

Marine Information Bulletin

Pyrogen fire suppressant

Background

This bulletin has been raised to bring attention to the requirements for Pyrogen aerosol fire suppressant installations on ships. The accidental discharge of Pyrogen MAG units has caused concern related to the safety of the installation and maintenance of Pyrogen systems.

Approved use

The *Uniform Shipping Laws Code* (USL Code) section 11, appendices E and F, provide for fixed fire-extinguishing systems. A 1995 amendment further provides that:

'An Authority may accept the design of a fixed fire extinguishing system which has been approved by a classification society or a government authority as a system complying with this Appendix.'

Pyrogen MAG Aerosol Fire Suppression Systems have such approvals, for example, from the United Kingdom's Marine and Coastguard Agency and Bureau Veritas. Pyrogen is an aerosol fixed fire-extinguishing system under table 62 of NSCV Part C Section 4.

The Pyrogen fixed aerosol fire suppression system is listed in the National Marine Safety Committee's (NMSC) National Register of Compliant Equipment under fire appliances as complying with sections 5F or 11 of the USL Code.

The listing includes these details for Pyrogen:

<i>Product model/ID</i>	EXA-M Series
<i>Product name</i>	Pyrogen
<i>Brief description</i>	Fixed aerosol fire suppression systems; self-contained non-pressurised metal canisters.
<i>Limitation</i>	Must be installed, maintained by Pyrogen authorised installers and supported by complete Pyrogen system. Note: automatic systems not always allowed – check with state authority prior to installation.
<i>Expiry date</i>	March 2014
<i>Supplier</i>	Pyrogen Technologies (AUST) P/L
<i>Supplier address</i>	18 Barry Ave, Mortdale, NSW, 2223, Australia
<i>Supplier URL</i>	www.pyrogen.com.au
<i>Fire Certificate ID</i>	SSL ActivFire Listing afp - 17

The list of registered equipment may be viewed on the NMSC website at www.nmsc.gov.au.

Applicable standards

Installation and maintenance information is available from the *PyroSense SP-1 Fire Detection and Fire Suppression System – Installation and User Manual* found at <http://www.pyrogen.com>.

Australian/New Zealand Standard 4487 – *Pyrogen fire extinguishing systems* provides for the installation of Pyrogen systems. Australian Standard 1851 – 2006 *Maintenance of fire protection systems and equipment*, section 1 (scope and general) and section 12 (fixed aerosol fire extinguishing systems) provides maintenance requirements.

The NSCV Part C Section 4 – Fire safety has, at clause 4.9.12 a requirement that:

'If the release of a fire-extinguishing agent produces significant over or under-pressurisation in the protected space, means shall be provided to limit the induced pressures to acceptable limits to avoid structural damage.'

Service life

From the Pyrogen Manual:

'The service life of the Pyrogen MAG unit in total flooding applications under normal conditions is stated as 10 years from installation, however, where the generator is used in local applications or under conditions of aggressive environment this may be reduced to five years.'

Ship's engine rooms and engine bays are considered to be aggressive environments.

Other approvals

Pyrogen MAG units are class 4.1 articles under the United Nations *Dangerous Goods Classification Code*.

The Explosives Inspectorate of the Department of Mines and Energy has approval requirements regarding the importation, transport and use of explosive devices. These requirements include the need for an authority to import these devices from overseas into Queensland. This does not include those devices already installed as part of a ship's equipment, or the bringing in of the devices from another Australian state or territory into Queensland.

Further information about these approvals is available by contacting the Explosives Inspectorate on (07) 3224 7512.

The Explosives Inspectorate requires the proper disposal of explosive devices.

Incidents

There have been occasions where the discharge of a Pyrogen system and accompanying pressure build up in a compartment has caused problems. One organisation fitted pressure relief flaps to compartments where Pyrogen units were used. Section 5 of AS/NZS 4487 provides guidance regarding protected enclosure requirements.

There was a suggestion in 2001 that accidental discharges were caused by mobile phones or VHF radios. This was investigated at the time and it was found highly improbable that signals broadcast by radio equipment commonly used in Australian small marine vessels would cause ignition of Pyrogen generators.

Accidental discharge of Pyrogen units has occurred. To reduce this possibility all provisions of the standard and the installation manual are to be observed and installation and servicing must be carried out by authorised Pyrogen agents.

Blast and heat damage has been caused by the discharge of Pyrogen MAG units. The discharge of Pyrogen MAG units is violent and has damaged ship fittings and other items in the path of the discharge. Safety clearances from the discharge ends of the MAG unit are given in the Pyrogen manual and are to be observed. An open cage around the clearance zone may be provided for the protection of persons and to prevent the placement of fittings and other items within the prescribed clear area.

Recommendation

To reduce the possibility of accidental discharge of Pyrogen units and to reduce the risks associated with their operation the following points are to be observed:

- Pyrogen installations must be supported by the complete Pyrogen system, including control circuits.
- Pyrogen systems must be installed and maintained by Pyrogen authorised installers.
- Accredited surveyors and fire equipment service personnel must ensure that installation and maintenance of Pyrogen systems comply with AS/NZS 4487 and AS 1851.
- Service life for Pyrogen MAG units used on ships in Queensland is five years from date of manufacture.
- Time expired Pyrogen MAG units should be disposed of by returning to Pyrogen Australia Pty Ltd's national marine distributor, Wiltrading Maritime Fire and Safety, via your local Pyrogen authorised dealer.
- In keeping with NSCV Part C Section 4, 4.9.12 – a means shall be provided in a ship's design to limit

the induced pressures of the Pyrogen system's discharge to acceptable limits to avoid structural damage. For instance, the fitting of pressure relief flaps. This clause should be implemented in consultation with AS/NZS 4487 Section 5.

- Discharge of Pyrogen units by thermal ignition devices (thermal activation cords) is not acceptable. If fitted to a Pyrogen unit a thermal activation cord must be removed before installation on board a ship.
- Electrical isolation of the Pyrogen ignition device must be provided at the entrance/s to spaces fitted with Pyrogen units so that persons can turn off the units before entering the space.
- Signage is to be displayed as required under AS/NZS 4487.
- Clearances given in the manual from the discharge end/s of Pyrogen MAG units are to be observed. Consideration should be given to fitting open cages or screens around the clearance zone to protect persons from the discharge and prevent the mounting of ship's fittings and other items within the zone.

Pyrogen systems must be installed and maintained according Australian Standards 4487 and 1851. A written direction can be issued with possible removal of the ships from service for non-compliance

Authorised dealers

A list of dealers currently authorised by Pyrogen is attached. Further information about authorised dealers is available from Wiltrading:

Wiltrading Maritime Fire and Safety
36 Doody Street
PO Box 133
Alexandria New South Wales 2015
Tel: 02 9667 4599
Fax: 02 9669 1181
Email: sydney@wilh.com.au

Information

For further information about this Marine Information Bulletin, email msgmail@msg.qld.gov.au.

Other Marine Information Bulletins covering various topics relating to the safe operation of vessels can be obtained from Maritime Safety Queensland's website www.msg.qld.gov.au and from the following Maritime Safety Queensland regional offices:

Airlie Beach	(07) 4946 2200
Bundaberg	(07) 4131 8500
Cairns	(07) 4052 7400
Gladstone	(07) 4973 1200
Hervey Bay	(07) 4194 9600
Mackay	(07) 4944 3700
Mooloolaba	(07) 5477 8425
Pinkenba	(07) 3860 3500
Southport	(07) 5539 7300
Townsville	(07) 4726 3400

Pyrogen service agents in Queensland (provided by Wiltrading Pty Ltd, March 2011)

Fire Systems Qld (Gold Coast)	Grant Hedge	sales@fsnq.com.au	4/7 McPhail Road Coomera 4209	07 5573 9000
Fire Systems North Qld (Mackay)		sales@fsnq.com.au	3 Ginger Street Paget 4740	07 4952 4711
Chubb Fire (Bundaberg)	Gavin McKay	gavin.mckay@chubb.com.au	24 Princess Street Bundaberg 4760	07 4153 4070
Trinity Fire (Cairns)	Frank Marsh	fmarsh@trinityfireservices	Po Box 166w 12-18 Federation Street Bungalow, Cairns 4870	07 4031 3077
Fire Safety (Gladstone)	Mark McDonald	mark.mcdonald@chubb.com.au	Shop 4, 35 Chapple Street Gladstone 4680	07 4973 4500
Itim Systems (Brisbane)	Graeme Scott	info@itim-systems.com	4 Cramond Street Wilston 4051	07 3356 1276