

Inergen

Inert Gas Fire Suppression

Inergen is an inert gas which is used as a fire suppressant based on the principle of oxygen depletion.

In an enclosed space Inergen reduces the oxygen concentration to around 12.5% which is considered to be an acceptable level for human exposure over short periods provided the system is correctly designed. In addition the carbon dioxide content increases to around 3%.

Inergen stimulates the uptake of oxygen by the human body thereby protecting persons who may be located in the protected zone.

When suppression systems are designed correctly we can expect fire extinguishment within 60 seconds without the intervention of manual fire fighting. This is provided the system is designed correctly and that the protected area is not overly taxed with heavy combustibles and non essential storage.

It is also paramount that the room is fire sealed in order to ensure that design gas concentrations are achieved.

Composition

Inergen is a mixture of inert gases argon (Ar), nitrogen (N₂) and carbon dioxide (CO₂). These gases occur naturally in the atmosphere. Discharge gas has a similar density to air. The system operates by physically removing oxygen from the atmosphere within the protected enclosure. Tests indicate that Inergen does not decompose or produce any by-products when exposed to a flame and there are no known toxicological factors associated with its use.

Inergen is a colourless, odourless gas. It is environmentally friendly and does not form decomposition products in a fire. It has zero ozone depletion potential and zero global warming potential. A gas discharge does not result in a fogging effect and there is no effect on visibility. This will ensure safe egress from the protected enclosure in an emergency.

Applications

There are various applications where Inergen fire suppression systems can be installed in order to protect vital assets including:

- Computer rooms
- Air traffic management centres
- Production control rooms



- Clean rooms
- Critical pieces of site & equipment
- Archive store rooms
- Data processing equipment
- Telecom centres

System Design & Operation

Inergen systems can consist of one or more gas storage cylinders connected via a common manifold. Systems can operate at up to 300 bar pressure.

The protected enclosure should have an adequate integrity to retain the design concentration for a minimum of 10 minutes.

When Inergen is discharged into an enclosed space, an inactive atmosphere is established in which the oxygen concentration is decreased from the normal 21% to 12-13% by volume. This oxygen concentration will not normally support combustion and we have fire extinguishment.

Inergen is effective against fire in almost all combustible materials and is particularly suitable for use in areas where the application of water, foam or powder is unacceptable. It has excellent retention times within the protected enclosure provided it is correctly built.

Approvals

Inergen has been approved and/or complies with major international authorities and classification bodies including:

- LPCB - UK
- UL - USA
- VDS - Germany
- UL - Canada
- APSAD - France

Installations should be undertaken in accordance with an approved standard such as BS ISO 14520:2015 and the requirements of the Authority Having Jurisdiction must be considered.

Key System Considerations

- There are numerous key system considerations which must be taken into account when designing, installing and maintaining gaseous fire suppression installations. These are substantially covered in the RiskFix Document - Gaseous Fire Suppression Systems.
- In line with the provision of any fire protection measure it is critical that the outline specification is submitted to AIG for review and approval in advance of installation.

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