LTI: Person injured by a battery explosion on vessel deck

Safety Flash Published on **16 December 2020** Generated on **28 January 2026** IMCA SF 34/20

What happened?

A battery blew up, causing the lid of the battery housing to shoot upwards and hit one of the persons working on it, causing significant facial injuries. The incident occurred when a diver and dive technician were on deck checking the condition of the battery packs of portable subsea MPI (magnetic particle inspection) equipment.

After the previous dive the MPI unit in use had been recovered, taken on deck to check the condition of the battery inside its housing. The diver and dive tech were checking the battery voltage with a multi-meter via the waterproof bulkhead fitting. They had found that the battery in use was slightly low and needed to be charged.

A second battery that had been charged the day before was brought by the dive tech and placed on deck. Whilst checking this second battery and its function, an explosion occurred. The force from the explosion caused the lid of the battery housing to shoot upwards as the base of the housing shattered. The lid hit one of the workers who suffered a laceration to his face and hands, and later, X-rays revealed a fracture to his lower jaw.

The diving supervisor and dive tech, who were both in proximity overseeing the work, were unharmed and were able to raise the alarm and administer first aid. Within thirty minutes the injured person was medevac'd ashore to a hospital for further treatment. Our member notes that this incident could have had a much more severe outcome.

What went wrong?

- After charging the second battery pod was finished, the vent plug was screwed down, not allowing adequate time for off-gassing to disperse through the venting port.
- The manufacturer’s instructions were followed during the initial charge, but the vent was secured too soon after this occurred.
- The controls identified in the risk assessment and the battery charging procedure were not verified by the supervising persons at the site.
- “Task seen as routine”- there was no task-specific Toolbox Talk conducted; a ‘pre-shift’ briefing was considered adequate. The persons involved saw the task as “routine and simple”.
- Identified risks should have been given more emphasis during the TBT.

What were the causes?

- Not following the manufacturer’s recommendations in regards to battery ‘off-

gassing' time prior to use. This lack of adequate venting and purging of the battery gases allowed an explosive atmosphere to build up.

- The investigation was inconclusive to the *exact root cause* of the explosion, as some of the original electrical parts were not in working order due to the explosion. Testing indicated that it was likely that turning on the "Lamp ON" switch provided the ignition source to the hydrogen-air mixture within the battery housing.

Lessons learned

- Follow manufacturer's recommendations with specific requirements to times for venting or off gassing of batteries.
- Ensure any instructions for equipment are easy to understand. If translation is needed, ensure that all personnel that will be using the equipment understand it fully.
- Ensure team have been given instructions and understand the use and limitations of the equipment.
- **Stop the job!** Encourage personnel to be assertive in identifying and reporting operational discrepancies promptly to avoid inappropriate or unsafe conditions becoming the 'norm'.
- **Correct PPE:** Wearing the correct PPE in this incident most likely prevented further or worse injury.
- **Good emergency response plan (ERP):** The immediate response, subsequent medevac and further hospital treatment, followed by good immediate after care, shows the importance of a well-reviewed and drilled ERP.

Actions

- All units were taken out of service and quarantined, until the cause could be established.
- Full co-operation of manufacturer:
    - The manufacturer of the equipment was informed.
    - This was the first incident of this type in 30 years since the product first came into the industry.
    - The manufacturer was involved in recommendations to help identify and isolate the cause, and provided preventative measure for the equipment for future usage.

    - The manufacturer doubled the post venting time on both models of this equipment and issued new operating manuals.

- Create battery charging checklists and communicate requirements to relevant personnel.

IMCA Safety Flashes summarise key safety matters and incidents, allowing lessons to be more easily learnt for the benefit of the entire offshore industry.

The effectiveness of the IMCA Safety Flash system depends on the industry sharing information and so avoiding repeat incidents. Incidents are classified according to IOGP's Life Saving Rules.

All information is anonymised or sanitised, as appropriate, and warnings for graphic content included where possible.

Share your safety incidents with IMCA online. Sign-up to receive Safety Flashes straight to your email.