



# Fires Happen: It's Time to Act.



At sea, fire poses one of the biggest threats to ships: according to Lloyds List, almost 10% of all total losses at sea for the last ten years have been caused by fire. Sailing alone and at sea throughout the year, and without the ability to call upon the emergency services as a land-based asset might. As vessels become larger and more sophisticated, a greater financial interest is tied up into one ship, meaning that the risks are magnified if the vessel would get into difficulties e.g. a fire.

### "Ships are their Own Fire Brigade"

Misunderstanding exists across parts of Shipping regarding the application of a part of the International Maritime Organisation, Safety of Life at Sea, Fire Safety Systems (IMO SOLAS FSS) Code; the need for crew to test the contents of their CO<sub>2</sub>, FM-200® & NOVEC™ 1230 Gaseous Extinguishing Systems in between the periodic inspection, maintenance and certification intervals. These periodic inspections are conducted annually or biennially, and only by an Accredited Service Agent i.e. an external Marine Servicing Company. As stated above, the reason the IMO requires crew to test for contents in-between these is that the "ship sails alone"; it must act as its own emergency fire service

### What are the Risks?

A ship's gaseous extinguishing system typically comprises between 200 and 600 cylinders each containing 45KG of CO<sub>2</sub>

under high 720psi / 49 bar pressure. (Other suppressant clean agents such as FM-200® and Novec™1230 are becoming more widely used.) One of the highest probabilities of discharge occurs during their maintenance. Some marine service companies estimate that 20% of a ship's CO<sub>2</sub> cylinders have discharged or partially leaked their contents at some point in their lifetime.

Taking CO<sub>2</sub> systems through as an example, although random checks may be suitable in some sectors, it is worth remembering that because the normal design concentration of CO<sub>2</sub> of 34-72 v/v % is above the nearly immediate acute lethality level, these systems have an extremely narrow safety margin. As these systems work through oxygen dilution rather than the chemical disruption of the catalytic combustion chain (which is the case with other clean agents), insufficient oxygen levels during an accidental discharge may allow a situation to spiral out of hand.



### "CO<sub>2</sub> Bottles Leak"

Yet although this poses high levels of risk to the service companies and the crew, because gaseous extinguishing systems are highly pressurised, the risk of leaking and discharging is accepted as part of their use and this is shown in the regulations that demand their upkeep e.g. IMO SOLAS FSS Ch5. 2.1.1.3: "Means shall be provided for the crew to safely check the quantity of the fire extinguishing medium in the container".

Often this is misunderstood, this code specifically states that the crew must test their extinguishing installations in between the periodic inspection, maintenance and certification. Only having the annual inspection by accredited marine servicing companies is not enough - the crew must take responsibility for its own fire protection. However, what must be noted is that the crew are often not trained or certified to shut-down, dismantle, weigh and re-install the gaseous cylinders - the traditional method.

### A Call for Crew to Inspect Fire System Cylinder Contents

Using an ultrasonic liquid level indicator, the Portalevel® MAX Marine, is the only way that the crew can safely test their CO<sub>2</sub> without disturbing them. If marine companies implemented the IMO SOLAS FSS codes by testing safely and quickly (just 30-60 seconds per cylinder) by using liquid level indicators and marine servicing companies were able to do their work without allowing for time pressures, then marine safety would be far safer.

Bad industry practice is unacceptable when fire risk may have catastrophic results due to risk to life, downtime in operation due to ship safety and repair work and incalculable reputational damage. The crew, cargo and vessel must be protected when at sea because it is its own fire brigade without accessibility to typical emergency services. This is a call to respond to regulations with a rigorous attitude, to go above and beyond, to provide security of life and infrastructure.

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