

## VESDA

PROVIDES SUPERIOR PROTECTION AGAINST SMOKE AND FIRE IN ADVERSE CONDITIONS



## VESDA PROTECTING COLD STORAGE

- FREEZERS (-45°C TO -12°C)
- CHILLERS (-2°C - +4°C)
- ANTI-ROOMS & LOADING BAYS
- PLANT AND MAINTENANCE AREAS

# PROVISION OF SUPERIOR DETECTION IN ADVERSE ENVIRONMENTS

Cold Store facilities are unique and challenging environments for any smoke detection system. The environmental conditions of operating temperatures and the volume of high storage racking which can affect the airflow and impede the detection of a fire event rule out conventional smoke detection systems. The deficiencies of these technologies in low temperatures, is recognized by many international codes and standards who regulate against their use in environments where the ambient temperature is less than 0°C (32°F).

## CHALLENGES WITHIN COLD STORES

- Temperatures ranging from -45°C to 8°C
- Heavy condensation
- Water vapour clouds
- Valuable contents and perishable goods
- High airflows diluting smoke
- Inaccessible areas for installation and maintenance of detection systems

It may be hard to believe that a fire could occur in a cold store but, they have and they are devastating. However, the combustible nature of the types of materials normally stored in refrigerated environments,

combined with the very dry high airflow, create significant fire risks. Fires will spread rapidly between cardboard or plastic packaging, grease impregnated materials, food items and wooden pallets. Hence, the earlier smoke can be detected the better.

The perishable nature of the goods, commonly stored in freezers or coolers, makes it essential that any rise in temperature be avoided. Heat from a fire or a rise in temperature due to refrigeration system down time following a fire, would both result in stock spoilage and hence loss of revenue. Even an incipient fire, can lead to significant losses if not detected and managed early. Stock exposed to low levels of smoke over an extended period of time will become contaminated and unusable.

The most efficient and cost effective way to avoid a serious cold store fire is to install a VESDA-E aspirating smoke detection (ASD) system, which has the capability to detect the incipient (pre combustion) stage of a fire, drastically reducing business disruption, asset damage and the potential risk to the safety of personnel.

## THE VESDA ADVANTAGE

VESDA-E – the world’s leading ASD provides the optimum protection against fire by reliably detecting the presence of smoke at the earliest possible stage (Figure 1).

Despite the harsh environmental conditions, VESDA provides reliable and enhanced smoke detection along with lower cost of ownership. It detects smoke cumulatively drawing and analyzing air from the protected area. This reliable, very early warning minimizes the likelihood of product contamination, asset damage and downtime.

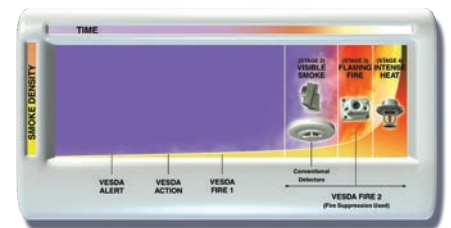


Figure 1: Fire Growth Curve

VESDA-E detectors provide proactive detection in extreme low temperature environments by actively sampling air from a protected area via multiple sampling holes in a pipe network. The air sample is then transported to an externally located smoke detector for accurate analysis (Figure 2).

VESDA filters the sampled air via a monitored filter thus minimizing nuisance alarms from dust airborne particles. Furthermore, nuisance alarms from condensation clouds are minimized due to the inherent sampling of air through a pipe network that is easily maintained from outside the freezer environment.





Figure 2: Aggregate Air Sampling

## COLD STORE INSTALLATION SCENARIOS

Many industry standards require the installation of smoke detection at both the ceiling level and in the ceiling void within the cold store.

Since the VESDA detectors are installed outside the protected area, they remain unaffected by the internal sub-zero temperatures. The air sample is cumulatively drawn from the protected area, raised to a minimum sampling temperature and then transported to the external detector for accurate analysis (Figure 3).

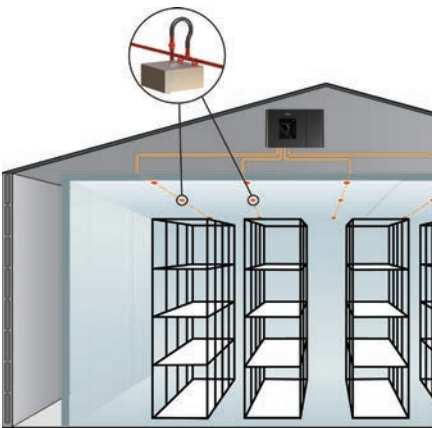


Figure 3: Cold Store Layout with Pipe Network

## REFRIGERATED STORAGE SAMPLING KIT

With a regular traffic flow in and out of protected areas, it is inevitable that warm air will enter, creating condensation. Ice will form on ceiling mounted equipment and structures generally within close proximity to the sampling points. Over time the ASD sampling points and pipe within this area may become blocked causing airflow issues and ultimately an inoperative smoke detection system. In some instances the only solution is to remove the iced up section of the ASD pipe network and fit a new pipe.

The Xtralis Refrigerated Storage Sampling Kit provides a robust and reliable alternative method of smoke sampling for cold storage facilities, in a considerably improved manner with simplified installation, reduced maintenance, and an overall lower total cost of ownership.

Unlike existing practices of installing the ASD pipe inside the protected area, with external installation, the Xtralis Refrigerated Storage Sampling Kit is less prone to blockage from ice and reduces capital, maintenance and installation costs by:

- Improved OH&S with installation, inspection and maintenance of ASD outside the refrigerated area, enabling fire contractors to work in ambient conditions the majority of the time.
- Eliminates the need for costly access equipment hire for service/maintenance
- Eliminates the need for heat tracing
- Minimizes the need for "Back Flush" systems
- Eliminates the need for expensive HDPE pipe



Figure 4: Refrigerated Storage Sampling Kit

The sampling kit consists of an outer and inner parts with ABS plastic sampling pipe, suitable for temperatures down to  $-40^{\circ}\text{C}$  penetrating the refrigerated storage sandwich panel (Figure 4).

## ABOUT XTRALIS

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Xtralis is the leading global provider of powerful solutions for the very early & reliable detection of smoke, fire, and gas threats. Our technologies prevent disasters by giving users time to respond before life, critical infrastructure or business continuity is compromised.

We protect highly-valued and irreplaceable assets and infrastructure belonging to the world's top governments and businesses.

**To learn more, please visit us at [www.xtralis.com](http://www.xtralis.com)**