



LUBRITECH
Special Application Lubricants

Reference solution

Fire protection for a hazardous materials warehouse

OxyReduct®
FirExting®
TITANUS®

A holistic
fire protection concept
for the Fuchs Lubritech
hazardous materials
warehouse

THE SOLUTION

Multi-level protection concept offers high efficiency: active fire prevention through oxygen reduction is combined with a CO₂ inert gas extinguishing system



TITANUS® air sampling smoke detectors for the earliest possible smoke detection



The OxyReduct® fire prevention system keeps the oxygen content in the warehouse at a constant level of 13.5 vol. %

The holistic fire protection solution for the hazardous materials high rack warehouse

WAGNER has worked with Fuchs Lubritech and VdS-Schadenverhütung GmbH in Cologne to develop an effective fire prevention concept that combines several systems to effectively protect a hazardous materials warehouse. This allows the joint storage of products with different hazardous material classes in a single room.

Firstly, an OxyReduct® active fire prevention system is used. This permanently reduces the oxygen content in the air from the normal

level of 20.9 vol. % to 13.5 vol. % to ensure that most substances cannot spontaneously combust. The oxygen level is reduced through the supply of nitrogen, which is directly obtained from the ambient air on site. Nitrogen is ideal for fire prevention as it can be easily obtained as a main component of the air, is available in an almost unlimited quantity and is non-toxic.

A fire detection system using TITANUS® air sampling smoke detectors guarantees the earliest smoke detection in the event of a fire. Finally, a FirExting® CO₂ inert gas extinguishing system

triggered by flame detectors ensures the residual risk. In the event of an alarm, this generates a CO₂ extinguishing lake with a height of up to about five metres, which reduces the existing oxygen concentration to 8 vol. %, thereby countering any fire in a particularly effective manner. For this reason, particularly combustible and hazardous materials are solely stored in the lower sections of the warehouse – and without requiring any additional structural measures.

THE RISK ANALYSIS

Flammable and highly combustible stored goods pose major potential hazards.

In hazardous materials warehouses, safety poses major challenges for both operators and fire protection officers. The stored goods are flammable and slightly to extremely combustible. In addition, substances or their combustion residues can also react fiercely.

This leads to a risk of poisonous secondary products and toxic gases being created. Fire prevention concepts based on reducing the hazard potential from the outset have proven effective at keeping these dangers at bay.

When it comes to handling hazardous materials, companies have to meet a variety of safety regulations, such as the Regulation on Flammable Liquids (VbF), the resultant Technical Regulations on Flammable Liquids (TRbF) and the Technical Regulations on Hazardous Materials (TRGF). VdS guidelines regulate, among other things, the usage and storage of flammable materials in separate areas from a fire protection perspective. Fuchs Lubritech GmbH, one of the world's leading manufacturers and suppliers of specialist lubricants, aimed to store a variety of hazardous materials – some with extremely low ignition



Fuchs Lubritech GmbH was faced with a particular challenge – and WAGNER had the customised solution for the safe storage of hazardous materials.

thresholds – in a single high rack warehouse without physically separating them. As such, the 46,000-cubic-metre storage facility in Kaiserslautern employs

a combination of two different fire protection systems: active fire prevention and the rapid lowering of the oxygen level through the use of a CO₂ extinguishing system.

THE PROTECTION OBJECTIVE

The following protection objectives were defined in the project planning stage for fire prevention in the high rack warehouse:

- Prevent fires from breaking out or spreading in order to minimise the level of damage

- Prevent harm to personnel, goods and the environment

- Maintain the ability to deliver and the goods flow

THE CUSTOMER

The international provider of specialist lubricants, pastes, solid film lubricants and release agents is committed to “smoothly moving demanding technology”.



The Fuchs Lubritech GmbH automated high-bay warehouse



Products with different hazardous material classes under one roof – all safely protected against fire risks

Hazardous materials with the broadest range of ignition thresholds in one large high-bay warehouse: this was the challenge with which Fuchs Lubritech approached WAGNER.

To meet its commitment to high levels of product quality and service, Fuchs Lubritech operates a high-bay warehouse at its main site in Kaiserslautern. This is protected against fire risk and guarantees the availability of the products subject to international demand.

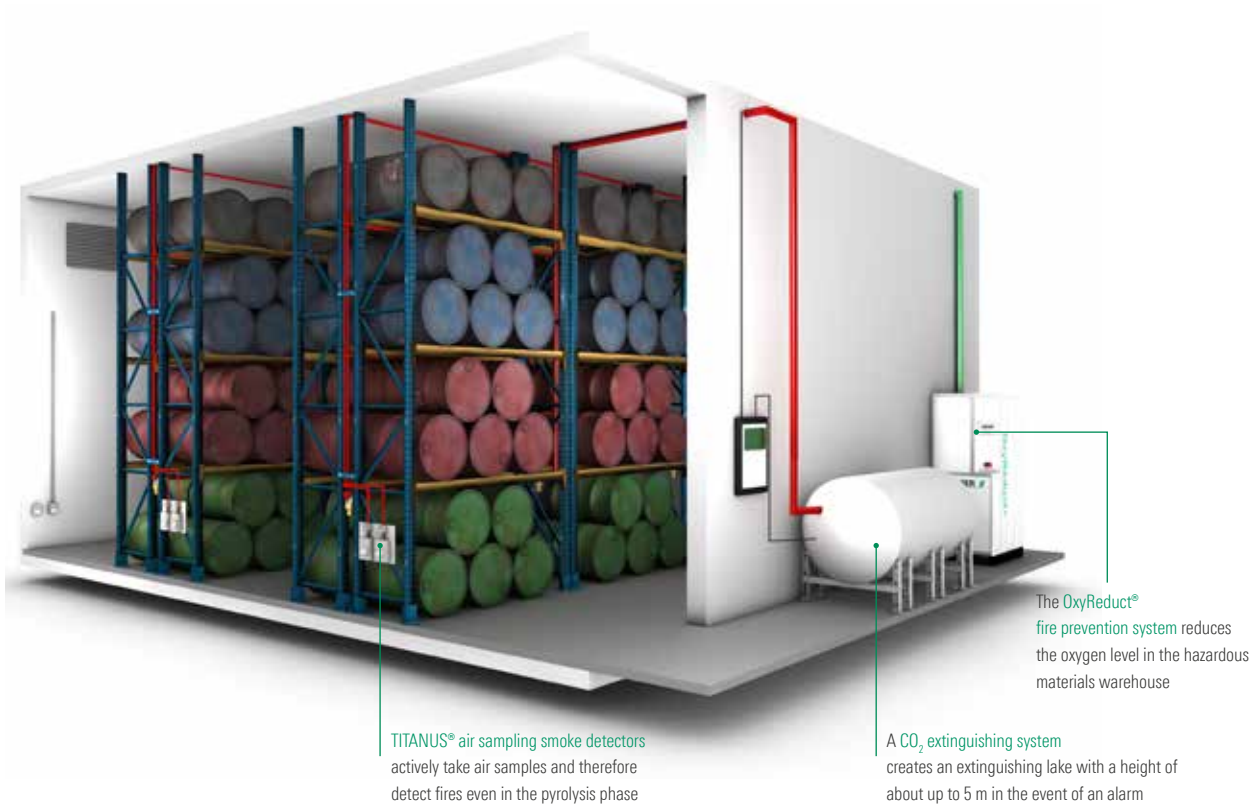
Fuchs Lubritech produces specialist lubricants and release agents for all industrial application areas from the automotive and construction industries to the mechanical engineering and agricultural ones. The fully automated, 46,000-cubic-metre high-bay warehouse in Kaiserslautern offers storage space for concrete release agents, adhesive lubricants, lubricating liquids and lubricating grease, pastes, solid film lubricants, aerosols, glass processing media and forming lubricants – all in all, over 1,000 specialist products tailored to the relevant areas of use. The sheer diversity of the hazardous

materials stored and the high fire risk establish special requirements when it comes to fire protection.

Potential consequences of a fire could include not only commercially damaging operational interruptions but also sensitive damage to the environment as a result of toxic combustion residues, fire gases and soot. The fire extinguishing options are also restricted due to the risks of poisoning, potentially released hazardous materials and explosion.

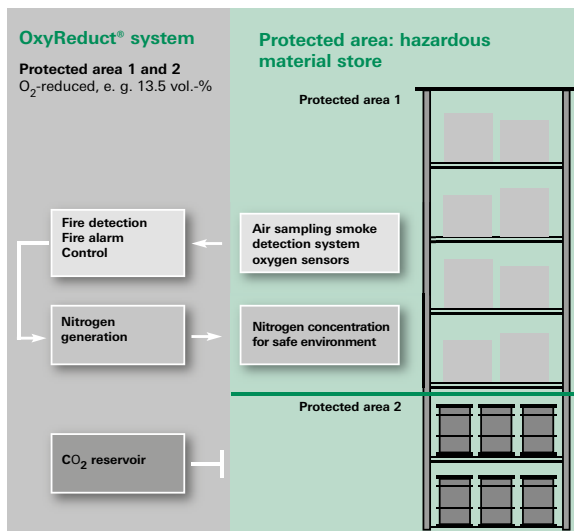
SYSTEM DIAGRAM

The fire prevention system reduces the oxygen level in the protected area by supplying nitrogen, the CO₂ extinguishing system builds an extinguishing lake in the event of an alarm. This allows the joint storage of products with different hazardous material classes in a single room.

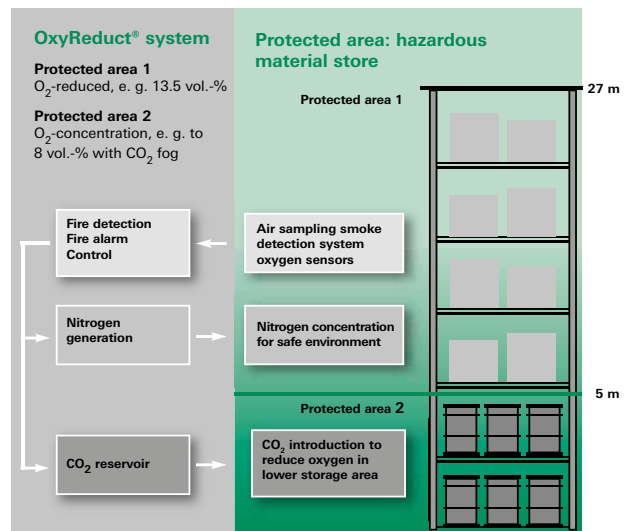


OxyReduct® with CO₂ extinguishing lake

Standard operation



Alarm status





WAGNER sets standards for innovative and comprehensive solutions in fire protection: with very early fire detection systems, TITANUS® for aspirating smoke detection, FirExting® for fire-extinguishing, OxyReduct® to actively prevent fires from breaking out and VisuLAN® for hazard management. www.wagnergroup.com

**Headquarters
Sales International**

WAGNER Group GmbH
Schleswigstraße 1-5
D-30853 Langenhagen
Germany
Phone +49 511 97383 0
info@wagnergroup.com

Subsidiaries Worldwide

Austria
WAGNER Austria GmbH
Am Hafen 6/1/12
A-2100 Korneuburg
Phone +43 2262 64262 0
office@wagner-austria.com

Benelux
WAGNER Nederland B.V.
Computerweg 10
NL-3542 DR Utrecht
Phone +31 346 5580 10
info@wagner-nl.com

Great Britain
WAGNER UK Limited
Unit H
Suites 3&4 Peek Business Centre
Woodside, Dunmow Road
Bishop's Stortford
Hertfordshire CM23 5RG
Phone +44 870 333 6116
info@wagner-uk.com

Poland
WAGNER Poland Sp. z o.o.
ul. Wita Stwosza 39
PL-02-661 Warszawa
Phone +48 22 185530 0
info@wagnerpoland.pl

Russia
WAGNER RU GmbH
Businesscentre SMART PARK
117246, Moscow
Nauchnij Projezd
14 A, Building 1, Office 4.12.
Phone +7 495 96767 69
info@wagner-russia.com

Singapore
WAGNER Asia
No. 61 Tai Seng Avenue
#B1-01 Crescendas Print Media Hub
Singapore 534167
Phone +65 6296 7828
info@wagner-asia.com

Switzerland
WAGNER SCHWEIZ AG
Industriestrasse 44
CH-8304 Wallisellen
Phone +41 44 832540 0
info@wagner-schweiz.ch

USA
WAGNER Fire Safety, Inc.
20 Park Plaza, #482
Boston, MA 02116
Phone +1 781 899 9100
info@wagner-us.coms