

## IMCA Safety Flash 25/19

October 2019

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](mailto: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](http://www.imca-int.com/links). Additional links should be submitted to [info@imca-int.com](mailto:info@imca-int.com).

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### 1 Battery fire with subsequent gas explosion: warning about lithium-ion power following ferry fire

#### What happened

The Norwegian Maritime Authority or *Sjofartsdirektoratet* has published an [alert](#) concerning a small fire that erupted in the battery room onboard the *MF Ytterøyningen* passenger ferry. Firefighting started and the ferry reached port under her own engine power. Passengers and crew were safely evacuated to land. In the morning of Friday 11 October, there was an explosion below deck, in or adjacent to the battery room.

The Norwegian Maritime Authority “*recommends that all shipowners with vessels that have lithium-ion battery installations, carry out a new risk assessment of the dangers connected to possible accumulations of explosive gases during unwanted incidents in the battery systems.*”

*It is extremely important that vessels are not operating without communication between the EMX (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 sequence of events has not been established.*

#### Clarification 18 October

The Norwegian Maritime Authority further wants to clarify the following items:

All shipowners using a battery system should carry out a risk assessment based on the recommendations of the updated safety message.

- ◆ The risk assessment should cover the following:
  - the assessment should identify potential emergency shipboard situations, e.g. fire, flooding, collision, etc.;
  - subsequently, the shipowner should establish procedures to respond to these events and establish programmes for drills and exercises to prepare for emergency situations.

*This is in line with the requirements of the ISM code and is the shipowner’s responsibility.*

*The incident with the Ytterøyningen is still under investigation, and the cause has not been identified yet. There is nothing that indicates any issues regarding the above-mentioned risk assessment of this specific incident.”*

See also:

- ◆ <https://safety4sea.com/norway-alerts-on-battery-fire-with-subsequent-gas-explosion/>
- ◆ <https://www.oedigital.com/news/471727-a-fire-in-the-battery-room>

## 2 Lithium Batteries: Fire Following Failure of Helicopter Start Power Unit

### What happened?

The vessel fire alarm panel indicated an activated smoke detector in the Heli admin office. Upon investigation, crew found the Heli admin office to be filled with smoke; they proceeded to raise the alarm immediately and inform the Bridge. The fire alarm was sounded, and all personnel proceeded to muster. Emergency response teams were assembled and dispatched in full breathing apparatus to investigate the source of the smoke/suspected fire.

This was identified as a Portable Helicopter Start Power Unit (Lithium battery) which was located in the corner of the office and connected to a charging pack. The unit and charger were safely removed and doused with fire hoses until cooled and deemed safe. A quick and professional response from crew prevented any further escalation and the incident resulted in no injuries to personnel.



Failed unit and charging cable



Location in Heli-admin

The unit involved in the incident had been maintained in accordance with a planned maintenance regime and had displayed no signs of defect.

### What were the causes?

A suspected failure of unit or charger caused overheating and potential fire hazard. Our member has been in contact with the manufacturer and they suspect a component in the charger failed.

### What actions were taken?

- ◆ Failed unit was quarantined for safe disposal or returned to manufacturer for investigation;
- ◆ The vessel has now established a clearly marked external storage area for old batteries;
- ◆ All operators using similar units should ensure they are serviceable and show no signs of defect or deterioration.

### What lessons were learnt?

Devices fitted with Lithium batteries such as this should not be left unattended whilst charging. This also applies to personal devices such as laptops, tablets and mobile phones.

Members may wish to refer to:

- ◆ [Mobile Phone Charger Failures](#)
- ◆ [Laptop Battery Fire](#)
- ◆ [Laptop Battery Fire and explosion](#)

### 3 Fire Hazard Posed by Personal Electronic Devices

#### What happened?

A fire incident occurred in a seafarer's cabin due to a faulty mobile phone charger. The charger was left plugged in while unattended and an electrical short circuit ignited some paper on a desk.

Similar incidents can occur with other personal electronic devices, such as laptop computers, radios, and gaming systems.

Fires reported involving personal electronic devices have been attributed by the following causes:

- ◆ Inappropriate use of an electronic device;
- ◆ Use of defective electronic devices and extension cords;
- ◆ Overloading an extension cable or multi-outlet adapter;
- ◆ Overloading electrical circuits by plugging too many devices into a single outlet;
- ◆ Storing combustible materials (such as paper and clothing) on or under electrical devices.

#### What actions were taken?

The Master was to remind all crew to:

- ◆ Unplug electronic devices when unattended or not in use;
- ◆ Inspect electronic devices and associated cords before use;
- ◆ Not to store any flammable or combustible materials on or under electronic devices;
- ◆ Ensure that voltage and frequency of an electrical device is compatible with the vessel electrical system.

Members may wish to refer to:

- ◆ [Fire in vessel accommodation – overheating notebook computer](#)
- ◆ [Fire in the accommodation: electronic items in cabins](#)



### 4 Near Miss – Fire Blanket Caught Fire During Third-party Hot Work

#### What happened?

While conducting a fire watch round on a vessel in port, a 2nd mate noticed that a fire blanket on the midships fire hose box had caught fire. He immediately reported this to the Bridge and used an extinguisher to put the fire out.



### **What went wrong?**

The fire started after a third-party team (hired to remove sea-fastenings) had left the job to have lunch after cleaning the grillages on deck. There were no injuries to personnel, no harm to the environment and only slight damage to the fire hose box.

### **What was the cause?**

Our members' preliminary observations were that:

- ◆ There was incomplete recognition of all possible and likely hazards associated with the hot work activity – such as potential embers or residue that could ignite;
- ◆ The third-party fire watch did not ensure that the area was clear of embers or residue that could ignite before leaving for a lunch break;
- ◆ Potential poor quality of the fire blanket.

### **What actions were taken? What lessons were learned?**

- ◆ Review risk assessments related to sea fastening preparation and removal operations to ensure that all hazards associated with hot work are contained in the risk assessment – hazards associated with embers and/or residue that could ignite;
- ◆ Full and thorough discussion of fire watch responsibilities;
- ◆ Better and more continuous supervision of third-party contractors and their equipment.

Members may wish to refer to:

- ◆ [Hole burnt in vessel deck during removal of sea-fastenings](#)
- ◆ [Fire caused by hot work](#)
- ◆ [Fire watches for surface welding and burning operations](#)

## **5 Ruptured Acetylene Hose – Fire**

### **What happened?**

A subcontractor was preparing to use an oxy-acetylene torch on the back deck of a vessel. The oxygen and acetylene cylinders were located on the quayside with the hoses rigged to the vessel. On lighting the torch, a 'pop' sound was heard, and a small fire was observed from a rupture of the acetylene hose just ahead of the flash-back arrestor.

### **What went wrong?**

The actual cause of this incident could not be established. However, flash-back can occur when a flammable mixture remains in the blowpipe or hoses when the torch is lit. Ignition can travel towards the cylinder but is normally stopped by the flash-back arrestor, which prevents decomposition of the acetylene or an explosion.

### **What actions were taken?**

Our member took the following actions:

- ◆ Regularly check the condition of oxygen and acetylene hoses and ensure they are replaced as required in any planned maintenance system (PMS) or supplier instructions;
- ◆ Keep torches in good condition to avoid turbulent gas flow and so reduce the risk of flash-back;
- ◆ As a minimum there should be a non-return valve at the torch end of each hose and a pressure or temperature variation activated flash-back arrestor at the cylinder end;

- ◆ Only use regulators, flash-back arrestors, hoses and blowpipes which are designed for either acetylene or oxygen and are clearly marked and manufactured to the correct standard;
- ◆ Ensure that flash-back arrestors are being replaced at least every 12-months;
- ◆ Welding gas hoses should be correctly connected, and jubilee clips should never be used;
- ◆ For cutting and purging operations the oxygen and acetylene hoses should be separately purged to remove any flammable mixtures before lighting the blowpipe;
- ◆ Monitor and confirm the subcontractor's compliance to the above requirements.

### **What lessons were learned?**

Our member gave the following advice to crew for what to do if a flash-back occurs and it is safe to do so:

- ◆ Immediately close the oxygen nozzle valve and then the acetylene nozzle valve (NB: this is the opposite of the normal closing down sequence);
- ◆ Close both oxygen and acetylene cylinder valves;
- ◆ If the flame cannot be put out at once, evacuate the area and raise the alarm. For onshore sites or for a vessel which is alongside alert the emergency services;
- ◆ Once the situation is secured, the equipment must be quarantined until it can be fully examined for damage and either confirmed safe for reuse or safely disposed of;
- ◆ Never attempt to move or vent a cylinder but monitor for any heat generation;
- ◆ If a hotspot is detected on the acetylene cylinder evacuate the area, raise the alarm and where appropriate, notify the emergency services, if safe to do so apply cooling water.

Members may wish to refer to:

- ◆ [Proper Care of oxy-acetylene cutting and welding equipment](#)
- ◆ [Oxygen and Acetylene Hose Caught Fire](#)
- ◆ [Hose Fire caused by flashback in oxygen and acetylene hoses](#)