

Fires on ships Causes and preventive measures



An analysis by the Norwegian Association of Marine Insurers Cefor found that larger container ships are at a higher risk of fire with consequences that are difficult to contain due to their large size. Already in 2021, 70 fires were reported only on container ships over a period of 5 years. At the urging of the International Maritime Insurance Union IUMI, shipowners' associations and the flag states of Germany and the Bahamas, the IMO's MSC Maritime Safety Committee agreed in 2020 to amend the SOLAS Convention. The amendments will enter into force on January 1, 2028. The distinction between fires occurring in the engine room and those occurring in the ship's cargo storage areas as shown in the diagram is deemed necessary. Although fires in the cargo space of container ships show a steady increase during 2020 – 2021, the increase in the occurrence of fires in the engine room raises several questions that are critical to answer.

On 1 September 2023 the Paris and Tokyo cooperation agreements launched a Converged Modernization Inspection (CIC) on fire safety. CIC focuses on fire control and fire suppression systems, however prevention is always better than cure.

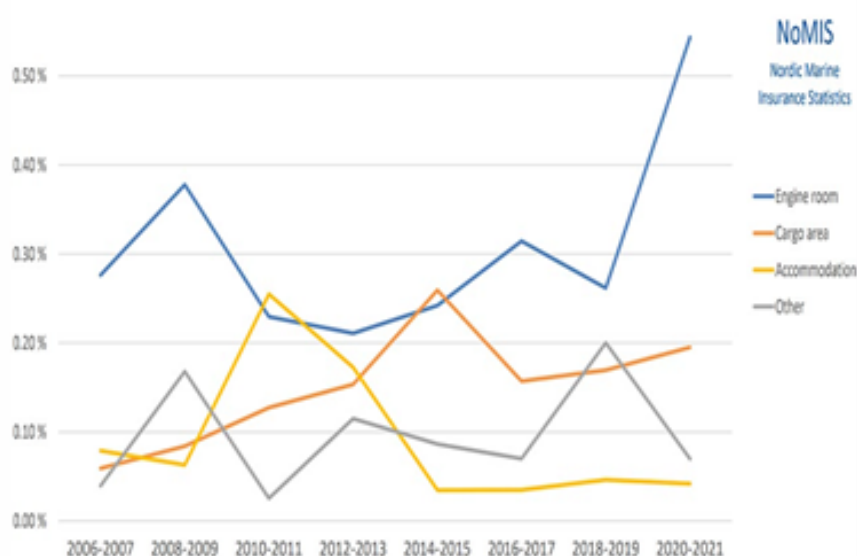


Chart Frequency of fire occurrence on container ships

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The reasons why a fire can appear specifically in the ship's engine room are:

1. Mechanical Damage: refers to damage that occurs in the mechanical parts of the ship such as the main engine, the engine. The factors that determine the size of a fire are the amount of fuel and oxygen available in the space. Limiting oxygen can greatly aid in fire control.

Therefore the response of the crew to close the ventilation and air ducts determines the extent of fire spread.

2. Flammable liquid leakage on a hot surface: with the help of heat, the flammable liquid can turn into flammable vapors. This process is called pyrolysis and is usually a fast reaction rate and therefore dangerous. Correct and timely compliance with SOLAS regulations and notaries significantly reduce this risk by taking the following measures:

Inspection of hot surfaces on a regular basis using an infrared thermometer (Detection of the infrared radiation that the surface in question can emit).

Check the connections of the pipe in which the liquid fuel is leaking.

Correct repositioning of fuel leak pipe insulations after repair or maintenance.

Pay the necessary attention to the way flexible pipes are connected, as the increased voltage leads to a reduction in their life span and therefore to exposure of their interior to heat.

3. Electrical fires: the source of these is the central electrical panel or even electrical motors and generators. Accumulation of impurities in these parts causes overheating and therefore leads to fire. Also, a possible short circuit causes a high temperature to occur and therefore lead to favorable conditions for the occurrence of a fire. Finally, loose connection of electrical circuits can cause current to leak and therefore be a source of explosion. These potential hazards can be anticipated by:

The regular cleaning of panels and electrical machines and generators to avoid the accumulation of dirt or short circuits.

Regularly check terminal and switch connections and ensure they are tight by applying the required torque.

The above preventive measures to avoid the occurrence of fires cannot be taken if the crew is not properly trained and does not respond in time. The systematic control of the conditions and parts of the engine room as well as the automatic reaction to the possibility of a fire are the parameters that will significantly reduce their occurrence.