

# OxyReduct®

■ EDP & IT

■ HIGH-BAY STORAGE

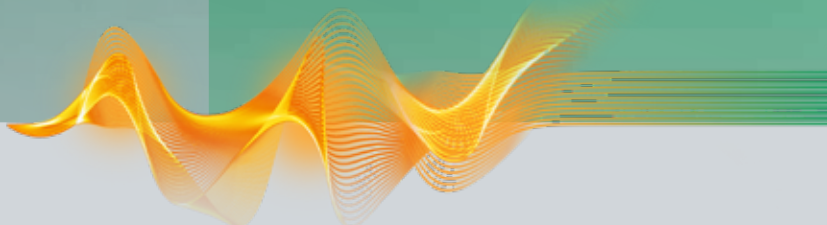
■ COLD STORAGE

■ ARCHIVES & MUSEUMS

■ HAZARDOUS CHEMICAL  
STORAGE

## OxyReduct®

### References



With over 700 systems,  
OxyReduct® is on its  
way to becoming  
the standard fire  
protection solution.

OxyReduct®:

THE CUTTING-EDGE FIRE PREVENTION SOLUTION  
TO MEET THE HIGHEST STANDARDS.



**Preventing fires is better than  
having to extinguish them**

WAGNER's approach is becoming established worldwide. Data centers and warehouses are places where a company's very existence is at stake. Archives, museums and libraries face the ever-present threat that valuable, irreplaceable works of art could be lost forever. The fact is, fire could break out at virtually any time. A dependable and comprehensive fire protection solution is a must – and thanks to the OxyReduct® fire prevention system, it is now within easy reach.

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The combustibility of a material depends greatly on the concentration of oxygen within the room.

**Example in practice: A  
smouldering PVC cable**

20.9 vol. % O<sub>2</sub>  
Normal concentration



17.0 vol. % O<sub>2</sub>  
Reduced atmosphere



14.5 vol. % O<sub>2</sub>  
Operating concentration  
in IT centre



**OxyReduct® is the solution**

OxyReduct® uses oxygen reduction to provide permanent protection for the valuable goods and property on-site. In fact, a reduction in oxygen content of just a few percent volume makes a crucial difference in the way solid materials react to fire. Damage caused by fire, smoke, soot and extinguishing agents as well as personal safety hazards are reduced to a minimum. And the protected area remains accessible to personnel – a major advantage.

**Approved and accredited  
by the VdS**

The benefits of active fire prevention with OxyReduct® are clear. This system has been tested and approved by the independent German safety certification institution VdS – and it's not without reason that it has become THE TRENDSETTING TECHNOLOGY in preventative fire protection and is evolving into the standard system for many different sectors. Accreditations in many other countries all over the world make this system a viable solution far beyond Germany's borders.



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ENSURE AVAILABILITY:  
SOPHISTICATED FIRE PROTECTION –  
WITHOUT A FORCED POWER DOWN.



**Uninterrupted operation is a top priority in IT centres – even if a fire breaks out. Even just a few minutes of downtime could do lasting damage to the reputation of an entire company – and jeopardise its existence.**

IT is rendered unavailable if a fire breaks out. In the event of a fire, conventional fire protection systems require the power to the entire IT infrastructure and air-conditioning systems to be disconnected in order to prevent the fire reigniting following extinguishing. This situation can simply

be avoided by using the right fire protection solution.

**No need to disconnect the power in the event of fire**

The OxyReduct® active fire prevention system was developed to ensure uninterrupted availability. This means that there is no longer any need to disconnect the power to the IT infrastructure in the event of fire. The system provides effective protection from the consequences of a fire through controlled oxygen reduction by feeding nitrogen into IT rooms. Operations can continue without interruption and further

damage to hardware components (such as damage caused by chemical extinguishing gases or the high sound pressure level which the extinguishing process often entails) will be avoided.

OxyReduct® has already been used successfully in the IT field for years.

HIGH FIRE RISK:  
PROTECTION OF GOODS  
AND SUPPLY PROCESSES.

HIGH-BAY STORAGE



**Automated high-bay warehouses carry a particularly high fire risk because of the wide range of electrical components they house, including conveyor belts, storage and retrieval systems.**

With closely packed pallets and high narrow aisles, fire can spread easily, whereas extinguishing efforts are hindered. In the event of fire, even storage areas not immediately affected by the fire will be overcome by smoke, soot and extinguishing water, and goods are often so badly damaged that

they must be destroyed. Consequently, delivery orders cannot be met. The optimum solution for fire protection, however, could be the simplest: ideally, preventing fires from igniting in the first place.

**Maintain delivery needs**

The OxyReduct® fire prevention system protects the appropriate storage areas effectively against the effects of a fire using oxygen reduction. Damage can often be reduced to a minimum.

The oxygen level of the storage area is continually monitored and maintained by the system, yet

authorised personnel can still access the area. The solution is already providing reliable protection for many high-bay warehouses.

**Minimum operating costs**

OxyReduct® with VPSA (Vacuum Pressure Swing Adsorption) technology keeps the operating costs extremely low and enables energy savings of around 50% in comparison to previously-used nitrogen recovery technologies.

FIRES CAN EVEN START IN COLD STORAGE AREAS: MAXIMUM SAFETY AT SUB-ZERO TEMPERATURES.



**There is a widespread misconception that fires cannot start in cold storage areas because of the low temperatures. In fact, the danger is particularly high because of the dry air and the highly-flammable packaging materials such as paper, cardboard and plastic wrapping.**

A spark from a defective freezer unit may be all that is needed. Cold storage areas also present a particular challenge for fire protection because of the stored food-stuffs and the low temperatures.

The use of chemical extinguishing gases or conventional water-powered extinguishing systems would instantly contaminate the goods in storage, requiring all stock to be disposed of.

#### **Ideal for cold storage areas**

The OxyReduct® fire prevention system provides effective fire protection in a cold storage environment. The fact that cold storage areas are very well sealed is highly beneficial for the energy efficiency of the system. The reduced oxygen level can be maintained efficiently in cold storage areas,

which are by nature well insulated. As in normal storage areas, the fire prevention system automatically monitors the oxygen content, compensates for when the areas are accessed during loading and allows personnel to operate safely in the protected area. All this makes OxyReduct® the standard for fire protection solutions in cold storage areas.

A FIRE COULD DESTROY EVERYTHING:  
GIVE IRREPLACEBLE VALUABLES  
LONG-TERM SECURITY

ARCHIVES & MUSEUMS



**Sadly, the importance of a dependable fire prevention concept – especially in archives and museums – often only gets the attention it deserves after a historic library, rare collection or valuable work of art is destroyed.**

Unique artefacts are gone forever and no insurance policy can replace them – the losses are bemoaned by proprietors and investors alike. And whatever wasn't destroyed by the fire itself is sure to be damaged by the enormous amounts of water which the

firefighters used to put out the blaze – often so severely that the artefacts are difficult or impossible to restore.

**OxyReduct®: Permanent protection for irreplaceables**

Long-term, non-destructive fire prevention with OxyReduct® can preclude a loss scenario like this. The oxygen-reduced protective atmosphere provides a safe location for storing printed material, paintings and the whole range of artefacts. The nitrogen which is fed in has no detrimental effect on the exhibits. In addition, the

protected areas remain accessible to personnel. The OxyReduct® fire prevention system automatically compensates for leakages and nitrogen losses caused when people enter and exit the rooms.

# EXTREME FIRE HAZARDS: EFFECTIVE DISASTER PREVENTION



**The risks which warehouse fires pose to personal safety and the environment can be devastating, regardless of what goods are being stored. Extremely flammable hazardous substances often have very low ignition thresholds, while the substances or their combustion residue can produce violent or toxic reactions.**

This means that the risk to personnel and rescue teams is especially great due to poisoning and explosions. Enormous clouds of smoke can form, which can also

endanger occupants of neighbouring buildings and other third parties within a wide radius if wind conditions are unfavourable.

### **The right concept for storing hazardous substances**

Many companies which work with chemicals and hazardous material now rely on active fire prevention with OxyReduct® to minimise not only losses for storage facility operators, but also risks of personal injury and environmental damage. One major advantage of the system is its exceptional flexibility. For instance, the level of protection

can be set individually based on the kind of goods being stored, while added protection with a CO<sub>2</sub> extinguishing system can be provided for particularly high-risk zones with highly explosive substances. This multi-level protection concept suppresses ignition sources and significantly reduces the risk of fire.

# WAGNER Group Plant Engineering & Construction



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WAGNER sets standards in fire protection – with innovative and comprehensive solutions

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### Fire detection and alarm systems

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Very early fire detection systems (TITANUS®)

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Active fire prevention (OxyReduct®)

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Fire extinguishing (FirExting®)

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Hazard management (VisuLAN®)

BETTER SOLUTIONS IN FIRE PROTECTION

**WAGNER®**