

Update - Battery fire with subsequent gas explosion

Reference is made to safety message [03/2019 Battery fire with subsequent gas explosion](#). The following is an update and clarification of important matters regarding the referred safety message.

"It is extremely important that vessels are not operating without communication between the EMS (Energy management system) and the battery packs, as this may result in a breach in the transfer of important system data to the EMS/bridge."

The intention is that vessels do not operate without intact communication with the battery packs as this is necessary to alert the crew in case of an incident in the battery system. However, this does not prevent maintenance tasks from being performed during operation, given that the work has been risk assessed and planned. Battery modules not installed in the battery system, with the associated monitoring, should not be stored onboard and should be taken ashore at the earliest opportunity.

The Norwegian Maritime Authority would also like to share important lessons learned from the incident:

1. Training and competence of seafarers:

- a) Incidents in enclosed spaces involving li-ion batteries can lead to explosive and / or toxic atmospheres. Entry of battery compartments in order to further examine an alarm should in most cases not be performed without specific training and protective equipment. Entering a battery compartment during or after an incident can lead to an explosion or crew being exposed to toxic gases.
- b) To maintain the safety of crew and passengers, the crew needs to have an understanding of the dangers occurring if the battery system is exposed to external hazards, and also the importance of early extinguishing and planned ventilation strategy during incidents.
- c) Training and drills for events with conventional technology is not sufficient.

2. The location of ventilation inlets and outlets of the battery compartment should be evaluated, not only with regards to ignition sources, but also with regards to possible exposure of smoke and toxic gases. Similar applies to battery systems with dedicated

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exhaust ducts as these are vulnerable to external hazards similar to systems designed to ventilate possible off-gas to the room.

3. Attention should be made to the dangers associated with pressure differences that arise upon release of gas-based extinguishing systems.

4. Companies should have prepared onboard instructions reflecting the vessel's extinguishing and ventilation strategy during and after an incident.

5. The use of seawater as extinguishing medium is not recommended. Any intended use of seawater should be evaluated considering the risk of electrical short circuits and possible increased gas production.

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This document has been electronically approved and signed.