THE CATALYST

Q3 2020

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ABOUT JOIFF

JOIFF, the International Organisation for Industrial Emergency Services Management is a not-for-profit organisation dedicated to developing the knowledge, skills and understanding of personnel who work in and/or who are required to provide emergency response to incidents in Industry, primarily High Hazard Industry, with the aim of ensuring that risks in Industry are mitigated and managed safely.

The 4 pillars of JOIFF aiming to support its Membership in preventing and/or mitigating hazardous incidents in Industry are: Shared Learning – improving risk awareness amongst JOIFF Members; Accredited Training – enhancing operational preparedness in emergency response and crisis management; Technical Advisory Group – raising the quality of safety standards in the working environment of High Hazard Industry and Professional Affiliation - networking and access to professionals who have similar challenges in their work through Conferences and other events and the prestige of being a member of a globally recognised organisation of emergency response.

Full Members of JOIFF are organisations which are high hazard industries and/or have nominated personnel as emergency responders/hazard management team members who provide cover to such organisations. Commercial Members of JOIFF are organisations that provide goods and services to organisations in the High Hazard Industry.

JOIFF welcomes enquiries for Membership - please contact the JOIFF Secretariat for more information.

JOIFF CLG is registered in Ireland. Registration number 362542.
Address as secretariat.

JOIFF is the registered Business Name of JOIFF CLG

ABOUT THE CATALYST

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Publisher & Advertising Sales:
Paul Budgen
Tel: + 44 (0) 203 286 2289
Email: pbudgen@edicogroup.net

Office Manager:
Emma Sinclair
Tel: + 44 (0) 1305 45 82 83
Email: emma.sinclair@edicogroup.net

Editorial Coordinator:
Gemma Spearing
Tel: + 44 (0) 1305 45 82 83
Email: gemma.spearing@edicogroup.net

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MESSAGE FROM THE CHAIRMAN

Dear JOIFF Members and Catalyst Readers,

All over the world the one common denominator is still Covid 19 and the impact on the daily lives of all of us. The impact on personal health and well-being is enormous and will remain for many months to come. Adding to this is the uncertainty it brings to many and in times of uncertainty, to remain strong and show leadership is a great challenge.

It is my sincere prayer that you will be able to remain strong and show leadership where called upon to do so.

JOIFF embarked on a "new normal" (the current buss-word of Covid 19) in the way we execute the pillar of "Shared Learning" via the Internet and many of you participated in the events we offered in the past few months.

The next theme that we will be covering (and you will read more in this edition) is connecting very well with the sympathies in my first paragraph – Health and Wellbeing – but this time directed at you, the person involved in emergency response in high hazard industries.

Looking back at my personal career of over 44 years in active service, the one element that always was very close to my heart was the health and well-being of my personnel and what motivated me, was the fact that emergency responders work hard....BUT .... they "play hard"...as well and the "play-part" most of the times lead to adverse consequences like, alcohol abuse, getting into brawls, divorces, getting into financial difficulties and the list goes on and on.

Why?

One condition that leaders do not manage properly, is the post traumatic stress involved in the work performed by emergency responders that leads to disorders as mentioned and this is not only when flames are raging and people need to be rescued from burning plants/buildings.

Did you know that a false alarm has the same impact as a real alarm?

There is only one major difference and that is the fact that the emergency responders absorb the adrenaline build-up during real alarms by the action needed to restore the peace, but in the event of a false alarm, the sudden surge of adrenaline "remains in the system" – in my mind this is the major contributing factor leading to "play hard"!

The health and wellbeing of us emergency responders do not only lie in the physical side, but most definitely also in the psychological part of the life as an emergency responder. To address this, I urge all leaders to embark on a formal Post Traumatic Stress Disorder (PTSD) diffusion program that forms part of the every day lives of your emergency responders. There are many ways to go about this, so I am not going into the detail. All I want to ask that you, as the leader of the team, take the holistic health and wellbeing of your team members to heart.

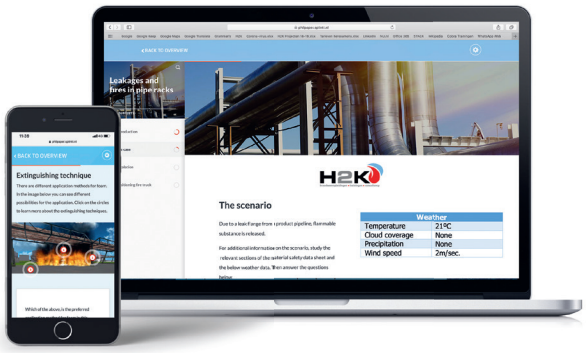
Enjoy the very valuable lessons contained in this copy of your magazine and make sure to join us during upcoming online shared learning events!

Regards,
Pine Pienaar FIFireE; FJOIFF; FSAESI
Chairman JOIFF Board of Directors.

H2K Online

Digital continuance of readiness

Through the digital learning platform H2K Online, students can take online classes, do case studies and conduct examinations. Our e-learning supports practical training courses and enables place and time independent education. This means training continues and readiness improves, even when physical training is limited.



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- Self Contained Breathing Apparatus (SCBA)
- Hydrocarbons and firefighting foam

Scenario training

- Leakage and fire: road tanker
- Leakage and fire: pipe bridges
- Fire inside industrial buildings/ warehouses
- Incident Command for DeNOx-installations
- Anhydrous ammonia
- Hydrogen incidents
- Gaseous leaks in process installations

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NEWS FROM JOIFF:

During the past 6 months the JOIFF Board of Directors have introduced a number of changes in the operation of JOIFF. This report summarises some of the changes made.

SHARED LEARNING:

JOIFF was established with the main aim of Shared Learning, to raise awareness of its members of incidents that take place in High hazard Industry to educate against the same mistakes being repeated in their own location. As JOIFF members will have seen, during the past 6 months, there has been a major increase in activity in the JOIFF Shared Learning network as unfortunately serious incidents continue to occur on a regular basis.

Shared learning has several aspects to it, from the initial picture, interim information, and final reports from the authorities. Due to Company restrictions in the initial communication of a serious incident, it is extremely difficult to ascertain exactly what occurred - failure of equipment, human error and/or emergency response actions. Each JOIFF Shared Learning email is accompanied by at least one picture. A picture can paint a thousand words and there is much to learn from studying the picture with operational personnel to encourage constructive comment from within a department and to see what lessons can be learned – what would we have done if this incident happened to us ? Is this the only way to tackle such an incident if it happens on our site ?

JOIFF's Shared Learning emails are circulated to each person listed in the JOIFF Membership Directory which is the JOIFF Shared Learning Mailing List. Members are reminded that each member organisation should have at least 2 nominees in the JOIFF Directory and JOIFF supports and encourages the sharing of information and therefore endorses onward forwarding of this information by the nominees to interested personnel within each Member Organisation.

THE CATALYST:

JOIFF's quarterly magazine The Catalyst is a major source of information on JOIFF and other matters and since Q1 2020, a "hard copy" of each edition of The Catalyst is mailed to each JOIFF member free of charge.

JOIFF EVENTS:

This year has seen exciting developments in another part of JOIFF's Shared Learning philosophy. In February, the One day JOIFF Foam Summit in London was very well received by more than 100 delegates despite Storm Ciara closing down most air and rail travel. In May JOIFF was proud to present some "firsts", JOIFF's first online Seminar, this on the subject of Training with the subject matter experts who presented on this Seminar were all from JOIFF Members Organisations. In July, JOIFF presented its first Shared Learning Subject Matter Expert Seminar which dealt with Foam Transition presented by an International expert on the subject.

In August JOIFF will present an online Seminar on the subject of Firefighters Health and Wellbeing and we are very proud to have foremost International experts as Speakers. This will be followed in October with an online Seminar on Crisis Management, Business Continuity and Resilience. Plans are already being discussed for a programme of JOIFF events in 2021 and 2022. Membership Benefits include free registration for all JOIFF Conferences, Summits and online events.

JOIFF WEBSITE:

There have been major improvements in the JOIFF website with extensive development of the Members Area. Work is currently taking place to format JOIFF Shared Learning emails since this began in 2001 and when this task is completed a Search Engine will be added to facilitate access by members who wish to research information on particular subjects for training or educational or any other purpose. Copies of papers presented at JOIFF Conferences and other events are now posted in the Members Area along with JOIFF Guidelines on Good Industry Practice and a large Gallery of pictures that members can use in training and other presentations, all available to members for free download. There is also a Members Forum where members can raise issues that they would like to see discussed amongst the membership on-line.

JOIFF GUIDELINES:

A major Part of JOIFF's Shared Learning philosophy is to produce Guidelines on Good Industry Practice about different subjects. JOIFF Guidelines are developed primarily by JOIFF members in Working Groups and since the beginning of 2020, JOIFF has set up 3 new Working Groups to prepare Guidelines on 3 different subjects – Fuels Farms in Airports, Terminal Buildings in Airports and Alternative Fuel Vehicles. When final drafts are completed each draft will be circulated to all JOIFF Members for consultation before being finalised and published in the Members Area of the JOIFF website.

JOIFF MANAGEMENT ADVISORY TEAM:

The recently appointed JOIFF Management Advisory Team (MAT) which is drawn from the JOIFF membership, has supported the Board of Directors in putting these changes in place and members of the MAT have become involved in some of the new developments.

Despite the trying times in the World at the moment this is an exciting time for JOIFF and its membership and if you are not a member of JOIFF, why not apply now at www.joiff.com


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NEW JOIFF MEMBERS

During April, May and June 2020, the JOIFF Board of Directors were pleased to welcome the following new Members.

Advanced Fire Suppression Technologies, Alberton, South Africa represented by Armand Barnard, CEO, Barries Barnard, Group CEO – Advanced Group of Companies, Westley Barnardt, Group Executive – Advanced Global and Trevor Fiford Director – Industrial Fire & Hazard Control. Advanced Fire Suppression Technologies (AFST) was founded in 2000 and is engaged in sales/installation/maintenance of fire suppression systems and equipment for mining, commercial and military including specialised foam products.

Al Afiya Sarl, Dakar, Sénégal represented by Rachid Dioury, CEO. Al Afiya Sarl is accredited by the Ministry of Interior of Senegal for all fire safety training and services and the Ministry of Maritime affairs Security training and consulting according to International Ship and Port Facility Code. With the discovery of oil in Senegal and gas there is a growth in the need for competency based training.

National Chemical Emergency Centre, Oxfordshire, United Kingdom, represented by Ed Sullivan, Hazardous Material Lead and Dr Nigel Blumire, Emergency Response Training Manager/ Consultant. Since 1973, NCEC has worked with governments, public bodies and private sector organisations facing complex chemical risk and compliance challenges. Support is provided to organisations during emergencies via telephone from NCEC's 24/7 call centre, via their Chemdata application and/or during the preparation phase of an emergency, training can be provided either face-to-face or via eLearning to both emergency services and private sector organisations.

INDIVIDUAL MEMBERS

During Q 2 2020, the Directors were also happy to welcome Miroslav Gojic, Belgrade Serbia. Miroslav is a design engineer in fire safety and hazardous areas and related items. Miroslav has a BSc in Mechanical engineering and works in the field of fire protection, primarily in Industry and oil refineries.

JOIFF also welcomed Mike Willson, Tasmania, Australia who is a firefighting foam and foam systems technical specialist and consultant on fire fighting foams, long and short-chain PFAS issues, potential transition to Fluorine free alternatives and the environmental impact of foam choices.

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

NEWS FROM JOIFF ACCREDITED TRAINING PROVIDERS

National Chemical Emergency Centre

Following and audit, newly joined JOIFF member organisation National Chemical Emergency Centre (NCEC), United Kingdom, was awarded JOIFF Accreditation. The picture shows Ed Sullivan, Hazardous Materials Lead NCEC receiving the Certificate of JOIFF Accreditation from Gerry Johnson, JOIFF Director of Standards of Training and Competence

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JOIFF SCHOLARSHIP

The Board of Directors of JOIFF is pleased to invite emergency responders who are JOIFF members or who are employed/contracted by a JOIFF member organisation to apply for a scholarship to complete the JOIFF Diploma eLearning programme, or the JOIFF Technician eLearning programme. Only one student in any JOIFF member organisation will be eligible.

Three (3) scholarships will be awarded to successful applicants who apply between 01 August 2020 and 31 December 2020. These scholarships willbe subject to the terms and conditions currently in operation for these programmes which includes that students who successfully complete the studies will receive a Diploma/Technician certificate and can use the post nominals Dip.JOIFF/Tech.JOIFF as applicable.

Approval of applications of the award of the scholarships will be the sole discretion of an adjudication panel set up by the JOIFF Board of Directors.

Applications by candidates for the scholarship shall be made to the JOIFF Secretariat and must be accompanied by a condensed Curriculum Vitae as well as a short motivation by the student or thestudent's direct supervisor.

When a scholarship student successfully completes the eLearning programme, their successful completion will be announced in the JOIFF Roll of Honour in the JOIFF official magazine, "The Catalyst". The student will be expected to submit a short summary of the experience/benefits that carrying out the programme has brought to them and to the organisation in which they are employed/contracted.and knowing the facility in which the emergency responder operates.

ABOUT THE JOIFF DIPLOMA

The JOIFF Diploma has been developed as a cost-effective way to gauge competence of emergency response personnel in dealing with the potential accidents/incidents to which they may be required to respond within their Response Area Emergency Response Plan. This programme covers key skills for operational responders to Industrial incidents, learnt and demonstrated by the student in training and exercises that allows them to deal competently with emergencies identified within the response area where they are employed. The JOIFF Diploma ensures competence within both emergency response and knowing the facility in which the emergency responder operates.

ON THE FRONTLINE TOGETHER WITH HEROES

The Robot-TINO is a remote-controlled emergency response unit designed to fight or to mitigate fires and other hazardous events.

The unit is specifically designed to support firefighters during firefighting or fire mitigation operations in industrial process areas, tank farms, tunnels or anywhere congestion may create dangerous situations for the fire brigade. The unit is powered via a compact diesel engine. Robust and sized to overcome difficult conditions such as those that are often found by emergency responders. The unit is protected against heat radiation with a cooling system which allows the Robot-TINO to get closer than ever to the fire origin to suppress it with higher probability of success.

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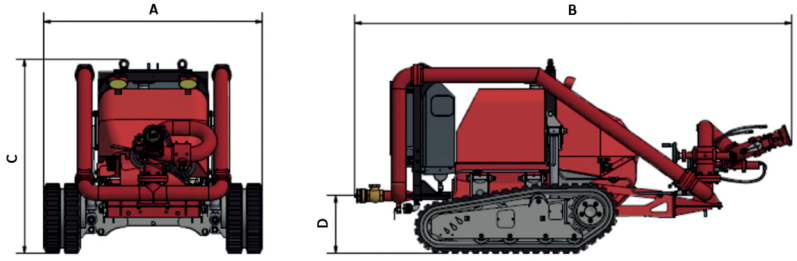

Monitor Body	ØA BSP	A mm	B mm	C mm	D mm	Monitor Working Angles		Max. Flow rate lpm
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FIREFIGHTERS AND THEIR PPE
PROTECT YOURSELF

There is a big gap between the public perception of what an emergency responder faces when fighting a fire and the reality of such an event. Being a firefighter is not running through fire saving people, it usually involves crawling through thick, hot, flammable and blinding smoke which is increasingly toxic, encapsulated in heavy Personal Protective Equipment (PPE) that because of the working environment is understandably non-breathable equipment.

Despite the evidence regularly being collected from all over the World that firefighting is a most dangerous profession, many do not yet accept that firefighters as a working group are the most likely to contract serious and fatal illnesses because of their work and they pose strong opposition that this is the case. Multiple exposure to different toxic and carcinogenic substances is a regular hazard of their work and multiple routes of exposure through inhalation and skin absorption and contaminated PPE increase the risk to Firefighters in getting several different types of cancers and other serious illnesses.

The proportion of cancer deaths for firefighters has been growing steadily from the 1970s to the present, parallel with the increasing use of synthetics and plastics in homes and buildings.

Manufacturers of PPE and myriads of health and safety experts point to advances in the manufacture of PPE to praise the reducing weigh, the breathability, the absorption to aim for body heat reduction etc. but it is a practical fact that regardless of all the efforts to protect the bodies of firefighters who regularly work in these hazardous conditions, visible and non-visible residues of all sorts are deposited on the items of PPE worn as a result of the behaviour of the heated and burning materials in a fire.

The reason for PPE to be worn is to allow persons to work safely in environments where without the PPE they would not be able to work safely. Current Good Industry Practice in the use of PPE which in many Countries is a legal requirement, is that PPE must provide adequate protection against the risks against which it is intended to protect and it must be designed and manufactured so that in the foreseeable conditions of use for which it is intended, the user can perform the risk-related activity normally whilst enjoying appropriate protection of the

highest level possible. In use, the PPE of firefighters during firefighting is regularly polluted with products of combustion which are extremely hazardous to health and life and so it has to be concluded that the current PPE used by firefighters during firefighting is not suitable and change is necessary. It is not likely that this is going to happen for a long time if at all, so firefighters and those responsible for their health and safety must take necessary action to ensure that exposures are kept to a minimum.

It is impossible to completely eliminate the risks but wearers of PPE can take steps to minimise the risk of exposure to the products of combustion through safe working habits but these will require changes in behaviour, attitudes and culture.

These steps include:

ON THE FIREGROUND:

Perform field decontamination as soon as possible to remove as much soot and particulates as possible from the PPE. Remove PPE and place in bags.

ON RETURN TO THE STATION:

Each person who was on the fire ground should shower and clean themselves from head to toe and change into clean clothing from the skin out.

Because of hidden chemicals and carcinogens, every fire should be considered a hazardous material (HazMat) incident and fire exposures should be documented in the personal files of the firefighter so that any consequences can be traced.

Clean the cab of the appliance using a suitable method of cleaning. For example, cease what is currently a widely used practice in cleaning the inside of cabs in fire appliances by the use of an air hose which means that all the particulates including the dangerous toxins and carcinogen particulates become airborne around the whole station.

These are messages that have been published in The Catalyst over a number of years but they are messages that can save reduce injury and exposure to illness and save life so they need to be repeated again and again so that emergency responders do not become complacent in protecting themselves against these massive risks.

ENHANCED PARTICULATE PROTECTION IN FIRE HOODS

TEXPORT® has developed a new range of fire hoods that deliver enhanced protection from particulates for firefighters.

The new hoods use proprietary seam sealing technology, combined with a breathable membrane, to increase normal protection levels by over 10%, achieving 99.9% particle protection for the wearer.

Numerous research studies in recent years have identified that while providing crucial thermal protection to the head face and neck, fire hoods have an important role to play in preventing the accumulation and transference of potentially carcinogenic particles.

The head and neck area are more at risk than any other part of the body. Structural fire garments, along with boots and gloves, protect from heat and flame as well as blood pathogens and chemicals. But the fire hood was originally designed to provide thermal protection, which reduces as soon as it gets wet from water on the outside or sweat on the inside.

As the science in the fire sector has improved over recent years, our understanding of the risks posed from the absorption of harmful smoke and chemical particles has increased.

The research team at TEXPORT® has developed a fire hood solution that uses advanced ergonomic design techniques and modern fabric technologies to maximise thermal and particulate protection while minimising the risk of heat stress.

The angle of the jaw, forehead and scalp are among the highest skin absorption areas of the human body, yet those are the only areas of a firefighter's body that are not protected by a moisture barrier. Historically, the primary reason for this was a concern that the inclusion of a moisture barrier would increase the risk of heat stress. For every 5 degrees of increase in body temperature the rate of skin absorption increases by 400% so it is vital to balance the blocking of

Above: Tim Wight

particulates against overheating inside the hood. But the advances in fabric technology and ergonomic design make it possible to incorporate a moisture barrier that blocks particulates and liquids while still allowing sweat to move out from the skin, managing the risks from heat stress.

A waterproof, breathable moisture barrier is incorporated in its two or three layer hoods with PBI or m-Aramid fabric. In any protective garment, the weakest point is the stitched seam. While stitching can allow water to wick or leak though, in a fire hood it is also possible for particulates to penetrate through the stitching. To prevent this, the seams in TEXPORT® fire hoods are sealed with special tape.

The current European standard EN 13911:2017 specifies the minimum safety requirements and test methods for a fire hood to protect the individual against heat and flame. It does not cover particulate protection. The NFPA 1971 standard, 2018 edition does have an option which covers particulate performance. The NFPA standard requires the hood to block a minimum of 90% or more of the particulates with a size from 0.1 to 1.0 microns.
The test is only performed on six specimens cut from rolls of the material to make the hoods and not the hood itself. It does not examine the seams. The laundering conditioning only looks at 20 washes for pre-conditioning. Durability should be a major factor as these hoods will be washed many times. These tests are only qualifying the materials and not the specific overall performance of the finished product.

More work is needed by international standards groups to incorporate a test to measure the protection on stitched seams that are not sealed with tape. Unless the completed fire hood is tested, it is impossible to know if any of the stitched areas of the hood are allowing harmful particles matter to leak through. End-users need to have confidence that standards are comprehensive and designed to achieve proper protection for the end-user.

There is also potential to develop better testing in standards for care and maintenance. Hoods should be washed after every exposure to products of combustion. They should also last for over 100 washes if the proper guidelines are followed. That means washing in machines designed for decontamination of PPE and not mixed with other items; no dry cleaning; low heat for tumble drying and avoid leaving in the sun to dry as UV can degrade performance.

Care and maintenance play a huge part in maintaining the hood's protective performance, yet there is no test for wash cycles in the current standards.

The traditional hood design incorporates protection across the shoulders and down the neck, worn under the collar of the jacket. TEXPORT® hoods are available in this configuration, however, the research team have created a unique new shorter alternative design that reduces the risks of particle entry between the garment collar and the hood underneath.

In contrast to the conventional design, the shorter hood fits over the collar, significantly reducing the risk of particle protection between hood and collar. It also allows for much greater freedom of movement and comfort for the wearer.
All of the new hoods incorporate a three dimensional design with flatlock finish that offers a large field of vision for the wearer while maintaining a close fit at the edge with an elastic rim.

The health risks to firefighters posed by particulate exposure are well documented and the priority is to stop those harmful particulates form penetrating the body via the skin. The new hood designs have been proven to provide complete particle protection without compromising the wearer's ability to perform at their best in the most extreme situations

TEXPORT® specialists take time to analyse data on common injuries, working closely with frontline firefighters to gain a deep understanding of the day to day operational risks and challenges. That knowledge informs their designers to create protective garments that will perform in the most extreme situations while also reducing the risk of other injuries that occur in routine work and training. Using this research has enabled a better understanding of how to have hoods integrated into the overall PPE system to ensure better outcomes for the firefighter's health.

STANDARDIZATION OF PPE FOR FIRE BRIGADES

For more than 25 years, the managing director of ALWIT GmbH and author of this article has been a member of the team of experts who voluntarily develop standards for PPE against heat and flames.
In order to avoid unnecessary and confusing standards, the Standardization Authorities prefer since a long time to implement standardization under the so-called Vienna Agreement. This means that the result of such standardization is an EN ISO standard that is valid both in Europe and worldwide.

Unfortunately, this only works to a limited extent because there is a different approach to standardization. Although the requirements of a standard in both ISO and EN are based on a risk assessment, Regulation 2016-425 EC in its Annex II prescribes the basic health and safety requirements for PPE. An EN or EN ISO standard can only be recognised as a harmonised standard and published in the Official Journal of the EU if it proves in Annex ZA that it meets the essential requirements of the Regulation.

In the case of standards for protective clothing against heat and flames for industrial use, standardization under the Vienna Agreement has largely and satisfactorily been achieved (see EN ISO 11611, EN ISO 11612, EN ISO 14116)

However, standards for protective clothing for firefighters are different. Here there is still a confusing and partly overlapping range of standards. There are various reasons for this:

- At ISO, a separate subcommittee was set up for PPE for the fire brigade (ISO TC 94 SC 14).
- With EN, all PPE against heat and flame - whether for industry or the fire brigade - are established in one body (CEN TC 162 WG2).
- The aim of ISO is to standardise ensembles, i.e. to include all PPE from head to toe in a single standard (see ISO 11999 Part 1-9; ISO 16073 Part 1-9; ISO 18639 Part 1-9).
- With EN, the individual components of the complete equipment are recorded in individual standards (see EN 469, EN 15614, EN 16689, EN 13911).

So why doesn't Europe follow the same path as ISO?

The most important reason is certainly that an ensemble cannot be tested according to uniform criteria. For many of the individual parts, their position results in a different risk assessment, so that not all requirements need to be met for all parts.
But also different tactics can lead to divergences. For example, a firefighter may carry out injections in the USA, but not in Europe; this leads to other requirements, e.g. for the moisture barrier.
In addition, the shape and also the materials of certain individual parts are

TABLE OF STANDARDS FOR FIREFIGHTERS ´ PPE

EN Standards based on EC Regulation 2016-425 (Annex II)		ISO Standards ISO TC 94 SC 14 prefers standards of ensembles		
Standard Number	**Title**	**Standard Number**	**Title**	**Basic difference**
EN 469	Protective clothing for firefighters — Performance requirements for protective clothing for firefighting activities	ISO/DIS 11613	Protective clothing for firefighters who are engaged in support activities associated with fighting fires occurring in structures — Laboratory test methods and performance requirements	comparable to lower level 1 of EN 469
		ISO 11999-3	PPE for firefighters — test·methods·and requirements for PPE used by firefighters who are at risk of exposure to high levels of heat and/or flame while fighting fires occurring in structures – Part 3 Clothing	Level A1 is comparable with EN 469 Level 2
EN 659	Protective clothing for firefighters - Protective gloves for firefighters	ISO 15383	Protective gloves for firefighters — Laboratory test methods and performance requirements	
EN 1486	Protective clothing for firefighters- Test methods and requirements for reflective clothing for specialised fire-fighting	ISO 15538	Protective clothing for firefighters - Laboratory test methods and performance requirements for protective clothing with a reflective outer surface	
EN 13911	Protective clothing for firefighters - Requirements and test methods for fire hoods for firefighters	ISO 11999-9	PPE for firefighters — Test·methods·and requirements for PPE used by firefighters who are at risk of exposure to high levels of heat and/or flame while fighting fires occurring in structures	Part of ensemble ISO 11999
EN 15614	Protective clothing for firefighters - Laboratory test methods and performance requirements for wildland clothing	ISO 15384	Protective clothing for firefighters - Laboratory test methods and performance requirements for wildland firefighting clothing	WD EN ISO 15384 to replace both standards
		ISO 16073-3	Wildland firefighting personal protective equipment - Requirements and test methods - Part 3: Clothing	part of ensemble ISO 16073
EN 16689	Protective clothing for firefighters - Performance requirements for protective clothing for technical rescue	ISO/CD 18639-3	PPE ensembles for firefighters undertaking specialist rescue activities - Part: 3	Part of ensemble ISO 18639
		ISO/DIS 21942	Station uniform for firefighters	no EN standard up to now

completely unsuitable for a uniform test method. A helmet, boots, hearing and eye protection and breathing apparatus cannot be tested with the same test equipment as a suit, gloves and hood.

Concerns existed and still exist that the standards for ensembles are very wide-ranging. In the author's opinion, there is also a lack of consistency; not all ISO TC 94 SC 14 standards concern ensembles; there are also individual standards (see ISO 16073-3 and ISO 15384), which does not contribute to clarity.

Since 1990, many certified testing institutes in Europe have participated in the development of the technical requirements and test criteria with a large number of round robin tests. This has resulted in differences to the test methods and requirements determined in the USA, some of which will be explained here:

In round robin tests by European test houses it was found that

- Surface ignition is sufficient to differentiate the flame propagation (EN ISO 15025) and therefore the edge ignition can be avoided, where the determination of the destroyed length is not so easily reproducible.
- A measurement of thermal resistance (EN ISO 17493) at 180°C instead of 260°C is sufficient to exclude critical products;
- The heat transfer is measured in two stages: Radiant heat (ISO 6942) and convection heat (ISO 9151) and not in the combined measurement (ISO 17492), because the calibration of the measuring instrument according to ISO 17492 has turned out to be unreliable.

It should be noted, however, that the superiority of EN is not to be indicated here in any form whatever; it only shows that compromises must also be made in standardization and that these naturally assume a greater extent in ISO standardization than in CEN.

As desirable as it may be to have PPE tested and certified worldwide according to the same criteria and standards, it must be stated that the ISO standards for PPE for the fire brigade currently receive little or no attention.

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AMPLIFIED ROLE OF SCBA TO MAXIMISE FIREFIGHTERS' SAFETY AND WELLBEING

MSA The Safety Company

These days the Self-Contained Breathing Apparatus (SCBA) is a key piece of personal protection equipment that firefighters across the world take into a fire. Since the beginning, the primary focus and function of the SCBA in fire services has been air delivery. There have, of course, been improvements to SCBA sets over time, but they have tended to be incremental. And that has been sufficient, until now.

A CHANGING ENVIRONMENT

"The nature of firefighting has changed" – said Matthew Quigley, Global Product Group Manager, Fire Service Technology and Connectivity at MSA Safety. "If you view SCBA equipment as a separate component for air, you diminish the safety potential of new technology. To enable firefighters to do their job efficiently, the SCBA needs to be considered as a part of a safety technology system that is comfortable and helps to protect firefighters in the field, regardless of their size or build. In addition, you can eliminate the safety gap to protect firefighters' lives between calls now and into the future."

ONE SIZE DOES NOT FIT ALL

The real innovation is found in taking a modular approach to smart solutions that are fully integrated. This will allow a fire brigade to invest in new technology and provide the best protection for their

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Johnson Controls

firefighters as and when budgets allow. It will do away with the necessity to scrap an existing kit or pay for a complete upgrade whenever new technology is launched.

Today's serving firefighters span people of all genders, shapes and sizes. Historically, having a smaller frame or face has left some apparatus users, including women, finding it difficult to achieve a good fit when wearing standard breathing equipment and PPE. Fortunately, the fire protection market has recognised the issue and is changing.

To meet these expectations, flexible equipment models are now available which improve performance and security. The desire to configure breathing equipment more flexibly is also being driven by the need to consider specific use cases. For example, responding to incidents in industrial plants, nuclear or aerospace environments will often see firefighters forced to work in very confined spaces. Here, the ability to rapidly change the size, profile and configuration of compressed air cylinders affords more effective and manoeuvrable equipment for any team on the ground.

CLEANABILITY AND ENHANCED HYGIENE

Along with the changing nature of firefighting, new worries about toxic agents and equipment hygiene also appear. Exposure to contamination and carcinogens has led to higher rates of diseases among firefighters, including cancer. The permeation needs to be considered, as well. Firefighters must properly wear the best protective gear, and, more importantly, maintain, clean and disinfect it. It means that ability to safely decontaminate and clean the equipment should be done without sacrificing comfort.

Having this in mind, there are already manufacturers offering new solutions that help to enhance the hygiene of SCBA. Among the propositions, you can find harnesses made of material that is dust and water-repellent, components that simply can be disassembled and re-assembled, possibility to fully flush the entire SCBA at the incident. Some manufacturers even offer a complete SCBA that is machine washable without disassembly.

Communication between teams is essential.

"Currently a major focus for innovation is to ensure users have the ability to communicate easily when wearing a breathing apparatus. Connecting firefighters is a necessity and means that everyone is linked to each other both within a structure and outside to their command, as well as to their equipment status." – added Quigley.

Cloud-based systems are now able to provide complete monitoring and transmission of data, as well as multi-gas detection and evacuation and alarm commands given by the firefighters or by incident commander. There are also solutions that focus on thermal imaging which are beneficial for firefighters at the scene to have an awareness on the situation and to know who from the team is in distress and needs help.

We all trust in the protection provided by firefighters and first responders. It is clear that their safety and wellbeing are crucial. No matter if it is a professional firefighter, a part-time volunteer or a trained employee responding to an

emergency in a plant, they all need to be confident that the equipment they wear will help get them home safely.

For more information on MSA Safety's SCBA solutions, visit www.MSAsafety.com

Matthew Quigley
Global Product Group Manager, Fire Service Technology & Connectivity

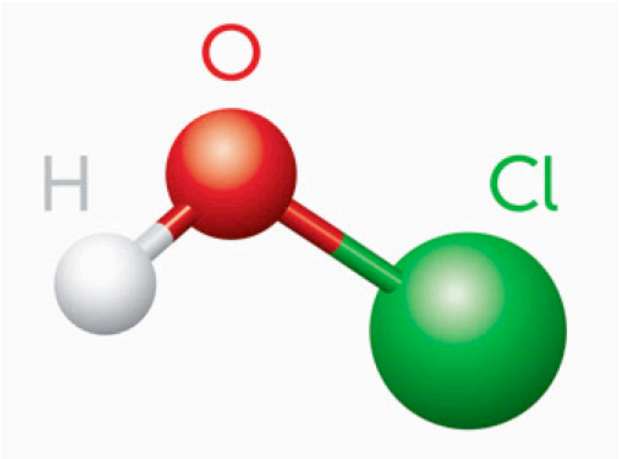
ADVANCED VITA

THE ULTIMATE 4-IN-1 SANITISER FOR OUR FIRST RESPONDERS

How many times have we been asked over the last 4 months as to why a recognised fire company developed a health care program? The answer is always the same and very simple. We are fighting a hazmat incident of the highest calibre and the most widely distributed one at that. We owe it to our First Responders to ensure that we, as the Advanced Group of Companies, do whatever needs to be done to keep them safe from contracting this virus every time that they respond to an incident.

With the corona virus (CV) pandemic sweeping through the world (a world-wide Hazmat incident of note), effective sanitation has become critical and even lifesaving, especially for our First Responders. Our eyes, mouth and nose have proved to be primary entry and infection points for this virus. Scientists and the WHO have discovered lately that an alarmingly large proportion of the CV infections are also caused by minute micron size droplets that have been aerosolized by infected persons either sneezing, coughing or merely exhaling the virus into the air where these floating viruses have been measured to remain afloat for excessive periods of time, greatly enhancing the vulnerability to infection of our First Responders.

So, a First Responder can become infected simply by the airborne virus by merely working in a hospital or walking and breathing in a contaminated environment, in a shop or shopping mall or while operating at an incident, without having touched anything and without having "consciously" touched his/her own face. Washing and sanitizing one's hands only is obviously no longer enough to reduce the risk of infection by the CV. We all know that the CV infection can only enter and infect the body via the eyes, mouth, or nasal passage, also known as the Points of Infection. After entering the body, the virus spreads to the back of the nasal passage and to mucous membranes in the throat, attaching to the body's cell receptors. The viral particles hook onto the outer walls of the host's cells, the virus's genetic material breaches the cell membrane, and it then hijacks the cell into making more copies of the virus. The virus copies proliferate, break out of the cell, and infect other cells in the body. A single cell can churn out millions of copies of the virus before it dies. The virus then moves from the back of the throat down the bronchial tubes toward the lungs.



It is obviously clear that we MUST keep the face and infection points well sanitised and clear of the virus. To improve our own biosecurity and to reduce the risk of infection, we MUST keep our faces and these Points of Infection (eye's, mouth, and nasal passage) as well as throat sanitised and free of the virus. It is critically clear that we MUST KILL THE VIRUS in these infection points before it migrates down to the lungs. If we can keep these infection points sanitised and free of the virus – then obviously we greatly reduce the risk of infection. This is critically important, especially for First Responders who are bravely battling this virus and who are at greatest risk.

A sanitiser with a content of 70% alcohol is fine for sanitising hands, but it cannot be used, like most other toxic chemical sanitisers to sanitise one's face, nose, mouth, and eyes. A sanitiser is required which efficiently and effectively destroys the full spectrum (all) of pathogens (including the CV), is non-toxic and

safe to spray onto one's face and eyes, into one's nasal passage and into one's mouth to keep all the primary infection points free of contamination and free of the virus to reduce the risk of infection. During these times of fear and uncertainty the world needs a sanitiser which can be trusted to sanitise ourselves, our family, our homes, car and our working environment and which is of course affordable and cost effective.

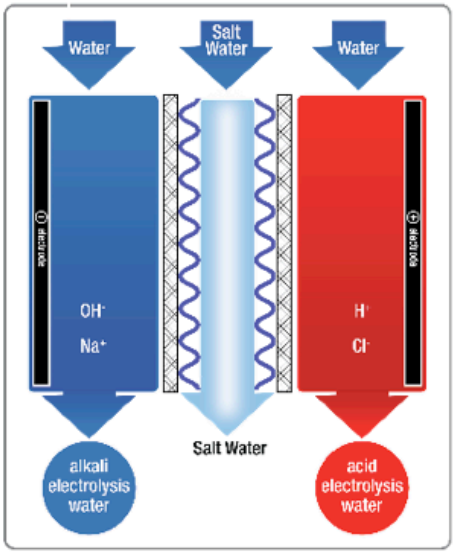
This is what makes Advanced VITA so unique in its application, the only 4-in-1 sanitiser on the market. It is the only sanitiser which effectively and efficiently kills all pathogens (including CV) and is 100% safe for use on the FACE and can be used to safely spray into the nasal passage and into one's mouth and throat. VITA will keep the face and all the infection points; the eyes, mouth, and nasal passage as well hands sanitised and virus free. No other sanitiser can be used to sanitise the face and the infection points.

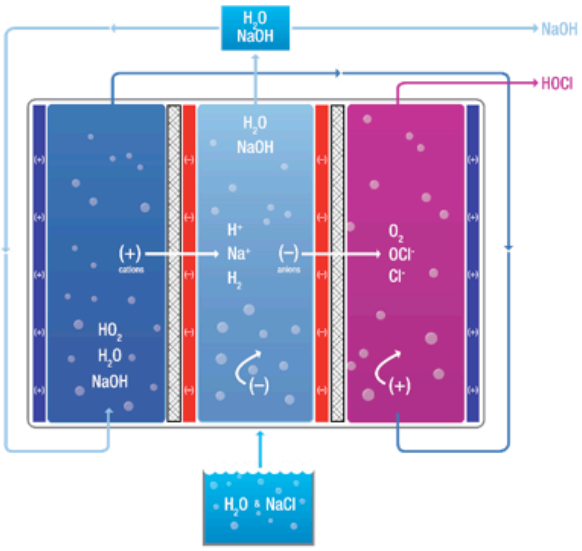
VITA is made up of stabilized Hypochlorous Acid (HOCl) - a unique and natural sanitation solution that is highly effective, providing rapid kill against the full spectrum of microbes, including all drug resistant bacteria and bacterial spores, fungi, yeasts, moulds, viruses, even prions as well as the tough Clostridium. VITA is also highly effective in killing, and the removal, of biofilms which is a major source of re-contamination in many industries and applications such as medical equipment and a major source of recontamination in purulent wounds and in pneumonia in the lungs.

VITA's use as a sanitiser is supported by a huge body of scientific and medical evidence from around the globe (in order to receive copies these studies and tests, please mail trevor@advancedhcs.africa). Top scientists are publicly saying that this product is the new "gold standard" for infection control.

Despite the high kill efficacy on harmful pathogens, VITA remains 100% safe and completely harmless to animal and human tissue, unlike most chemical disinfectants on the market today as well as hand sanitisers containing 70% alcohol. Due to its biocompatibility and mutagenic nature, VITA has no adverse effects on fibroblasts and keratinocytes. It is free of any oral or nasal toxicities, skin sensitizations or irritations and offers anti-inflammatory and immunomodulatory properties.

VITA is made up of stabilized pH neutral Hypochlorous Acid (HOCl), one of the most natural and effective biocides known to man. Hypochlorous acid oxidises (explodes) the cell wall of all pathogens, causing necrosis (rupturing of the cell) or apoptosis (programmed cell death) and thus eliminates them. Although viruses are





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not technically living organisms, they too are destroyed by Hypochlorous acid. VITA also has surfactant and electrical properties which reduces the surface tension of the outer protective layer of the virus and like a detergent destroys it to expose the virus which cannot survive outside the human body without its protective outer layer.

Despite Hypochlorous acid's destructive potential, our bodies use it as a defence mechanism throughout life. Hypochlorous acid is naturally produced by our white blood cells and is an essential part of our immune system. When an invading pathogen or infection threatens a human cell, the body's immune system responds by destroying the pathogen before any harm can be caused to the cell. This process is called phagocytosis and is one of humans' most symbiotic actions – eliminating pathogens while remaining inherently harmless, unlike most other chemical disinfectants such as alcohol which are toxic to human tissue and cells.

VITA is the FIRST and currently the only sanitiser on the market that can be used to effectively sanitise and eliminate the virus on the face and in the critical Points of Infection, i.e. the mouth, throat and nasal passage, where the corona virus enters the body and begins its destructive infection process. It is cost effective and can be manufactured quickly in huge quantities to provide an affordable all-round highly effective 4-in-1 sanitiser for the personal protection of our First Responders. Because it is so effective against ALL pathogens and because it is so safe and there is no risk to humans and small children, it is ideally suited for use in fire stations, clinics, hospitals and emergency vehicles as a general air and surface disinfectant and sanitiser. It is used as in a growing number of hospitals in the USA and around the world.

THE MAIN ADVANTAGES OF VITA

1. VITA is the most effective, the safest and the most cost-effective sanitiser on the market.

2. Speed and efficacy of kill against the full spectrum of pathogens, including MDR pathogens, bacterial spores and prions as well as also rapidly killing the highly contagious CV.

3. Because of VITA's mechanism of kill, scientists say that pathogens will not build a resistance to VITA.

4. VITA is highly effective in killing and removing biofilm. There are many scientific studies and publications available to show how Biofilm is HIGHLY problematic in many medical applications and conditions such as in purulent wounds and also in many medical applications such as medical devices as well as in many industries (including hospitals, medicine, pharmaceutical, dentistry, food processing plants and water treatment) as a major source of pathogenic recontamination. It is a massive problem that is grossly underestimated. So, it is important to appreciate the enormous damage and cost of biofilm. Some economists estimate that biofilm costs an economy as much as 2% of its GDP. Importantly, the majority of sanitisers do not provide for a full kill and cannot remove biofilm and as a result are largely ineffective against biofilm.

5. VITA has a superior safety level, with no adverse effects on fibroblasts and keratinocytes, is free of any oral or nasal toxicities, skin sensitizations or irritations and offers anti-inflammatory and immunomodulatory properties. It is 100% safe. No risk of poisoning or causing necrosis (damage) of human cells and tissue. It is a highly effective biocide and sanitiser and yet it is so gentle to human and human tissue and cells.

6. VITA can be applied in situ in any working environment (e.g. hospital wards, fire stations, etc.) without having to vacate the premises for risk of poisoning – as is the case with most chemical sanitisers. VITA can be sprayed in a work area without the staff having to vacate the building.

7. VITA leaves no chemical residue and there is no need to rinse with water after application.

8. VITA is not a risk to the environment and dissipates in high organic soil loading and reverts to H2O and NaCl.

9. VITA can be safely applied as a spray in emergency decontamination programs or as a spray in emergency decontamination spray booths and used to spray and decontaminate the primary infection points on patients, i.e. spray onto their faces and into the nasal passage and into their mouths.

10. VITA can be safely and effectively applied by means of a mist or fog or by humidifier to decontaminate the air and all the surfaces in a room. Because of its electrostatic nature, the VITA droplets will be far reaching and penetrate cracks and hard to reach places and provide for an overall and full surface decontamination.

11. Importantly, VITA can be applied into ventilation and air conditioning systems (e.g. hospitals, fire stations, office blocks, etc.) to provide for the decontamination of circulated air to kill airborne pathogens as well as viruses and to prevent aerial cross contamination.

To receive additional information on this ULTIMATE 4-in-1 Sanitiser, please visit www.advancedhcs.africa or contact Trevor Fiford on +27 82 651 2580 or email at trevor@advancedhcs.africa.

Advanced VITA.....because we care!

ADVANCED
Health Care Services and Systems

JOIFF ROLL OF HONOUR

During April, May and June 2020, the following persons were awarded JOIFF qualifications:

JOIFF DIPLOMA

Muhammad Ameen Slemang Dip.
JOIFF Firefighting Expert / Fire Officer
NSRP - Nghi Son Refinery
and Petrochemical LLC
Thanh Hoa Province Vietnam.

Ameen has about 30 years background fire and safety. He was a Senior Station Officer with Fire Rescue New Zealand and currently is working as a Firefighting Expert/Fire Officer/Advisor at the biggest refinery in Vietnam.

As well as the JOIFF Diploma which Ameen has just completed Ameen has numerous other qualifications including Diplomas in Occupational Health and Safety, Management, and Risk and security Management. He holds a BTEC National Diploma, Certificate iv Training and Assessing, NFPA Hazmat Awareness and Operations and is an EMT Paramedic

JOIFF TECHNICIAN

Salem Rashed Al Nuaiml Tech.
JOIFF Officer Fire Services
ADNOC Fujairah Terminal
United Arab Emirates

Having successfully completed the JOIFF Diploma programme in 2019, Salem Rashed Al Nuaimi moved on to take the JOIFF Technician programme. On successfully completing the Technician programme Salem said " I made sure to obtain a JOIFF Technician certificate because I know it will help me in developing my abilities and my skills as fire Officer in the oil industry".

MEMBER OF JOIFF

Wayne Viljoen MJOIFF receiving his JOIFF Member Certificate from JOIFF Chairman Pine Pienaar JOIFF.

THE CATALYST AND THE DIRECTORS OF JOIFF EXTEND CONGRATULATIONS TO ALL THOSE MENTIONED ABOVE.

INDUSTRIAL MUTUAL AID IN AMSTERDAM: FIRE SAFETY AND CONTINUITY IN THE PORT

By: KEES KAPPETIJN AND PHILIP STOHR (KSS)

Above: UIFRSA fire station and vehicle at Galwin

Since April 1st, 2020, the Unified Industrial Fire and Rescue Service Amsterdam (UIFRSA) has been operational in the Amsterdam Harbor Area; on July 1st, the new fire station was moved into. Six people and two industrial vehicles will be ready to go at the gates of a company within six minutes of an alarm. To keep small what started small, and limit any damage to a minimum. The new Mutual Aid organization should give the fire safety level in the port of Amsterdam a boost and optimize business continuity.

The Amsterdam port is one of five sea ports in the Netherlands, fifth in the list of largest ports in Europe and the largest petrol handling port in the world. The area has over twenty companies that fall into the Seveso legislation. An investigation by the Amsterdam-Amstelland fire service into the quality of suppressive fire care in the Amsterdam harbor area some years ago showed that improvements were needed. Due to the spread of fire stations, which were mostly concentrated in the more urban areas of Amsterdam and the surrounding municipalities, response times for incidents in the port area were relatively long. Moreover, the management was of the opinion that a 24/7 prepared firefighting organization specialized in industrial and ship fire incident scenarios was a requirement for the fast-growing port area with such a complex risk profile.

However, the interests do not solely lie with the Amsterdam fire service. The Port of Amsterdam Authority is one of the parties responsible for the economic development of the area and views safety as a core value, necessary to maintain a sustainable business climate. The companies in the area require maximum efforts to prevent incidents, as well as fast turnout times by professionals during an incident in order to limit any damages to production assets and resources.

MUTUAL AID ORGANIZATION

In order to bring together the abovementioned interests, it was decided to establish a Mutual Aid organization. Over the past four year, a lot of hard work has been put into the organizational model, with the support of consultants from Kappetijn Safety Specialists, who were able to utilize their experiences with these types of collaborations elsewhere. The organization started off with the preparatory process in 2019: vehicles were bought, and a new fire station was built as part of a new logistical center with technical workshops and storage capacity for the regional fire service. Thirty incident responders took a six-month training course, after which the Unified Industrial Fire and Rescue Service Amsterdam was able to become operational on April 1st. The UIFRSA as a Mutual Aid organization has three partners, who each contribute for a third of the construction and annual running costs: the Amsterdam-Amstelland Safety Authority, the Port of Amsterdam, and sixteen companies situated in the port area. Every partner participates for a third in the board of directors as well. For the division of costs among the companies, a differentiation is made between three different types of rates: a low rate for companies with a singular industrial incident scenario, a medium rate for companies with multiple complex industrial scenarios, and a high rate for companies in the highest risk category with a private fire

service assignment (Dutch legislation provides the opportunity for government authorities to mandate companies to uphold a private fire service).

LEGAL CONSTRUCT: COOPERATIVE

The sixteen participating companies have unified in a cooperative for which the UIFRSA acts as a collective private fire service. A part of these companies is already a member of another Mutual Aid Organization, the Amsterdam Mutual Aid System/Amsterdam Ymond Mutual Aid (AMAS/AYMA). That collaboration between some of Amsterdam's largest tank terminals, the fuel storage of Schiphol Airport and the firefighting teams of Amsterdam-Amstelland and Kennemerland concerns mutually making available specialized heavy-duty extinguishing equipment and personnel for combatting fires in large storage tanks. The UIFRSA was founded to take care of the first line of industrial fire intervention, and is also deployed as first unit for incidents in the public domain. If it was up to the initiators of the UIFRSA, the set of tasks for the organization would not be limited solely to execution of fire services. Marleen van de Kerkhof, former Chief Harbor officer at Port of Amsterdam and currently Deputy Fire chief for the Amsterdam-Amstelland fire service since July 1st 2019, sees a broader use for the new industrial firefighting team: "The UIFRSA provides professional specialists who are trained in fighting fires and other incidents at companies with a high risk profile, as well as on ships. Thanks to the 24/7 preparedness of the UIFRSA, we are able to help the companies and organizations settled in the dynamic port area improve their preventive fire safety measures, and heighten the training level of their in-house emergency organizations. We are looking at a modern and flexible firefighting organization that can be a structural partner to companies and help and support them with training and advice for various fire safety issues."

SAFETY ADVANTAGE

Rob Eijkholt, director of Oiltanking Amsterdam and member of the board of the UIFRSA, sees the importance of a specialized firefighting organization, which recognizes and understands the companies and their risk profiles and can support the companies at the start of the chain of safety. He calls upon all companies in the Amsterdam Port Area to follow the example set by the first sixteen member companies and become a member of the UIFRSA too. "This organization provides the port and industrial area with a big safety win."
The UIFRSA works with an innovative schedule consisting of two shifts of 9 and 15 hours. In comparison to the "classic" 24-hour schedule most used among professional firefighting teams, this new setup allows for more workable hours, which the crews on duty can use for orientational visits to companies, joint training with private emergency services, fire main testing and other service provisions. Within the 30-man strong team, all members have their specialties which they can utilize to benefit the cooperative with the companies.

Michiel de Brauw, CFO of the Amsterdam Port Authority, points out that the UIFRSA is not solely there for the benefit of safety, damage control and business continuity of the companies, but also for the greater surrounding area. "We are a large port with many industrial and logistical activities, right in the middle of a strongly urbanized and densely populated area. That's why we as the port authority feel a big responsibility for the safety of the city and its inhabitants. Over the past couple of years, multiple large-scale fires have occurred in the Amsterdam Port Area. Those incidents only underline the importance of a well-trained, prepared firefighting organization."

That firefighting organization is the foundation for further safety collaborations. A basis upon which other parties can build over the coming years. Ilone Blaauw, interim manager of the UIFRSA, views the future of the UIFRSA in the shape of a multidisciplinary safety center, in which other services with a set of tasks in the field of safety and enforcement can find their place. Like the police, environmental services and customs. Ilone Blaauw: "Symbolic for the accessibility and transparency that we want to carry out with this new fire station, we chose for a building with a front made of mostly glass. With that, we want to show that we want to be actively involved with our partners in this busy environment and that our door is always open for new partners. Our first priority is making the new firefighting organization operational, and getting up to speed with the risk profiles and continuity dilemmas of our members. The first steps towards that goal have been made. The six team leaders/commanders and 24 incident responders are almost always in the area, to gain knowledge and insights and inform companies about newer, quicker incident preparation."

COOPERATIVE WITH PARTNERS

When breaking ground on the Galwin in the Amsterdam Port Area in 2019, director Jan Waals of the Unified Industrial Fire and Rescue Service in Rotterdam and board director Michiel de Brauw of the UIFRSA co-signed a letter of intent for substantive collaboration. Based on that agreement, the UIFRS in Rotterdam supplied part of the training for the new firefighting team in the Amsterdam port, as well as provide several senior firefighting professionals. Moreover, the UIFRSA has an industrial firefighting vehicle on loan from the Rotterdam organization. With this, the UIFRSA will be able to gain experience over the coming two years, to be able to outfit a new industrial fifi-vehicle that is finetuned to the local needs and corporate risk profiles in the Amsterdam Port Area.

The cooperation with the Amsterdam-Amstelland fire service shows itself in the structural design of the new fire station at the Galwin. The fire station for the UIFRSA has been combined with the new logistical center of the Amsterdam-Amstelland fire station. The previously mentioned Mutual Aid organization AMAS possesses two large pump

Above: Letter of intent Unified Fire Amsterdam and Rotterdam DeBrauw-Waals-Blaauw

monitor sets and bought containers for foaming agent in order to be able to combat possible full-surface tank fires. This equipment will be kept in the new logistical center, and the personnel of the UIFRSA will be taught how to handle the equipment.

Stakeholders in Amsterdam are jointly turning their focus towards the future: responsible together, organize together, manage together, pay together. Mutual Aid as a strong collaboration model for the future.

Ambitions of the Unified Industrial Fire and Rescue Service Amsterdam

The organizational setup of the Unified Industrial Fire and Rescue Service Amsterdam and AMAS/AYMA as Mutual Aid organization is not new. The UIFRS in Rotterdam started in 1998 and the specialized industrial unit in the Port of Moerdijk in 2013. Moreover, the firefighting organization of Schiphol and the private fire service of Chemelot chemical site in Geleen both possess a Mutual Aid organization. The UIFRSA wants to distinguish itself through a set of five ambitions:

- A high response time for most companies in the area, with a goal of turn-out of six minutes or less with two vehicles in 98% of the alarms.
- Knowledge of the safety regulations and the safety systems of the companies (Seveso, ISPS, work safety regulations & NFPA).
- High availability, of the UIFRSA towards the companies (24/7), not just for incidents, but also for 'services'.
- A service-oriented mindset, in which not internal issues like the roster of the UIFRSA, but the needs of the member companies take a central position.
- A focus on business continuity and restoration of corporate processes of companies, aside from providing professional manpower for expert suppression. Discontinuity in business is a larger concern in terms of damages for companies than fire damage.

The UIFRSA is an independent organization with an independent legal design. The board consist of representatives of the Port of Amsterdam, the Amsterdam-Amstelland Safety Authority and the cooperative in which the companies have unified themselves. The operational performance of the UIFRSA 100 percent falls within the procedures and legal responsibilities of the operational leadership of the Amsterdam-Amstelland Safety Authority.

Companies that are a member of the Unified Industrial Fire and Rescue Service Amsterdam

Oiltanking (tank storage)
EVOS (tank storage)
Inter Terminals (tank storage)
Zenith (tank storage)
Eurotank/VTTI (tank storage)
Afval Energiebedrijf Amsterdam (waste & energy)
Prorail (Landlord of Dutch rail infrastructure and rail yards)
Vattenfall (energy)
Nissan (motor parts logistics hub)
Renewi (waste recycling)
OQ Chemicals (chemical)
Cargill (food & agriculture)
Feadship (shipyard)
Paro (waste recycling)
Umincorp/Plastic Recycling Amsterdam (recycling)

EDITOR'S NOTE:

Kees Kappetijn and Philip Stohr are CEO and consultant at Kappetijn Safety Specialists (KSS), a company specializing in consulting companies and authorities in the fields of industrial safety, education & training, emergency response organizations (and the decisionmaking process leading up to them). They also help with organizing safe working environments, controlling risks, and business continuity. Organizing cooperatives in a public-private and mutual aid context in port and industrial areas (both nationally and internationally) is a specialty of the company. www.kappetijn.eu

Above: Cargill Amsterdam member of UIFRSA Below: Nissan motor parts member of UIFRSA and largest solar roof in Netherlands

The safety and health of our FIRST RESPONDERS is paramount and of absolute importance to the Advanced Group of Companies. Every time that our FIRST RESPONDERS turn out to an incident, they place themselves directly in the face of danger. Advanced wants to ensure that we do everything possible to protect our FIRST RESPONDERS from contracting COVID-19.

Advanced VITA is the ULTIMATE 4-in-1 sanitiser to ensure the safety and health of our FIRST RESPONDERS. VITA is the only sanitiser on the market that can mitigate the virus AFTER it has entered through the Points of Infection (eyes, nose & mouth).

1. **Nasal irrigate with VITA to kill the virus in the nasal cavities during the incubation period**
2. **Gargle with VITA to kill the virus in the throat area during the incubation phase**
3. **Sanitise your hands and face**
4. **Disinfect your environment and clothing**

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360° TRAINING WITH VR-HEADSETS:

NEW TRAINING DIMENSION WITH ENDLESS POSSIBILITIES

by: JOCHEM VAN DE GRAAFF AND SIMON VAN VOORST | H2K

Wobbling off his feet, the instructor rapidly pulls of the Oculus Quest VR-headset. 'Whoa sh**, this takes some getting used to!', he exclaims enthusiastically. It is a rainy Monday in Schiedam and one of our senior instructors has just tried on a VR-headset for the first time. Our training module on atmospheric storage tank fire safety is about to be finished, and because the instructor will be teaching the course, a demo seemed suitable.

The technology is not brand new, but has not yet been used in industrial fire training. As training provider, we have followed the developments with great interest, but it was not until the autumn of 2019 that we decided to step in. Our partner -a local developer in VR/AR software solutions- has programmed a Google Street View alternative for oil and

gas industry and chemical storage.

When wearing the headset, students are equipped with a virtual tablet and pointer to navigate, activate and interact with a photorealistic surrounding of a classic tanker park full of different types of atmospheric storage tanks, product pump stations, jetties and a vapor recovery unit. The tablet contains a terrain map with all interactive spots marked. Using the pointer one can teleport between the spots. All spots display a number of interactive elements to click-on for activation. For example: while standing on a fixed tank roof, the foam pourer can be clicked to display a summary with its most important specs and a video is shown displaying functioning of the specific pourer.

'Whoa sh**, this takes some getting used to!'

36 LENSES

After communicating back and forth with one of our oldest clients, we received permission to capture 360°-material. Using a spherical camera with 36 lenses we entered the site for a full day of 360-photography. The images are over 100Mb a piece and contain so much data that you can zoom in to observe surface details on the adjacent tank.

We believe this hardware, software and image-capturing allow for training experiences that where not achievable up to now. Everyone knows the restrictions and safety rules in the industry, very rarely is it allowed to access storage tank roofs just for observation. Even more extreme would be to access multiple roofs in a few hours with a group of 12 pupils. Our 360°-module makes this possible in any given classroom.

INSTRUCTOR'S DREAM

Imagine standing on top of a geodesic dome tank roof with a group of students, while discussing credible scenarios, pointing out safety measures, plotting out heat flux contours, experiencing the true dimensions, displaying behaviour when under fire using footage of recent incidents. Wouldn't that be every instructor's dream?
We know there is a list of topics in basic industrial firefighting courses that are addressed theoretically, because they simply can't be organised in real life. You can't get every newbie on top of a storage tank, you can't demonstrate how to fill a tank bund with foam, and you can't show the full activation of a foam sprinkler on a jetty.

Being able to share these experiences with students is very valuable and we know that this will bring an extra dimension into firefighting education and training.

SENSE OF REALITY

This extra dimension is what we are looking for when further developing educational and training courses. 360° virtual training proves extremely effective for letting students experience a 'sense of reality'. Reality is in the level of detail, the proportions between subject and surrounding, the smoothness of looking around, the imperfections of the real world, the feeling of being on one's own site. When putting on glasses, in no time a student realizes: this is the size of a tank, this is a bund, these are the safeties, these are the stationary fire protection systems. And it is that realization that firefighters can relate to when encountering emergencies.

NEXT STEPS

Over the summer period we will finish the pilot phase, and when the school season starts, the first module on atmospheric storage tanks will be incorporated into our curriculum and programs. Then development starts on the next modules.

Already we see possible links between the VR headset and other parts of firefighting education and training. Our existing software for online e-learning could be integrated into the VR module, allowing to not only observe but also answer questions or take tests. Also, we make use of VSTEP's software for virtual scenario training, we believe we can enhance that with the headset.
The new dimension of training with VR headsets, offers us possibilities that we did not foresee to be possible. We can hardly wait to try them all out.

ABOUT H2K

Jochem van de Graaff and Simon van Voorst work at JOIFF-member organisation H2K. This agency is specialised in providing firefighting education, training courses and consultancy. Our customers are fire services, company fire brigades and companies with an Emergency Response Organisation, such as petrochemical, pharmaceutical, chemical storage, transport, and food processing industries. We develop innovative tailor-made solutions for preventive safety and operational readiness.

VR / AR / MR - WHAT DOES IT ALL MEAN?

VIRTUAL REALITY

VR provides a full immersive experience. When immersed a person experiences a completely different world, it is not possible to experience the real world at the same time. The virtual world can be created using modelling-software or can be a projection of an earlier recorded situation.

AUGMENTED REALITY

AR is a combination of reality and simulation (such as a hologram). Practically this means a person observes the real world while looking through a transparent display. The display can be used to display objects, text or information while looking at the real world. (Everywhere you move your head, the displayed object will move with you.)

MIXED REALITY

MR uses the same technology as AR, but simulations that are displayed are anchored in a fixed position in the real world. (When moving your head, the displayed object will go out of sight. When panning your head back, the object is in the exact same place as it was.)

The H2K 360° training module uses an Oculus Quest VR-headset to display 360°-recordings. Under development is the possibility to animate certain learning examples onto the recordings for a more realistic experience.

IPEN Mis-Information

"the best F3 products on the market are able to match the performance of many MIL-Spec foams"

– **R.A. Klein, MD, PhD, Corresponding Author**
IPEN POPRC-14 Report
September 2018

US Navy Information

"We need to come up with fluorine-free foam. But what's available now can't meet (MIL-) specification."

– **John Farley, Director of Fire Test Operations**
US Naval Research Laboratory (NRL)
C&EN "The price of fire safety" January 14, 2019

As a result of the US EPA's voluntary 2010/2015 PFOA Stewardship Program, a total of fourteen (14) C6 AFFFs are currently on the US MIL-F-24385 Qualified Product List (QPL).

Current F3 Foams have not only failed US MIL-spec fire performance and key properties such as compatibility, but also failed ICAO level B fire tests at 32° C and higher ambient temperatures.

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SHARED LEARNING
ARE WE LEARNING ????

JOIFF is dedicated to Shared Learning and circulates to its membership information relating to incidents that occur in High Hazard Industry to raise awareness so that members can consider errors that caused the misfortunes of some to educate against the same mistakes being repeated in their own location.

JOIFF's Shared Learning goes beyond news reports with comment, background, Guidelines etc. aimed at improving the knowledge and increasing the competence of persons engaged in emergency services management in preventing and/or mitigating hazardous incidents in Industry, in particular those persons who respond to incidents primarily in High Hazard Industry.

Brazil	Fire at Petrobras's REDUC refinery
China	Explosion at chemical plant
China	Explosion leaves 19 Dead & 189 injured after tanker truck careers from highway into factory
India	9 Dead - Thousands in hospital after styrene gas leak
India	Assam oil well still leaking gas one week after blowout
India	Huge fire now breaks out at gas well blowout
India	Blast in chemical Factory: 8 killed, more than 50 injured
Indonesia	7 Dead - At least 22 Injured in oil tanker fire
Iran	Fire at Tehran oil refinery kills one, injures another
Malaysia	Five dead in Fire at Petronas-Aramco petrochemicals complex In Johor
Malaysia	Oil storage tank catches fire due to lightning at Hengyuan's Malaysian refinery
Pakistan	Pilot of crashed PIA plane ignored warnings three times before crash
Russia	Use anti-tank shells to put out oilfield fire
Russia	Mining giant behind major arctic fuel spill admits waste violations'
South Korea	36 Injured in chemical plant explosion
Spain	Second death confirmed after giant chemical blast
Sweden	Fire breaks out At Borealis chemical plant
USA	9 Firefighters hospitalised after ship explosion

But how much of this learning causes improvements in attempting to prevent such incidents happening again ?

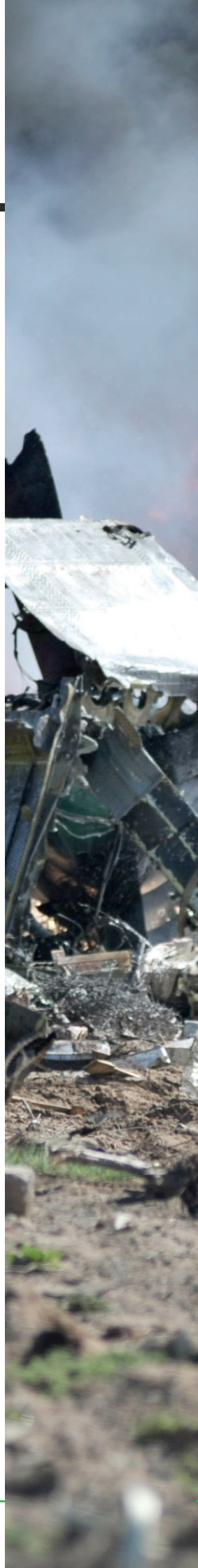
Most JOIFF circulated reports of incidents that occur are familiar. After all major incidents, recommendations are made, sometimes after prolonged investigation, but how many of the recommendations are made readily available, how many of the recommendations are actually implemented and how many are ignored or forgotten over time until another similar incident occurs ?

These are just a few of the incidents that JOIFF reported on during the first half of 2020.

Do you see behind these headlines any incident that you have not read about taking place before in another Country or condition ? Quite apart from the human tragedies in injuries, deaths and homelessness caused by these events, due to the experience and information available to prevent these incidents, in many cases, these are actually an unnecessary cost of loss of property, business continuity, reputational damage and environmental destruction.

Industry needs to ask itself is it doing enough to educate Industry on lessons learnt so that incidents such as these should be reduced and when they occur they can be effectively dealt with.

JOIFF ACCREDITED TRAINING PROGRAMME FOR 2020



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JOIFF
SHARED LEARNING ONLINE

JOIFF Members & High Hazard Industry Colleagues,

As part of our shared learning commitment to all JOIFF members and the wider industry, throughout 2020 JOIFF is holding a series of Shared Learning Online Seminars.

The latest JOIFF Shared Learning Online Seminar on 21st July 2020 was a Subject Matter Expert presentation of Firefighting Foam Transition. This was presented by Dr Ian Ross & Peter Storch from Arcadis.

The Online Seminar covered a wide range of important detail on foam transition and with over 350 people signing up from more than 35 counties and 6 continents around the world (we are still working on Antarctica!) confirming the value of the JOIFF Shared Learning Programme to its members and the Global High Hazard Fire Industry.

In the first session Dr Ian Ross presented - What's all the PFUSS about?

- An Introduction to PFAS – PFacronyms,
- Why an issue,
- Simple explanations of persistence, mobility, toxicity, bioaccumulation,
- History of concerns,
- PFAS in the News,
- PFAS liabilities,
- PFAS in Firefighting foams - why an issue, cost to clean up, liabilities, C8 vs C6, Sectors who have transitioned

In the second session Dr Ian Ross covered and explained in detail Fire Testing, Regulations, Treatment and Disposal of Foams and discussed in detail –

Which foams contain PFAS (Class B) -AFFF, FFFP, FP.
Regulatory advances on foams containing PFAS Fire Hazard Management Fire testing, compliance with regulations - No drop in replacement Regular equipment testing and training with F3 foam Disposal of spent AFFF, FFFP, FP

In the final session - Foam Transition Example Projects - Peter Storch and Ian Ross presented

US DoD Foam Cleanout Project Challenges to overcome -decontamination, meeting code, equipment changes, insurance
Examples of Foam Changeout Projects

The Full Presentation and Video of the JOIFF Shared Learning Online Seminar - Firefighting Foam Transition can be found in the members area of www.joiff.com

JOIFF would like to thank Dr Sthamer Foams & Fomtec for their support of this event

Ian Ross

Peter Storch

fomtec
Fire Fighting Foams & Equipment

Dr. STHAMER
HAMBURG
www.sthamer.com

Go to www.joiff.com/events for further details on all JOIFF events and to sign up.

Upcoming JOIFF Shared Learning Events include:

JOIFF Shared Learning Online Seminar – New Technologies

JOIFF Online Product Showcase

Subject Matter Expert Presentations on SCBA, Virtual Reality Training, Crisis Management Challenges and Solutions During a Pandemic

THE NEXT JOIFF SHARED LEARNING ONLINE SEMINAR IS FIREFIGHTER HEALTH & WELLBEING

25th AUGUST 2020 14h00 - 17h00 GMT

This event is Supported by MSA

With the added Stress on all Emergency Services during this global Covid19 Pandemic this timely JOIFF Shared Learning Online Seminar on FireFighter Health & Wellbeing. This event is free to sign up to, and you can find further details at Events on www.joiff.com

PRESENTERS

Anne Scoging

Head of Psychological Health, London Fire Brigade

TOPIC: Firefighters and Mental Health Lesson Learnt From Grenfell

At LFB she holds clinical responsibility for a service which provides counselling to approx. 5000 operational personnel and support staff. Her service holds the remit both for the treatment of personnel suffering with any work, personal or mental health issue including trauma and also for preventative work across the Brigade to support positive mental health.

Gavin Horn

Research Engineer for the UL Firefighter Safety Research Institute (FSRI)

Research Engineer with the UL Fire Safety Research Institute (FSRI).
TOPIC: Inhalation Risks Related To Cardiovascular & Chemical Exposure Risks on Today's Fireground

Gavin's research interests range from firefighter health and safety and first responder technology development to material testing and nondestructive evaluation. Prior to joining the UL FSRI team, he served as the Director of IFSI Research Programs at the University of Illinois Fire Service Institute (IFSI) for 15 years and as a firefighter, apparatus engineer and fire investigator with the Savoy (IL) Fire Department.

Jeffrey O. Stull

President of International Personnel Protection, Inc.

TOPIC: Cleaning, Decontamination, and Its Effectiveness as Applied to Firefighter PPE

Jeff's Organisation has provided expertise, research, and testing on the design, evaluation, selection and use of personnel protective equipment (PPE) to end users and manufacturers since 1993. He further has been instrumental in developing and promoting PPE standards for the improvements of PPE. Currently Jeff is heading the "How Clean is Clean" project by the National Fire Protection Association (NFPA) Fire Protection Research Foundation that provided the research and testing supporting cleaning and sanitization verification requirements for fighter PPE in the latest edition of NFPA 1851.

Willem Pieter Labuschagne

TOPIC: Proactive Health Monitoring of Emergency Responders in High Hazard Industries

Joined Sasol Synthetic Fuels in 1996 as head of Occupational Health where we developed, implemented and conducted an Occupational Health system that is implementable in any industry.
Obtained a fellowship with the American Association of Disability Evaluating Physicians (AADEP) in 2011.
Guest lecturer at University of Pretoria in the Diploma in Occupational Health course for the last number of years.

MSA The Safety Company

JOIFF ACCREDITED eLEARNING PROGRAMMES

INTRODUCTION:

JOIFF accredited eLearning programmes have been developed after many years' experience in training emergency responders at every level. The programmes are computer based and learnt and demonstrated by the student in their workplace. Each student is assigned an individual electronic portfolio which sets out a structured training path and in which each student's training and progress is tracked. As the programme progresses, it provides a traceable system of assessment and verification of each student's competence.

Instruction/assessment takes place within a time frame established by site management/the student in the work place where, as they go through the programme, each student demonstrates competence in each of the clauses of the units. An assessor is appointed to each student reviewing their work as they progress and confirming "competent" or "not yet competent" for each of the clauses as they go forward.
Assessors are usually the site's in-house trainers / fire team leaders / fire officers / instructors / assessors who have the relevant background and competence. The work is externally verified remotely by the administrators of the programme.

PROGRAMME CONTENT:

The programmes comprise Units, Elements and competences and are drawn from National and International Standards and experience and Good Industry Practice.
It is not necessary to follow the units and elements in sequence, how the work on the programme is completed is at the discretion of the site management/ student. A number of the elements can be covered in normal station training, providing it is assessed.

COMPLETION AND POST NOMINAL:

All programmes are accredited by JOIFF, the International Organisation for industrial Emergency Services Management. Students who successfully complete a full programme receive a JOIFF accredited certificate and in agreement with JOIFF a number of the programmes count towards JOIFF qualifications and use of JOIFF post nominals.

APPROVED PRIOR LEARNING AND EXPERIENCE:

Subject to approved assessment and verification, suitable and relevant formal Approved Prior Learning and Experience (APLE) gained by the student during a period of up to two years prior to the commencement of the programme is acceptable as part of the recognition of competence required in the programme. Equivalency where claimed, must be by verification.

PROGRAMMES:

The Diploma programme is JOIFF accredited as the JOIFF Diploma and covers key skills for emergency response in High Hazard Industry and ensures competence within both emergency response and knowing the facility in which the emergency responder operates. The programme consists of 24 Units in which there are over 100 elements and in excess of 700 competences. The outcome on successful completion is that student is awarded a Diploma certificate and can use the post nominal Dip.JOIFF The Technician programme is JOIFF accredited as the JOIFF Technician and provides the platform for persons engaged in emergency response to enhance their knowledge and skills having already demonstrated their competence in Key Response Skills in High Hazard Industry. To achieve full success in demonstrating the competences in this programme requires the student to do individual

research and study. The outcome on successful completion is that student is awarded a Technician certificate and can use the post nominal Tech.JOIFF

LEADERSHIP 1: (Team Leader) – leads a team of 5 to 8 persons - programme is JOIFF accredited and provides to persons who are technically competent to a recognised standard and have core educational skills, the path to the knowledge and skills for an emergency response Team Leader role in emergency service delivery. To achieve full success in demonstrating the competences in this programme requires the student to do individual research and study.

LEADERSHIP 2: (Officer) - leads multiple single Teams of emergency responders - programme is JOIFF accredited and provides to persons who are technically competent to a recognised standard and have core educational skills, the path to the knowledge and skills for an emergency response officer role in Team Leadership and Management for persons who lead multiple single teams of emergency responders. To achieve full success in demonstrating the competences in this programme requires the student to do individual research and study.

Responder to Hazardous Materials Incidents programme is JOIFF accredited and covers the awareness and operational skills required by emergency responders, learnt and demonstrated in
training and exercises that allows them to deal competently with emergencies involving hazardous materials identified within the Response Area Emergency Response Plan where they are employed.

To achieve full success in demonstrating the competences in this programme requires the student to do individual research and study.

Emergency Response Control Room Operator programme is JOIFF accredited and provides to persons who are technically competent to a recognised standard and have core educational skills, the path to the knowledge and skills for an emergency response Control Operator. To achieve full success in demonstrating the competences in this programme requires the student to do individual research and study.
The JOIFF accredited eLearning programmes for emergency response to industry have been developed and are marketed and administered by JOIFF Member organisation and JOIFF Secretariat Fulcrum Consultants. For further information,
email info@fulcrum-consultants.com

JOIFF QUALIFICATIONS

Dip.JOIFF

This is awarded to persons who have successfully completed the JOIFF Diploma programme which is a competency programme for personnel who respond to emergencies. It covers necessary key skills, learnt and demonstrated by the student in practical training and exercises that allows them to deal competently with site emergencies.

Tech.JOIFF

This is awarded to persons who have successfully completed the JOIFF Technician programme which allows emergency responders to enhance their knowledge and skills having already demonstrated their competence in Key Skills.

Grad.JOIFF

Graduate of JOIFF is awarded to a person from any JOIFF Member Organisation who has a minimum of 5 years full time service in an emergency response role and has shown professional attainment in Industrial Hazard Management activities. JOIFF Graduate can be awarded through Route 1 for persons who have successfully completed the JOIFF Diploma and JOIFFF Technician programmes or Route 2 by demonstration of a significant level of suitable and relevant competence in emergency response through knowledge, skills and understanding.

MJOIFF

JOIFF Member is awarded to operational personnel from any JOIFF Member Organisation who have a minimum of 10 years full time service in an emergency response role, have demonstrated competence and shown significant professional attainment in Industrial Fire and Explosion Hazard Management activities and have been successfully assessed as competent through recognised training in the range of activities in Industrial Fire and Explosion Hazard Management.

AMJOIFF

Associate JOIFF Member is awarded to non-operational personnel who have made significant contributions to the development and profile of JOIFF over a number of years by their actions and their work activities.

FJOIFF JOIFF Fellow

The award of JOIFF Fellow is by recommendation of the JOIFF Board of Directors and is given to an individual who has made an outstanding contribution to Industrial Hazard Management activities in support of

JOIFF.

For further details contact the JOIFF Secretariat
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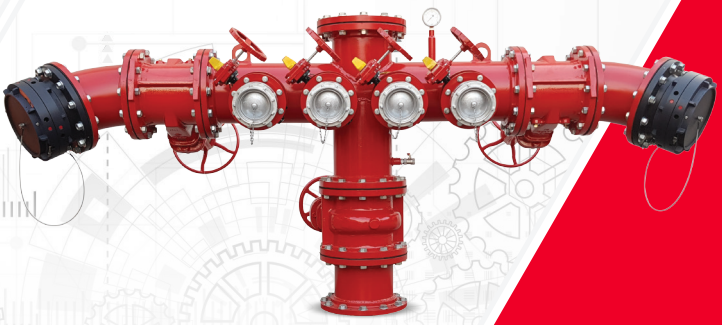

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www.bristol-fire.com

P.O.Box 74582 Dubai, UAE
+ 971 4 3472426
+ 971 4 3472363
sales@bristol-fire.com

P.O.Box 2617 Abu Dhabi, UAE
+ 971 2 5575551
+ 971 2 5575550
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