATORY INFORMATION

SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

United States TSCA Inventory

All components of this product are in compliance with the inventory listing requirements of the US Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

Canada DSL Inventory

All ingredients in this product have been verified for inclusion on the Domestic Substance List (DSL).

SARA Title III Sect. 311/312 Categorization

Pressure Hazard

SARA Title III Sect. 313

This product does not contain any chemicals listed in Section 313 at or above de minimis concentrations.

SECTION 16 - OTHER INFORMATION

NFPA Ratings

NFPA Code for Health - 1

NFPA Code for Flammability - 0

NFPA Code for Reactivity - 0

NFPA Code for Special Hazards – None

HMIS Ratings

HMIS Code for Health - 1

HMIS Code for Flammability - 0

HMIS Code for Physical Hazard - 0

HMIS Code for Personal Protection - See Section 8

*Chronic

LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstracts Service

IARC: International Agency for Research on Cancer

N/A: Denotes no applicable information found or available

NTP: National Toxicology Program

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

SDS: Safety Data Sheet

STEL: Short Term Exposure Limit

TLV: Threshold Limit Value

DISCLAIMER

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Please refer to our internet website for more information: www.flamestop.com.au

SDS sheets are available to download in the downloads section of our website.

For contact information please go to page 1 of this SDS.

END OF SDS.