



## Leaflet

# Maintenance of operational readiness of fire extinguishing systems with gaseous extinguishing agents

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## 1 General

Fire extinguishing systems, especially those using gaseous extinguishing agents (hereafter referred to as gas extinguishing systems), are characterised by a high success rate in the extinction of fires, even in hazards with a high fire load. In order to maintain the operational readiness of these extinguishing systems, regular inspections and maintenance procedures are necessary. This leaflet specifies the minimum measures to be taken and the persons responsible for taking them. The diversity of system designs, however, does not allow specifying all of the potential inspection and maintenance measures in detail.

The management of the company using the system shall nominate a person, and a deputy, responsible for servicing the gas extinguishing system. They shall see to the fact that the installer's operating and maintenance instructions are adhered to. They shall carry out the following inspections, initiate any repair works necessary and record any measures and other occurrences in the log book (VdS 2240).

*Note: The contents of this leaflet is included in the Guidelines for the planning and installation of gas extinguishing systems (CO<sub>2</sub>: VdS 2093, Inert gases: VdS 2380, Halogenated hydrocarbons: VdS 2381). The planning and installation of gas extinguishing systems is also subject to the Guidelines for the triggering VdS 2496 and any appropriate measures for maintaining the triggering.*

## 2 Instruction and training of personnel

**2.1** The installer shall instruct at least two responsible persons (staff of the user) in how to operate the gas extinguishing system.

Any persons working in the flooding zone or in adjacent areas shall be carefully instructed and trained in any measures to be taken before, during and after any discharge of the gas extinguishing system.

**2.2** Any persons charged with repairs or other works who are not permanently employed in the flooding zone shall carry out these tasks only after having received a written authorisation (date, time and duration) by a person in charge. Persons charged with repairs or other works shall also be instructed as described above, or else one of the persons in charge shall be present all the time.

### **3 Inspections**

**3.1** In order to ensure operational readiness, regular inspections shall be carried out.

Frequency and scope of these inspections depend on the type of gas extinguishing system, national regulations, ambient conditions, etc.

**3.2** The inspections shall be carried out by persons that have been specially instructed in this task and in their duties and have gathered sufficient knowledge of the gas extinguishing system.

Depending on the installer's specifications, inspections shall take place on a daily or weekly or monthly basis.

#### **3.3 Daily inspections**

Visual inspections shall be carried out on all weekdays. Maximum interval due to Sundays and holidays shall be three days.

Systems whose operational readiness according to the relevant VdS Guidelines for planning and installation is monitored continuously, need not be inspected on a daily basis. However, at least weekly inspections are necessary.

#### **3.4 Weekly inspections**

The following shall be inspected once a week:

- fire detection equipment (visual inspection of condition regarding contamination and damage);
- supply quantity of extinguishing agent: container shall be exchanged or filled up at any loss > 10% of extinguishing gas or pressure cushion;
- operating position of valves;
- power supplies (visual inspection of operational readiness of control and indicating equipment resp. electronic control device).

#### **3.5 Monthly inspections**

The following inspections shall be carried out on a monthly basis:

Function test of

- equipment for operation and activation of fire doors and fire dampers, power supply, etc.

Visual inspection of condition regarding contamination and damage of

- audible and visual alarm devices;
- delay devices;
- nozzles.

Visual inspection of

- enclosure integrity,
- further equipment.

### **4 Log book**

A log book shall be kept. The following entries are mandatory:

- result of inspections;
- maintenance and repair works (reason, type);
- any other occurrences regarding the gas extinguishing system (e.g. fire, extinguishing intervention, unintentional release, disablement, faults).

### **5 Modifications**

In the case of modifications impairing the performance of the gas extinguishing system (change of fire hazard, room closure, ventilation) the insurer shall be informed and the gas extinguishing system shall be modified accordingly.

An installer approved for the type of system involved shall carry out any modifications and extensions of the gas extinguishing system.

## 6 Disablement

If the gas extinguishing system is disabled for more than 24 hours, the insurer and, if necessary, other bodies (e.g. authorities, providers of assistance) shall be informed.

During this time fire protection shall be ensured otherwise.

After each release of the gas extinguishing system an installer approved for this type of system shall inspect and recommission the gas extinguishing system.

## 7 Maintenance

In order to ensure the operational readiness of the gas extinguishing system according to the approval, regular maintenance including periodical inspections are necessary.

Maintenance works shall be carried out such that any disablement is as short and as insignificant as possible. The protected zones of multi-zone systems shall be – where possible – disabled in turn in order to disable only a small part of the gas extinguishing system at a time.

Faults shall be reported immediately after detection. Repair works shall start as quickly as possible within 12 hours after fault detection.

Gas extinguishing systems shall be maintained at least once a year.

Maintenance works shall be carried out by an approved installer, preferably by the company that has installed the gas extinguishing system in the first place. This installer shall be approved for the type of system involved.

## 8 Approved installers

Service works at gas extinguishing systems, such as repairs, maintenance works and modifications, shall be carried out by installers approved for the type of system involved. They shall have the appropriate spare parts, pipe layouts and hydraulic/pneumatic data of the system.

All VdS-approved installers are listed in VdS 2490.

## 9 Periodical inspections

The VdS Inspection Services shall inspect the gas extinguishing system and the protected hazard at least once a year.

During each inspection the expert shall carry out at least one functional test of the gas extinguishing system.

In the case of relevant modifications of the flooding zone enclosure and at least every 2 years the expert shall inspect the enclosure integrity of the flooding zone, e.g. by means of a door fan test according to VdS guidelines.

If the extinguishing agent quantity is calculated without reducing the surface term, a visual inspection of the enclosure integrity of the flooding zone will generally be necessary.

*Note: Taking into account the surface term will increase the safety potential, but cannot at any rate compensate for losses due to leakages affecting the hold time.*

The VdS Inspection Services issue a report on each periodical inspection. Any faults found in this report shall be rectified at short notice.



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