

Fire Safety Practitioner

The newsletter of the Institute of Fire Prevention Officers

Welcome back to fsp !

Yes fsp is back in this new format to be known as Fire Safety Practitioner (The newsletter of the Institute of Fire Prevention Officers) and being distributed as a supplement to 'Daedalus' the magazine of the IFSM. We apologise for the disappearance of fsp during 2013 caused by failures of our publishers. We hope that you will welcome it back for your personal reading, information, technical development and general enjoyment.

IFPO Scotland Branch is Born

IFPO is pleased to announce that its latest Branch was inaugurated in Scotland on Wednesday 6th November 2013. The event was well attended by members and supported by the Professional sector.



The guest of honour was Ian Shakespeare, Chairman of the Institute, who travelled from Suffolk to be present at this historic event. The event took place at the King Robert Hotel within the historic setting of the Bannockburn Memorial.

It has long been recognised by fire safety practitioners in Scotland that the major UK professional support organisations and Institutions are generally located in England. The driving force behind the creation of IFPO Branch of Scotland was that many fire safety practitioners felt isolated in terms of professional support.

The Branch will operate with the same aims and objectives and constitution as the IFPO and will continue to work under the framework of the organisation. But now having a formal base in Scotland, we can provide networking opportunities for all those working in fire safety in Scotland.

This should bring together practitioners with varying levels of knowledge and experience for the purposes of support, expansion of knowledge and thereby seek to reduce the risks from fire.

The next meeting of the IFPO Scotland Branch will be held on Wednesday 5th March 2014 at the offices of the Glasgow Housing Association (GHA). The meeting starts at 1800 hrs. All welcome.

For further details of the next or any future meetings e-mail **Ron Ewing**, (IFPO Executive Council Member) at ifpo.scotland@ifpo.org.uk



IFPO Assemblage Seminar 2014



Thursday 27th March 2014 at Southwark Cathedral, London



Presentations:

'Disability and Fire Safety' with Jean Hewitt Consulting

'Control Panel Considerations' with Martin Bainbridge

'Bariatrics and Fire Safety' with Peter Aldridge and

street lighting on Fire Risk Assessment' with Martin Bainbridge

Book your place today by e-mailing secretary@ifpo.org.uk

Seminar free - All Welcome

Booking fee £10

(to cover lunch and refreshments)

CPD points available

Where are we with Halon today?

We are all aware that Halon as a fire fighting medium was phased out between 1997 and 2007, except for its use by the aircraft industry and military. What has been happening to replace it during the last 7 years then? Firstly, a few basic facts to put the matter in perspective to illustrate what the Commercial Aviation's Halon Footprint looks like?

37,000

Metric tons of Halon 1301 remaining in the world

36,900,000

The equivalent amount of Halon 1301 expressed in kilos

78

Years of remaining Halon 1301 supply based on estimated annual world usage

1,800,000

kilos of Halon 1301 estimated to be currently installed in the world aviation fleet

419.8

Million Tons of CO₂ Equivalent contained in the worlds remaining bank of Halon 1211 and 1301

119

Number of coal fired power plants operating for one year that would produce the same amount of CO₂ Equivalent as released Halon

A recent study was conducted to determine the amount of Halon 1301 predicted to be used by the large (>100 seats) commercial aeroplane fleet for engine, auxiliary power unit and cargo compartment fire protection, over the next two decades. Modeling generated estimates of the size of the potential market for Halon 1301 replacement candidates, and also predicted the amount of Halon 1301 to be released by the future fleet.

The model developed for the study, accounted for variations in fleet mix, overall size of each market segment, and utilization rates of differing aeroplanes. Final results indicate a near doubling of the amount of Halon 1301 actually installed on aeroplanes between 2012 and 2032, with a very small amount being released, either through system discharge (commanded or un-commanded)

or losses during bottle maintenance. The mass of Halon 1301 released through various means is two orders of magnitude less than the total installed amount. The results also indicate a much lower rate of actual Halon 1301 released into the atmosphere than those estimated by the United Nations Halon Technical Options Committee (UNHTOC report of 2010). This lower rate (approximately 15-20% of the UNHTOC estimates) is likely due to more accurate information on aeroplane utilization rates, commanded and uncommanded discharge trends and individual aeroplane configurations being available to industry-based researchers.

It can be seen therefore that the matter is not a small one and has giant environmental consequences. So what research has been taking place to replace systems with an effective environmentally friendly alternative?

'New System Approach for Halon Replacement in Cargo Compartments' - Water Mist-Nitrogen Cargo Systems

The paper includes recent results of a study on Halon replacement systems in cargo compartments using the agent's water mist and nitrogen.



Thanks to a small number of nozzles, a low amount of water needed and a single-pipe two-phase flow the system is a promising candidate for Halon replacement in cargo compartments. This system combines both: a lightweight and less complex system approach as well as a versatile extinguishing behaviour responding to critical fire scenarios including potential future requirements.

In the framework of an extended measurement campaign AOA performed almost 100 real fire tests in its in-house test centre. Starting with the execution of the US Federal Aviation Administration Minimum Performance Standards (MPS) tests for Halon replacement in cargo compartments AOA adjusted the system to multiple aircraft cargo compartment fire extinguishing needs.

Halon Replacement for Aeroplane Portable Fire Extinguishers

Of the seven potential fire extinguishing agents evaluated by the US Federal Aviation Administration (FAA), three passed the Minimum Performance Standards and are UL approved:

- Halotron I (HCFC-123 Blend B),
- FE-36 (HFC-236fa) and
- FM-200 (HFC-227ea).

The bottles for these approved candidates are about one and a half times larger and two times heavier than the currently used UL-rated 5B: C Halon 1211 bottle. This combined with regulatory uncertainties has prompted further research into 2 - bromo - 3, 3, 3 - trifluoropropene (BTP), an experimental compound with favourable environmental properties and strong performance in handheld applications.

Boeing's approach has been to pursue an alternative that will fulfil long-term environmental requirements, and will be compatible with manufacturing and airline operational requirements. Consequently, a 'Request for Information' on candidates was sent to over thirty different organizations in 2007.

Boeing contracted with American Pacific Corporation on initial development of BTP. BTP has since been tested, and passed UL 5B tests and FAA MPS hidden fire tests with a bottle that is a drop-in replacement for Halon 1211 on Boeing aeroplanes.



BTP toxicity testing is ongoing and is being conducted as required by the EPA and EU in order to obtain SNAP and REACH approval.

U.S. Army Development of Environmentally Acceptable Fire Suppression Agents for use in Hand Held Extinguishers

U.S. Army Program Executive Office (Aviation) sought a replacement for the 2.75 pound Halon Handheld Fire Extinguisher (HHFE) currently mounted in and on legacy rotary wing weapon systems.

The HHFE agent development program ran from summer of 2008 through to the autumn of 2012 and resulted in the development of two blended agents each based on ultra-fine sodium bicarbonate (SBC) powders blended with HFC-227ea. The agent development work included the following phases:

- Halon 1301 agent baseline fire suppression performance testing;
- alternative clean agent testing, optimization and down-selection of a final clean agent for consideration;
- initial testing of SBC additives to enhance the fire suppression performance of the selected clean agent;
- extensive testing of SBC processing methods and characterization of the SBC particle sizes, suspend ability in HFC-227ea and fire suppression performance;
- development of SBC characterization methods (field emission scanning electron microscopy, particle size distribution, surface area characterization, SBC powder water content); and
- development of procurement specifications for the selected process specific types of SBC.

The report describes in a chronological manner the development and testing of the new HFC-227ea/SBC replacement agents that have now been selected for replacement of the Halon 1301 based HHFE used in legacy rotary wing weapon systems.

Welcome - New Members

Associate Members (AMIFPO)

Jason Tan, Paul Wellfair, Neil Mitchell and Suresh Rupacelia

Members (MIFPO)

Adrian Dorrington, Thomas Irwin, Colin Walker, Jeff Horne, Victor Mallon, Michael Bradley, John McCammon, Malcolm Miller, Peter Archard, Mark Robinson and Mick Arbon.

Article researched and presented by

John J. O'Sullivan MBE, FIFPO, MIFSM, MIIRSM, MIFS, MSAE, Dip. SM (IFPO President)



Wind Turbine Fires.

Just over 3 years ago a £2million, 100 metre high wind turbine caught fire in hurricane force winds during severe weather at Ardrossan, North Ayrshire, Scotland. With the increase in the numbers of wind turbines being built with UK government grants and the original stock of wind turbines now ageing, are they suitably protected?

Although there is little life-risk the value of these turbines must put pressure on the owners and managing companies to provide suitable fire protection.

The United States have experienced similar incidents and one company ABCO have found this whole area a niche, which is small but growing, for their professional services. Steve Rice, Engineering Systems Manager for ABCO, told Security Systems News. "It's kind of something unique that our company has. We've done some suppression systems in wind turbines, and actually only I and one other guy are certified to climb the wind turbines. To actually get up in there and do the install and to service them, typically on a ladder that runs inside the tower with your fall protection gear hooked to a cable is challenging, because they're so lofty." One turbine he worked



on, was 100 meters tall and he added. "That's 30 stories you're climbing up. So it's a lot of work."

Firetrace, an IFPO Affiliate Company and a worldwide supplier of special hazard fire protection, whose headquarters in the US is in Scottsdale, Arizona, provides the suppression systems for the wind turbines and ABCO installs and services them.

The electrical systems in the wind turbines can catch on fire so insurance companies are demanding suppression systems. Rice added. "The insurance companies say, 'You've got this \$8 million wind turbine,

how are you going to protect it?'"

Before a wind turbine is erected, a suppression system can be installed while the turbine is still on the ground. But, once turbines are put in place, a retrofit system can still be installed but it is obviously far more expensive.

"Work must be done at the top of these existing towers, because as the turbines age and their initial warranties run out, the owners need to add systems onto them, to protect them", Rice explained.

Article researched and presented by
Gerry Newton Cert.Ed, Dip.RSA, CMIOASH, MIIRSM, FIFPO
(IFPO General Secretary & Treasurer)



Members Please be aware that at the Executive Council Meeting, on Thursday 16th January 2014 it was agreed that active members of the Institute may use the IFPO logo on their work materials, such as business cards, letterheads or websites. But not on training materials unless the training packages have been accredited.

Be aware though that the registered members of the IFPO Fire Risk Assessors Register have a different (dated) logo for use on any FRA documentation.

To download the logo visit the 'members area' of the website at www.ifpo.org.uk



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