



U.S. Department
of Transportation

**Pipeline and
Hazardous Materials Safety
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

NOV 17 2005

Mr. John E. Brooks
President
FirePak Oil and
Gas Industries LLC
164 NW Jib Street
Oak Harbor, WA 98277

Ref. No.: 05-0222

Dear Mr. Brooks:

This is in response to your August 10, 2005 letter regarding the applicability of the consumer commodity provisions as specified in the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask if your fire suppression system described as "Flammable solids, organic, n.o.s., Division 4.1, UN 1325, PG III" qualifies for the consumer commodity exception in § 173.151(c).

The answer is no. Upon further review of the information provided, we have determined that this material is an "explosive device" and needs to be approved by the Associate Administrator under the terms specified in § 173.56.

I hope this information is helpful. If you have further questions, please do not hesitate to contact this office.

Sincerely,

Hattie L. Mitchell
Chief, Regulatory Review and Reinvention
Office of Hazardous Materials Standards



050222

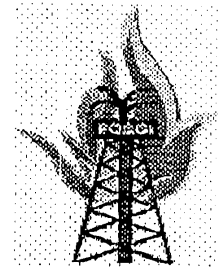
173.151(c)

Satterthwaite
§173.151
Consumer Commodity
05-0222



FirePak Oil and Gas Industries LLC

NW Regional Office
164 NW Jib St.
Oak Harbor, Wa. 98277
P360 679 1747
F360 279 8337
C360 941 2358



August 10, 2005

U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Office of Hazardous Materials Safety
400 7th St., S.W.
Washington, DC 20590

Attn: Dellmer Billings
Chief,

Ref A. FO&GI ORM-D review request letter of November 30 2003
Ref B. FO&GI ORM-D review request letter of September 23 2004
Ref C. FO&GI ORM-D Fax follow up request 01 July 2005

Mr. Billings,

This letter is a follow up to my last letter on Sept. 23 2004. I apologize for the delay in getting it in following up with your office. This winter was especially busy with military fire suppression program development and testing.

As the file shows FirePak is the national distributor of PyroGen, a new aerosol fire suppression technology gaining acceptance under the new NFPA2010, in the industry worldwide. Transport via surface and air is from the factory to the distribution center and then on to the retail consumer. The fire fighting agent is produced from the decomposition of a solid aerosol forming compound (AFC). This material is classified as a UN 1325, 4.1 packing group III flammable solid. The AFC is enclosed in an "aerosol generator" made from an aluminum casing with a foil seal over the discharge nozzle. During activation the skin temperatures are below the ignition point of paper. Although these are, "fire extinguishers" by definition, they are not pressurized and do not meet the criteria in 49CFR173.309

The PyroGen aerosol is a USEPA SNAP listed (Ref1) as Aerosol C, a replacement for HALON 1301. It is listed as an approved alternative agent for use on commercial aircraft (Ref 2). PyroGen is listed with numerous international and governmental agencies. It qualifies under the new NFPA 2010 standard. The agent is non-corrosive, non-toxic, and has no Ozone depletion or Global

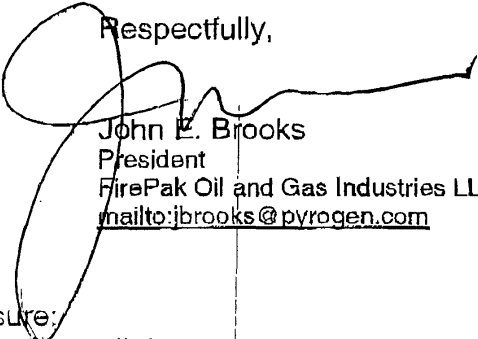
warming potential (ODP or GDP). The agent does not remove the oxygen from the atmosphere and is breathable by mammals for short periods (15 minutes) Ref 5. The generators are not pressurized and contain an electric match (not a explosive squib) for activation. Web links at the bottom of the page are to the references.

Most of the systems are designed as "turn key kits", complete with the alarm and control system, mounting brackets wiring etc. The individual generators contain the aerosol forming compound, and range in weight from 20g up to 11kg. The kits are occasionally ships via air as a limited quantity in a 4G container and over pack. We would like to use the ORM-D on kits with small generators less than 2.2 Kg aerosol weight for the recreational marine industry.

We would like to have the small Pyrogen aerosol generators, and system reviewed as an ORM-D consumer commodity. After review of CFR49, we feel this certification is applicable to our generators by definition in this a proper classification. The pre-engineered systems are within the maximum weight restrictions and comply with all US DOT, IATA and ICAO requirements for transportation of hazardous material. Our intent is to label shipments with the small generators. Pyrogen MAG series aerosol generators MAG02, 1, 2, 3, 4, 5, 11 and 12 as ORM-D as part of out fire suppression kits..

Your attention and review of this request is appreciated. A classification as an ORM-D is within the current regulations. Acceptance will expedite the use of aerosols in fire suppression applications in the future. The review and final favorable determination by your office is anticipated. A letter from your office noting this ORM-D review and reaffirming the compliance with the regulations would be appreciated. A copy of this letter can be used to show compliance to the cargo carriers.

Respectfully,


John E. Brooks
President
FirePak Oil and Gas Industries LLC
<mailto:jbrooks@pyrogen.com>

Enclosure:

Internet Hyper links

Ref 1 [US EPA Snap listing](#)

Ref 2 [DOT/FAA/AR-99/63](#)

Ref 3 [PyroGen Web Site](#)

Ref 4 [Power point on the Systems](#)

Ref 5 [NAVAIR Toxicity report](#)

A revolution in fire suppression technology

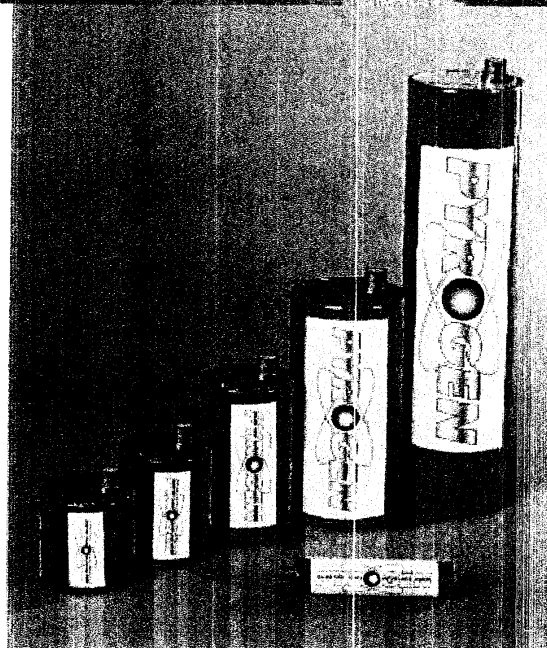
PYROGEN

It really is science

It really is rocket science

PYROGEN

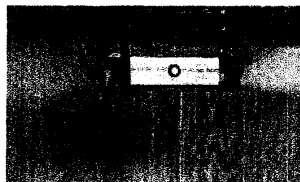
A revolution is taking place in Fire Suppression. Developed from solid rocket fuel technology, Pyrogen is the world's first commercially available Aerosol Fire Extinguishing System. Designed as a safe & practical alternative to Halon, Halocarbons, Chemical Powders and Inert Gases Pyrogen is available from stock in a wide range of canister sizes. Pyrogen is an inert non-toxic solid that remains stable until electrically or thermally activated, where upon it produces a gas-like extinguishing aerosol. The aerosol attacks the fire chemically and physically, giving virtual instant extinguishment & preventing re-ignition, and in certain instances, explosions. For many applications Pyrogen is the only practical alternative to Halon.



Some of the sizes available



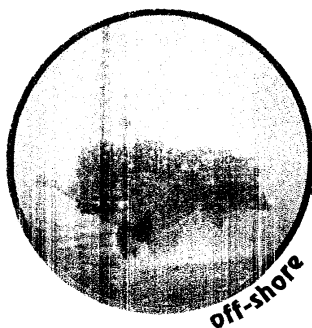
Simply installed close to the potential hazard



When electrically or thermally ignited, Pyrogen generates the fire extinguishing aerosol



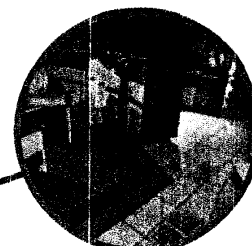
Easily reinstalled within minutes



off-shore



commercial and military aircraft



data rooms

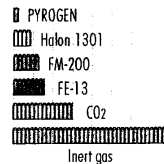
Benefits of Pyrogen



3 times more effective than Halon.

At a maximum* design concentration of 100g per m³ Pyrogen exhibits equal or better extinguishing properties than Halon 1301 at 330g per m³ (5% by volume), as certified by Scientific Services Laboratory. Pyrogen has the lowest extinguishing concentration amongst commercially available agents.

* Recommended maximum for Class A, B, C, E & F type fires. Refer to table on reverse.



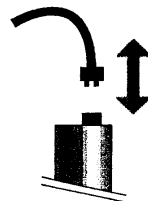
Compact & Weight Saving.

Pyrogen canisters can provide the smallest & lightest fire extinguishing system currently available. With space requirements of up to 1/40th of inert gases, and weight penalties of often only 10% of competing systems, Pyrogen in many cases is the only practical Halon replacement.



Environmentally Friendly

Pyrogen has been certified as having Zero Ozone Depleting Potential (ODP) & Zero Global Warming Potential (GWP). It is officially listed by the US Environmental Protection Authority under its Halon replacement 'Significant New Alternatives Program' (SNAP).



Simple to Install & Recommission.

Pyrogen canisters are electrically (or automatically thermally) activated. Simple wiring & plug in connectors can reduce installation times to a 1/3rd or less. If discharged, new canisters may be reinstalled in minutes* affording minimal downtime and eliminate potentially hazardous periods of non-active fire suppression.

* Providing all and any necessary safety checks & inspections have been completed.



No Pressurised Cylinders or Pipe work.

Pyrogen Canisters are self contained, zero pressure units. As well as being light & safe to transport, they require no additional pipes, nozzles or distribution equipment. They cannot leak, burst or deteriorate, and can be stored for up to 10 years without maintenance.



Low Toxicity.

Unlike some Halon alternatives, Pyrogen produces no aggressive acids such as Hydrogen Fluoride upon contact with hot surfaces. Pyrogen produces no chlorine or bromide and does not deplete oxygen to suppress the fire.



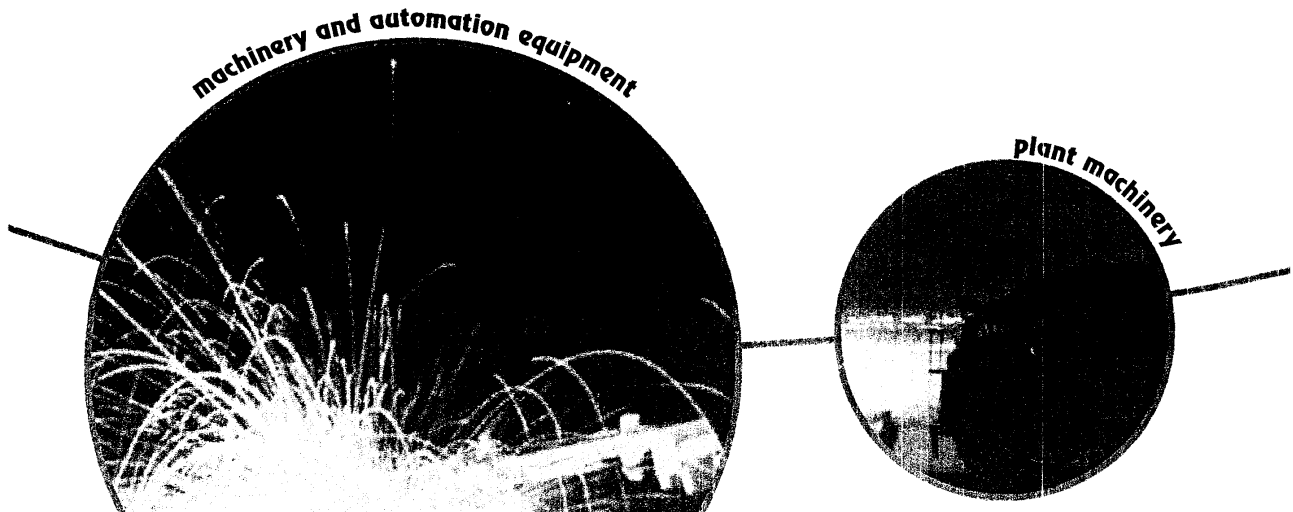
Tests & certification

Pyrogen has been tested by LPC, Scientific Service Laboratories (Australia) and is undergoing further certification worldwide. For the latest approval listings and test data please contact your nearest Pyrogen dealer.

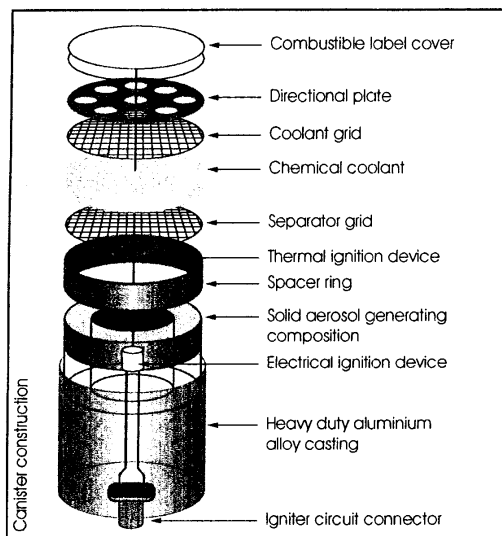


Cost Effective

With minimal space & weight requirements, simple installation, zero maintenance and up to 10 years service life, Pyrogen is arguably the most cost effective Halon alternative available.



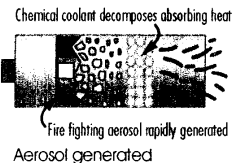
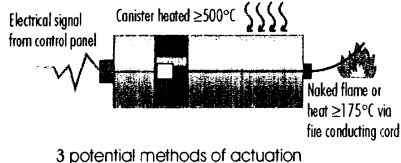
How it works



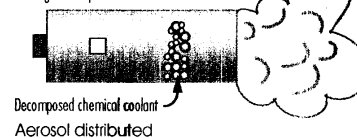
The principle of extinguishing action employed by Pyrogen is unique - a special solid chemical, when electrically or thermally ignited, produces combustion products - micron size dry chemical particles and gases. Dry chemical particles, (mainly potassium carbonates), and gaseous mixture, (mainly carbon dioxide, nitrogen and water vapour), mix together into a uniform fire extinguishing aerosol. Before being released into a protected area, the hot aerosol propels itself through a unique solid chemical coolant, which decomposes absorbing huge amounts of heat, thus ensuring flameless discharge and uniform distribution of the cool aerosol within the area.

The high rate of aerosol discharge ensures a tremendous knock-down effect. Micron size aerosol particles exhibit gas-like three-dimensional qualities that allow the agent to rapidly distribute throughout enclosure and reach even the most concealed and shielded locations. Homogeneous distribution is achieved in a matter of seconds, while long holding times all help to prevent fire re-ignition.

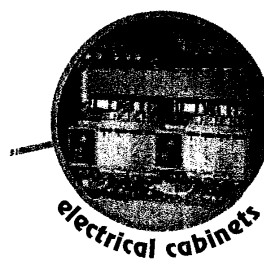
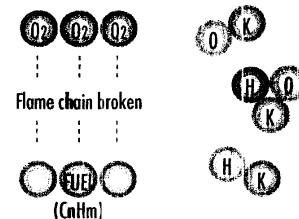
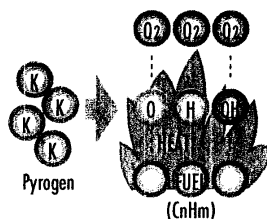
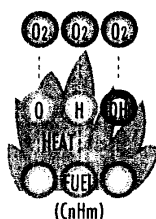
Pyrogen canister in action



Total flooding aerosol demonstrates 3d gas like properties. Holding times up to 60 minutes.



Pyrogen aerosol is a chemical action agent



shipping and marine



Technical data

Canister Characteristics

Canister Material:	Marine Grade Aluminium Alloy
Surface Treatment:	Powder Coated (red)
Max/Min Ambient	-50°C ~ +60°C
Shock:	Tested at 10g for > 13,000 impacts
Vibration:	5g @ 50~250Hz
Corrosion Resistance:	Greater than UL 1058
Impact Resistance:	IP558
Humidity:	≤96%

Aerosol Characteristics (at maximum design concentration)

Potassium Carbonates, solid:	~ 7g/m ³
Nitrogen Gas:	~ 70% by vol.
Carbon Dioxide Gas:	~ 1.2% by vol
Carbon Monoxide Gas:	~ 0.4% by vol
Nitrogen Oxides, Gas:	40 – 100 ppm
Ammonia, Gas:	~ 0.075% by vol
Temp at Nozzle + 500mm:	≤75°C
Oxygen (level)	17% to 20% (typical)
Holding time	≤ 60 mins

Electrical (Thermal) Characteristics

Supervision/Monitoring Circuit:	≤1mA
Activation (Electrical):	≥400mA @6/12/24v for 10mS
Activation (Thermal):	≥175°C
Connector:	4 pin Military Type 2 PMDT Analog I/MIL-C-5015

Classifications

Suitable for Fire:	Class A - Combustible Solids Class B - Flammable Liquids Class C - Flammable Gases Class E - Electrically Energised Fires Class F - Fats & Cooking Oils
Handling & Transport:	Accordance with UN 1325 & Dangerous Goods Code: 4.1 Haz.Chem. Code : 2[Y] E
Packaging Group :	III

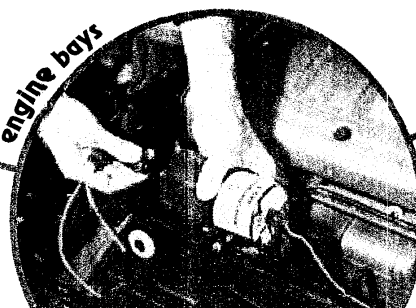
Comparison table

Agent	Formula	%	TOXICITY	ODP	GWP (100yrs vs CO2 = 1)	Atmospheric lifetimes (yrs)	Extinguishing concentration (Class B fires) %v.v.	Extinguishing concentration (Class B fires) g/m ³	Mechanism of fire suppression
PYROGEN	KNO ₃ Plasticised Nitrocellulose Carbon Admixtures	62.3% 12.7% 9% 16%	LOW*	0	0	0	---	100	chemical
Halon 1301	CBrF ₃		LOW	10	5600	65	5	33.0	Chemical
FM-200	CF ₃ CHFCF ₃		LOW	0	2900	36.5	7	53.0	physical
NAF S III	CHCl ₂ CF ₃ CHClF ₂ CHClFCF ₃	4.75% 82% 9.5%	LOW	0.036	1450	12	11.9	53.0	physical
FE-13	CHF ₃		LOW	0	11700	264	16-18	47.0	physical
FE-25	CHF ₂ CF ₃		LOW	0	2800	32.6	13.9	58.0	physical
Argonite	N ₂ Ar	50% 50%	LOW	0	0	0	33.6	60.0	physical
Argotec	Ar	100%	LOW	0	0	0	38	50.0	physical
Inergen	N ₂ Ar CO ₂	52% 40% 8%	LOW	0	0	0	37.5	50.0	physical
Carbon dioxide	CO ₂	100%	HIGH	0	--	--	50	90.0	physical
Water	H ₂ O		NIL	0	0	0	--	--	physical
Chemical powders			LOW	0	0	0	--	1400-1800	chemical or physical

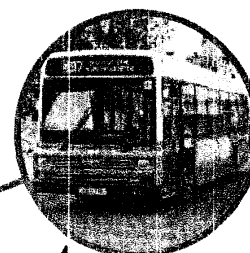
* Pyrogen has been certified as low toxicity by the Academy of Science & Biophysics Institute, Moscow.



off road vehicles



engine bays



bus and hgv

Installation data

Available sizes

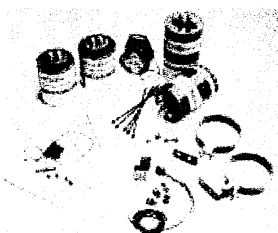
Parameter	MAG-02	MAG-1	MAG-2	MAG-3*	MAG-4	MAG-5*	MAG-11	MAG-12	MAG-13	MAG-14	MAG-15	MAG-16	MAG-17
Mass of generator, g	110	400	500	700	4,500	1,830	12,000	14,500	21,000	28,000	36,000	46,000	53,000
Mass of aerosol forming composition, g	20	60	100	200	1,000	500	1,500	2,200	3,500	6,000	6,500	8,400	11,000
Max protected volume, m ³ @ 100g/m ³	0.2	0.6	1	2	10	5	12	17	27	46	50	65	85
Nozzle outlet	bi-	mono-	mono-	mono-	bi-	mono-	mono-	mono-	mono-	mono-	mono-	mono-	mono-
Length, mm	120	80	95	145	350	190	180	247	235	260	75	227	285
Diameter, mm	25	75	75	75	95	95	247	247	306	402	492	492	492
Discharge time, sec	<2.0	<3.0	<5.0	<7.0	<10.0	<8.0	<12.0	<12.0	<15.0	<15.0	<15.0	<15.0	<15.0

* MAG 3 and MAG 5 are available in 'grenade' format for manual fire fighting

Health & Safety Statement

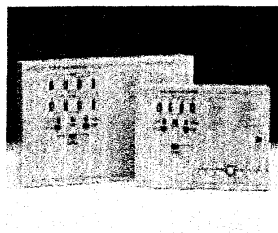
Primarily due to the high obscuration, PYROGEN is designed for use in normally unoccupied areas such as data rooms, machinery and engine spaces, control cabinets and storage areas. Inadvertent exposure to the aerosol should be avoided using normal precautions such as warning signals, pre-discharge alarm and post-discharge warning and venting. Accidental exposure to aerosol should be limited to 5 minutes.

As obscuration may impede the egress of personnel, hold off devices may be required for large areas or those with internal obstructions. Further details on the safe application, installation, operation and recommissioning of PYROGEN systems is given in the design manual and a manufacturers safety data sheet is available upon request.



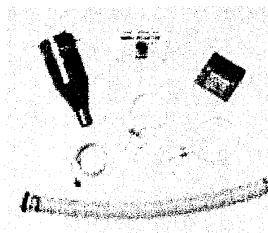
Pyrogen kits

Pre-engineered kits for marine and vehicle applications



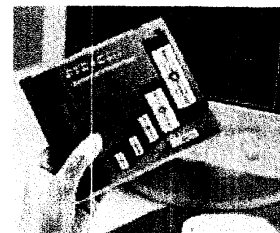
Fire panels

Purpose built 'Pyrosafe' fire control and alarm panels



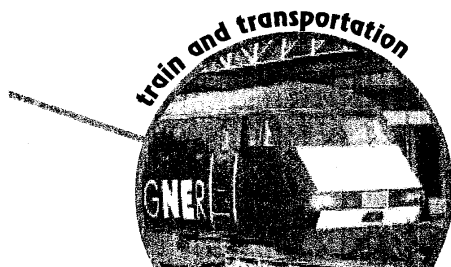
Accessories

A complete range of accessories to facilitate complete installations



CD rom

A CD or video is available to clearly demonstrate Pyrogen's versatility



Pyrogen Ltd.

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Spa Road, Bolton, BL1 4LF (U.K.)

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Fax: +44 (0)1204 373355

E-mail: pyrogen@btconnect.com

www.pyrogen.ltd.uk

www.pyrogen.com

designed & produced by Ventilation 01942 701275 UK

Smart. Tough. Safe. Pyrogen.™

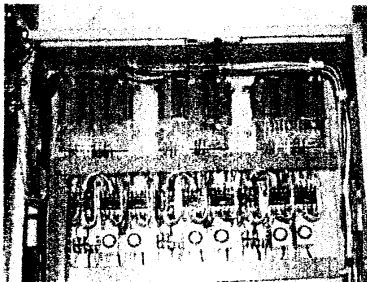
Industrial Applications

Aviation

- Maintenance shops
- Containers
- Cargo bays
- Helicopters
- General aviation
- Commercial airlines
- Ground support equipment

Electricity

- Computers
- Transformer rooms
- UPS's and ISP's
- Data centers
- Server farms
- Electrical cabinets
- Power substations
- Internet hotels / motels
- Back-up power supplies



*Pyrogen MAG-02 canisters
mounted in an electrical cabinet*

Marine

- Electrical power panels
- Pump rooms
- Engine rooms
- Machinery spaces
- Electrical switch banks
- Cargo-holds and containers
- Emergency fire-fighting systems



Military

- Machinery and computer rooms
- Offices
- Field kits
- Military mobile base containers
- Warehouses
- Isolated or remote locations
- Temporary storage and construction offices
- Emergency / temporary replacement for out-of-service systems

Mining

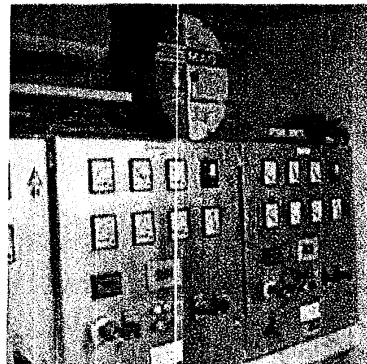
- Electrical cabinets
- Switchboards
- Generator rooms
- Power substations
- Diode bridge cubicles
- Maintenance workshops
- All mining equipment

Machinery

- Construction equipment
- Road-paving equipment
- Timber-harvesting equipment

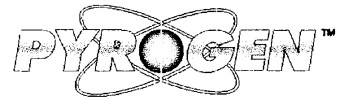
Oil, Gas & Petrochemical

- Pump rooms
- Rig operators
- Co-generation
- Machinery spaces
- Electrical cabinets
- Drilling companies
- Electrical distribution systems



In addition to protecting the entire sub-station control room, as shown, smaller MAGs can be mounted inside the control cubicles to provide local protection

Smart. Tough. Safe. Pyrogen.™



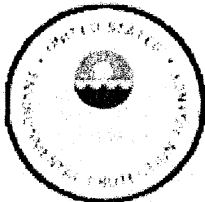
Data Sheet Listing
AFP - 1317



Australian & New Zealand
Standards Approval
AS/NZS 4487:1997



Maritime and Coastguard Agency



PRODUCT CERTIFICATION

Standards

- Pyrogen Fire Extinguishing Aerosol Systems AS/NZS 4487:1997 Standards Australia/ Standards New Zealand
- Maintenance of Fire Protection Equipment, Part 16: Pyrogen Fire Extinguishing Systems AS/NZS 1851.16:1997 Standards Australia/ Standards New Zealand

Listing

- SSL (Scientific Services Laboratories Australia) Register of Fire Protection Equipment – Pyrogen™, MAG Series, Pyrotechnically-generated, Fine Aerosol-powder Type Fire-Extinguishing System, alp-1317

Acceptance letters

- Fire & Rescue Department of Malaysia
- Bureau Veritas France, Marine Division
- BHP Australia, Environmental Department
- Snowy Mountains Hydro-electric Authority Australia, Telecommunications Sites

Approvals & Certificates

- Registration under SNAP program US EPA
- Approval for protection of small boat machinery spaces Maritime and Coastguard Agency, UK
- Approval for use on NSW commercial vessels, Waterways Authority, Australia
- Certificate of Standard Approval, Marine Register of Navigation, Russia
- Registration for Design Factor, SSL Australia
- Certification for Area Coverage to UL 1058, WorkCover Authority, Australia
- Certification for Electrical Conductivity, Sydney Electricity, Australia
- Approval for Chemical Ingredients, NICNAS, Australia
- Certification on Ozone Depletion, Academy of Science, Russia
- Dangerous Goods Classification, Soyuz, Russia
- Certification on Guaranteed Shelf Life, Soyuz, Russia
- Certification on Vibration & Shock Resistance, Soyuz, Russia
- Certification on Corrosiveness, Institute of Aviation Mechanical Engineering, Russia

PRODUCT TESTING

SSL Australia Test Reports

- SSL - 30-Day Elevated Temperature Test and Salt Spray Corrosion Test of UL1058 Standard
- SSL - Extinguishing Design Factor

WorkCover Authority Australia Test Reports

- WorkCover Authority - A Test Report on the Performance of a Fire Extinguishing Aerosol System in a Room Fire Test to UL 1058 Standard
- WorkCover Authority - A Report on Room Fire Test on MAG-4 and MAG-5 Generators to UL 1058 Standard

Power Industry Applications

- Substation Electrical Panels Cubicles Fire Tests – Integral Energy, NSW, Australia
- Report on Pyrogen Demonstration at Wollongong Electrical Engineering Pty Ltd
- Report on Pyrogen Demonstration at Snowy Mountains Hydro-electric Authority
- Report on Pyrogen Demonstration for protection of Substation Diode Bridge Electrical Cubicles – Murrumbidgee Nickel-Cobalt Project, WA, Australia

Industrial Applications

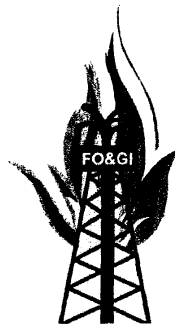
- Protection of Fume Cabinets – Hi-Safe Systems Fire Protection, Netherlands
- Protection of Libraries – Scientific & Research Centre for Conservation & Restoration of Documents, State Library of the Russian Federation

Performance Test Reports

- Pyrogen Design Factor - Class A and Class B Fires
- Performance of Pyrogen in a Class A Fire - Test to UL 1058 standard, Oil Fire Test

Safety Data

- Material Safety Data Sheet
- Emergency Procedure Guide – Transport
- Pyrogen Toxicity – Abstract
- Pyrogen Toxicity – Full Report
- Sanitary Certificate - Health Ministry of the Russian Federation, Department of the State Sanitary & Epidemic Inspection



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www.pyrogen.com

Smart. Tough. Safe. Pyrogen.™

PYROGEN™

**From
rocket fuel
to the world's
most effective
fire extinguisher**

Developed from
advanced aerospace
technology - Pyrogen
is the world's first
commercially available
aerosol fire
extinguishing system

Pyrogen is non-
pressurized, non-
conductive and its
extinguishing action is
instantaneous

A further advantage is
that if the Pyrogen
aerosol enters delicate
equipment, engines or
electrical components
- it causes no damage

Available in a wide range of canister sizes,
Pyrogen does not deplete oxygen and was
designed as the most economical and
practical alternative to Halon, halocarbons,
chemical powders and inert gases



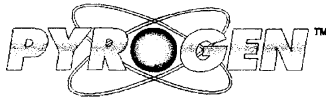
**Active Fire Protection
Data Sheet Listing
AFP - 1317**



**Australian & New Zealand
Standards Approval
AS/NZS 4487:1997**



Smart. Tough. Safe. Pyrogen™

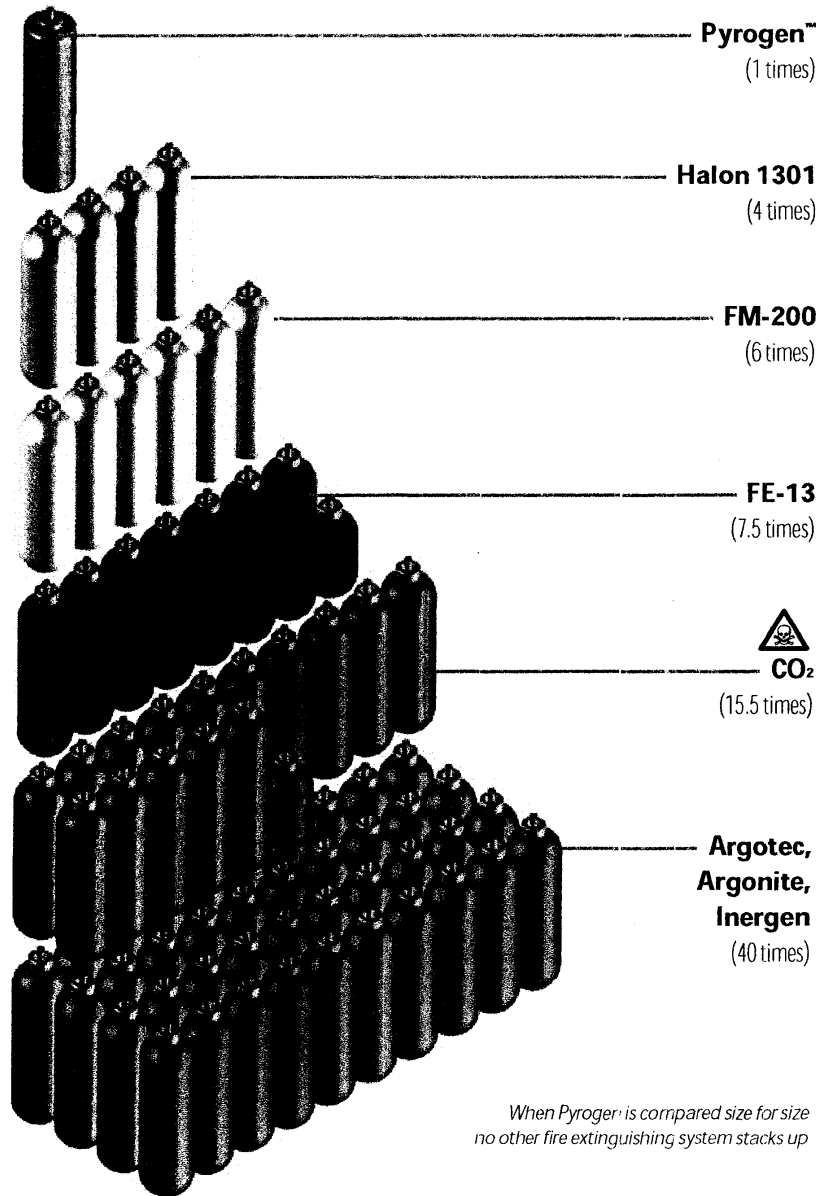


How Pyrogen Works

"Pyrogen's principle of extinguishing action is unique" explains Dr. Julia Berezovsky, Pyrogen's General Manager, "A special solid chemical, when electrically or thermally ignited, produces combustion products – micron-sized dry chemical particles and gases that mix into a uniform aerosol, an actual extinguishing medium"

"This aerosol is extremely effective in extinguishing fires, especially those involving materials of hydrocarbon origin, such as petroleum, diesel, hydraulic liquid, lubricants, natural gas, wood, etc."

The micron-sized aerosol particles exhibit gas-like three-dimensional qualities that allow the agent to quickly distribute throughout the enclosure and reach into the most concealed and shielded locations.



When Pyrogen is compared size for size no other fire extinguishing system stacks up

"Pyrogen's extinguishing action is achieved by interfering chemically with the fire reaction and then by thermal cooling. Normal design concentration is only 100g per cubic metre, which is more than three times lower than Halon 1301's [330g/m³]".

Such low design concentration coupled with an almost instantaneous extinguishing action makes Pyrogen one of the most efficient and convenient agents in the world. Operation of the extinguishing unit can be electrical or thermal.

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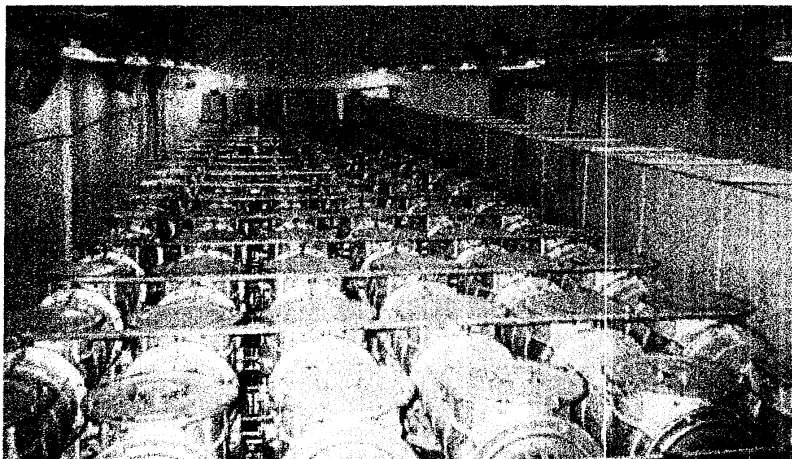
Pyrogen MAG-12 canisters
mounted in an electrical substation



Active Fire Protection
Data Sheet Listing
AFP - 1317



Australian & New Zealand
Standards Approval
AS/NZS 4487:1997



Key Extinguishing Actions

Pyrogen's extinguishing action is
achieved primarily by interfering
chemically with the fire reaction

Pyrogen cools the fire to a
temperature below which the fire
reaction cannot continue

Key Performance Attributes

Pyrogen has the lowest extinguishing
concentration amongst commercially
available agents - three times lower
than Halon 1301

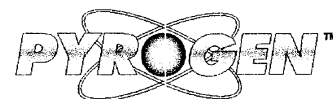
Pyrogen requires no pressure
cylinders or piping

Agent	Formula	Mass %	Toxicity	ODP*	GWP** 100yrs/CO ₂ =1	Atmospheric Lifetimes (yrs)	Extinguishing Concentration %v/v	g/m ³	Mechanism of Fire Suppression
Pyrogen™	KNO ₃	62.3	Low	0	0	0	—	100	Chemical/Physical
	Plasticised Nitrocellulose	12.7							
	Carbon	9							
	Admixtures	16							
Halon 1301	CBrF ₃		Low	10	1000	65	5	330	Chemical
FM-200	CF ₃ CHFCF ₃		Low	0	1				Chemical
NAF S11	CHCl ₂ CF ₃	4.75	Low	0.036					Chemical
	CHClF ₂	82							
	CHClFCF ₃	9.5							
FE-13	CHF ₃	50	Low	0					Chemical
Argonite	N ₂	50	Low	0					Physical
	Ar	50							
Argotec	Ar	100	Low	0					Physical
Inergen	N ₂	52	Low	0					Physical
	Ar	40							
	CO ₂	8							
Carbon Dioxide	CO ₂	100	High	0					Physical
Water	H ₂ O		Nil	0					Physical
Chemical Powders			Low	0					Chemical/Physical

*ODP = Ozone Depleting Potential

Chemical
Components

Smart. Tough. Safe. Pyrogen.™



Key Environmental Benefits

Zero ozone depletion potential

Zero global warming potential

Outstanding Benefits

Three times more effective than Halon

Environment-friendly

Instantaneously extinguishes fire

Does not deplete oxygen level

Significant cost savings

Low toxicity

Other Benefits Include:

- Recognised by international authorities
- Reduced weight
- Requires no pressure cylinders or piping
- In-built thermal release
- Easily re-installed the same day
- Simple installation and recommission
- Will replace Halon, CO₂ or other fixed systems
- Can be added to existing protection installations
- Electrically non-conductive
- Less extinguishing agent needed
- No costly storage space needed
- Minimal maintenance
- Perfect where water or chemical agents are impractical
- Can be installed when normal systems are out of service for maintenance, repair, or loss of water pressure

Pyrogen Extinguishes

Class A Fires

- involving solid materials, generally organic, and can be further categorized into surface burning fires and deep-seated fires

Class B Fires

- involving liquids or liquefiable solids

Class C Fires

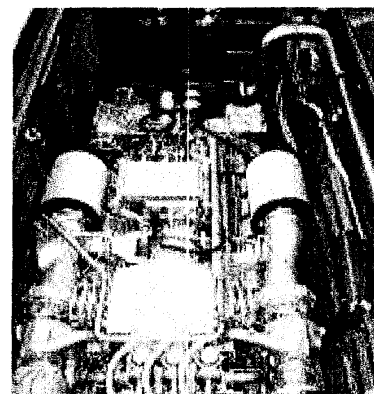
- involving gases

Class E Fires

- involving electrically energized fuels (UL Class C)

Class F Fires

- involving fats and cooking oils (UL Class K)



Marine installation in a high-speed power boat

Products

Pyrogen Kits

Pre-engineered kits for marine and vehicle applications

Fire Panels

Purpose-built Pyrosafe fire control and alarm panels

Accessories

A complete range of accessories to facilitate complete installations

CD Rom

A CD or video is available to clearly demonstrate Pyrogen's versatility



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Health & Safety Statement

Pyrogen's dense aerosol is most effective in normally unoccupied areas such as data rooms, machinery and engine spaces, control cabinets and storage areas.

Inadvertent exposure to the aerosol should be avoided using normal precautions such as warning signals, pre-discharge alarm and post-discharge warning and venting.

Accidental exposure to aerosol should be limited to five minutes.

The Pyrogen aerosol cloud can reduce visibility and hamper the evacuation of personnel, hold-off devices may be required for large areas or those with internal obstructions. Further details on the safe application, installation, operation, and re-commissioning of Pyrogen systems is given in the design manual and our safety data sheet is available upon request.