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DEVELOPING COMMON INTERNATIONAL STANDARDS FOR FIREFIGHTERS PERSONAL PROTECTIVE EQUIPMENT

BY

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FIREFIGHTERS PERSONAL PROTECTIVE EQUIPMENT
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BACKGROUND

The International Organisation for Standardisation (ISO) has established a new ISO committee known as ISO/TC 94/SC 14 – Firefighters Personal Protective Equipment. This committee held its first formal meeting in Berlin, Germany in April 2002 with its second meeting held in Winnipeg, Canada in April 2003. The scope of ISO/TC 94/SC 14 is for the standardization of the quality and performance of protective clothing and personal protective equipment intended to safeguard firefighters against hazards encountered in the performance of their duties. The terms of reference of this ISO Committee is to continue to work in co-operation with fire services, researchers, textile and product manufacturers, designers, testing laboratories, regulators and other interested parties on personal protective equipment worn during firefighting and associated activities; by ensuring that standards developed minimize the risk of injury to the wearer, that the appropriate liaisons are maintained and performance requirements meets the firefighter needs. The Committee is currently harmonising existing standards and developing new standards for firefighters personal protective equipment (PPE) where none exists. It is also developing selection, care, use and maintenance deliverables for firefighters PPE where none exists.

BENEFITS

The benefit from standards prepared by this Committee on firefighters PPE will assist countries and fire authorities around the world with the provision of integrated systems of personal protective equipment that will improve firefighters safety.

OBJECTIVES

- To ensure the health, safety and effectiveness of firefighters through the establishment of minimum acceptable standards on firefighters personal protective equipment (PPE) for the various functions or duties they perform.

- To move away from prescriptive-based requirements in standards to a performance-based approach in all areas of firefighters personal safety. This is particularly evident in the area of firefighter protection where there have been many advances in testing methods and procedures.

- To prepare and maintain in a timely and cost effective manner Standards and other deliverables concerned with firefighters PPE, for which a need has been identified.

- To ensure as far as practical the safety of persons using the firefighters PPE.

- To ensure as far as practical the appropriateness of product function and performance

- To provide a basis for testing, certification, and when necessary regulation of products.

- To minimize obstacles to international trade

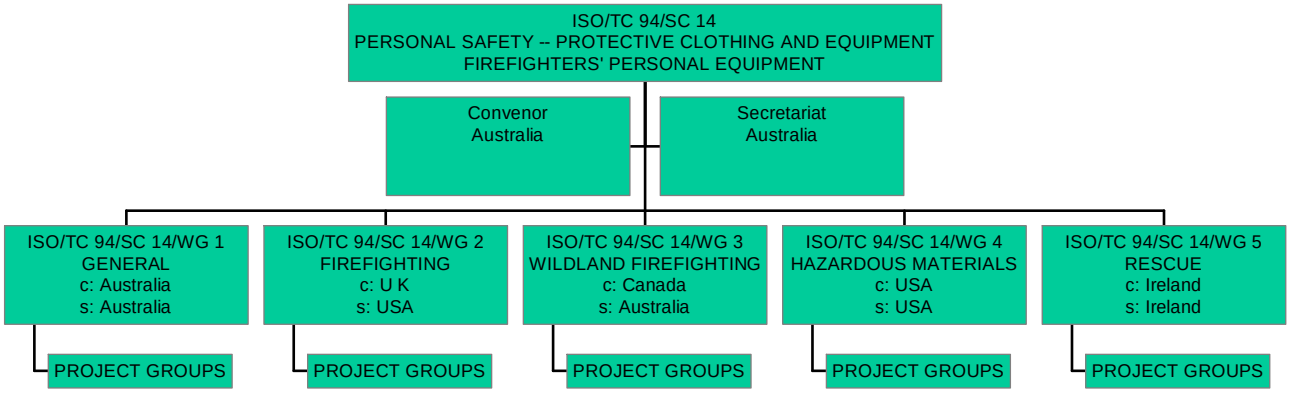
- To promote the participation of fire services in the development of standards.

- To provide guidance on selection, care, use and maintenance used for firefighters PPE.

- To wherever practical ensure compatibility and consistency between components of firefighters PPE.

DISCUSSION

The new ISO Committee is structured as follows



There are currently 19 Counties participating in the development of ISO firefighters PPE Standards through this committee (of which only Japan, Australia and New Zealand are

from the Asia-Oceania Region with China hopefully becoming a participating member (initially for wildland firefighting PPE later this year)) with a further 3 Countries registered as observers. It is hoped that other Countries, particularly from the Asia-Oceania Region, will consider becoming participating members. The Australasian Fire Authorities Council (AFAC) will be available to assist those members and Countries in this process.

This ISO Committee has now developed a number of Draft Standards which are now being discussed and voted upon by ISO participating Countries. The current documents are:

- ISO/CD 11613 Structural Firefighting Personal Protective Equipment – Requirements and Test Methods

  This Standard will provide either 2 or 3 different levels of performance to select from as part of the risk assessment process.

  The purpose of this International Standard is to provide minimum performance requirements for personal protective equipment designed to protect against injury in Structural fire fighting operations. It provides guidance on the selection of firefighters PPE and considerations for conducting a risk assessment of fire fighting risks.

- ISO/CD 16073 Wildland Firefighting Personal Protective Equipment – Requirements and Test Methods

  In part this Standard will provide either 2 different levels of performance to select from as part of the risk assessment process.

  This standard provides minimum performance requirements for wildland firefighters personal protective equipment designed for use for extended periods during wildland firefighting and associated activities.

  Wildland firefighting involves work primarily in summer temperatures, for many hours during which the firefighter may develop high levels of metabolic heat. As a consequence, the personal protective equipment is required to be light, flexible and commensurate with the risks to which the firefighter may be exposed in order to be effective without introducing heat stress to the wearer.

- ISO/DIS 17250 Footwear for Firefighters (To be replaced by ISO 16073 and ISO 11613)

  This Standard will provide 3 different levels of performance to select from as part of the risk assessment process.

The purpose of this standard is to provide minimum performance requirements for footwear for firefighters designed for use for fire fighting and associated activities.

- ISO/NWIP Hazardous Materials Response Personal Protective Equipment – Spray-Tight Liquid Splash-Protective Ensembles ("Type 4")

  The purpose of this International standard is to provide minimum design and performance requirements for personal protective equipment, excluding respirators, designed for protection against chemicals, including liquids and particulates during hazardous materials response.

  This specific International standard addresses a secondary form of protection for hazardous materials responses involving chemical liquids and particulate hazards only. Gas-Tight, Vapor-Protective Ensembles address protection from chemical gases, vapors, liquids, and particulates.

- ISO/NWIP Hazardous Materials Response Equipment – Gas-Tight Vapour-Protective Ensembles for Emergency Response Teams ("Type 1")

  The purpose of this International standard is to provide minimum design and performance requirements for personal protective equipment, excluding respirators, designed for protection against chemicals, including gases, vapors, liquids, and particulates during hazardous materials response by emergency response teams.

  This specific International standard addresses the highest form of protection for hazardous materials responses involving chemical gases, vapors, liquids, and particulates.

- ISO/NWIP Guidance on the selection, use, care and maintenance of Personnel Protective Equipment (PPE) designed to provide protection for firefighters.

  This draft standard sets out guidance for the selection, use, care and maintenance of PPE designed to provide protection for firefighters while carrying out their duties.

  The information in this document has been produced to assist employers (or the person who advises the employer) in making the necessary decisions regarding the selection, use, care and maintenance of personnel protective equipment (PPE), for firefighters exposed to risks associated with the following activities;

  - Structural Firefighting
  - Transport Firefighting
  - Wildland Firefighting

- Hazardous Materials Spillage's and Rescue
- Motor Vehicle Accidents
- Industrial and Urban Search and Rescue
- Swift Water Rescue
- Hazardous Environments

- ISO/NWIP Standard for Personal Protective Equipment for Firefighters during Rescue

The key areas that the standards such as ISO 11613 and ISO 16073 will be covering are:

- Introduction
- Scope
- References
- Definitions
- Part 1 General requirements
- Part 2 Clothing
- Part 3 Gloves
- Part 4 Footwear
- Part 5 Helmet
- Part 6 Face including Eyes
- Part 7 Hearing
- Part 8 Respiratory

  Note: A new methodology for respiratory protection for firefighting is currently being developed by ISO/TC 94/SC 15 (ISO Respiratory Protection Committee) Once complete this methodology will be incorporated into the Firefighters PPE Standards. This Committee will be holding its next main meeting from 14 to 19 November 2004 in Yokohama, Japan. It will be holding some Working Group meetings from 1 to 5 March 2004 in London and 28 & 29 April 2004 in Milan, Italy.

- Risk Assessment

- Quality Assurance

The ISO Committee will also be managing some existing ISO Firefighters PPE Standards until the new Standards under development are completed. These Standards are:

- ISO 11613 Structural Firefighting Protective Clothing (To be replaced by new version ISO 11613)

  This Standard provides 2 different levels of performance to select from as part of the risk assessment process.

- ISO 15383 Fire Fighters Gloves (To be replaced by ISO 16073 and ISO 11613)

  The purpose of this standard is to provide minimum performance requirements for protective gloves designed to protect against injury in fire fighting operations.

  This Standard specifies three different levels of performance requirements. The first level of performance (Level 1 Wildland) offers requirements consistent with ISO 15384, Protective clothing for firefighter - Requirements and test methods for protective clothing used for wildland fire fighting. The second level of performance (Level 2) is based partly on EN 659 "Protective gloves for firefighters" but uses some of the criteria from EN 469 "Protective Clothing for Firefighters - Requirements and test methods for protective clothing for fire fighting". The third (Level 3) has been adapted from NFPA 1973 "Standard on Gloves for Structural Fire Fighting." Three levels of performance are established for all performance requirements except for flame resistance and ergonomic requirements. In some cases, two of the levels require the same performance. The intent of this standard is to specify a level of glove performance consistent with the performance of the garments worn, where practical.

- ISO 15384 Wildland Firefighting Protective Clothing (To be replaced by ISO 16073)

  The purpose of this standard is to provide minimum performance requirements for protective clothing designed for use for extended periods during Wildland fire fighting and associated activities.

- ISO 15538 Fire Entry Suits

- ISO/DIS 13506 Manikin Testing of PPE

  Extensive work is underway on the establishment of an agreed test method for Manikin Testing of PPE in a flame environment. Manikins are now established in the USA, Canada, Switzerland, United Kingdom, and Japan. Progressively

Standards produced for firefighters PPE will contain testing utilizing the Manikin test method. At present some testing is being done at the following levels and timing.

- Wildland firefighting PPE tested at 80kW/m^2 for 4 seconds
- Structural firefighting PPE at 80kW/m^2 for 8 seconds

The major dilemma facing the committee in the future regarding Manikin testing is what level of burn injury and type of burn injury is deemed to be acceptable as a pass or fail.

KEY OUTCOMES

The primary goal of ISO/TC 94/SC 14 is to have in place Standards for all major classes of firefighters' PPE.

ISO/TC 94/SC 14 MEMBERSHIP

ISO/TC 94/SC 14 needs active firefighter and specialists participation, if you and your country wish to participate in the ongoing development of firefighters PPE Standards then please see me during this conference or contact me at richard.donarski@afac.com.au

You can also approach your National Standards Organisation who will then forward the request for membership to the ISO Central Secretariat at: ISO Central Secretariat, 1, rue de Varembe, Case postale 56, CH-1211 Geneve 20, Switzerland. e-mail: central@iso.org

The ISO Central Secretariat will then forward the requests for membership to the ISO/TC 94/SC 14 Secretariat at Standards Australia, GPO Box 5420, Sydney NSW 2000, Australia, e-mail: anthony.hayward-bryant@standards.org.au

CONCLUSION

Firefighting PPE needs to provide a compromise between flame, elevated temperature exposures whilst at the same time allowing the firefighter the ability to work for extended durations by minimising the buildup of metabolic heat and heat stress as well as ensure the PPE is durable to meet the conditions and terrain.

Many other factors may also play a role in a fire environment that may pose a risk to firefighters and as such firefighters need to understand the limitations of their PPE and the protection that it will provide.

ISO/TC 94/SC 14 needs your participation in the development of Standards for Fire Fighters Personal Protective Equipment. An invitation is made to you and your country to actively participate in the ongoing development of these Standards.

I hope to see some of you at the next meeting of ISO/TC 94/SC 14 which will be held in Adelaide, South Australia from the 31 May until the 4 June 2004.

If you want to find out more about joining ISO/TC 94/SC 14 or the Australasian Fire Authorities Council and our current members and work within the Asia-Oceania Region:

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Visit our website at: www.afac.com.au