



Carbon Dioxide (CO₂) - Guidance for use of CO₂ in ships fixed firefighting systems

We would like to draw Members' attention to a recent UK Marine Accident Investigation Branch (MAIB) publication about two incidents involving the accidental release of carbon dioxide (CO₂) from the vessels' fixed firefighting system.

Although neither incident resulted in harm to personnel, fortuitously because in both cases the main release valve to regularly manned spaces remained closed, such occurrences could easily have resulted in fatalities if prompt action had not been taken by those involved.

MAIB Reports

According to the [MAIB report](#) the cause of the accidental release on both vessels was the malfunction of the cylinder valve, resulting from improper and inadequate maintenance. The report concludes that in both incidents, the approved shore service providers had failed to properly maintain the safety of the firefighting system.

The MAIB report follows on from two similar CO₂ related incidents highlighted by the United States Coastguard (USCG) in their [Safety Alert 07-17](#). In one, the Alert reports that during routine testing by the vessel's crew to demonstrate the system's functionality, they inadvertently released CO₂ into the space. Subsequent investigation of the incident revealed that instead of activating the temperature transmitter, the crew member activated the heat actuator which led to the release. In the second incident, the pilot system was accidentally activated by a technician during maintenance, leading to release of the CO₂. Although in this latter case the CO₂ was contained within the system pipework in the CO₂ room and was not released into a manned space, the system had to then be depressurised by manual release into the machinery spaces.

USCG [Safety Alert 13-17](#) noted that in their experience the CO₂ bottles on some vessels were not clamped sufficiently tightly which could have put undue strain on

the attached rubber discharge hoses that had been wrapped around the bottles. Over a period of time this resulted in some cracking of the hoses.

The Club suggests that Members draw the MAIB and USCG reports to the attention of their crews and are strongly encouraged to take appropriate measures to verify the integrity of the CO₂ system taking into account the recommendations made in the reports. This could include carrying out system checks during routine inspection and making contingency plans for the inadvertent release of CO₂ in enclosed spaces.



The Club also recommends that before entering into a maintenance agreement with a service provider, an assessment of their experience should be carried out. Ideally, the service provider should either have been authorised by the system's manufacturer to carry out maintenance works and/or be certified by a Classification Society for the specific services offered. Further guidelines for recommended maintenance and inspection regimes are contained in [MSC.1/Circ.1318](#).

Further information:

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