

Fire - the ever-present risk on container ships

By Uwe-Peter Schieder, GDV and Vice Chairman of IUMI Loss Prevention Committee,
www.gdv.de



The marine equivalent of the Airbus A380 has come to Hamburg. One Monday evening, the largest container ship in the world, the CSCL Globe (photo), docked in Hamburg. The Chinese container ship is without parallel in so many respects, and it is an example of the latest trend towards ever larger vessels. The same cannot be said however for fire protection at sea, quite the opposite in fact, as no progress is being made at all in this area. If we are to get to grips with the risk of fire, on-board firefighting facilities must be modernized.

Longer than four football pitches and more than twice the height of the Brandenburg Gate, the CSCL Globe became the largest container ship in the world when she came into service in December. The Chinese superfreighter can carry 19,100 TEU. Longer, wider, higher: Over the past few years, marine construction has been going in one direction only – bigger! The danger with this trend is that the financial risk in the event of loss grows as the size of the vessel increases.

From a marine insurer's perspective, it is a simple equation: The larger the vessel, the more cargo it will carry, and hence the greater the sum insured will be. The value of the entire vessel including cargo can amount to 700 million euros. If two such vessels were to collide, a single event could lead to losses running into billions of euros.



Stern in flames: When the Hyundai Fortune caught fire in 2006, the flames were so ferocious that the crew were helpless to take any measures to combat the fire. The 27 crew were rescued by a Dutch warship in the Gulf of Aden.

Fireworks on the high seas: The Hanjin Pennsylvania was carrying fireworks. When a fire broke out, the bangers and rockets exploded - for more than a week. It is estimated that some 1,300 containers were lost in the fire.

Like a forest fire: A firefighting aircraft drops water on the Charlotte Maersk in 2010.
Source: Reederei NSB

In 2012, a fire broke out in the hold of the MSC Flaminia. There was an explosion while the crew were attempting to extinguish the fire. One member of the crew was confirmed dead and another was missing. Many suffered serious burns.
Source: Reederei NSB

It was only after two firefighting tugs arrived that the blaze could be contained. The vessel was carrying 150 containers with hazardous goods. Smoldering fires were discovered on board even after the vessel had been towed to Wilhelmshaven some two months after the blaze.

Casual approach to safety regulations

Marine insurers are increasingly noticing a casual approach to hazardous goods and declaration regulations. In a few cases, companies have published tips for circumventing hazardous goods regulations on their web pages. Incorrectly declared cargo, in particular chemicals, have frequently proved to be the cause of fires on board.

The size of vessels and the on-board technology have been subject to a constant process of optimization. But safety measures, in particular in respect of fire protection, have been left lagging behind in the face of ever bigger, ever better container ships. Fire protection has been largely untouched due to the fact that cargo is more commonly being transported in containers rather than as bulk cargo, and has been for decades.

Fire protection on board is not unlike fire protection in buildings: If a fire breaks out and is not quickly brought under control, all that is left is a ruined shell, fit only for the wrecking ball. In turn, in the case of ships, a total write-off. To better protect the cargo on container ships, with a value running into many millions, it makes sense to modernize the on-board facilities for containing and extinguishing fires.

On deck and below deck, firefighting facilities need to be improved

Both on deck and below deck, up-to-date firefighting facilities could provide better protection against fire for the cargo. In closed holds, for instance, it should be possible to shield the rest of the cargo from the seat of the fire by active cooling with water. The major technical challenge in this respect is for the holds themselves to be cooled with water to prevent the steel from losing its stability as a result of the heat being produced. Once the seat of the fire has been isolated, it can be cooled with water and allowed to burn out in a controlled manner without spreading. Flooding the affected hold with carbon dioxide (CO₂) deprives the fire of oxygen and smothers it.

On deck, water curtains between the container bays could prevent a fire from spreading. In addition, permanently installed monitors on deck should be able to bring fires under control quickly. The monitors should be able to reach any point on the vessel. The water pressure and the range must be sufficient to allow fires to be extinguished, or at least prevent them from spreading to neighboring

stacks of containers, anywhere on deck in wind speeds of up to force 9. This also reduces the risk of the entire cargo, or indeed the vessel itself, being lost to the fire.

There are no plans for fire extinguishing systems to be retrofitted

Since 2014, the regulations of the International Maritime Organization (IMO) only stipulate portable monitors, which have to be set up by the crew within the danger zone of the fire. These small monitors cannot be remotely controlled, but they may be helpful in fighting an incipient fire. However, if a fire is started by an explosion, as was the case with the "MSC Flaminia", "Hanjin Pennsylvania" and the "Hyundai Fortune", it is no longer possible to use these portable monitors. And retrofitting of these small, portable monitors is not even prescribed for the existing fleet of more than 5,000 container ships. Instead, it is a discretionary measure. The current firefighting facilities remain inadequate in the face of the capacity of such vessels. Fire therefore remains an ever-present risk on the high seas.

