



## **Industry Position on addressing container ship cargo fires**

by Container Ship Safety Forum e.V. (CSSF)

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### Introduction

- The CSSF is a global business-to-business network, launched in 2014, with the main objective to improve safety performance and management practices in the container shipping industry. The CSSF was incorporated as an industry association into the registry of associations in Hamburg, Germany in December 2018.
- The CSSF members consists of 26 companies or group of companies managing container ships under their Documents of Compliance (as per the ISM Code). CSSF represents more than 45% of the TEU capacity of the world container ship fleet ([www.cssf.global](http://www.cssf.global)).
- The vision of CSSF is to promote a container shipping industry with high safety standards by ensuring no harm is caused to people, ships, cargo, and the environment.
- The CSSF members collaborate to advance the continuous improvement of the safety culture and performance of the container shipping industry through measurements, reporting and benchmarking, best practice sharing and engaging with key stakeholders to develop durable solutions.
- The CSSF wants to take an advising role in the shipping industry by promoting and advancing the improvement of the industry safety culture and by supporting new initiatives/approaches.
- The CSSF does not want to be recognized as an extra regulator by setting new rules in addition to the existing ones, but wants to encourage with this paper *Industry position on addressing container ship cargo fires* all parties involved to look beyond minimum regulatory requirements.

## Background

The members of CSSF are highly concerned about the many cargo fires onboard container ships originating from commodities that are carried inside the containers.

- In 2018 CINS (Cargo Incident Notification System) recorded 18 cargo fires.
- In 2019 CINS members have recorded 35 cargo fires. Prorated this means an increase of almost 100%.
- All major shipping lines have experienced cargo fires in 2018 or 2019.
- More than 60% of the fires were classified as non-DG (non-Dangerous Goods). A high number of those are cargoes carried using special provision as allowed by the IMDG code. E.g., charcoal, cotton and seed cake.
- Fires in DG classified products originate from several different commodities.

## Position:

For the CSSF it is unacceptable that seafarers have to be concerned about their lives and wellbeing while doing their job due to dangerous cargo which is not managed responsibly by manufacturers, shippers and other parties in the supply chain.

Fire-fighting activities have one of the highest residual risks on board container ships and further mitigation is required both by developing preventive as well as resilience capacity in the supply chain and onboard vessels.

It is imperative that parties involved ensure strict adherence with the IMDG code and furthermore adopt the applicable best industry practices to ensure and maintain resilience against catastrophic fires.

The CSSF encourages shipowners to look beyond minimum regulatory requirements for fire-fighting equipment both for new buildings and existing vessels.

Shipping lines accepting cargo must step up their efforts to combat unsafe, mis- or undeclared cargo in the supply chain acknowledging that the many VSAs (vessel sharing agreements) are making this an industry wide problem that can only be solved jointly.

Flag State Authorities must step up to their obligations and ensure safety of dangerous goods by establishing an adequate regulatory framework and ensure effective enforcement of national and international regulations.

CSSF is highly concerned about mis-declaration of container cargo, improper stowage of inflammable goods in containers and the use of inadequate CTUs (container transport units). This can lead to improper and thus unsafe stowage and is one cause of fires seen.

When addressing container ship cargo fires - focus must be on:

- *Stopping the risk of fires*
- *Enhancing fire-fighting capabilities*
- *Responding to casualties*
- *Development of new solutions*

### **Stopping the risk of fires**

Container ships cargo fires are best addressed by avoiding them in the first place.

The key objective should always be to address the fire hazards before gate-in at terminals and before the loading on board vessels.

The IMDG code lays the responsibility on shippers and manufacturers to ensure that their cargo is safe and adequately packed for sea transport.

The CSSF urges industry stakeholders and relevant authorities to work together to solve unacceptable shortcomings found in the manufacturing, packaging and supply chain process, rendering cargoes dangerous for the seafarers, the environment and resulting in significant damage to company assets.

Safety of transport of goods should never be a competition parameter. The CSSF endorses the work done by e.g., the Cargo Incident Notification System (CINS), International Vessel Operators Dangerous Goods Association, International Chamber of Shipping's Dangerous Goods Panel and the International Cargo Handling Coordination Association to bring liner companies together on improving the safety of transport.

However, CSSF also sees a need to progress the work with higher urgency and urges the liner companies to be more ambitious in their work and not let compromises and lowest denominator weaken the deliverables.

Safety in the logistic chain is best achieved if shipping companies agree to common standards for sharing information about dangers and to set up joint systems to detect malicious practices (mis or undeclaring of cargo) by shippers.

IMO has initiated a review of special provisions in the IMDG code to be conducted with priority.

The CSSF members believe many fires onboard container vessels originate from cargo which has been transported using the special provisions in the IMDG Code and therefore strongly encourage IMO to be ambitious in their future review of the code to drive real changes and improvements.

Flag authorities should ensure adherence to their obligations as outlined by IMO for example with regards to systematic Dangerous Goods Container Inspections and reporting of results to IMO annually, ensure availability of Competent Authority Approved Laboratories etc.

The accountability and liability of shippers for failing to adhere to the IMO CTU code, for improper stowage of cargo in containers and for false or insufficient declaration of

container contents should be augmented; relevant rules and regulations should be strengthened and enforced more stringently.

Furthermore, by removing legal inhibitors and barriers, flag authorities should support joint initiatives by liner companies to make common platforms and standards for improving safety across the industry.

To ensure safe packing of goods transported in containers, the CSSF encourages shipping lines, authorities, shippers and manufacturers to promote and strictly adhere to the CTU code, which is expected to be reviewed and made mandatory soon.

### ***Enhancing the fire-fighting capabilities***

Improving the fire-fighting capabilities beyond SOLAS are required to effectively combat fires originating from cargo on container ships.

The SOLAS requirements that came into force January 2016 for new buildings are steps in the right direction, but still inadequate to address the fires seen in the industry in the recent years also on vessels constructed before January 2016.

CSSF members urge the regulators to look at the many studies made by experts and competent organizations and develop SOLAS requirements that will address the identified needs to build capabilities to combat fires on container ships.

Such requirements should include, amongst others:

- Enough boundary cooling capabilities from the main fire-fighting system (water) to create effective barriers preventing for the fire from spreading. Fire main lines and pumps should be designed for significant higher water capacity (volumes and pressure) than the existing SOLAS requirements.
- The analysis forming the basis for the ABS FOC notation or similar analysis can be used as baseline for what capacities should be available in container ship fire-fighting and auxiliary (bilge) systems.
- Ships should be fitted with fire-fighting water monitors which can reach the highest level of the container stacks on deck.
- Cargo hold ventilation and fire dampers must be easy to operate and maintain and not require significant time to close, in practice remotely controlled ventilation/fire dampers are encouraged.
- The accommodation ventilation systems must ensure easy and fast remote close down to prevent ingress of smoke/gas.
- The accommodation, living spaces etc. should be protected by water curtains and spray systems to protect human lives and ensure safe access to lifeboats etc. Alternatively increase the fire protection to a H120 standard.

- CO2 total flooding of cargo holds should be supplemented by water spray systems or systems to flood the affected cargo spaces.
- Consider how to safely access cargo holds for fire-fighting purpose.

Ship managers should propose ship owners to voluntarily adopt above considerations in their new building projects or as part of retrofitting existing vessels. Furthermore, following best practices should be adopted by parties concerned in order to increase resilience:

- Vessels should be equipped with fast response fire-fighting kits which can be used for immediate deployment of fire-fighting efforts. E.g., arranged in bags with light equipment which can easily be carried around in cargo areas.
- Methods to be developed that can easily penetrate containers for subsequent filling (flooding) with water is often the most effective fire-fighting solution. Methods for reaching top tiers on deck should be included.
- Include thermal/heat detection cameras/systems in the fire-fighting equipment onboard all vessels. Same will be useful to detect hotspots to guide an effective fire-fighting operation.
- Minimum requirements on fire-fighting equipment and outfits should not be used to determine the amount and quality of available equipment onboard vessels. Ship owners should equip their vessels with adequate equipment based on risk assessment and fire scenario simulation undertaken by the ship manager. (The CSSF is of the opinion that minimum requirements allow owners to equip their vessels with poor quality and technically outdated equipment)
- In addition to having suitable BA-air compressor capacity onboard, the number of BA-air bottles should be increased to extend fire-fighting response time.
- Adopt Risk Tolerance Based Safety Considerations in procedures and/or processes for stowage of dangerous goods.
- Fire-fighting solutions to include considerations to stowage of Oxidizers under deck which even though permitted is challenging to extinguish with CO2 fixed fire-fighting systems.
- Specify and adopt requirements to Emergency Generators and Emergency Switch Board consumers to support casualty handling. E.g., ensure that UHF Radio repeaters as well as the vessels primary telephone and email communication system are connected to same. Furthermore, ensure that local fire-fighting auxiliaries such as high fog sprinkler systems are also connected to emergency switchboard.

## **Responding to casualties**

The CSSF members are concerned about the slow progress in ensuring safe port of refuge for vessels in distress. The revision of IMO Res. A.949(23) Guidelines on places of refuge for ships in need of assistance is not yet completed and will not be before next year.

Flag Authorities must accommodate requests for safe refuge to ensure safe casualty handling in general and for specific casualties.

Furthermore, the CSSF members have noted the huge difficulties in getting permission to discharge fire-fighting water for responsible post-treatment, the reception facilities are not readily available. Swift setup is required to avoid significant costs to society by idle ships and delay in cargo handling.

Salvage companies are strongly encouraged to review the global availability of fire-fighting tugs and assess where there are pockets of low availability and work towards closing these pockets to provide timely and effective salvage operation.

Salvage companies are furthermore recommended to improve their project management skills, to better cater for the onwards commercial availability of salvaged vessels rather than solely focusing on eminent casualty response. Ultimately, if successful improvement is achieved, this will lower the cost of casualties for all parties involved in a casualty at a common benefit for the society.

Salvors and ship managers are encouraged to work in closer relationships including exploring opportunities of 'frame agreements' allowing for pre-agreed and pre-determined tariffs, terms and conditions leading to enhanced focus on operational aspects in the emergency response phase rather than commercial negotiations.

It is highly important that ship managers maintain focus on their emergency preparedness and emergency response procedures in their Safety Management System.

- Separate emergency response procedures with flow-chart-like instructions are considered valuable. Same are best maintained in hard copy.
- Drills & onboard training should be strengthened to build realistic scenarios including frequent full use of onboard available fire-fighting and response equipment. Adequate time should be allocated for drills to allow crew to gain experience with the functionalities by operating the fire-fighting equipment, fire dampers etc.
- Learning processes should be established for evaluating drills and real-life casualties in order to continuously improve casualty handling procedures.
- Ensure that seafarers are regularly receiving fire-fighting and smoke diving training both realizing and acknowledging that the seafarers are not professional fire fighters.

### **Development of new solutions**

The CSSF encourages shippers, ship managers, equipment manufacturers, academia, and societies to continuously develop new solutions to combat container fires by engaging in cooperative approaches and the CSSF will engage itself to be part of the solution.

Authorities (and Classification Societies) to ensure that rigid approval processes do not prevent development and implementation of new solutions.

The CSSF recognizes that many industry stakeholders are currently arranging and engaging in activities, workshops and seminars to identify possible new solutions. The CSSF is of the opinion that many of the organizers should coordinate their efforts better to find the best solutions for the industry and to avoid numerous sessions which will both delay the process and spread expert resources thin.

Work should be done to identify solutions for better fire detection capabilities through early warning and identification of affected container(s).

Realizing that success on using CO<sub>2</sub> fixed fire-fighting systems in cases of fire below deck is inconsistent as well as are not able to suppress a fire caused by certain commodities (e.g., self-oxidizing products) should in the view of CSSF trigger a need for new fire-fighting solutions to be developed for cargo holds.

The CSSF is convinced that new technical and procedural solutions have to be complemented by strengthening the legal framework and the accountability of those who do not adhere to the rules and regulations.