

**Guidance
Note**



Fire Industry Association



**Guidance Document on the use of High &
Regular Hazard Concentrations for Enclosures
Protected by Gaseous Fire Fighting Systems**

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INTRODUCTION

Upon publication of BS EN 15004 and the withdrawal of BS ISO 14520, FIA members believe that some clarification or interpretation of the requirements is needed, to differentiate between regular and high hazards contained in Clause 7.5.1.3. This document is intended to provide that guidance.

Regular and high hazard require different agent concentrations and therefore the correct interpretation is necessary, to ensure the end user is supplied with a system providing the appropriate concentration. A number of scenarios are discussed and guidance is based on those scenarios.

HIGHER HAZARD CLASS A FIRES

BS EN 15004 has requirements for higher hazard Class A fire risks as follows:

7.5.1.3 The extinguishing concentration for Class A surface fires shall be the greater of the values determined by the wood crib and polymeric sheet fire tests described in Annex C. The minimum design concentration for Class A fires shall be the extinguishing concentration increased by a safety factor of 1,3. For non-cellulosic Class A fuels, higher design concentrations may be required.

CAUTION: It is recognised that the wood crib and polymeric sheet Class A fire tests may not adequately indicate extinguishing concentrations suitable for the protection of certain plastic fuel hazards (eg electrical and electronic type hazards involving grouped power or data cables, such as computer and control room under-floor voids, telecommunication facilities, etc). An extinguishing concentration not less than that determined in accordance with 7.5.1.3 or not less than 95% of that determined from the heptane fire test in Annex C, Clause C.6.2, whichever is the greater, should be used under certain conditions.

These conditions may include:

- Cable bundles greater than 100mm in diameter.
- Cable trays with a fill density greater than 20% of the tray cross-section.
- Horizontal or vertical stacks of cable trays (closer than 250mm).
- Equipment energised during the extinguishment period, where the collective power consumption exceeds 5kW.

If polymeric sheet fire test data are not available, an extinguishing concentration 95% of that determined from the heptane fire test shall be used.

The FIA recognised that information of this detailed nature may not be available in the initial stages of a project, and that in order for consistent and responsible approach to gaseous fire extinguishing system design. The following 'default' approach should be used:

Scenario 1 – enclosures with floor voids, without re-circulating air handling equipment running during the 'hold time'.

Where enclosures containing Class A hazards are present and there exists a floor void, then as a minimum the floor void shall be classified as higher hazard. The room and ceiling voids are considered to contain regular hazards that do not need to be provided with higher hazard concentrations, unless re-circulating air handling equipment is provided that is NOT shut down prior to agent discharge.

Scenario 2 – enclosures with re-circulating air handling equipment running during the 'hold time'.

Where enclosures have floor voids and are supplied with re-circulating air handling equipment, that is not shutdown prior to agent discharge, then the complete enclosure should be provided with the higher hazard concentration. Additionally, enclosures where it cannot be determined that only a regular hazard exists, should be treated as higher hazard throughout and the higher hazard concentrations applied.

Scenario 3 – enclosures without floor voids/high hazards.

Where enclosures do not have floor voids or where it is definitively established that the floor void does not have sufficient fire load to require a higher hazard concentration, then a regular hazard concentration may be used throughout the enclosure.

The adoption of this guidance will ensure a consistency of design for all gaseous fire extinguishing systems in accordance with BS EN 15004.

DISCLAIMER

The information set out in this document is believed to be correct in the light of information currently available but it is not guaranteed and neither the Fire Industry Association nor its officers can accept any responsibility in respect of the contents or any events arising from use of the information contained within this document.



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