



PROTECTION OF
LIVES, ASSETS
AND GAINS
IS OUR LEGACY



**COMPANY
PROFILE**



WWW.PEMALLUSA.COM

CORPORATE PROFILE

The PEMALL logo features the word "PEMALL" in a bold, white, sans-serif font. A red triangle is positioned above the letter "A".

Since the establishment of Pem System, Inc. in the year 1947, we have been trusted and committed manufacturers of fire safety systems aimed to protect human lives.

Firmly rooted for seven decades in the fire protection industry, our commitment to thrive in the areas of Research and Development led Pem System, Inc. to its acquisition by an International Company in 2010. Our innovative advancement in providing best fire protection solutions in the market gained esteemed recognition as the world's leading independent manufacturer in the field of fire protection industries.

The PEMALL USA logo features the words "PEMALL" and "USA" in a bold, blue, sans-serif font. A white star is positioned above the letter "A" in "USA". To the right of the text are five horizontal red bars, and a red horizontal bar is located below the text.

Today, after years of relentless hard work and drive, we launch our new trademark as "PEMALL USA", our latest innovation of superb clean agents and fire suppression systems. With the numerous fire suppression options in the market, PEMALL USA stands out among them by providing both quality and sustainable products that are ideal for your facility, business, critical assets and people.

PEMALL USA continues to develop state-of-the-art facility that produces high-quality fire suppression systems catered to meet our customers' unique needs, as well as sustaining specialization in manufacturing Clean Agents and System Components that is proven to have reliable product quality. Our products carry various international approvals such as Underwriters Laboratories (UL) listings, Factory Mutual (FM) Approval, GOST (Russian) Approvals and various European certifications or approvals to CE and TPED, which ascertain PEMALL USA's highest quality in products and systems. Each type of fire suppression solution has its own inherent benefits. We provide one-stop complete system solution where our customers can acquire products and services essential to their fire protection needs.

APPROVALS & CERTIFICATIONS





**WE
PROTECT
'EM
ALL!**



VISION

PEMALL USA upholds the vision of becoming a world-renowned leader in the fire protection industry through development of high-grade and environment friendly fire safety products that are not only sustainable, but also commercially viable.



MISSION

We commit to foster and develop innovative fire protection solutions to secure highly-valued assets and significant lives caused by unforeseen casualties, and continue to broaden our presence in the global market, while incorporating a worldclass customer experience.



CORE VALUES



INNOVATION

Contentious improvements of products & Services .



EFFICIENCY

Maintaining Productivity



COMMITMENT

Safeguard lives , assets, & gains



SUSTAINABILITY

Introduce Eco - Friendly Products & Solutions



INTEGRITY

Honesty & Consistence



RELIABILITY

Meet Needs & Objectives to assure Customer Satisfaction.

WHY PEMALL USA ?

EFFECTIVE

PEMALL 227™ & PEMALL 5112™ extinguishes various classes of fires primarily by physically cooling the flame.

FAST-ACTING

Extinguishing capability occurs within seconds through a combination of chemically-based fire inhibition.

ECONOMICAL

Clean agent fire protection systems can be installed on minimized space and weight requirements, ambient temperature and provides guaranteed faster installation and service.

RECOGNIZED

Compliance to NFPA 2001 requirements and approval agencies including UL, GOST and FM Approved Clean Agents filled in eco-friendly stainless steel cylinders.

DYNAMIC

PEMALL USA is the smart choice for your fire suppression needs as we continuously enhance our customer focus and partnerships.

PRODUCT PORTFOLIO

PEMALL USA is committed to manufacture superior quality of clean agents chemicals & suppression System Hardware from our state-of-the-art facility with the use of innovative technology in products manufacturing .

PEMALL USA is specialized in Clean Agent Chemicals Manufacturing & Engineered Fire Suppression System Hardwares & Accessories under the trade mark of PEMALL 227 & PEMALL 5112 with variable pressure levels up to 500 PSI.

PEMALL USA Products are tested & approved by international certifications bodies such as Under Writer Laboratories (UL) & Factory Mutual (FM) along with system cylinders compliance to the American DOT, Russian GOST, & European TPED standards to ensure offering customers the best suppression system in the market.

PEMALL's cylinders undergo precise and high-quality tech casting process that are carried for the major system parts. Stainless steel casting is an eminent method due to the sophisticated shapes it can produce.

Our Research and Development team of highly qualified Chemists and Engineers take huge part in innovating and testing products. Our Chemical team specializes in the development of ODS substitutes while our Engineering team concentrates in the development of diverse types of pressure vessels, valves and accessories.





CLEAN AGENT

PEMALL HFC-227ea provides superior fire protection in a wide range of applications from sensitive electrical equipment to industrial applications using flammable liquids.

PEMALL HFC-227ea - is formed from the elements including carbon, fluorine and hydrogen ($CF_3CH_2CF_3$ -heptafluoropropane). The primary extinguishing mechanism of HFC-227ea is heat absorption, with a secondary chemical contribution from the thermal decomposition of PEMALL HFC-227ea in the flame.

When discharged, PEMALL HFC-227ea will release via discharge nozzles and effectively mix with the air through-out the protected area, thus making it perfectly suited to protect high value assets in areas that may be normally occupied, in locations where clean-up of other agents is difficult. Its ASHRAE nomenclature the way it is designated in the NFPA 2001 clean agent is HFC-227ea.

HFC-227ea has a gas pressure of 3.91 bar at 20°C, that positively affects a fast evaporation at the nozzle and quick distribution in the room. PEMALL HFC-227ea fire suppressant can be safely used where people are present and causes no damage or residues at sensitive electronic components. HFC-227ea absorbs the heat of the flame and interrupts thereby the combustion reaction. So, the extinguishing effect is caused for the most part physically and for a small part by chemical reaction.



1 TON MASTER CYLINDER

PHYSICAL AND CHEMICAL CHARACTERISTICS

Chemical Name	Heptafluoropropane ($CF_3CH_2CF_3$)
General	Colorless, Odorless Liquefied Gas
Molecular Weight	170.03
Boiling Point	-16.4 °C / 2.48°F
Freezing Point	-131°C / -203.8°F
Vapor Pressure @ 21°C/70°F	58.8 psia
Critical Temperature	101.7°C / 215.1 °F
Critical Pressure (PSI)	422.3 PSI
Vapor Density (AIR=1)	6.04
Water Reactive	No
Specific Gravity (H ₂ O=1)	1.46
Percent Volatile (by volume)	n/a
Water Solubility (V/V @ 20°C / 68°F)	280 mg/L
Estimated Atmospheric Lifetime (years)	31-42

FEATURES

- Non-corrosive
- Extinguished fire in 10 secs
- Leave no residue
- Zero ozone-depleting potential

CHEMICAL CHARACTERISTICS

- Colorless
- Odorless
- Electrically non-conductive
- Boiling Point: -16.4° C / 2.48° F





250 KG DRUMS

PEMALL FK-5-1-12, we use science to improve lives. We set out to develop PEMALL FK-5-1-12 Fire Protection Fluid with the intention to find a solution with high performance and a large margin of safety that does no harm to the environment, extinguish fire quickly without harming people or equipment and ensure continuity of business and lives!

PEMALL FK-5-1-12 Clean Agent is the new generation of clean agent fire suppressant chemicals based on sustainable technology and is the only chemical agent currently available that meets the most stringent actual and future environmental standards. The clean extinguishing agent is a clear, colorless and low odor liquid perfectly suited to protect high value assets in areas that may be normally occupied, in locations where clean-up of other agents is difficult. Its ASHRAE nomenclature the way it is designated in the NFPA 2001 and ISO 14529 clean agent standards - is FK-5-1-12.

PEMALL FK-5-1-12 Clean Agent is formed from the elements carbon, fluorine and oxygen $CF_3CF_2C(O)CF(CF_3)_2$ -dodecafluoro-2-methylpentan-3-one. The primary extinguishing mechanism of FK-5-1-12 Clean Agent is heat absorption, with a secondary chemical contribution from the thermal decomposition of FK-5-1-12 Clean Agent in the flame. PEMALL FK-5-1-12 Clean Agent leaves no residue and is safe for use in occupied spaces.

FEATURES

- Environment friendly
- Extinguished fire in 10 secs
- Leave no residue
- Zero ozone-depleting potential
- GWP of 1

CHEMICAL CHARACTERISTICS

- Colorless
- Odorless
- Electrically non-conductive
- Boiling Point: 49.2 °C / 120.6 °F

PHYSICAL AND CHEMICAL CHARACTERISTICS

IUPAC Name	1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone
ASHRAE Designation	FK-5-1-12mmy2
Synonym	Dodecafluoro-2-methylpentan-3-one
CAS Registry Number	756-13-8
Chemical Formula	$CF_3CF_2C(O)CF(CF_3)_2$
Molecular Weight	316.04
Freezing Point	-162.4°F (-108°C)
Boiling Point at 760mmHg	49.2 °C / 120.6 °F
Critical Temperature	335.6°F (168.66°C)
Critical Density	39.91 lbm/ft ³ (639.1 kg/m ³)
Critical Pressure	270.44 psi (1,865 kPa)
Critical Volume	0.0251 ft ³ /lbm (494.5 cc/mole)
Viscosity, Liquid at 77°F (25°C)	1.27 lb/ft-hr (0.524 cP)
Water Solubility at 70°F (21.1°C)	<0.001% by weight



ENGINEERED SYSTEM

PEMALL HFC-227ea has a gas pressure of 3.91 bar at the nozzle and the fast distribution in the room. PEMALL HFC-227ea is neither corrosive nor electrical conductive and causes no damage or residues at sensitive electronic components. It is colorless and almost odorless and a gas at ambient temperature.

It absorbs the heat of the flame and interrupts thereby the combustion reaction. So, the extinguishing a small part by chemical reaction.

PEMALL 227™ system with PEMALL HFC-227ea extinguishing systems for total flooding of clearly zoned areas and is suitable for Class A, B & C fires. It knocks down with optimal fire protection and particularly suitable for electrical and electronic risks.

PEMALL 227™ extinguishes fires primarily by physically cooling the flame; removing heat from the flame to the extent that the combustion reaction cannot sustain itself.



PEMALL cylinders comprise of fully integrated stainless steel cylinders and accessories. We offer different sizes of Stainless Steel Cylinder ranging from *25 lb, 40 lb, 75 lb, 105 lb, 155 lb, 255 lb, 380 lb, 565 lb and 665 lb, 850lb, 1100 lb & 1250 lb*. Our cylinders are UL Component recognized, providing our customers assurance of high quality products to maximize the potential of the Clean Agent.

LOW PRESSURE (LP) SERIES CYLINDER ASSEMBLY FOR 360 PSI (25 BAR) SYSTEM

SYSTEM TEMPERATURE: 32°F (0°C) TO 130°F (54.4°C)

HIGH PRESSURE (HP) SERIES CYLINDER ASSEMBLY FOR 500 PSI (34.5 BAR) SYSTEM

SYSTEM TEMPERATURE: 32°F (0°C) TO 122°F (50.0°C)

Assembly Model Number	Cylinder Size	Max Fill at 70 lb/ft ³	Min Fill at 30 lb/ft ³	Max Fill at 65.74 lb/ft ³	Min Fill at 30 lb/ft ³
HX-SS*-0025-1.0	25 LB	20 LB	9 LB	19 LB	9 LB
HX-SS*-0040-1.0	40 LB	36 LB	16 LB	33 LB	16 LB
HX-SS*-0075-1.0	75 LB	71 LB	31 LB	67 LB	31 LB
HX-SS*-0105-1.0	105 LB	100 LB	44 LB	94 LB	44 LB
HX-SS*-0155-1.5	155 LB	152 LB	66 LB	143 LB	66 LB
HX-SS*-0255-1.5	255 LB	253 LB	109 LB	238 LB	109 LB
HX-SS*-0380-2.5	380 LB	379 LB	163 LB	356 LB	163 LB
HX-SS*-0565-2.5	565 LB	561 LB	241 LB	527 LB	241 LB
HX-SS-0665-2.5	665 LB	665 LB	285 LB	624 LB	285 LB
HX-SS-0850-3.0	850 LB	840 LB	360 LB	788 LB	360 LB
HX-SS-1100-3.0	1100 LB	1038 LB	445 LB	975 LB	445 LB
HX-SS-1250-4.0	1250 LB	1211 LB	519 LB	1137 LB	519 LB

Where X - 3 for LP Series
5 for HP Series



Introducing the PEMALL 5112 which is clean gaseous fire suppression system which is UL Listed & FM Approved – an extinguishing agent that is commercially known as PEMALL FK-5-1-12. The system is perfectly suited to protect high value assets in locations where clean-up of other agents is problematic. Using specially designed Stainless Steel storage cylinders ranging from 25 lb, 40 lb, 75 lb, 105 lb, 155 lb, 255 lb, 380 lb, 565 lb and 665 lb, 850 lb, 1100 lb & 1250 lb that are pressurized to 500psi to suit the required quantity of agent, makes it the economically right choice to protect sensitive property and assets from fire damage. Moreover, 500psi creates several added advantages which enables suppression agent cylinders be located away from protected assets, freeing up more floor space and lessens the need for personnel access. In addition, pipe sizes can be reduced with the same pipe size as with 500psi system that enables you to use longer or smaller pipes within the required 10-second discharge time of the agent.



500 PSI (34.5 BAR) SYSTEM

THE PEMALL 5112™ High Pressure (HP) Series consists of a clean agent fire extinguishing system that utilizes UL listed and FM approved FK-5-1-12 fire protection fluid which is known commercially as PEMALL FK-5-1-12. HP Series permits higher discharge rates and is particularly adaptable to areas requiring larger quantities of agent or discharge duration is challenge.

Assembly Model Number	Cylinder Size	Max Fill at 70 lb/ft ³	Min Fill at 30 lb/ft ³	Valve Size
F5-SS*-0025-1.0	25 LB	21 LB	11 LB	1" Valve
F5-SS*-0040-1.0	40 LB	38 LB	18 LB	1" Valve
F5-SS*-0075-1.0	75 LB	76 LB	36 LB	1" Valve
F5-SS*-0105-1.0	105 LB	108 LB	51 LB	1" Valve
F5-SS*-0155-1.5	155 LB	163 LB	77 LB	1 1/2" Valve
F5-SS*-0255-1.5	255 LB	271 LB	127 LB	1 1/2" Valve
F5-SS*-0380-2.5	380 LB	406 LB	190 LB	2 1/2" Valve
F5-SS*-0565-2.5	565 LB	601 LB	281 LB	2 1/2" Valve
F5-SS*-0665-2.5	665 LB	712 LB	333 LB	2 1/2" Valve
F5-SS-0850-3.0	850 LB	900 LB	420 LB	3" Valve
F5-SS-1100-3.0	1100 LB	1112 LB	520 LB	3" Valve
F5-SS-1250-4.0	1250 LB	1297 LB	606 LB	4" Valve

PRODUCTS



THERMAL-FLEX TUBING SYSTEM



The system has been designed for simple installation, commonly very near to the source of a potential fire, PEMALL Thermal-Flex is a self-activating suppression system that reliably suppresses fire within seconds. It provides a low maintenance, cost-effective solution to the problem of micro-environment fire protection.

What are micro-environments applications? The applications where hazard is typically contained within a critical enclosure, such as server rooms, equipment, machines or vehicles.

PEMALL Thermal-Flex systems can be installed in virtually any enclosed space where high-value assets are located, or where an increased risk of fire could be mitigated by an automatic fire suppression system.

- 24/7 PROTECTION
- SELF CONTAINED SYSTEM
- COMPATIBLE WITH CONVENTIONAL & ADDRESSABLE FIRE PANELS

□ DIRECT SYSTEM



PEMALL Thermal-Flex direct system is a local application system that uses the detection tubing to both sense the fire and deliver the agent to the protected space. When exposed to fire the tubing bursts, forming a nozzle that directs the suppression agent.

INDIRECT SYSTEM □



PEMALL Thermal-Flex Indirect system is a total flooding system that uses the detection tubing only as a sensing device. Upon detection, agent is delivered into the protected space using pipes or hoses and fixed nozzles.

APPLICATIONS



PEMALL USA leads the industry with many successful years & following the same path we aim to be bigger and better with passing time. The same thought has given an experience to PEMALL USA for being a part of plenty of prestigious projects across multiple industries and sectors.

Here are some of the projects that we have put together to give you an idea about our services and large capabilities.

We have had the chance to supply our products and services to many projects within various industries. We have categorized our project experiences into a few industries below, which should help you identify and understand the range of our capabilities within the Fire and Safety Industry.





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