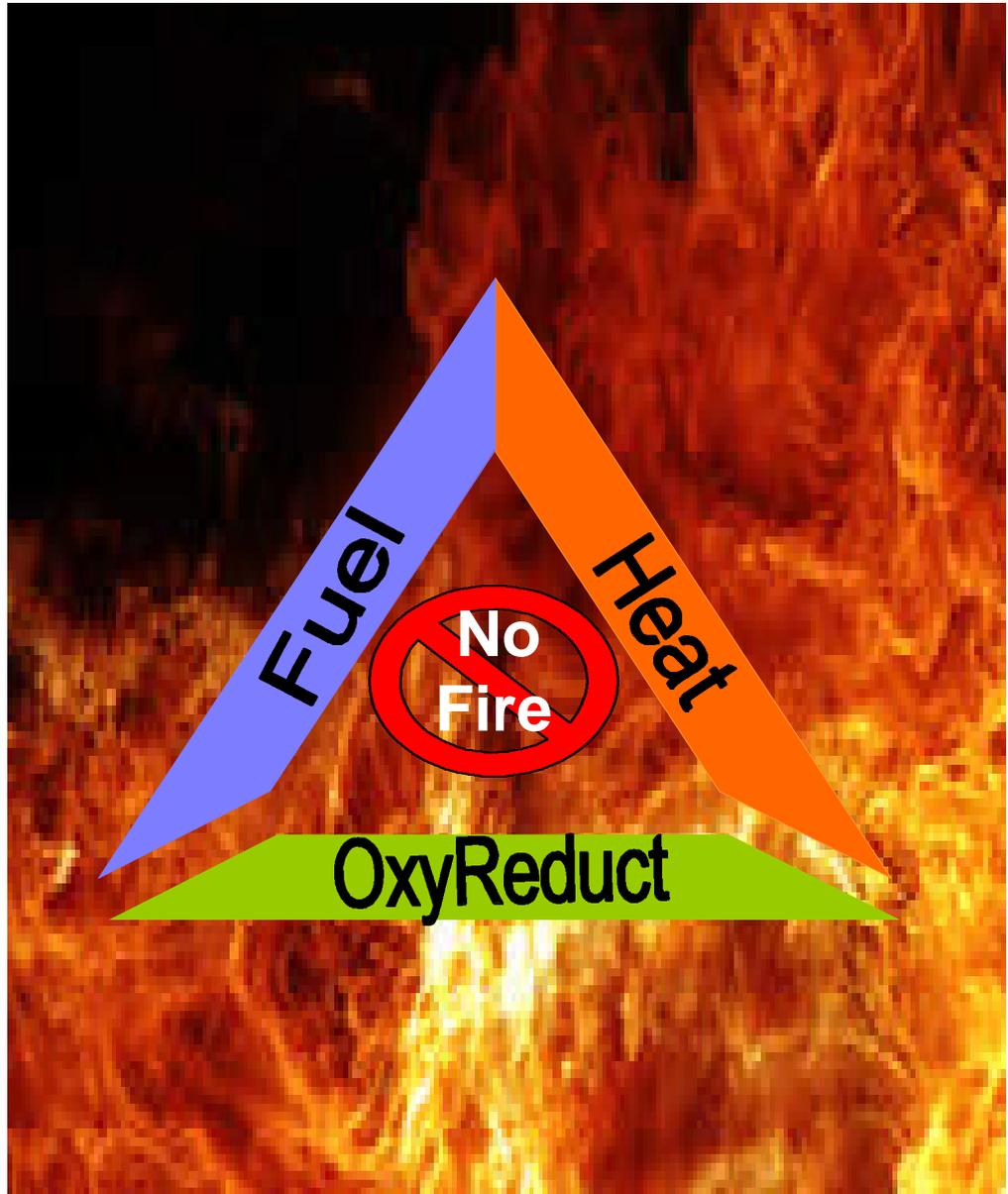


**Because prevention is better than cure**

OxyReduct®



**Man learnt to  
create fire...now  
he can prevent it**

Historically, there have been several options for fighting fires: water, different extinguishing agents and the fire department. All of these measures saved lives and helped to reduce damage. However, fire could not be prevented - until now.

**Fact:**

There are 200 fires in the workplace every day. (*Fire Protection Association*)



## The better solution

Installing OxyReduct® means the area is protected by the most effective fire prevention system available because a fire simply cannot occur - period!

OxyReduct® is used where reliable fire protection is essential for an organisation's success.

**A small fire or even a false alarm can mean disruption and cost. With today's need for 24/7 operation this can be unacceptable. Even one hour's business interruption without any damage can mean huge lost revenues.**

Important areas such as computer centres, IT rooms, telecommunication centres and server rooms all need special protection. Should an electronic component overheat, damage may spread quickly. It is essential to detect a possible fire before it can destroy large parts of the facility. Even combustion gases could harm sensitive electronic components and lead to a breakdown of the entire system or installation. As a consequence business would come to a standstill - which must be avoided.

It is of the utmost importance that business operations are maintained. A closer look at the IT sector makes this importance even more obvious. Not only is there material damage but also supporting business and customer data may be lost.

In telecommunication it is about maintaining communication channels, protecting nodal network points as well as constant availability and fast access.

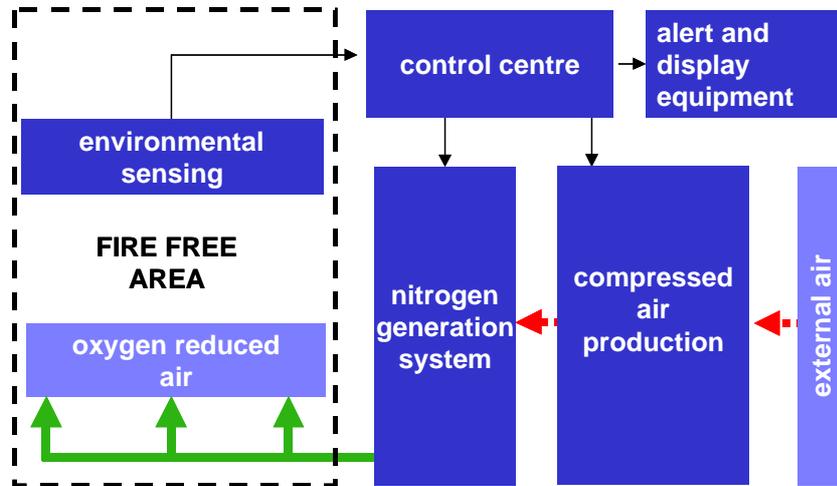
OxyReduct® completely removes one of the possible risks of business interruption allowing you to focus on other issues – forget the danger of fire!

**Fact:**

Fire & business interruption claims for commercial premises exceeded £2.6M per day in 2001. (*Association of British Insurers*)



## Typical OxyReduct® System Schematic



**Fact:**  
OxyReduct is the most cost effective fire protection solution for large areas.



OxyReduct® Nitrogen generator

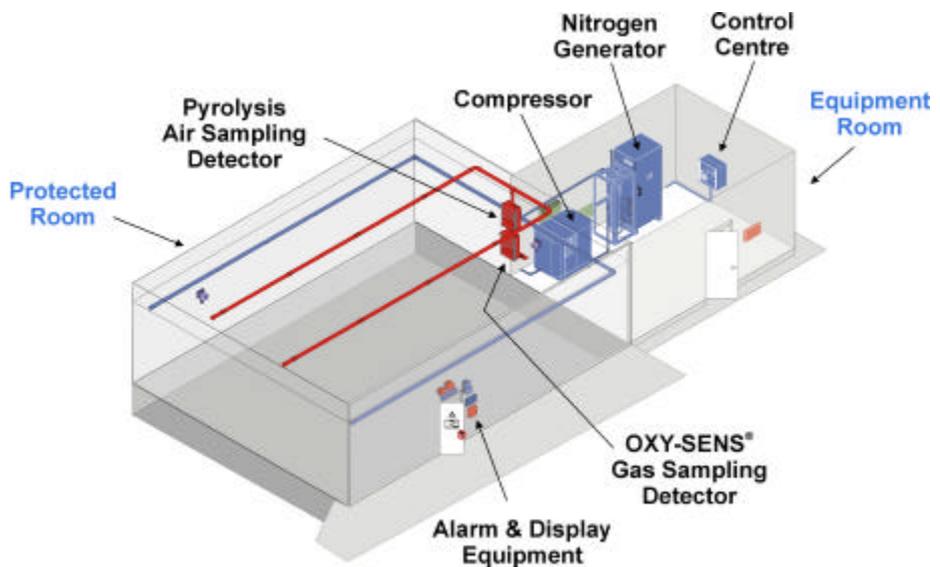
One of the reasons the system can be so cost effective is that Nitrogen is produced only when required and not stored in pressurized containers.

Fresh air is compressed and then filtered, extracting the Nitrogen. This produces air with a 95% Nitrogen content, which is then piped at low pressure into the protected area. Room sensors report back to the control system and allow the Oxygen level to be maintained at the desired level, by regulating the Nitrogen supply.

OxyReduct® is automatically monitored for faults and constructed to be fail-safe. In the event of a fault, protection to the area is not immediately lost – it can take days for the oxygen level to rise to an level where combustion can again occur, allowing time for repairs to be made.

The area is therefore constantly protected and a fire cannot occur.

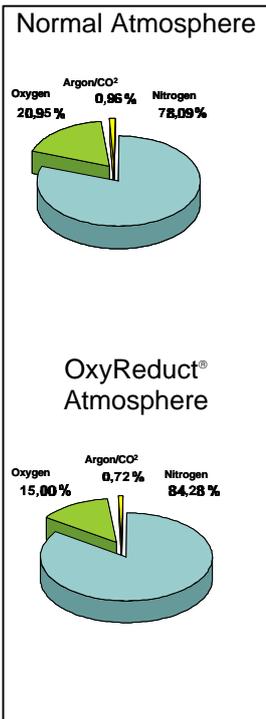
**Fact:**  
48% of all serious fires are arson related.  
(Arson Prevention Bureau)



## A change of atmosphere

**Fact:**

Air is made up of approx 78.0% Nitrogen and 21.0% Oxygen; this is the same at sea level as it is at the top of Mount Everest.



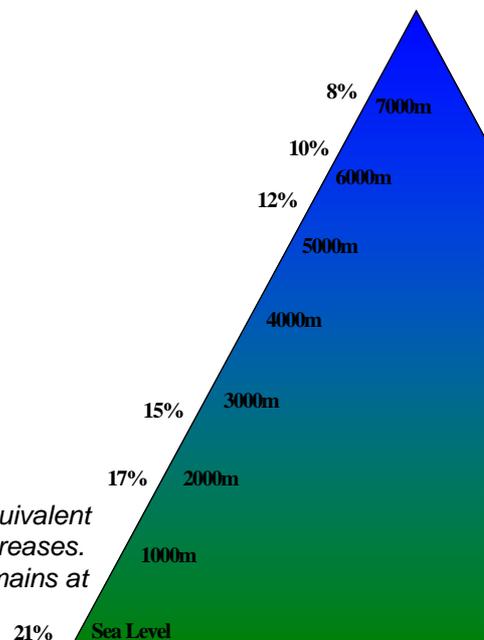
The natural ratio of oxygen to nitrogen remains the same at high level as it does at sea level; the amount of oxygen at high level is less because the overall air pressure is lower.

The amount of oxygen we would be breathing in an OxyReduct® environment is similar to the amount of oxygen we would breathe in an aircraft cabin or up a mountain. But the air pressure remains the same as the ambient level.

**Fact:**

Nitrogen is an inert gas and is non-toxic in any quantity.

Oxygen Concentration	Symptoms
21%	None (normal Oxygen level)
15%	No immediate effects
12%	Fatigue, impaired judgement
10%	Dizziness, shortness of breath
7%	Stupor sets in
5%	Minimum amount that supports life
2-3%	Death within 1 minute



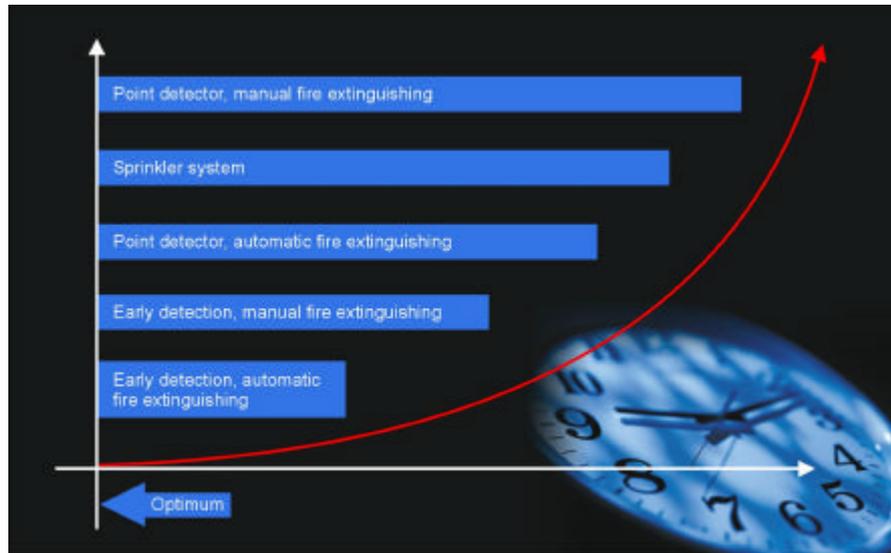
*This diagram shows the equivalent oxygen level as altitude increases. The actual level always remains at 21%*

This means people who have flown in a jet aircraft or have been at high level have already experienced the same kind of atmosphere you would find in an OxyReduct® protected area.

Why wait for a fire to strike before you take action? OxyReduct is protecting your property and assets 24 hours a day so the threat of fire at any time can be forgotten.

**Fact:**

The longer you wait to react to a fire, the greater the damage to business.



*OxyReduct® gives optimum protection*

**Fact:**

Sprinkler systems are designed to contain a fire.

OxyReduct® prevents a fire from occurring.

## OxyReduct® v Extinguishing Systems

There is a fundamental drawback with extinguishing systems - you already have to have a fire. It is a last line of defence. Compared to OxyReduct®:

- You cannot guarantee the system will extinguish fire and prevent re-ignition. You only know if it will work after it's too late
- Fire will have had a good chance to grow before extinguishant is released so damage risk is high
- False alarms can cause downtime and cost
- The extinguishant can take up valuable space in a building
- Pressure relief venting can be difficult to install and adds to cost
- An extinguishant may still mean you need to consider:
  - Clean up
  - Data loss
  - Operating systems loss
  - Time to repair building damage
  - Time to replace hardware

Because of this OxyReduct® stands alone as a complete fire prevention concept.

## OxyReduct® - Frequently Asked Questions

*Q. What is the main advantage of the system?*

A. It is impossible to have a fire.

*Q. How long has the system been available?*

A. The system has been available since 1999. There are now over 40 OxyReduct® installations across Europe used by recognised organisations such as BASF Chemicals, Siemens and Hugo Boss.



*Q. Can people enter the area?*

A. At Oxygen levels of 15.0% people may inhabit the area for up to 6 hours after which they should take a 30-minute break

*Q. H & S procedures?*

A. The United Kingdom HSE has deemed that an area with reduced oxygen content would be classed as a confined working space. This means that there should be a safe system of work and effective management procedure in place that monitors the movement of people through the area.

*Q. How big is the equipment?*

A. Equipment size is not dependant on the volume of the room but on the leakage rate. A space saving is realised when compared to extinguishing systems, especially with larger volumes (> 500.0m<sup>3</sup>)

*Q. How well does the room need to be sealed?*

A. As well as possible. A better-sealed room means smaller equipment and lower running costs. An N<sub>50</sub> value of less than 1.0 is ideal.

*Q. How does HVAC effect system?*

A. Re-circulation systems have no effect on OxyReduct®.

*Q. Do I still need fire detection?*

Pyrolysis can still occur so high sensitivity smoke detection should be employed to indicate a technical problem in the area.

*Q. What happens if power fails?*

Nothing immediately, the control unit is battery backed. Room protection depends on the leakage rate.

*Q. Are there any waste products generated?*

A. The compressor creates a small amount of water as part of its dehumidifying process. The Nitrogen generator vents air with an enriched oxygen (30.0%) content.

*Q. Does the Compressor/Generator need to be in the room?*

A. The Nitrogen generator must be within 30.0m of the compressor but there is no limit, within reason, to how far the generator can be from the risk area.

*Q. What type of piping is required?*

A. The nitrogen supply should be steel until it enters the risk area. From then on the pipe can be plastic. The pressure at the outlet in the room is negligible.

*Q. What power is required?*

A. A 3-phase supply is required for the compressor. The nitrogen generator and control unit require a 240V supply.

*Q. Does the system carry any approvals?*

A. The system is being VdS approved (expected mid 2003). Many pan-European insurance companies have evaluated the fire prevention performance and are writing risks only if protected by OxyReduct®.

*Q. What maintenance is required?*

A. The same maintenance interval as with a fire alarm system. An air filter requires changing annually. The Nitrogen Generator membrane has a life of at least 10 years.



## Applications

OxyReduct® is used where reliable fire protection is essential for the organisation's success. The application spectrum stretches from small IT rooms to warehouses of 100,000.0m<sup>3</sup> and more.

OxyReduct® installations have a critical advantage in areas with both a high concentration of goods and value. In high-rack storage, deep freeze, paper or hazardous goods areas any fire would have catastrophic effects on the ability to deliver.

Major organisations throughout Europe have already installed OxyReduct® systems. Typical applications that have already been protected include:

**Fact:**

2/3 of all fires occur at times when buildings are closed  
*(Home Office)*

- IT areas
- Comms rooms
- Archives
- Museums
- Cold & Freezer storage
- Warehousing
- Plant rooms



Insurance cannot replace permanent damage to important documents and artefacts. Traditional extinguishing methods can cause damage to the very items they are protecting. Early detection relies on the user being able to take swift action.

Constant availability is a requirement of today's data and communication hubs. Downtimes of no more than 15 minutes per year are sought. Because OxyReduct® is always protecting the area, fire cannot interrupt the business process. Constant protection – no false alarms.



*Even a warehouse this large can be made fireproof.*

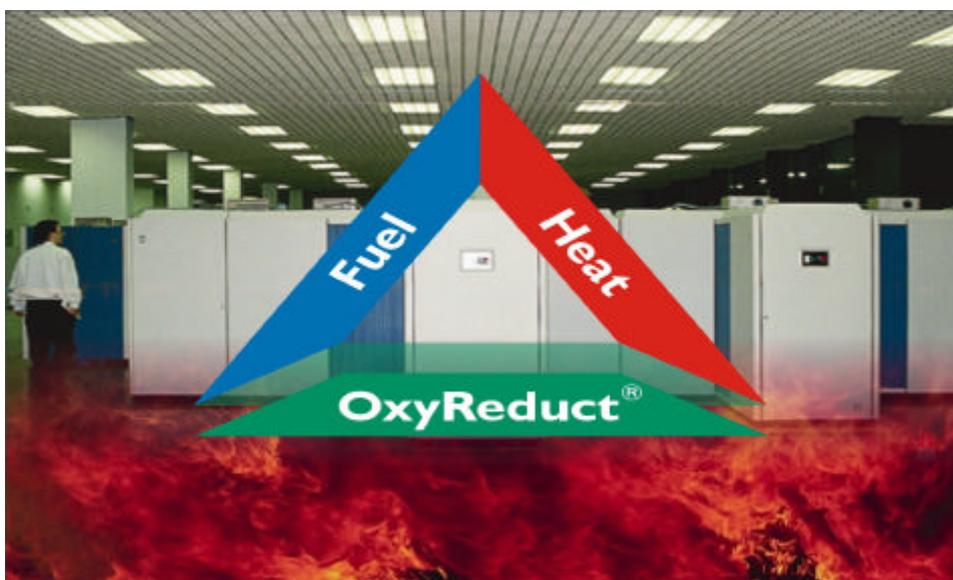
# OxyReduct® The ultimate solution in fire protection

OxyReduct® : no fire, no interruptions - ever

## The better solution for your...

- I.T. rooms
- floor and ceiling voids
- composite panel buildings
- deep freeze storage areas
- high-rack storage areas
- archive storage
- vaults
- switch rooms

...or any area where you do not want a fire.



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Ravenhill Avenue  
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