

Inergen inert gas in rack modular cylinders provides 24/7 fire security



In today's competitive consumer market companies have been forced to re-evaluate the logistics surrounding packaging and handling of products. This has greatly shifted the focus towards fewer, larger storage facilities. But now with everything under one (very large) roof, how is it best protected?

Challenge

Cold storage warehouses present specific fire protection challenges:

- Shelving needs to be closely spaced to optimise usage, but this creates tight spaces for fire suppressant to penetrate.
- Food colouring and other products within frozen foods are flammable, frozen foods themselves are often classified as a class I or Class II commodity.
- The cardboard packaging of the products is also combustible; the cold air dries the cardboard making it more flammable than usual.

To protect the products for the consumer the area needs to be kept at a very cold temperature but upholding such temperature is a hazard in itself:

- The equipment required in warehouse supply chains such as rubber tires, rolled paper, carpets, baled fibre, lift truck batteries and lighting, are all highly combustible.
- High Intensity Discharge (HID) Lighting (halide lamps, mercury vapour, and high-pressure sodium lamps) are also combustible. Internal temperature of this lighting can reach 1,000 degrees.
- In order to maintain the temperature of a refrigerated warehouse, polyurethane and polystyrene foam are often used as insulators.
- Ammonia-based refrigeration equipment is common within a refrigerated warehouse. In concentrations of 15-28%, ammonia is flammable.



FIRE EATER

in partnership with



Fire and Security Techniques
Today's solutions for Tomorrow's risks

IMPERIAL
COLD LOGISTICS

Client:

Imperial Cold Logistics
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Location:

Johannesburg
South Africa

Industry sector:

Logistics

Application:

Fire safety and security

Fire Eater partner:

Fire and Security
Techniques

Equipment specification

- Inergen is a combination of gas consisting of 50% Nitrogen, 42% Argon and 8% Carbon Dioxide
- 630 off 80 ltr cylinders @ 300 bar
- 102 off SV22 selector valves
- 615 off nozzles
- Over 5000m of pipe
- 11 off storage cells ranging in temperatures from -18 to -32°C
- Approximately 300,000m³ total space protected

“What we appreciated most about working with the FST team was their ability to cut through the predictable politics of a project, keep everyone happy, and deliver the expected results in an efficient and professional manner.”

Anthony van Zyl
General Manager –
Warehouse, Imperial Cold
Logistics

Solution

There are many challenges fitting fire protection within this type of facility. Conventional wet systems pose several problems, not least the fact that sprinkler or water systems have height restrictions on nozzle placement and movable shelving systems have to be worked around.

To overcome these challenges, a Fire Eater Inergen inert gas system was proposed as the best fire protection solution for this cold store.

- Inergen suppresses fires and reduces the amount of oxygen in the application to 10-12% when discharged. It is safe for the operator to be in the discharge area and evacuate safely as Inergen does not obscure visibility and does not ice up and possibly jam up escape routes.
- The pipework is installed in the risk area with minimum penetrations. Inergen behaves

like a three-dimensional extinguishing agent and therefore does not require the discharge nozzle to be mounted in-rack.

- High-pressure pipework was installed according to local standards and conformity to the Pressure Equipment Regulation PER. 630 cylinders were used in conjunction with selector valves to distribute the correct concentrations of Inergen to the required risk.

Result

Due to the outstanding performance characteristics of the Inergen system, Imperial Cold Logistics now has one of the continent's largest, state of the art, fire-protected cold stores in Midrand Johannesburg.

By using a Fire Eater Inergen system, all risk criteria was met and the project accelerated by five months.



Fire Eater is a fast growing Danish company based in Hilleroed, approximately 30 kilometers north of Copenhagen. The corporate building is the hub of all Fire Eater activity, some of which include; manufacturing, research, development, production, distribution, sales and export. Fire Eater's goal is to become one of the world's leading suppliers of stationary fire protection.

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Established in 1994, Fire and Security Techniques (FST) is ISO 9001:2008 approved and a supplier of approved automatic fire suppression equipment throughout Africa used in protecting critical assets. Our products hold worldwide approvals and also our cylinders comply with the latest pressure regulations ensuring equipment meets with the highest safety standard including UL, LPCB, SABS, TUV.

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