



July, 2010

# The Catalyst

# JOIFF



## About JOIFF

Membership of JOIFF, the Organisation for Emergency Services Management is open to any Organisation which is a high hazard industry and/or has nominated personnel as emergency responders/hazard management team members who provide cover to industrial/commercial organisations.

Organisations which do not fully comply with these requirements are welcome to apply for Corporate Membership of JOIFF.

JOIFF provides a forum for discussion amongst peers, accredited training specifically developed for the sectors in which JOIFF members operate and technical advice through the JOIFF Standard and the JOIFF Shared Learning network. JOIFF welcomes enquiries for Membership - contact the JOIFF Secretariat

## From the Editors

Welcome to the third edition of The Catalyst for 2010.

Our policy is to bring you high quality articles on relevant technical issues and current and new developments and other happenings in the area of Emergency Services Management. In addition to The Catalyst, information relevant to Emergency Services Management is posted on the JOIFF website.

We encourage our Readers to circulate The Catalyst amongst their colleagues and interested parties and we welcome any comments.

## New Members

During April, May and June 2010 the Executive of JOIFF were delighted to welcome the following new Members.

### Full Members

**Advanced Safety Technologies (AST), Astrakhan, Russia**, represented by Vitaly Baranov, Consultant. AST are engaged in Training, personnel assessment, hazardous premises auditing, supervisory services etc. It has recently commenced operations in Astrakhan with the main goal of providing quality services to existing oil and gas companies in the region. AST Astrakhan have recently been approved as a JOIFF accredited Training Establishment.

**BP Cherry Point Refinery, Blaine, Washington, USA**, represented by David Sawicki, Plant Protection Superintendent, William Griffith, Battalion Chief and Chris Pomeroy, Battalion Chief. BP Cherry Point is a 240K barrel/day full conversion refinery. Their emergency response team consists of in excess of 175 full time and part time

personnel and it handles incidents involving fire, EMS, Technical Rescue, Hazmat, and Oil Spills, operating out of 3 fire stations.

**ConocoPhillips Australasia Business Unit, Perth Australia**, represented by Gino Zaza HSE Crisis and Emergency Management Specialist. The Australian Business Unit (ABU) of ConocoPhillips is a major producer of liquid and gas hydrocarbons within Australia and 6<sup>th</sup> largest in the world. The ConocoPhillips ABU has offshore facilities including a production and well platforms. LNG is processed at an on-shore LNG plant in Northern Australia. A large team of part time personnel provide emergency services to the ABU.

**Venture Gulf Training Center, Doha, Qatar**, represented by Matthew Mansfield, Business & Marketing Manager, Ala Jihad, Procurement Manager and Javeed Quershi, Training Centre Manager. VGTC is the first training centre in the state of Qatar - established in 1996. Since then VGTC has



### New Members Contd....

developed into providing different types of safety training extending and developing the facilities to be able to cover all their clients' needs. VGTC is part of Venture Gulf Group-Oil and Gas Division, located in Doha, State of Qatar. It operates from a purpose built modern training facility and provides a wide range of specialist & safety training for oil and gas, Petrochemical, Aviation and Marine industry. VGTC Training Centre is a full Member of the International Association for Safety and Survival Training (IASST).

### Corporate Members

**Lenzing AG, Austria**, represented by Berndt Koell, Head of Business Development Lenzing FR®, Geoff Wynn, Technical Consultant Asia and Tom Burrow, Project Manager Lenzing FR®. The Lenzing Group is an international group of companies with its headquarters in Austria, production sites in all major markets and a global network of sales and marketing offices. Lenzing provides the global textile and nonwovens industry with high-quality cellulose fibers. The company is the leading supplier in many business-to-business markets – from cellulose fibers to special plastic polymer products. Lenzing's core business fibers and plastics are complemented by their activities in business field engineering

**MSA Middle East, Abu Dhabi, United Arab Emirates**, represented by Mohamed Elagrab, International Product Manager – Supplied Air Respirators. Established in 1914, MSA is the world's leading manufacturer of safety products designed to protect people throughout the world. With headquarters located in Pittsburgh, Pennsylvania, MSA employs approximately 5,000 associates and maintains operations that extend around the world.

We look forward to the involvement of our new and existing Members in the continuing development of JOIFF.

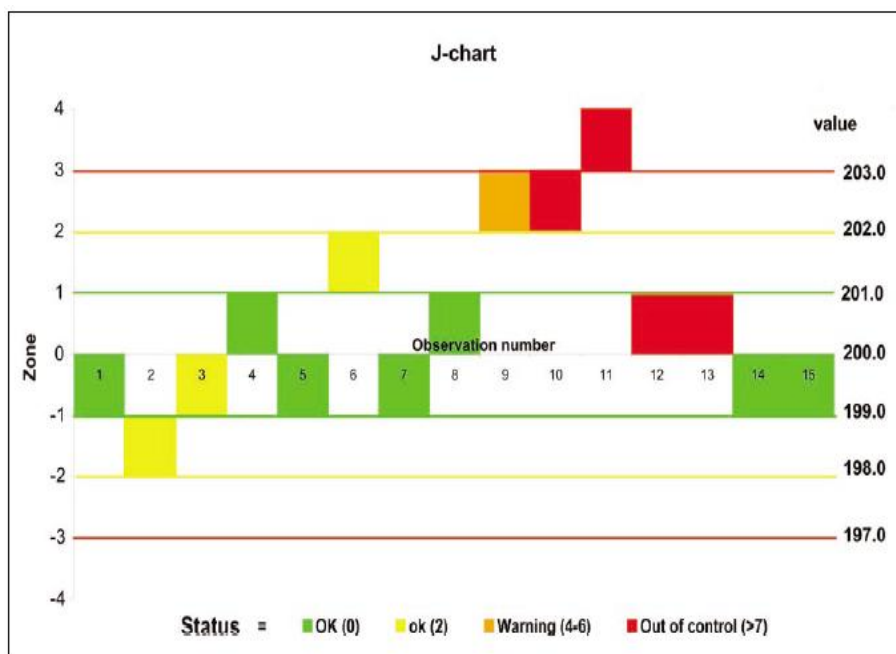
## FIRE FIGHTING SYSTEMS DESERVE TLC\*

By Jeanne van Buren

Fire fighting systems are usually called upon when all previous Lines of Defence have failed. We rely on them to control the incident and to limit the consequences. Fire risks originate from potentially hazardous activities. As the risk increases, the demands made on the fail safety of the Safety Instrumented System (SIS) or in this case the fire fighting system also increase. The standards IEC 61508 and IEC 61511 therefore define four different

components can be critical for the performance of the full system. No matter how simple or complex the systems are, operators must find a method to prove that their fire fighting systems are in compliance with SIL 3 requirements.

Due to the potential damage to equipment, operators are reluctant to frequently test sprinkler systems mounted above their product pumps while a life test of a semi-



Control chart to monitor measuring data

safety levels which describe the measures for handling the reliability of the SIS and its components. These four safety levels are known as safety integrity level - SIL. The higher the number of the Safety Integrity Level (SIL), the higher the reliability of the system. The SIL is therefore a measure of the probability that the safety system can correctly provide the required performance for a specific period. Fire fighting systems should be available and functional in  $\geq 99\%$  of the situations when called upon. This corresponds with a Safety Integrity Level (SIL) classification of 3.

Some fire fighting systems are quite simple, while others are a complex system of components. Some or all of these

subsurface foam system when the tank is in service is not an option because of damage to the product in the tank.

NFPA codes and in specific NFPA 25 provide the risk based reliability centred testing, inspection and maintenance frequencies of systems and components necessary to ensure the 99% reliability of activation/function on demand. But bringing this in practice would be so much easier if systems were actually designed for testing the performance of critical components with minimal interruption of daily operations. Integrating provisions to enable tests is not yet recognised and therefore not addressed in the design phase. I am still hoping stakeholders to incorporate provisions for testing the



system during the design stage or even better that this issue is addressed in standards and codes. FM has a down-loadable data sheet "Maintenance & Inspection" with guidance for organising, managing and the requirements for testing, inspection and maintenance as stated in the NFPA codes.

The foundations for this management tool are equipment records and maintenance requirements stated in either the NFPA code or the product information sheets from the supplier if these list an even more stringent regime for critical components.

These requirements have to be incorporated in a testing, inspection and maintenance manual. This manual should not be limited to planning the work but also pay attention to the qualifications and training of the persons that carry out this work. And record keeping of the work,

findings and results are important too. To monitor aging of installations and components as well as the frequencies for testing, inspection and maintenance, the findings and results must be reviewed periodically. Data of measuring results can best be reviewed by using a control chart as shown on the previous page.

By using a control chart the results can be visualised. It can also be used as an indication when a specific component has to be replaced or maintained avoiding breakdown maintenance.

The provisions incorporated in the design of a fire fighting system together with a profound management system for testing, inspection and maintenance are significant for the reliability/performance on demand of the system as well as the control of the costs involved and should therefore get proper attention.

Fire fighting systems deserve TLC\* too, irrespective of the fact that they are dormant most of their lives.

Note: \* Tender Loving Care

*Editor's Note: Jeanne van Buren is a Safety specialist working with the Rotterdam-Rijnmond regional emergency response organisation in The Netherlands. She has BSc degrees in the Dutch equivalent of Process Engineering, Chemical Engineering, Applied Chemistry and Environmental Engineering and an MSc in Environmental Quality Management as well as Risk Crisis and Disaster Management. She is currently carrying out a PhD research into integrated fire safety during the whole life cycle at SEVESO sites.*



## FLUOROTELOMER BASED FOAMS: ARE THEY SAFE FOR CONTINUED USE?

Response to the article in the April 2010 edition

By Steve Smith



I read with interest the article written by Mike Wilson in the April edition of The Catalyst and as he made specific reference to Solberg Foams I feel obliged to respond.

In Mike's article he focus's his discussion around chemistry and states that the compounds found in AFFF, FFFP and FP are NOT harmful to our environment and then he goes on to ridicule the "safe" alternatives. It would appear that he would rather live in the past than look to the future and assist, with his vast knowledge and experience, in designing new products. Solberg Foam's, take a different approach.

As a fire fighter with 24 years experience I still consider 3M Light Water to be the best foam ever produced and I would prefer it to any other, even our own high quality AFFF, but the reality is Light Water is no longer available and the reason is simple, the compounds in it, does permanent damage to our environment. The decision, therefore, is easy and quite rightly, any foam that contains PFOS is banned from use. This is a "black & white" decision but what about the alternatives. Of course many people, not only Mike, argue that their PFOS alternatives are safe but the environmentalists disagree. Now where does that leave the fire fighter? He is not a chemist, he is not an environmentalist, all he wants to know is what foam can he use and will he get into trouble for doing so.

Solberg listened to its customers, they were in a dilemma, who was right, could they use the "safe alternative" or were they just

buying "tomorrows waste". If it is accepted, regardless of what the chemists say, that all organohalogen's/fluorosurfactant's (PFOS, PFOA, H-PFOS, 6:2 FTS, C8, C6) are banned or at least have severe restrictions placed upon them, then the only solution is to find a product that does not contain any of these harmful products. It is pointless to keep arguing that the old technology is safe because every fire fighter runs the risk of potential prosecution every time he uses foam.

As far as Solberg Foams was concerned the only way forward was to design a new state-of-the-art product that would satisfy our customers' requirements. We achieved that with a new foam we call Solberg RF but it is a new product and needs refinement. It has never been said that it is "utopia" it does have some problems but let's compare the good and bad points made.

Good:

- Does not contain any organohalogen's, fluorosurfactant's, fluoropolymer's, C8, C6, heavy metals or any other components listed as being harmful in any current or foreseeable environmental legislation.
- It has passed many recognised approvals & standards that are designed to test the fire performance of film forming foams including EN1568 part 3 & part 4, ICAO Level 'B' & Lastfire (all three nozzles with tap & sea water)
- BOD/COD similar to AFFF, FFFP & FP
- It is designed to extinguish Bio-Fuels and will work on E10 right up to E95 (data can be provided)
- Very versatile and can be used through standard equipment



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## Steve Smith contd.....

as non-aspirated, low-expansion, medium-expansion or even high-expansion (800:1)

- No sediment, no clogging
- Shelf life in excess of 20 years

### Bad:

- Critical application rate is 2.2 lpm/sqm compared to AFFF at 2.1 lpm/sqm so it does require more foam to extinguish a fire
- As a concentrate it is more toxic than FFFP, AFFF and FP but is still listed as "slightly toxic" to certain fish type i.e. the most sensitive Rainbow Trout, however in its 'use concentration' it is harmless.

In the article there is a lot of discussion about "toxicity" and indeed reference is made to our own Safety Data Sheet, therefore it should be made clear what the level of "toxicity" in our products actually means.

Toxicity is always a matter of concentration and in this context foam is applied as a solution therefore it has already been greatly "diluted" before ever getting into the environment. Solberg RF is classed as 'slightly toxic' which indicates there will be some local damage if enough concentrate (not solution) reaches the water courses, however some fish are more sensitive than others so it will not affect all of them. The surviving fish will remain unharmed, but more importantly they will not be contaminated and therefore will not pass on persistent chemicals into the food chain. In case of fish contaminated with AFFF, FFFP or FP the organohalogen's they consume will be passed on for generations.

Using an analogy, if a car on fire is allowed to burn, you will be left with a pile of twisted metal that is only fit for the scrap heap, however if a car is attacked with a cricket bat a lot of damage can be done, windows broken, panels dented, lights smashed etc. but after the damage has been done a visit to the body shop would enable the car to be brought back to the same condition it was before and even, perhaps, better

than before. Foams containing organohalogen's do permanent damage, however damage done by foams that are "slightly toxic" can be repaired.

At Solberg Foams we make public, via our web site, all the information we have to enable our customers to make an educated decision. All our documentation comply with the latest REACH regulations and therefore we can, sometimes, be accused of "shooting ourselves in the foot" as this information can also be used against us. We try to be as transparent as possible, because we have nothing to hide.

In conclusion, regardless of what the chemist say, foams containing organohalogen's are either banned or severely restricted for use today and this is unlikely to change. To comply with current legislation the options are twofold, continue to use AFFF, FFFP or FP but make sure that provision is made to collect all fire water run-off, before the commencement of fire fighting and then incinerate at 1150oC post fire and remember this requirement will not change with the introduction of the C6 molecule. Otherwise use a foam that does not contain any of the substance currently banned or restricted and work with foam manufacturers to hone the fire performance to one that is at least equal to, if not better than, what is already available. Poly Fluorinated Carbon (PFC) Free foams are the only solution if we are to extinguish fires, protect our environment and comply with environmental legislation.

*Editor's note: Steve Smith started his fire fighting career when he joined London Fire Brigade in 1974 and he has been fighting fires ever since, either as a municipal Station Commander with Essex Fire & Rescue Service or Emergency Response Coordinator at Coryton Oil Refinery in Essex, when it was owned by Mobil and latterly BP. For the past 10 years Steve has been working with Solberg Scandinavian as their Area Manager responsible for the UK, Spain, Portugal, Africa and the Middle East.*

## PPE CORNER

A recent editorial introduction to a supplement on PPE (Personal Protective Equipment) in an Internationally distributed and well known magazine is an example of a widely held and potentially extremely dangerous perception that PPE is "the Last Line of Defence". JOIFF contacted the magazine to state that it is concerned that such comments perpetuate some long standing misunderstandings about PPE which can only serve to misguide Users and which historically has sometimes had serious consequences for the User.

Whilst some PPE is designed to incorporate performance as the "last Line of Defence" - probably more correctly identified as "incident protection" - the perception that all PPE is such, totally misrepresents the very important contribution that PPE has made and continues to make to Mankind throughout the ages.

The purpose of PPE is to allow persons to work in environments where without such PPE, they would not be able to work. Correctly used, PPE is just part of an overall Safety Management System and as "first resort" protection, it has the role of protecting against on-going risk and safeguarding personnel from accidental or unexpected exposure to hazards relevant to their work place. PPE which is intended to allow persons to work in environments where there is a risk of exposure to mortal danger or to dangers that may seriously and irreversibly harm the wearer's health, should become "last resort" protection only when it is required to provide "Incident" protection, when things go wrong and persons are required to be protected as they escape to safety.

For various reasons, much PPE, particularly PPE to protect against mortal danger, has failure levels far above the limit of exposures of human beings, so in work places where such PPE is being used, it is critically important to ensure that PPE must only be used within a dynamic and "fit for purpose" Safety Management System where proper and suitable safety procedures are in place.

Another comment in the aforementioned editorial introduction with which JOIFF took issue implied that Firefighters' PPE is designed to keep body temperatures at safe levels. It is not the job of PPE to keep the body temperatures at safe levels, this is achieved by





*PPE contd.....*

safe work management, Firefighter fitness and conditioning, the correct type and frequency of training etc. Certainly it is very encouraging to see the major steps that have been made over many years by reputable manufacturers in the development of PPE to reduce the metabolic cost of wearing PPE but the type of implications that the editorial made can only give Users a potential false sense of security and safety.

Once again JOIFF emphasises that all Users of PPE - in particular of PPE that is designed to protect against mortal danger - and those who maintain it, should be trained in its correct use and maintenance prior to it being introduced into active service. Such training should include at least the following:

- Information concerning the limitations and capabilities of the PPE.
- What the PPE will protect from.
- What the PPE will not protect from.
- How to use/wear the PPE.
- What the effects are (if any) of long term use.
- The importance of complying with the manufacturers/suppliers instructions.
- How to store the PPE when not in use.
- Information concerning arrangements for cleaning, decontamination and disinfection.
- How to determine when the PPE is no longer fit for purpose.
- How to obtain replacements.

Comprehensive detail on PPE to protect against Heat and Flame is in the JOIFF Handbook on PPE to Protect Against Heat and Flame which is available for free download in the English, Croatian and French languages from the JOIFF website at [www.joiff.com](http://www.joiff.com)

## SHOULD WE GO LIGHTER?

*By Mike Allen*

Fire fighting methods and responsibilities have continued to evolve and change over the years. The techniques in fighting fires have also changed and vary from one country, or region, to another, but the tasks encountered by the fire fighter are generally the same. Fire fighting is still a "hands-on" activity and on any given day, a firefighter could enter a burning building, battle car fires, rescue victims from natural disasters such as floods and earthquakes, respond to terrorist attacks, or assist in medical emergencies.

Today's heroes wear garments that have also evolved to meet the needs while improving function and protection for all of these potential hazards. We often hear about "fit for purpose". How "fit for purpose" can a fire suit be when the combined layers weigh over 650 grams per square meter or it has very low breathability? Heat stress continues to be one of the leading causes of death among North American fire fighters. Fire fighters spend most of the time in non-fire related incidents and often request that the weight of the garment be reduced. The goal is to decrease the heat stress, improve overall comfort, and increase mobility while still maintaining adequate protection from heat and flame. All of these factors will help to ensure the fire fighter wears the protective garments in more situations.



### **Will the fire fighter be endangered when exposed to a flashover?**

The answer lies in the combination of working with today's highest performance fibers and modern fabric science to combine layers in the right system that will meet, and exceed, the EN, ISO, and NFPA requirements. These standards are written and influenced by end-users, industry experts, and scientists. High performance fibers such as PBO, used in Millenia™, and PBI, used in Kombat™ and Gemini® fabrics,



*TenCate Millenia Light™ fabric with high performance fibre PBO*

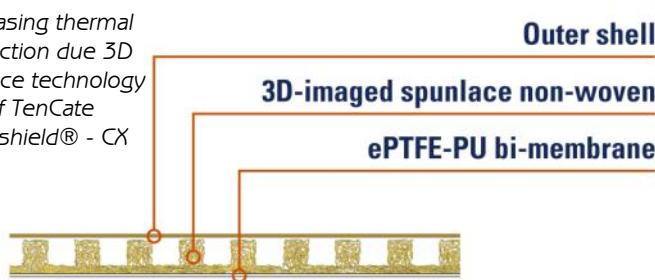
can withstand extreme heat and flame exposure. These fabrics will maintain flexibility and integrity even after exposure to an 8 second flashover simulation in manikin testing. This means that the outer layer provides the integral flame protection necessary for fighting fires and in combination with other high performance fibers (usually para-aramid), the garment will be extremely strong and resistant to rips, tears, and abrasion.

How can the suit be lighter? Garment designs have found new methods of using air, one of the greatest insulators, to increase thermal protection. By creating pockets of air within the fabric, the heat transfer is slowed. This effect can be increased by adding it to multiple layers in the system without increasing the weight. Successful examples of using air as a means of thermal insulation have been used in both the moisture barrier and the thermal barrier. Two popular moisture barriers with spacer technology are TenCate Tecashield® CX and Gore™ AIRLOCK®.

Terrorism has become a global concern for all and fire fighter's are on the front line. We are reminded by the pictures and videos of the recent terrorist attacks in Moscow that the risk of a fire fighter encountering blood and other hazardous substances may be as great as the potential to encounter fire. And often, both of these conditions coexist. So the modern, lighter suit must also include a durable and breathable barrier for protection against blood and other hazardous substances. The barrier must protect at greater than atmospheric pressure since the



Increasing thermal protection due 3D spunlace technology of TenCate Tecashield® - CX



high stress areas in garments (knees, elbows, shoulders) will be subjected to these parameters. With this protection, we still need highly breathable membranes for comfort and safety since the fire fighter may be working for many hours in these suits. The last portion of the modern fire suit is the thermal barrier. The multi-functional thermal liner also directly affects the weight of the suits. It can include a nonwoven that significantly increases thermal insulation or only a liner depending on the combination of the other two layers. The liner can add to the wearer's comfort by using special finishes to absorb the perspiration of the user and then take advantage of evaporative cooling when the air circulates around it.

## Is fire fighter safety compromised? What does this mean for the fire fighter when selecting garments?

There is a limit to how light the garment can be and protection from heat and flame has a strong link to the weight of a suit. The protection from heat and flame usually increases when the weight and thickness increase. This is not a direct relationship and there are many exceptions. TenCate Protective Fabrics has developed the lightest three-layer system, commercially known as TenCate Tecasystem™ Millenia 450, with a total weight of 450 grams per square meter and still meeting the requirements of EN469 level 2. The three-layer system is exceptionally breathable with an Ret value of less than 14 m<sup>2</sup>.Pa/W. This is a particularly interesting design for those interested in reducing heat stress, working in warmer climates and for departments that do not battle fires on a daily basis. It is important to carefully examine the individual layers of the fabric and the performance

requirements for each portion. Today's suit is designed to protect through a unique combination of fabrics each with a specific function vital to the overall performance and level of protection. Now the fire fighter can have a suit with improved comfort, mobility and reduced heat stress. The fire fighter can focus on the task at hand and trust his suit to perform.



*Editor's Note: Mike Allen is Senior Product Development Engineer in TenCate and he has been involved with inherently flame resistant materials for over 15 years with Ten Cate in the USA and most recently in The Netherlands. During the last several years he has focused on developing new products and lighter systems for fire fighters in the EMEA region. For further information on Mike's article, contact Karin Klein Hesselink, email [k.kleinhesselink@tencate.com](mailto:k.kleinhesselink@tencate.com)*

## EMERGENCY RESPONSE DUTIES AND HEALTH AND SAFETY

In meeting the responsibilities of Emergency Response, there is a necessity for management to balance the risks whilst meeting the duties of health and safety at work to protect their staff and others. Sometimes this means that decisions have to be taken in what are extremely hazardous, emotionally charged and fast moving situations.

The UK Health and Safety Executive (HSE) has recently published a bulletin in which they clarify their position in striking the balance between operational and health and safety duties in the Fire and Rescue Service.

The HSE says that the aim of this publication is to clarify their expectations on Fire and Rescue Services with regard to Health and Safety management within their operational work. It discusses the particular challenges for Fire and Rescue Authorities as employers and Health and safety duties. It also sets out a summary of what employees should expect of the Fire and Rescue Authorities as employers and what the Fire and Rescue Service can expect from HSE.

The detail in this publication should be of interest to Industrial Emergency Responders even if not based in the UK.

The document is available for download from the link [www.hse.gov.uk/services/fireandrescue/duties.pdf](http://www.hse.gov.uk/services/fireandrescue/duties.pdf)



## Interest Hots up in Sembcorp Incident Pre-Planning Advice

The Technical Fire Engineer in Sembcorp's Protection business, has noticed a big surge in interest in consultancy services since being invited to be a guest speaker at the Emergency Preparedness and Response Seminar in Middlesbrough, organised by the HSE.

Sembcorp Protection, who recently spent time in Grand Bahama working with Vopak, is one of the leading authorities on the subject and has been bombarded with interest from delegates attending the event; most of who represent UK based COMAH establishments.

The key area of interest is in the production of unique customer scenario-specific fire plans. The development of the plans involves incident pre-planning; hydrant flow testing; and exercising and testing.

The Technical team advice focuses on achieving two major strategic goals – assessing each site's specific firefighting requirements and developing precisely tailored fire management strategies.

Incident pre-planning analyses the site's incident management requirements in response to a major fire, the steps to be taken to lessen the impact of a serious incident and the careful formulation of scenario-specific plans. Hydrant flow testing measures the fire main pressure drop and establishes what residual pressure is available to ensure that hydrant flow values are sufficient to cover the risk. Exercising and testing ensures that the plans are workable, that the resources – systems and equipment – required to detect, suppress and control potential fire-related incidents are up to the task, and that staff are properly trained.

"We adopt a "be prepared" philosophy at all times, ensuring that each client's management team understands the hazards and risks of fire and its effects, and are aware of the preventive and protective measures that are necessary to minimise the impact of a fire or incident."

The philosophy also instils confidence in the team's knowledge and technical ability to perform adequately in any emergency and that the organisation is fully prepared with tried-and-tested response plans. It identifies shortfalls at a time when they can be rectified, rather than discovering them during a genuine emergency. It also verifies compliance with the relevant fire and safety standards and regulations and provides an auditable document trail for post-incident investigation and analysis, evaluation, feedback and change.

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2010





## TYCO ADDS FOAM CONCENTRATES TO SKUM HARDWARE SYSTEMS OFFERING

By Peter Kristenson

**tyco**  
Fire Suppression  
& Building Products

Over the past 75 years, the name SKUM – the word is Swedish for “foam” – has become synonymous globally with the design and manufacture of foam systems hardware throughout the petrochemical, aviation, marine and power generation industries, where fire has the potential to have catastrophic economic, environmental or life-threatening consequences.

Its sophisticated foam-based delivery systems and engineering ensure that a fire is responded to safely and in the shortest possible time, so reducing the potential for it to develop into a major incident. ISO registered SKUM was the first to develop a semi-subsurface system for storage tank protection and this, and other SKUM systems, are today in use throughout the world providing around-the-clock protection for flammable liquid storage tanks, bunds and potential spill areas.

The current hardware offering includes a wide array of industry-leading branch pipes, fixed and quick-deployment portable foam / water monitors, bladder tank systems, high-expansion fixed foam generators, mobile foam generators, proportioners and discharge devices, response trailers and the HOTFOAM high-expansion foam system that is designed for use in enclosed spaces.

Uncompromising quality, outstanding durability, rigorous testing and assured performance are the widely acknowledged hallmarks of SKUM technology, coupled with industry benchmark low maintenance, low operating costs and long life. For example, SKUM monitors are noted for their long throw capability and fast knock down. Many, such as the latest FJM-EL ranges of electric remote control of monitors, incorporate features not readily found on other systems on the market, and use materials that are more resistant to the corrosion found in marine or harsh industrial environments. Several of the SKUM water or foam monitors are less than half the weight of some competitors' comparable models.

To this truly unrivalled hardware offering has now been added a full range of foam concentrates, transforming the SKUM brand into an end-to-end solutions provider for commercial and industrial markets,

providing quality products, stockholding, technical expertise and customer support across the EMEA region.

Even more significantly, within the next couple of months, a number of new ground-breaking concentrates will be added to the SKUM line-up that will make landmark changes to the global foam concentrate landscape.

The SKUM TOWALEX synthetic and protein-based Class A and Class B [Class B and Class C in Europe, Australia and Asia] foam concentrates are specially formulated to provide fast knock down, isolation and cooling. They are ideal for enclosed space applications such as aircraft hangars, rail tunnels and warehouses, as well as open areas around tanks storing petroleum products and LNG. These include a new BS EN 1568 [Fire extinguishing media. Foam concentrates] approved and UL [Underwriters Laboratories] Listed, alcohol-resistant SKUM TOWALEX ARC 1X1 1% synthetic foam concentrate, and the new synthetic detergent-based, UL Listed SKUM METEOR P+ 2% high-expansion foam concentrate. This has been especially developed to meet the requirements of the HOTFOAM inside air systems, but is also suitable for any other application where a high quality, top performing High Expansion foam concentrate is required.

The full line up of SKUM foam concentrates currently includes:

Synthetic detergent concentrates:

- SKUM METEOR P+ High Expansion

Synthetic foam concentrates:

- SKUM TOWALEX AFFF 1%
- SKUM TOWALEX AFFF 3%
- SKUM TOWALEX AFFF 6%
- SKUM TOWALEX ARC 1x1
- SKUM TOWALEX ARC 3x3
- SKUM TOWALEX ARC 3x6

Protein foam concentrates:

- SKUM PROTEIN P3
- SKUM FLUOROPROTEIN FP3

But, what of the new generation of leading-edge SKUM foam concentrates that were previewed at the recent Interschutz fire safety exhibition in Germany and are due to be launched across the EMEA region in

September? These will include the SKUM 3x3AP that is a truly viable alternative to fluorine-based and fluorine-free based foam concentrates, and can justly be described as a “category of one” concentrate.

It is a non-fluorine product based on novel performance chemicals that provides high performance at minimal environmental impact and low toxicity. It is a joint development between TFS&BP and chemical specialist, BASF, and in the next edition of The Catalyst my colleague, Dr. Thomas Leonhardt, Manager of Chemical Research at TFS&BP, will describe how SKUM 3x3AP achieves the vision of TFS&BP for environmental responsibility, while delivering a sustainable new technology for the aviation, chemical, energy, industrial, marine, offshore and petrochemical high-hazard high-risk firefighting foam market.

*Editor's Notes: Peter Kristenson, Foam Product Manager (EMEA) at Tyco Fire Suppression & Building Products, is an engineer by training. He joined Tyco in 2001, having worked in the fire protection industry for 18 years in various engineering, sales and general management levels. Further information on Peter's article is available from Tyco Fire Suppression & Building Products by telephone on +44 (0) 161 875 0402, by fax on +44 (0) 161 875 0493, or via email at [marketing@tyco-bspd.com](mailto:marketing@tyco-bspd.com).*

*SKUM is a leading brand of Tyco Fire Suppression & Building Products known and respected for the design and innovation of firefighting foam products and special risk solutions. With more than 75 years of research and product development experience, SKUM product solutions have contributed significantly towards helping make key manufacturing and process industries safer places to work and operate in. You will find long-term SKUM customers in the leading oil and petrochemical industry, logistics, marine and offshore industries around the world. SKUM products include branch pipes and fog/jet monitors, hot foam systems, bladder tank systems, foam proportioners, foam trailers, fire brigade foam hardware, firefighting foam agents.*

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### **FIRETRACE®** AUTOMATIC FIRE SUPPRESSION SYSTEMS

## **PRESS RELEASE: INTRINSICALLY-SAFE FIRETRACE® CHOSEN TO SAFEGUARD TURKISH MINE**

Firetrace International's intrinsically safe FIRETRACE® automatic fire detection and suppression system has been chosen to protect existing underground mud pumps and electrical cabinets at the Çayeli copper and zinc mine in Rize on the Black Sea coast of north-eastern Turkey.

Eleven systems have been installed in the mine, which mills 3,000 tonnes of ore a day and is owned and operated by the Canada's Inmet Mining Corporation. Each is providing dedicated, around-the-clock protection to vital equipment on which the mine's operations depend. According to Faik Tellioglu of MCS Fire Protection and Consulting Services Ltd, Firetrace International's Turkish authorised distributor, FIRETRACE was selected because the systems are completely self contained and are proven to withstand the harsh and dirty underground mining environment, plus the systems could be accommodated inside the narrow control panels.

Additionally, FIRETRACE requires neither electricity nor external power, so does not contain any components that produce sparks or which can hold enough energy to produce a spark of sufficient energy to cause an ignition. Each of the FIRETRACE systems comprises an extinguishing agent cylinder that is attached to proprietary Firetrace Detection Tubing

via a custom-engineered valve. This leak-resistant tubing is snaked throughout Çayeli mine's cabinets and enclosures to ensure fast detection and suppression of a fire at its source. Heat or flame will immediately cause this tube to rupture and the suppression agent is automatically released, extinguishing the fire precisely where it starts and before it can take hold. An important consideration for the mine's management was that, unlike many suppression systems, FIRETRACE can only ever be activated by a real fire, so there is no prospect of false alarms or agent discharge that might otherwise curtail mining operations.

The Çayeli project uses both the Firetrace Direct System and the Firetrace Indirect System. In the Direct System, the Firetrace Detection Tubing performs a dual function, operating as both the detection device and the suppressant delivery system, whereas the Indirect System uses the Firetrace Detection Tubing as a detection and system activation device, but not for the agent discharge. The rupturing of the tube results in a drop of pressure causing the indirect valve to activate. This diverts flow from the detection tube and the agent is discharged from the cylinder through diffuser nozzles, flooding the entire cabinet.

## **FIRE EXTINGUISHERS CONTAINING FOAM**

In the April 2010 edition of The Catalyst an article entitled "Fluorotelomer Based Foams: - Are They Safe For Continued Use ?" was published. Another view on this subject is published in this edition. This subject has been a major topic for discussion since the cessation in May 2000 by the Company 3M of production of PFOS (Perfluorooctane sulphonate), a constituent of some of the best selling AFFF Firefighting Foams that the Company 3M had produced until then.

The EU and the USA have implemented regulations that require the cessation of use and storage of products containing PFOS by the middle of 2011 and their removal from service by the same date. Many large Users of Firefighting foam have taken action with their Suppliers to ensure that they comply with these regulations, as have the major Foam manufacturers Worldwide. Much of the debate until now has been based around large discharges of Foam when fighting fires such as those in petrochemical storage tanks, but not much has been said about the importance of the environmentally friendly use of foams in Fire Extinguishers even when comparatively small quantities are discharged when a Foam Fire Extinguisher is activated.

The Fire Extinguisher Industry is a major User of Firefighting Foams and when all of the individual small quantities of foam discharged through each fire extinguisher throughout the World are added together, it becomes a total of a very large quantity of Foam covering a huge area of the World.

Many National Standards covering the maintenance of Fire Extinguishers require their regular test by discharge and it is a widespread practice by extinguisher service and maintenance personnel to either carry out this regular test discharge on training fires, or onto grass, sand or down drains, allowing the discharged foam into the environment without any containment. There are two types of AFFF, PFOS-based and telomer-based. Telomer-based AFFF does not contain or breakdown into PFOS, so it is not banned under the PFOS regulations. This is the only type of AFFF that is still manufactured and sold in the EU and the USA.

On some occasions, the regular test by discharge referred to above does not take place and so there may be many extinguishers in service around the World that still contain PFOS based AFFF.

In 2006, JOIFF published its Guideline for the Use and Maintenance of Fire Extinguishers containing Foam. With the debate that is currently being continued in The Catalyst, it was felt opportune to publish this reminder of JOIFF's recommendations regarding Use and Maintenance Fire Extinguishers containing Foam.

**Use:** JOIFF supports the use of Fire Extinguishers containing Foam where Companies have decided, based on a risk assessment which includes an environmental impact assessment, that it is the "the most effective" type of Fire Extinguisher to suit their needs. However, when considering the potential damage that discharge of such Fire Extinguishers will cause to the Environment, the validity of using them to cover certain risks should be questioned where perhaps other types of environmentally- harmless extinguishing media might be just as suitable.

**Maintenance:** The validity of regular test by discharge of Fire



## Firetrace contd.....

Two risk-specific suppression agents were chosen for the project; 3M™ Novec™ 1230 Fire Protection Fluid is being used to protect the mine's electrical cabinets, while ABC dry chemical powder is safeguarding the Geho mud pumps.



*Firetrace International's intrinsically safe FIRETRACE® has been chosen to protect mud pumps and electrical cabinets at the Çayeli mine in north-eastern Turkey.*

Firetrace International's FIRETRACE is the only UL [Underwriters Laboratories] listed, FM [Factory Mutual] approved and CE [Conformité Européene or European Conformity] marked tube-operated system in the world that is tested as an automatic fire detection and suppression system with, globally, 150,000 successfully completed installations.

ISO 9001:2008 registered Firetrace International is headquartered in Scottsdale, Arizona, with its EMEA offices in Gatwick in the UK. Genuine FIRETRACE is available only via Firetrace International's global network of authorised distributors. These trading partners are skilled in hazard analysis, agent and system selection, installation, commissioning and support. They also use only genuine FIRETRACE components. Details of these authorised distributors are available by contacting Firetrace International at [info@firetrace.com](mailto:info@firetrace.com). The FIRETRACE EMEA head office in the UK can be contacted on +44 (0) 1293 780390 and the company's website is at [www.firetrace.com](http://www.firetrace.com).

## Fire Extinguishers... contd.....

Extinguishers containing Foam as required currently in National Standards / Codes of Practice for the Maintenance of Fire Extinguishers, should also be questioned from the point of view of the value of this requirement versus the potential environmental impact of indiscriminate discharge of such Fire Extinguishers by service technicians.

The JOIFF Guideline for the Use and Maintenance of Fire Extinguishers containing Foam is available for download from the Downloads Page of the JOIFF website.

## JOIFF Training Notes

### JOIFF Accredited Team Leader Course

We are pleased to advise that JOIFF accredited Training Establishment Lancashire Fire and Rescue International Fire Training and Development Centre Washington Hall will be holding a JOIFF accredited Team Leader Course from 27th September to 1st October 2010. This Course is suitable for anyone in a management or supervisory role in Emergency Response, or potential candidates to these roles. It is also suitable for re-validation for those who have completed a previous Team Leader Course and whose certificate is no longer valid.

Subjects to be covered in the Course will include Role of a Team Leader, Fire ground risk assessments, Teamwork/team building Effective Communication, BA procedures Leadership Theory and Exercises, Management of emergency procedures, as well as a number of exercises involving extinguishing complicated fires of Industrial scenarios. All students who successfully complete the Course will receive a JOIFF Certificate of Competence.

There are places available for suitable candidates. For further information contact Graham Wilson, Washington Hall, email address is [GrahamWilson@lancsfireandrescue.org.uk](mailto:GrahamWilson@lancsfireandrescue.org.uk)

### **"TRAIN AS IF YOUR LIFE DEPENDS ON IT BECAUSE SOMEDAY, IT MIGHT!"**

JOIFF accredited training is within a Competency Based Training framework and involves not only course content, but also critical to the effective provision of training are the facilities of the training provider/training establishment and the capabilities of the instructing staff. JOIFF has developed systems of accreditation for training providers and minimum instructional requirements for Instructors. All students who successfully complete a JOIFF accredited course/programme are issued with a JOIFF Certificate of Competence which has its own unique number. Records of all successful students and the courses in which they qualify are retained. There is growing recognition worldwide of the JOIFF Certificate of Competence which is

coming to be regarded as a passport to the level of employment and rank which an emergency responder's qualifications enables and entitles them to deserve.

*"If you think that you can do it, that is confidence. If you can do it well on an on-going basis, that is competence!"*

### **JOIFF Accredited Training for 2010:**

For further information about JOIFF accredited on-Site Competency Based Training Programmes, the range of Fire Service NVQs and any other aspect of JOIFF Training, please contact the JOIFF Secretariat



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# Diary of Events 2010/2011

- |             |                                     |  |
|-------------|-------------------------------------|--|
| <b>July</b> | 12 <sup>th</sup> – 15 <sup>th</sup> | <b>Fire Systems Integrity Assurance (FSIA) in the Oil, Gas and Petrochemical Sectors – Workshop</b><br>Singapore |
|             | 21 <sup>st</sup> – 22 <sup>nd</sup> | <b>Institution of Fire Engineers Annual General Meeting 2010</b><br>London, England.                             |
| <b>Sept</b> | 23 <sup>rd</sup> – 26 <sup>th</sup> | <b>ISAF Exhibition and Conference</b><br>Istanbul Expo Centre, Turkey.   |
|             | 25 <sup>th</sup> – 29 <sup>th</sup> | <b>Practical Storage Tank Fire Fighting and Foam Application Workshop/ Hands-on Training</b><br>Asturias, Spain. |
| <b>Oct</b>  | 5 <sup>th</sup> - 8 <sup>th</sup>   | <b>Security</b><br>Essen, Germany  |
|             | 25 <sup>th</sup> – 29 <sup>th</sup> | <b>Storage Tank and Related Facilities Fire Hazard Management Workshop</b><br>Aylesbury, England                 |
| <b>Nov</b>  | 8 <sup>th</sup> - 10 <sup>th</sup>  | <b>Algeria Fire, Safety and Security Expo 2010</b><br>Algiers, Algeria   |
|             | 15 <sup>th</sup> – 18 <sup>th</sup> | <b>VI International Conference on Forest Fire Research</b><br>Coimbra, Portugal.                                 |
|             | 23 <sup>rd</sup> – 25 <sup>th</sup> | <b>IFSEC</b><br>Mumbai, India  |
|             | 24 <sup>th</sup> - 25 <sup>th</sup> | <b>Emergency Services Show</b><br>Warwickshire, U.K.   |
| <b>Feb</b>  | 1 <sup>st</sup> - 2 <sup>nd</sup>   | <b>PPE Conference 2011</b><br>Brussels, Belgium  |

Please contact the JOIFF Secretariat with details of any event that you think that JOIFF Members might be interested in attending.

**Note:** The Catalyst is not responsible for the accuracy of dates and / or venues announced. This is based on information given to the Editors and is published in good faith.

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