



TECHNICAL CIRCULAR No. 442 of 08th October 2017

To:	All Surveyors/Auditors
Applicable to flag:	All Flags
Better Fire-Fighting Systems on Container Ships	
Reference:	SOLAS

Fire-Fighting Systems on Container Ships

The International Union of Marine Insurance has called for better fire-fighting systems on board container ships, citing its concern that current provisions are insufficient given the growing size of container vessels and a recent spate of fires on board ships.

Recent examples of fires include those on *NNCI Arauco* (9,000 TEU) in September 2016 during welding operations whilst alongside in Hamburg, *Hanjin Pennsylvania* (4,000 TEU) in November 2002 claiming the lives of two crew members and resulting in a constructive total loss; and *MSC Flaminia* (6,732TEU) in July 2012, resulting in three fatalities and also a constructive total loss.

In remote locations and on the open sea, it can often be hours or even days after a fire has broken out before external assistance arrives. As a rule, only seagoing tugs carry the necessary equipment for effective firefighting. Until they arrive, the crew has to rely on its own resources, and the fire can spread extensively. As a result, as with the *MSC Flaminia*, it can take weeks to bring the fire under control.

Whilst IUMI expressly welcomes the 2014 amendment to the International Convention for the Safety of Life at Sea (SOLAS) to increase the effectiveness of firefighting, the association believes more should be done.

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On general cargo vessels, the cargo is stored openly in the holds, and when fire breaks out, the air space within the hold immediately fills with smoke making a fire easy to detect. Once a fire is detected, the hold in question can be sealed off and CO2 can be used directly on the fire.

The fire detection systems specified in SOLAS do not enable effective detection of incipient fires in a container. To discover a fire, air from the hold, more or less directly below the deck, is usually extracted and passed in front of a photoelectric cell on the bridge. If the air contains smoke particles, the contact between the photoelectric cell and the opposite light source is interrupted and an alarm is triggered. For this to happen, however, the hold must already be full of smoke up to the level of the hatch cover. On a container vessel, the fire will already have spread by this point.

The effectiveness of spraying CO2 into the hatch is also doubtful for two reasons: First, with a closed container the CO2 cannot act directly on the burning cargo, as it will not penetrate through the container wall. Secondly, if the oxygen content of the container or the cargo is high, the CO2 will be completely ineffective.

If the fire develops further, it is inevitable that it will spread to the deck. In contrast to a general cargo vessel, fire spreading to the deck load on a container vessel will have even more catastrophic consequences. With the exception of the superstructure, there are no natural fire compartments on deck. Due to a lack of suitable equipment, it is practically impossible to cool the deck by using water.

In addition, the detection of a fire on deck is left to chance. SOLAS does not stipulate that fire detectors must be fitted on deck. A fire is only discovered if a perceptible amount of smoke is produced, the fire results in sounds that drown out the ordinary noises of the ship, or if flame is discernible.

The water-based firefighting systems should be suitable for cooling the vessel's structure including the hold walls, the bulkheads, the tank deck, the hatch covers, the deck and the cargo. Only this additional cooling will prevent the negative thermal influence of the fire on the structure of the vessel and thus avoid the fire spreading to other fire compartments. The water supply should have ample capacity in order to be able to supply at least three fire compartments simultaneously. This

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enables firefighting even in the event of a fire spreading from one fire compartment to adjacent neighboring ones.

In order to be able to attack or cool fires from a safe distance with large quantities of water, monitors must be installed on the fore and aft sides of the superstructures as on all the other fire compartment boundary structures. Lifesaving equipment such as lifeboats and life rafts must also be protected by their own water curtains that can be activated on demand.

REFERENCES:

- SOLAS

ATTACHMENTS: No.

Kindest Regards,
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