

IMCA Safety Flash 17/20

June 2020

These flashes summarise key safety matters and incidents, allowing wider dissemination of lessons learnt from them. The information below has been provided in good faith by members and should be reviewed individually by recipients, who will determine its relevance to their own operations.

The effectiveness of the IMCA safety flash system depends on receiving reports from members in order to pass on information and avoid repeat incidents. Please consider adding the IMCA secretariat (imca@imca-int.com) to your internal distribution list for safety alerts and/or manually submitting information on specific incidents you consider may be relevant. All information will be anonymised or sanitised, as appropriate.

A number of other organisations issue safety flashes and similar documents which may be of interest to IMCA members. Where these are particularly relevant, these may be summarised or highlighted here. Links to known relevant websites are provided at www.imca-int.com/links. Additional links should be submitted to info@imca-int.com

Any actions, lessons learnt, recommendations and suggestions in IMCA safety flashes are generated by the submitting organisation. IMCA safety flashes provide, in good faith, safety information for the benefit of members and do not necessarily constitute IMCA guidance, nor represent the official view of the Association or its members.

1 Inadvertent activation of condensed aerosol fire extinguishing system leads to a fatality

What happened

The UK Marine Accident Investigation Branch (MAIB) has issued [Safety Bulletin SB1/2020](#) highlighting a potentially serious hazard, associated with **condensed aerosol firefighting suppressant particles** after a fatal accident on fishing vessel *Resurgam*.

Fishing vessel *Resurgam* was alongside undergoing maintenance. An engineer and an apprentice from the owners shore-based support team were working on the main engine in the engine room. Also working in the engine room were two contractors who were installing a new FirePro condensed aerosol fire extinguishing system. During the installation, the fire extinguishing system partially and inadvertently discharged without warning, filling the engine room with a dense cloud of aerosol fire suppressing particles. Both the installation contractors and the company's engineer managed to evacuate, but the apprentice collapsed in the engine room. He was later recovered by the local fire and rescue service, but found not breathing, and could not be resuscitated.

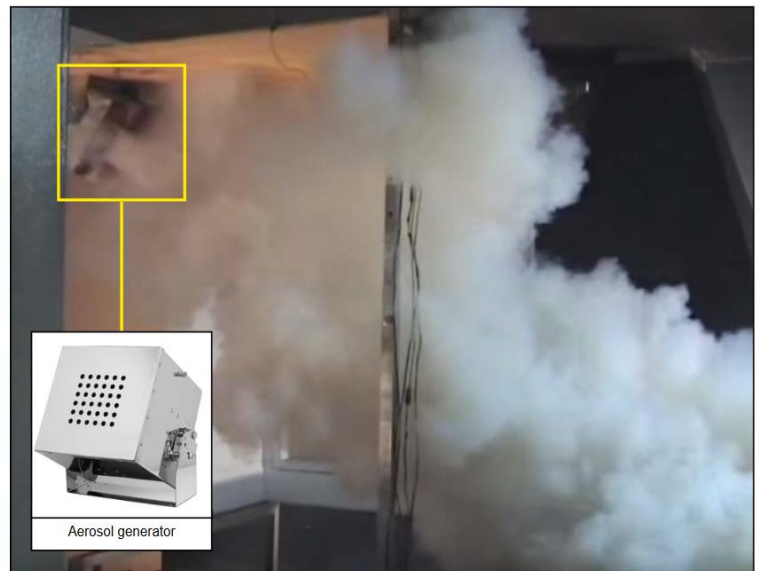


Figure 1: Typical discharge of a condensed aerosol fire suppressant (not at time of accident)

What were the causes/what went wrong?

The MAIB notes that *“the exact causes and circumstances of this accident are still being investigated, and the findings will be published by the MAIB in a full investigation report. However, during the inadvertent discharge, it is evident that the apprentice inhaled a high concentration of the suppressant particles and this contributed significantly to the fatality.”*

The manufacturer's *“Installation and User Manual and its product's material safety data sheets had recognised the inadvertent discharge of the system, particularly during installation and maintenance, as a hazard. However, the loss of life was not identified as a potential outcome; therefore, the risk associated with inhaling or ingesting a large volume of the suppressant particles was not fully appreciated or protected against.”*

Actions

The MAIB recommends that *“vessel owners, operators and those contracted to install FirePro and other similar condensed aerosol fire extinguishing systems should be fully aware of the potential risk to life from exposure to the aerosol particles.*




Safety precautions should be put in place to ensure that personnel are not exposed to this hazard:

- ◆ Prior to intentional discharge of a condensed aerosol system, there should be visible and audible alarms to alert personnel. Checks should also be made to ensure the protected compartment has been evacuated before the system is activated.
- ◆ When condensed aerosol fire extinguishing systems are being installed or maintained the system should be fully isolated to guard against inadvertent activation, non-essential personnel should be clear of the area and an enclosed space rescue plan should be in place.

Members may wish to refer to:

- ◆ [Failure of fixed high expansion foam \[MAIB\]](#)
- ◆ [Fixed CO₂ fire extinguishing systems – US Coast Guard alert](#)

2 Engine room fire – a small rag left after maintenance

Applicable Life Saving Rule:									
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What happened

There was a small fire in the engine room of a large multi-engined vessel. Work had been carried out the previous night to replace a sheared bolt on a turbocharger on one of the engines. On completion of works and following testing of the turbocharger, this engine was made ready before leaving port. An engineer conducting checks after the works, smelled non-exhaust gas smoke coming from this particular engine.

The Bridge was immediately informed and the engine idled and shut down. The engineer then noticed smoke coming from between the turbo chargers of this engine, followed quickly by a small visible flame. The Hi-fog system was activated above the engine and the fuel QCV (Quick Closing Valve) activated, and a full crew muster took place.

The Hi-fog was stopped having extinguished the fire. A small glow was then noticed and on removal of the exhaust shield the remains of a rag was found and removed. The engine room was then fully checked over and no further issues were found so all fire teams were stood down.

What were the causes/what went wrong?

Initial findings indicated that the incident was caused by the small rag left in an area of high temperature. The rag had been left after some routine corrective maintenance. The following points were noted:

- ◆ The area was confined with limited visibility which contributed to the missed removal of all combustibles upon completion of work;
- ◆ The fire did not escalate, primarily due to the prompt and professional actions of the crew;
- ◆ There were no further combustibles in that area.



Lessons learned

- ◆ Engine room housekeeping to be reviewed and monitored to ensure no combustible materials such as rags, gloves, and/or absorbent pads are left lying around;
- ◆ An engineer is to be present when starting up any machinery or system post-maintenance, to ensure that the area is safe;
- ◆ It was made a requirement to check work areas completely and enforce a rigid sign off procedure, particularly in high risk areas;
- ◆ On board Risk Assessments were reviewed and amended to ensure the above are added as part of the control measures.

Members may wish to refer to

- ◆ [Subcontractor ROV Control Room Damaged By Fire](#) [finding: *The layout of equipment and materials within the container, including the presence of oily rags, created a fire risk which was not identified or managed during mobilisation or pre-use inspections. There was no evidence of ROV System audit/pre-mobilisation checklists being completed*]
- ◆ [Fire In Engine Room On Platform Supply Vessel](#)
- ◆ [Engine Room Fire](#)

3 Fire in the engine room

What happened

A vessel suffered a fire in the engine room. The incident occurred after the vessel was leaving port during the hours of darkness in calm weather. The vessel was making around 5-6 knots, when the fire panel indicated fire on one of the diesel generators. Flames and smoke were visible in the engine room. A second generator started automatically after 20 sec. The crew were all mustered safely. The *Flexifog* fire extinguisher system was released in the engine room. Two minutes later a firefighting team entered the engine room, at which time flames and smoke were still visible. After six minutes the fire was extinguished by a combination of firefighting team and the *Flexifog* system.

The vessel maintained its position and all personnel evacuated to deck. There were no injuries. The generator that caught fire suffered significant damage.

What went wrong?

Bearing failure in engine.

What were the causes

Investigation showed that the failures could not have been related to lack of maintenance. There was a suspected potential fault in engine components which were replaced during recent engine overhaul.

Lessons learned

The key learning was that the *Flexifog* fire extinguisher system and the well drilled fire-fighting team prevented escalation to potential critical situation. Several actions were taken by the marine crew to avoid the fire spreading on the vessel. Our members' client was impressed with the professional way in which the marine crew handled the situation.

Actions

To prevent potential fire spreading – make sure the marine crew:




- ◆ Are drilled in emergency training;

- ◆ Are familiar with the vessel and the fire shut down mechanisms;
- ◆ Have a water mist system – this can be crucial to avoid the fire spreading.

Members may wish to refer to

- ◆ [Serious Engine Room Fire Whilst Divers In Saturation](#)
- ◆ [Fire In Engine Room](#)
[Fire In Engine Room On Platform Supply Vessel](#)

4 UK HSE: Workers injured by unplanned release of mud slurry

Applicable Life Saving Rule:									
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What happened

An electricity power station company was prosecuted after three contractors were injured by a sudden release of water and sludge, while carrying out maintenance work. Three crew were removing a recirculation pump for maintenance when approximately 39 cubic metres of diluted slurry and associated stored energy was released, while the pump was being removed. The contractors were swept off the concrete plinth where they had been working and sustained multiple fracture injuries.

What were the causes/what went wrong?

An investigation found that the pressurised contents of the pump and associated pipework had not been discharged prior to work starting, because the drain pipe was blocked. This resulted in the release of stored energy during the removal of the pump, instead of during the isolation process. There had been a failure to undertake a suitable and sufficient assessment of the hazards and risks associated with the work, and their employer had not implemented a safe system of work.

Members may wish to refer to

- ◆ [Lost Time Injury \(LTI\): Crewman Injured During Opening Of Tanks](#)
- ◆ [Fatality: Stored Pressure Release](#)