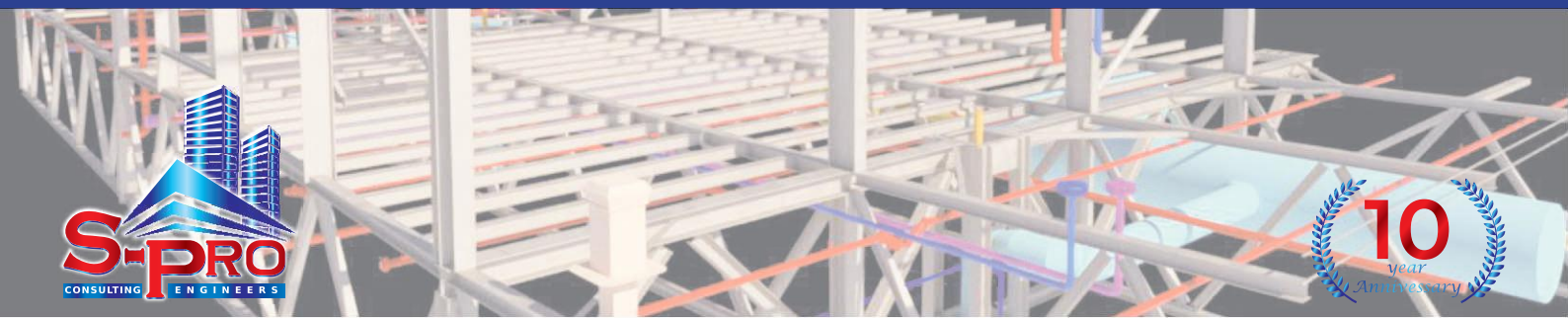




FIRE PROTECTION SYSTEM SOLUTION

Gas Suppression System



The extensive use of fire protection systems in electronic installations arises not from a high probability of fire, nor from a significant hazard to life, but from the consequences of fire loss.

The fire protection strategy for electronic equipment fires could then be related entirely to the physical damage to the equipment and its surroundings and the associated financial cost.

In such circumstances, even a few minutes down time can result in significant interruption to users. It might be impractical to restore the service at another location in a short time-scale and so, for these reasons, a sophisticated fire protection system to prevent, detect and suppress fire might be warranted.

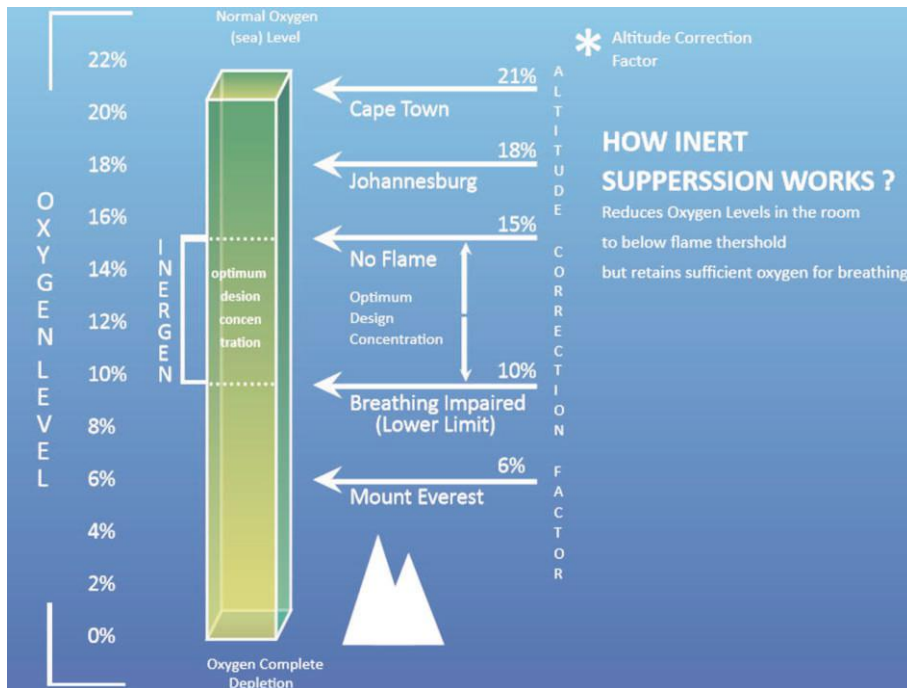
It is often necessary to consider the potential for business interruption separately from the potential for material damage.

Since the former, in particular, can vary with time because of changes in dependence on electronic equipment or modifications to contingency plans for recovery, it is essential that the standard of protection is reviewed periodically to ensure that it remains appropriate to the exposure to loss.

Gaseous systems are the most commonly employed fire suppression systems for electrical and electronic equipment rooms. These systems should be designed, installed and maintained in accordance with SANS/ ISO 14520:2015 for Inert gas systems.

Where a Gas Suppression is used as an extinguishing agent the following factors should be taken into account.

As a gas, the agent is fast acting and can penetrate rapidly so as to reach any fire.



Gases used for fire-fighting are not normally damaging to electronic equipment and hence, in the event of an accidental discharge, it is possible to reinstate equipment as soon as the electronic area has been ventilated. In the event of a fire, with most gases damage is confined to that produced by the fire and associated combustion products.

Sufficient integrity to contain the extinguishant discharge is required in the protected enclosure.

A life and health risk to staff can exist with a gas extinguishing system. If correctly designed, installed and properly operated, this is reduced to an acceptable level. However essential for CO2 systems.

Carbon dioxide is particularly hazardous as, at the normal extinguishing concentration, it is fatal to occupants within a short time.

The force of the discharge of gas extinguishing systems can be damaging to particularly sensitive equipment in some instances. Furthermore, there can be a rapid temperature reduction at the nozzle (CO2) of extinguishing systems for some gases.

A means of venting the gas to a safe place after discharge is needed - Not required for INERGEN nor FM200, however essential for CO2 systems.

INERGEN is perhaps the cleanest and safest gas suppression agent on the market currently as it comprises a mixture of three inert, naturally occurring gases: 52% Nitrogen, 40% Argon, and 8% Carbon Dioxide. The discharge mixture of INERGEN makes it unique as no other inert gas has the unique ability to rapidly extinguish a fire yet at the same time provide a safe environment for any person within the occupied area by actually decreasing cardiac distress and maintaining arterial blood oxygenation and mental performance in low oxygen level.

As INERGEN is derived from gases present in the earth's atmosphere, it exhibits a zero ozone depleting potential, nor does it contribute to global warming. Unlike some chemical agents, INERGEN does not, and could never create a reaction with a fire to create extremely harmful toxic or corrosive by-products.

INERGEN is ideally suited to both Class A and Class B fires which include areas such as Electronic Data Processing; Computer rooms, Archives/Records storage; Transformer rooms; Cultural or heritage premises Clean rooms; Flammable liquid stores.

When making a selection for an extinguishing product Environmental issues as well as the long-term feasibility of the product play an important role. Although FM200 (HFC227) exhibits a global warming potential on discharge studies show that so does of production of fire systems using inert gases. Although Halocarbon only exhibit Global warming once discharged it is a fact that less than 1% of system installed discharge. When FM200 extinguishes a fire most of the gas is used fighting the fire and only small quantities will escape into the atmosphere, FM200 is listed in the EPA Snap report as a long term solution for fixed fire suppression systems.

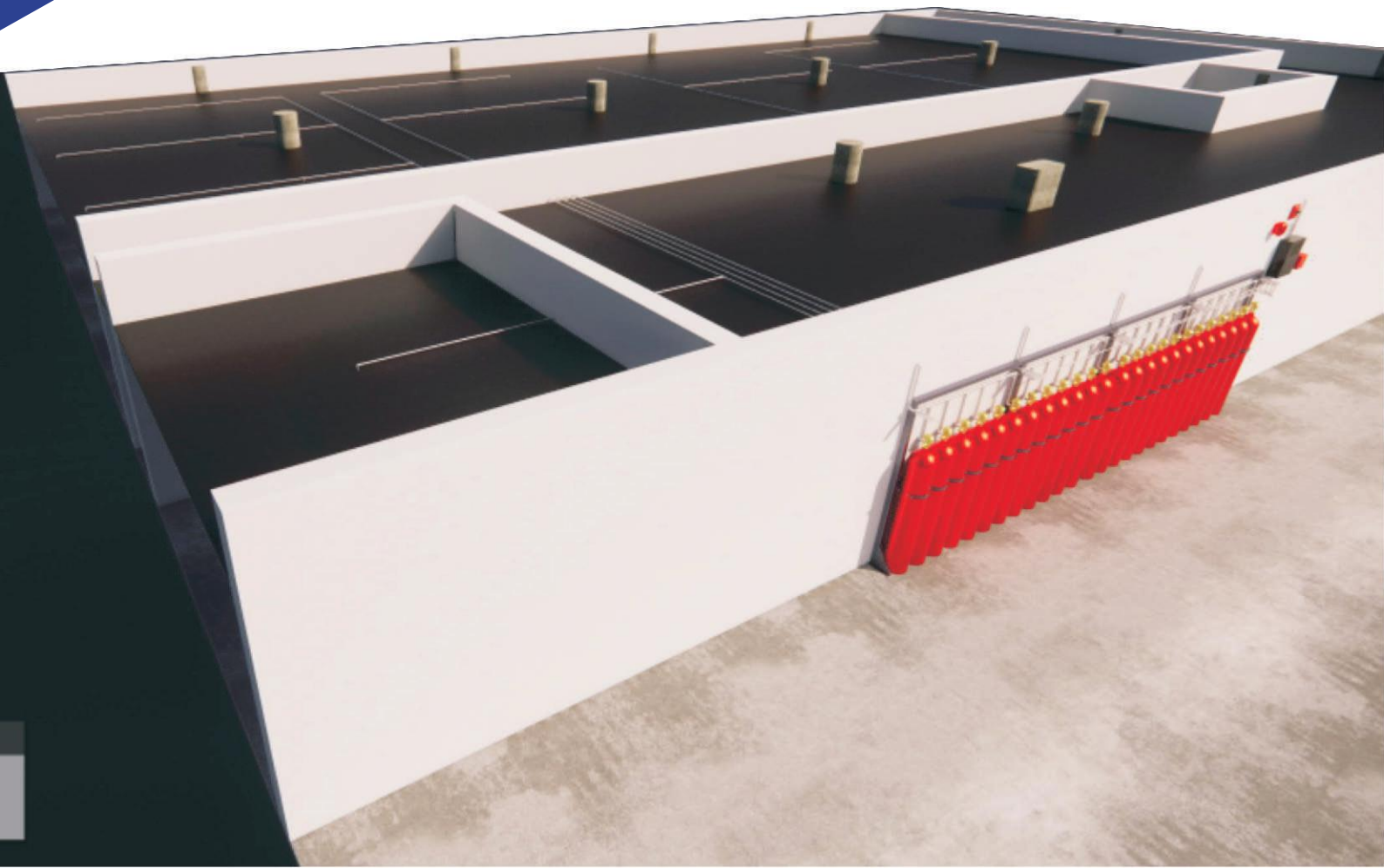
This gas suppression agent is safe to humans and the environment alike. Inergen is a fully approved system that is widely accepted as the ideal gas due to its effectiveness of extinguishing a fire, yet all the while being completely harmless to humans and the environment alike.

Any new cylinder to be tested by AIA as well as per pressure equipment relating authority.

Inergen and Eckoshield comprises gasses that are naturally occurring in the atmosphere and once discharged, reduce the Oxygen content in the room to a level of around 12-15%. At these concentrations, combustion is no longer supported while still being totally safe to humans.

ISSUES OF GLOBAL WARMING!





Inergen and Eckoshield is ideal for every type of room where there are people as well as valuable items of property. Inergen is a dry gas mixture, so it has low conductivity.

This aspect is especially important for applications in transformer and high-voltage rooms where non-insulated components are installed. During the extinguishing process, Inergen and Eckoshield systems reduce the air humidity, minimizing the probability of sparkovers which could cause a further fire risk.

Inergen is a composition of natural gases found in the atmosphere and thus there are no environmental issues in relating to its potential discharge.

As well as protecting people and property, modern extinguishing concepts must offer maximum compatibility with the environment if they are to be feasible. Inergen is all this and more.

The extinguishing principle behind fixed extinguishing systems with Inergen and Eckoshield is oxygen replacement. This means that the oxygen content in the atmosphere which is about 20.9% is lowered to somewhere between 10-14%. At this oxygen level most common fires will die out.

Where other extinguishing agents just lower the oxygen level, Inergen and Eckoshield distinguishes itself by maintaining an oxygen level which ensures that people can remain in the room. And that is precisely why systems with Inergen and Eckoshield are the extinguishing system today which is the safest for people. Like sprinkler or Halon systems, Inergen and Eckoshield is activated by detectors. Once a fire is detected, Inergen and Eckoshield is released.

It essentially suffocates the fire in just 30-40 seconds. It works by displacing the oxygen that allows the fire to breathe – and it does so without risk to humans. There is no odour, no smoke, and no damaging chemicals.

Approvals

**UL Underwriters Laboratories; FM Factory Mutual; BERAU
VERITAS; LLOYDS REGISTER; DNV; GL; DBI; EMI; ZUS; MCA; BM
OKF; CNBOP; CDP**

S-PRO

CONSULTING ENGINEERS
(PTY) LTD

 **S-PRO Consulting Engineers (Pty) Ltd**
Reg: 2012/04730/07

 Unit F15, 3 Heron Crescent, Century City,
Cape Town, South Africa

 +27 (0) 21 671 0713

 info@s-proconsulting.co.za

 s-proconsulting.co.za

For any enquiries please call: 021 671 0713



Electrical, Mechanical, Fire Protection Engineers & Facilities Management