



Maritime and Coastguard Agency

---

---

## **Operating Instructions and Signage for Fixed Gas Fire-Extinguishing Systems**

Notice to all Designers, Builders, Companies, Masters, Officers and Crew of Ships and Fishing Vessels

---

---

**PLEASE NOTE:-**

Where this document provides guidance on the law it should not be regarded as definitive. The way the law applies to any particular case can vary according to circumstances - for example, from vessel to vessel and you should consider seeking independent legal advice if you are unsure of your own legal position.

**Summary**

This note provides guidance regarding the use of operating instructions and signage for fixed gas fire-extinguishing systems.

Key Points

- Be fully competent with the operation of fixed gas fire-extinguishing systems
- Be aware of the actions required after gas release to check gas has released correctly

### **1. INTRODUCTION**

- 1.1 Various recent incidents<sup>1</sup>, which have been investigated by the Marine Accident Investigation Branch (MAIB), have shown that there is room for improvement in the quality and effectiveness of operating instructions and signage given for the use of fixed gas fire-extinguishing systems.

### **2. USE OF OPERATING INSTRUCTIONS AND SIGNAGE FOR GAS FIRE-EXTINGUISHING SYSTEMS**

- 2.1 The IMO Fire Safety Systems Code (FSS), Chapter 5, paragraph 2.1.3.3 states that: *“The means of control of any fixed gas fire-extinguishing system shall be readily accessible, simple to operate and shall be grouped together in as few locations as possible at positions not likely to be cut off by a fire in a protected space. At each location there shall be clear instructions relating to the operation of the system having regard to the safety of personnel.”*

These requirements are equally valid for non-SOLAS vessels fitted with fixed gas fire-extinguishing systems.

- 2.2 As systems differ, it is important that instructions and information relate to the specific system installed. These should be clearly displayed at appropriate positions in such a way as to be easily understood. The use of generic instructions and information is not always appropriate and can lead to confusion.
- 2.3 For ease of identification, the use of colour coded controls for different discharge zones should be considered.
- 2.4 Identification of critical system components, e.g. distinguishing between timer and pilot bottles, should be in place.
- 2.5 System operating controls should have their normal operating and, if applicable, maintenance positions clearly identified and should be arranged in such a way as to prevent accidental release of the fire-extinguishing gas as a result of external forces, e.g. wave or vibration. Where locks are used to secure valves or operating devices a spare key, held in a break-glass-type enclosure, should be immediately available next to the valve / device and labelled.
- 2.6 In addition to having clearly marked the operating controls and valves with appropriate instructions, other valves which are not required to release the system must also be clearly located, identified and controlled to prevent their accidental use in emergency situations.
- 2.7 The system's audible and visual alarms should be regularly tested, maintained in good working order and all crew made aware of their meaning and actions to be taken when they operate. The alarm sounders should also be clearly labelled.
- 2.8 Entrances to spaces protected by fixed gas fire-extinguishing systems shall be clearly labelled.
- 2.9 It is important that fixed gas fire-extinguishing systems are properly maintained in accordance with the manufacturer's instructions, with all components including instructions and signs, etc., kept in good condition and available for easy use.
- 2.10 Arrangements for remote controls for fuel, lubricating and hydraulic oil pumps, quick closing fuel and lubricating oil valves, closing devices for ventilators and emergency stops for ventilation fans shall also be clearly covered by instructions and their components clearly marked, regularly tested and maintained in good working order.
- 2.11 It is important to ensure that the emergency operating devices should be kept free from obstructions at all times.
- 2.12 Training and familiarisation with the operation and associated procedures for gas release, specifically for those persons likely to have to operate the system in the event of a fire, should be regularly carried out and recorded.
- 2.13 **Know YOUR system; don't be caught out in an emergency.**

### **3. ACTIONS AFTER GAS RELEASE**

- 3.1 It is possible that CO<sub>2</sub> could have escaped into the cylinder storage room during release. It is advisable that breathing apparatus should be worn before entry is made into the room. Where no breathing apparatus is available, the room should be well ventilated and advice sought from shore authorities regarding entry<sup>2</sup>.

- 3.2 Immediately after activation of the system, checks should be carried out to ensure that the gas has been correctly released from the cylinders. Once a gas cylinder has discharged a white frost will be seen around the bottom. If this is not evident then the cylinder should be released manually. Depending upon system design, there may also be a clear indication that the discharge mechanism of each cylinder has been activated. On bulk CO<sub>2</sub> systems the tank gauge can be checked.
- 3.3 On some systems, gas discharge may also be monitored by a discharge switch connected to the manifold grouping a bank of cylinders or a distribution pipe. This discharge pressure switch can indicate on a gas discharge control panel. This switch may also have a mechanical indicator (small plunger) showing gas discharge.
- 3.4 Always check the system to ensure distribution valves, control levers and other control devices are returned to a safe condition after use.
- 3.5 At the first available opportunity following a fixed gas fire-extinguishing system release, a manufacturer's representative or an approved service company, should attend onboard to check and confirm the system is safe. They should recharge the system and restore it to operational readiness.

<sup>1</sup>Reference MAIB investigation reports: Norsesea – Report No. 16/2003; Calypso – Report No. 8/2007; Shark – Report No. 13/2008; Figaro – Report No. 14/2008.  
Copies of these reports can be obtained from Marine Accident Investigation Branch, Carlton House, Carlton Place, Southampton, SO15 2DZ or from their website: <http://www.maib.gov.uk/home/index.cfm>

<sup>2</sup>Reference MCA Marine Guidance Note - MGN 354 (M+F) Fishing and Small Vessels – Safe Operation of Fixed CO<sub>2</sub> Gas Fire-Extinguishing Systems.

## More Information

Marine Technology Unit  
Maritime and Coastguard Agency  
Bay 2/27  
Spring Place  
105 Commercial Road  
Southampton  
SO15 1EG

Tel : +44 (0) 23 8032 9100  
Fax : +44 (0) 23 8032 9161  
e-mail: [ShippingSafety@mcga.gov.uk](mailto:ShippingSafety@mcga.gov.uk)

General Inquiries: [infoline@mcga.gov.uk](mailto:infoline@mcga.gov.uk)

MCA Website Address: [www.mcga.gov.uk](http://www.mcga.gov.uk)

File Ref: MS 022/009/3334

Published: January 2009  
Please note that all addresses and  
telephone numbers are correct at time of publishing

© Crown Copyright 2009

**Safer Lives, Safer Ships, Cleaner Seas**

Printed on material containing minimum 75% post-consumer waste paper

An executive agency of the  
Department for  
**Transport**