

# ABS REGULATORY NEWS

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## INDUSTRY REMINDER ON FIREFIGHTING SUITS

It is essential for shipowners to equip their crew with suitable firefighting gear to ensure the preservation of lives and vessels in the event of a fire. The appropriate equipment should enable crew members to effectively combat fires in open-air environments and enclosed spaces, all while ensuring their personal safety.

### PSC PERSPECTIVE

Port State Control Officers (PSCOs) have repeatedly issued deficiencies against the Maritime Labour Convention (MLC) when firefighting suits lack the appropriate certification for firefighting in enclosed spaces. PSCOs on numerous interventions have stated that proximity suits, which are designed for open-air firefighting, do not offer adequate thermal protection against radiated heat when entering enclosed spaces where a fire is present. As proximity suits are compliant with the International Convention for the Safety of Life at Sea (SOLAS) and the International Code for Fire Safety Systems (FSS Code), it is the opinion of some PSCOs that they may only be utilized for supportive tasks such as boundary cooling.

Some PSCOs are inferring that proper firefighting clothing should provide a level of protection at least equivalent to the gear worn by the crew during exercises for obtaining the Seafarers' Training, Certification and Watchkeeping (STCW) Code A-VI/1 Basic and STCW A-VI/3 Advanced firefighting certifications.

### INTERNATIONAL REQUIREMENTS

SOLAS Chapter II-2 Regulation 10 mandates the minimum number of firefighting outfits on board ships. According to Reg.10.10.2, all ships must carry at least two outfits (Reg.10.10.2.1), with additional suits required for passenger ships, gas carriers and tankers (Reg.10.10.2.2). Additionally, Reg.10.1.1 stipulates that firefighting outfits must comply with the FSS Code, detailed in Chapter 3, which outlines engineering specifications for personnel protection.

SOLAS Ch.II-2/Reg.10.10.2.1	All ships must carry at least two outfits
SOLAS Ch.II-2/Reg.10.10.2.2	Additional suits required for passenger ships and tankers
SOLAS Ch.II-2/Reg.10.1.1	Firefighting outfits must comply with the FSS Code
FSS Ch. 3	The personal firefighting equipment shall include "protective clothing of material to protect the skin from the heat radiating from the fire and from burns and scalding by steam. The outer surface shall be water-resistant."

### KEY NOTES

- Requirements, limitations, and recommended actions.
- References:
  - SOLAS Ch.II-2 Reg. 10
  - FSS Code
  - MLC Reg. 4.3
  - Regulation (EU) 2023/1667

MLC Regulation 4.3 / Standard A4.3 serves as a legal framework for promoting health and safety protection and accident prevention within the maritime industry. It establishes a baseline for these essential aspects, while the flag Administrations are responsible for enacting specific MLC compliance requirements through their respective national legislation. MLC 2006 *Guideline B4.3 - Health and Safety Protection and Accident Prevention*, although non-mandatory, mentions that firefighting should be addressed and highlights the importance of considering the International Labour Organization (ILO) code of practice titled *Accident Prevention on Board Ship at Sea and in Port, 1996* as a reference for occupational safety and health protection. Notably, the ILO code provides guidance on conducting fire drills and identifies enclosed spaces such as engine rooms and accommodation spaces as critical locations for fire scenarios.

## FIREFIGHTING SUIT STANDARDS

Many suits on board are designed in accordance with the EN 531 standard. However, this standard is designed for industrial workers exposed to heat and is not intended for firefighting. Moreover, some suits labeled under EN 531 feature unprotected metal zippers, buttons or clasps, which can conduct heat and cause burns.



Figure 1: Suits with unprotected metal buttons do not provide the necessary thermal insulation.

A protective suit meeting the demands of firefighting is one complying with the European standard EN 469:2005, as noted below. Level 2 is required for firefighting in enclosed spaces. EN 469:2005 and its revised version EN 469:2020 also mandate a risk assessment to be made.



**EN 469:2005**  
Xf Xr Y Z



**EN469:2020**

X1 or X2  
Y1 or Y2  
Z1 or Z2

Figure 2: EN 469:2005 and EN 469:2020 performance level pictograms.

EN 469:2005	<p>Suits are classified into performance level 1 or level 2 using four criteria indicated by a pictogram:</p> <ul style="list-style-type: none"> <li>• Resistance to convective heat (Xf1 or Xf2)</li> <li>• Resistance to radiant heat (Xr1 or Xr2)</li> <li>• Resistance to water penetration (Y1 or Y2)</li> <li>• Water vapor resistance (Z1 or Z2)</li> </ul> <p>Suits labeled as level 1 or level 2 are common in the market. Level 1 is limited to outdoor firefighting and support activities, while level 2 is recommended for firefighting in enclosed spaces or structures with higher fire risk. Only suits with Xf2, Xr2, Y2 and Z2 are considered level 2 suits.</p> <p>The resistance of the garment to water penetration is determined by its hydrostatic pressure properties, while the water vapor resistance is associated with its breathability. The use of high-visibility materials in the garments is not mandatory, but if included, they must meet the thermal and high visibility requirements specified in the standard.</p>
EN 469:2020	<p>The European standard for firefighter protective clothing, EN 469, underwent revisions in 2020. Based on the updated standard EN 469:2020, there are three criteria classified as level 1 or level 2:</p> <ul style="list-style-type: none"> <li>• Thermal Performance (X1 or X2)</li> <li>• Water Penetration Resistance (Y1 or Y2)</li> <li>• Breathability/Water Vapor Resistance (Z1 or Z2)</li> </ul> <p>Specifically, the difference in Water Penetration Resistance is that level 2 (Y2) fire suits include a moisture barrier, while level 1 (Y1) fire suits do not. It's important to note that both types of fire suits, with or without a moisture barrier, are approved according to EN 469:2020.</p> <p>In the updated standard, performance levels are exclusively determined by a garment's thermal performance, with X now representing both radiant heat and flame contact heat. Level 1 meets lower requirements suitable only for outdoor firefighting, while Level 2 meets higher standards necessary for structural firefighting operations, including indoor and enclosed spaces. Notably, the garment's pictogram still includes grades for resistance to water penetration and water vapor to provide an indication of performance.</p>

Below is a list of other frequently encountered standards for firefighting suits found on board:

- EN 1486 (Europe)
- ISO 15538 (International)
- NFPA 1971 (USA)
- NISTIR 7467 (USA)
- GA 634-2015 (China)

Due to the different requirements of every country, there are some differences between standards. Before purchasing suits according to a specific standard, it is advisable to read the test methods and minimum performance requirements of the specific standard. In addition, standards such as EN 469 and ISO 15538 emphasize the significance of conducting a risk assessment.

## ADDITIONAL REQUIREMENTS FOR EU VESSELS

European Union (EU) ships (i.e., ships flagged by a member State of the EU) must comply with the Marine Equipment Directive (MED). The MED requires new protective, non-reflective firefighting clothing to meet either EN 469:2005 or EN 469:2020 until 25 August 2024. After this date, only EN 469:2020 should be purchased. Existing equipment need not be replaced if remaining in good condition. The MED does not stipulate a specific required level of EN 469 for firefighter's protective clothing, allowing both level 1 and level 2 to be considered compliant.

## EMSA GUIDANCE

In 2022, the European Maritime Safety Agency (EMSA) released guidance for the safe transportation of Alternative Fuel Vehicles (AFVs) in ro-ro spaces of cargo and passenger ships. The guidance recommends that firefighting suits comply with EN 469:2020, and specifically suggests a classification level 2 for all three criteria, including Water Penetration Resistance (Y2).

## REQUIREMENTS FOR SOLAS VESSELS

Unless a flag provides additional requirements for firefighting suits, there are no limitations on the use of a firefighting suit complying with FSS Chapter 3 on a non-EU flag vessel. It is to be noted that the FSS Code Chapter 3 does not provide any specific details on the actual requirements that the firefighting suit is to comply with, or time/temperature delta at a specific radiant heat or temperature/pressure of scalding steam, to protect the skin from the heat radiating from the fire and from burns and scalding by steam.

## RECOMMENDED ACTIONS

Operators are encouraged to check the condition and certification of the fire suits available on board and to conduct a risk assessment to confirm the suitability of the fire suits for firefighting scenarios that could be encountered, including outside on-deck firefighting, inside accommodation and/or other enclosed spaces.

Although not stated in the EU-MED, the correct firefighting suit standard for firefighting inside enclosed spaces (e.g., accommodation, engine room, etc.) is EN469 level 2.

- In EN 469:2005, all performance criteria (Xr, Xf, Y and Z) should be level 2 for the suit to be classified as level 2. If one of the performance criteria is level 1, then the suit is no longer level 2.
- In the updated standard, EN 469:2020, the performance level is determined solely based on performance criterion X. If X is X1, then the suit is categorized as level 1. Conversely, if X is X2, then the suit is classified as level 2.

It is suggested that if fire suits available on board are not suitable for firefighting inside enclosed spaces, to record this in the ship's SMS for crew awareness and to ensure that additional suits suitable for firefighting inside enclosed spaces are available on board. Some local PSCOs require the replacement of the suit when the performance standard Y and/or Z is level 1 based on the intent of the MLC

Regulation 4.3. Most PSCOs are also accepting other suitable standards than EN469, including ISO 15538, NFPA 1971, NISTIR 7467 and GA 634-2015.

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