

WAGNER®

Impulse

The WAGNER Group GmbH customer magazine

LEAD ARTICLE

When history goes up in flames

The exhibitions are a part of history – but the fire prevention system hopefully isn't



A PROMISING PLETHORA OF "TGA-FACHFOREN BRANDSCHUTZ 2013"

Current trends and findings in fire protection for the new year

WORK UNDER CONTROLLED HYPOXIC CONDITIONS – IT ALL DEPENDS ON THE DOSE!

Expert opinion from Prof. Dr. Thomas Küpper, RWTH Aachen



Lead Article

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Dear Business Friends and Readers,

Historical buildings shape the image of many cities all over the world. Well-preserved buildings (some of which include structures under historical protection) often house public institutions such as museums, libraries or archives. The buildings contain items of significant interest: unique and irreplaceable pieces of cultural heritage and works of art of inestimable value. You can certainly imagine that such sites could pose a challenge when it comes to keeping them safe from fire. High reliability and sensitive fire detection are major factors in a dependable fire prevention concept. Fully developed, cutting-edge technologies allow us to install the necessary technical equipment so that it is effective, does not take up much room, and is virtually invisible all at the same time – even in buildings with demanding architectural requirements.

And I believe we've done a very good job of this at the Museum of Natural History in Berlin. The building operator had precisely defined requirements, since the unique and historical collection of animals conserved in alcohol (known as a "wet collection") necessitated a fire prevention solution which was highly effective yet aesthetically appealing at the same time.

On the following pages, you can read about what we did to fulfil these requirements. This issue also has many other interesting fire prevention topics in store for you which make WAGNER Impulse such an entertaining read.

Werner Wagner
Managing Director of the WAGNER Group GmbH

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In Retrospect

Préventica Lyon 2013 – a double success for WAGNER

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When history goes up in flames

The exhibitions are a part of history –
but the fire prevention system hopefully isn't

Historical buildings serving as museums do not always take full advantage of modern fire protection technology – in spite of the great concentration of value their exhibits contain. This often only becomes clear once the losses have already been suffered. Raising people's awareness is the only thing that helps address this. It aids in developing a fire prevention solution which is tailored to the requirements at hand and attuned to the customer's specific needs.

Most archives, museums and libraries are housed in historical and/or listed buildings. It often takes an incident resulting in damage to show whether an existing fire prevention solution is adequate in relation to the high concentration of value which the exhibitions present. Inspecting and modernising fire prevention equipment ahead of time can help protect items of irreplaceable value and preserve them for generations to come. Fire prevention in public buildings often takes first priority when it comes to personal safety.

It should be considered that inspectors can have sections or entire buildings closed if fire safety is insufficient. But protecting items of historical value often takes a back seat to this.

Fires can start in many different places

Museums hold a wide variety of places where a fire could originate. The adjacent diagram makes it clear that storage rooms and areas where technicians have been working have an above-average chance of being struck by fire. The fact that storerooms and



▲ On the evening of 2 September 2004, a fire caused by a technical defect broke out at the Anna Amalia Library in Weimar. 50,000 books and 35 paintings from the 16th to 18th centuries were destroyed and 62,000 volumes were severely damaged – some of them by extinguishing water

◀ On 23 October 2007, a fire destroyed the Armando Museum in Amersfoort, Netherlands. The cause of the fire remains unknown

repositories hold all the items which are not currently part of an exhibition yields particular potential for disaster. After all, the concentration of value in a single place is especially great. This makes it all the more important to factor in not only personal safety when planning fire protection, but also creating a fire prevention solution which is specifically attuned to the concentration of value in the room in question.

Active fire prevention

The difference between rooms with public traffic and ones which are closed to the public is a fundamental factor when selecting a suitable fire prevention solution. Active fire prevention is a promising prospect in tightly sealed areas where no one ever goes or which are only accessible to authorised personnel. Nitrogen can be fed in to reduce the concentration of oxygen in the area to a level low enough to create a protective atmosphere in which a fire cannot develop or spread. This has become the solution which countless archives, museums and libraries all over the world now depend upon to protect their storerooms and repositories.

Fire protection for aesthetes

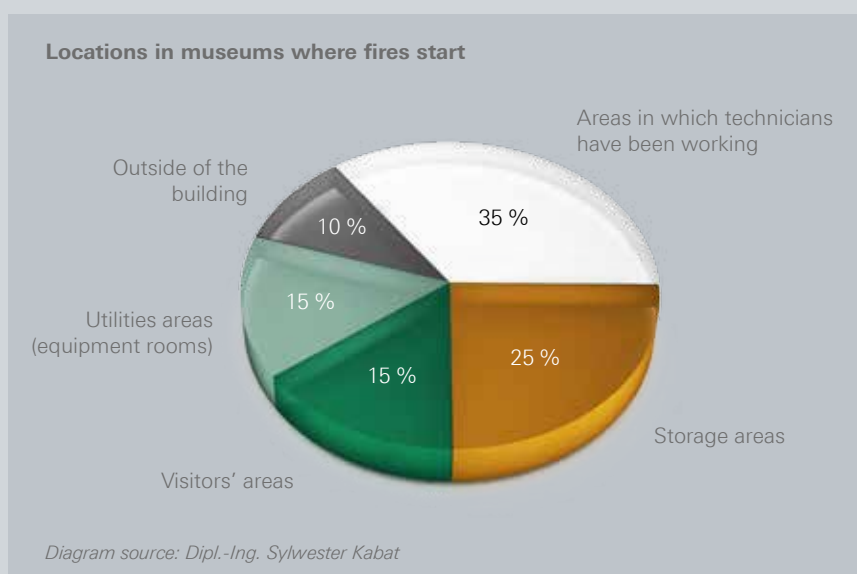
Aesthetics are important aspect in fire detection in a museum's public areas. Architects have great interest in integrating fire detection systems into the building structures so that they not only function reliably, but are installed discretely. Moreover, exhibitions should use a fire protection concept which takes focuses not only on

personal safety, but the safety of the exhibitions. The heart of a fire protection solution is earliest possible detection without false alarms – which the TITANUS® family of air sampling smoke detectors provides. TITANUS® uses small intake apertures to continuously take samples of the air in the room and check them for combustion products. It is a much faster and more dependable means of highly sensitive, active early detection than conventional fire alarms. The time advantage which earliest possible smoke detection provides in the event of fire allows effective protective measures to be taken and completed at a very early stage. This time advantage is crucial for protecting the exhibitions and helps protect valuable exhibitions from damage or destruction.

Dependable protection for historical objects

A tailor-made fire protection concept is essential for adequately protecting works of art and other cultural heritage items, regardless of whether they are kept in museums, archives or depots. This can be accomplished in advance by having fire safety experts conduct a risk analysis and define a suitable protection objective together with the building operator.

The following article on the Museum of Natural History in Berlin shows one possibility of what a dependable fire protection solution might look like. ■



▲ Storage areas which by nature house a great concentration of valuable objects fall victim to fire extraordinarily often



THE MUSEUM OF NATURAL HISTORY IN BERLIN RELIES ON EXTINGUISHING TECHNOLOGY FROM WAGNER



World's most valuable "wet collection" protected from fire

Berlin – The capital city is home to a jewel of an exceptional nature: Germany's largest natural history museum and one of its most important nature research institutions. 2010 saw the reconstruction of the east wing, which was destroyed in World War II. And over one million animals preserved in alcohol have found themselves reunited in a single location. The glass vessels, with their handwritten and irreparable labels, and the high flammability of the alcohol mean the requirements for the fire prevention solution are very stringent indeed. The individually developed, integrated solution to accomplish this was created by WAGNER.

The Museum of Natural History's scientific collections comprise roughly 30 million mineralogical, geological, paleontological and zoological objects. The museum has grown steadily over the past two hundred years thanks to large exhibitions, donations and acquisitions.

With over 400 loans of over 70,000 specimens per year, the zoological collections alone have been used extensively by scientists from all over Germany and the world.

Destruction ...

The museum suffered a bitter setback during the Second World War. 3,000 tons of high-explosive bombs were dropped on Berlin on the morning of

3 February 1945. The Museum of Natural History was not spared from the bombardment. A bomb fell through the second floor of the east wing. The supporting columns were destroyed, causing this part of the museum to collapse all the way to the basement. Many complete mammal skeletons, including the once famous whales, specimens in the bird, great snake and tortoise department, and above all the



The reconstruction of the devastated east wing didn't start until 2006 – more than 60 years since the war had ended



Portions of the research collection were integrated into the exhibition tour for visitors

historically valuable worm collection were all destroyed. But at the end of the war, the museum remained functional in spite of all the damage. However, the loss of the east wing resulted in a catastrophic lack of space for several years, as well as problematic fire protection conditions in the remaining rooms due to the high concentration of flammable – and unique – items in tight confines.

... and reconstruction

It wasn't till November 2006 – 61 years later – that the reconstruction commenced, when the museum was still owned by Humboldt University. The east wing was rebuilt and the two connecting head-end buildings were renovated and partially restructured. This restored a functional and architectural connection. The architects' concept was unusual: It connects a functional building on the interior with a thorough restoration of the remaining facade made of bricks and sandstone, and gaps in the structure were filled in with modern materials. This not only enraptures beholders with an aesthetic fascination, it embodies an architectural obligation: preserve that which is original, and identify losses and subsequent additions. A monolithic wall arose as an impression of this, rejoining the com-

plex and making it whole again. The wet collections were moved into the basement, first and second floor of the east wing. They are made up of over a million light-sensitive animal specimens in 276,000 glass containers of varying sizes filled with ethanol as a preservative liquid. The collections are of inestimable scientific and cultural value for researching the history of life's development. Some of the specimens are over 200 years old, and are stored in five to six metre high halls with fixed, ceiling-high steel shelves. The ground floor contains around 50,000 glass containers which make up the fish collection in an enormous showcase made of laminated safety glass. There, they are stored at temperatures between 15 and 18 °C, and the air and humidity are controlled so as to be ideal for the extremely valuable specimens. The shelves are accessible to the scientists on the inside and are integrated into the tour for the visitors on the outside. This provides the public with an authentic glimpse

into the research that goes on at the museum. After all, what the user sees isn't just a staged exhibition – it is a genuine research collection which is used for scientific purposes every single day. Another 220,000 jars containing snakes, spiders, reptiles, frogs, and many other animals are stored on the other floors.



► Conserved piece of the history of development of life: Preserved reptile in ethanol

Great demands on fire protection

“Storing and presenting our wet collections called for an innovative solution which met stringent functional and aesthetic requirements,” says Dr. Peter Bartsch, department manager and curator in charge of the Museum of Natural History’s collection.

Since it was the first time the wet collection was being shown to museum visitors while remaining usable for the scientists, the ground floor posed a special fire protection challenge: the existing construction materials as well as the generous space and aesthetics of the rooms should be retained to the greatest degree possible. What’s more, the preservation fluid, around 85,000 litres of 70 % ethanol, could cause a rapidly spreading fire in emergencies. The glass jars in the collection are marked with glued-on handwritten labels. If water were used to put out a fire, such as a conventional sprinkler system, the labels would be damaged or even destroyed. The over 276,000 jars and specimens would be nearly impossible to relabel.

Finding the right fire prevention solution

Due to the additional protection objective of not using a water extinguishing system, the Museum of Natural History decided on a gas extinguishing system so that the valuable specimens would not be subject to water damage if a fire needed to be put out. For these reasons, the choice went to a FirExting® multi-zone nitrogen extinguishing system approved by the independent testing institute VdS. The inert extinguishing gas is non-toxic, extinguishes without residue and is very well suited for protecting the highly vulnerable exhibition pieces. To save space, the 56 nitrogen cylinders (with a capacity of 140 litres) each are kept underground in a separate extinguishing agent station.

WAGNER’s system protects seven extinguishing zones with areas between 68 and 2,976 m² on different floors. In addition to the large glass showcase on the ground floor, the system protects the large ethanol tanks with large animal in the basement specimens, as well as the dry collections in the

northern head-end building. Any fire which might start will be detected at the earliest stage of its development, so that fire-fighting measures can quickly be taken.

If a fire is detected in the museum, the alarm will also be transmitted to the central fire alarm system, which can also shut off the ventilation system in the event of fire. The extinguishing gas will then flow through the nozzles and into the protected area. The pressure relief valves will automatically open when the extinguishing gas flows in. They will then close back up again automatically once the necessary concentration of extinguishing agent has been reached. The fire protection concept used here also stands out in that the room is flooded within such a short time that the valuable jars containing the exhibits will not tip over or break due to the pressure which develops.

The extinguishing hold time that follows then prevents the fire from reigniting.

Nearly invisible

The entire FirExting® extinguishing system is nearly impossible for visitors to see, so as not to detract from the experience of viewing the aesthetically impressive collection. The pipes for distributing the nitrogen are largely concealed in channels and ducts, and the nozzles are placed directly below the ceiling and shelf floors, hidden behind protective guards and guide plates.

Summary

Thanks to the refined fire protection technology, this treasure trove of science – the animal specimens at the Museum of Natural History – now enjoys dependable protection. Highly sensitive, false alarm-proof early fire detection provides a crucial time advantage for taking countermeasures.

INTERVIEW



Lars Schröder of the WAGNER Impulse editorial staff spoke with Dr. Peter Bartsch, department manager and curator in charge of the Museum of Natural History’s collection.

Dr. Bartsch, what is it that makes a well-conceived fire prevention solution so important for the museum?

Our Museum of Natural History is home to a unique wet collection of animal specimens preserved in alcohol which constitute a scientific and cultural treasure of inestimable value. If anything even resembling a fire

happened, more than 200 years of research work would be jeopardised or even destroyed in one fell swoop. In particular, the great amount of 70 % pure ethanol in the 276,000 glass jars we have could turn a fire into an uncontrollable disaster. But you know yourself what terrible damage even a tiny flame can do.

What were your exact requirements in the course of planning the fire protection system?

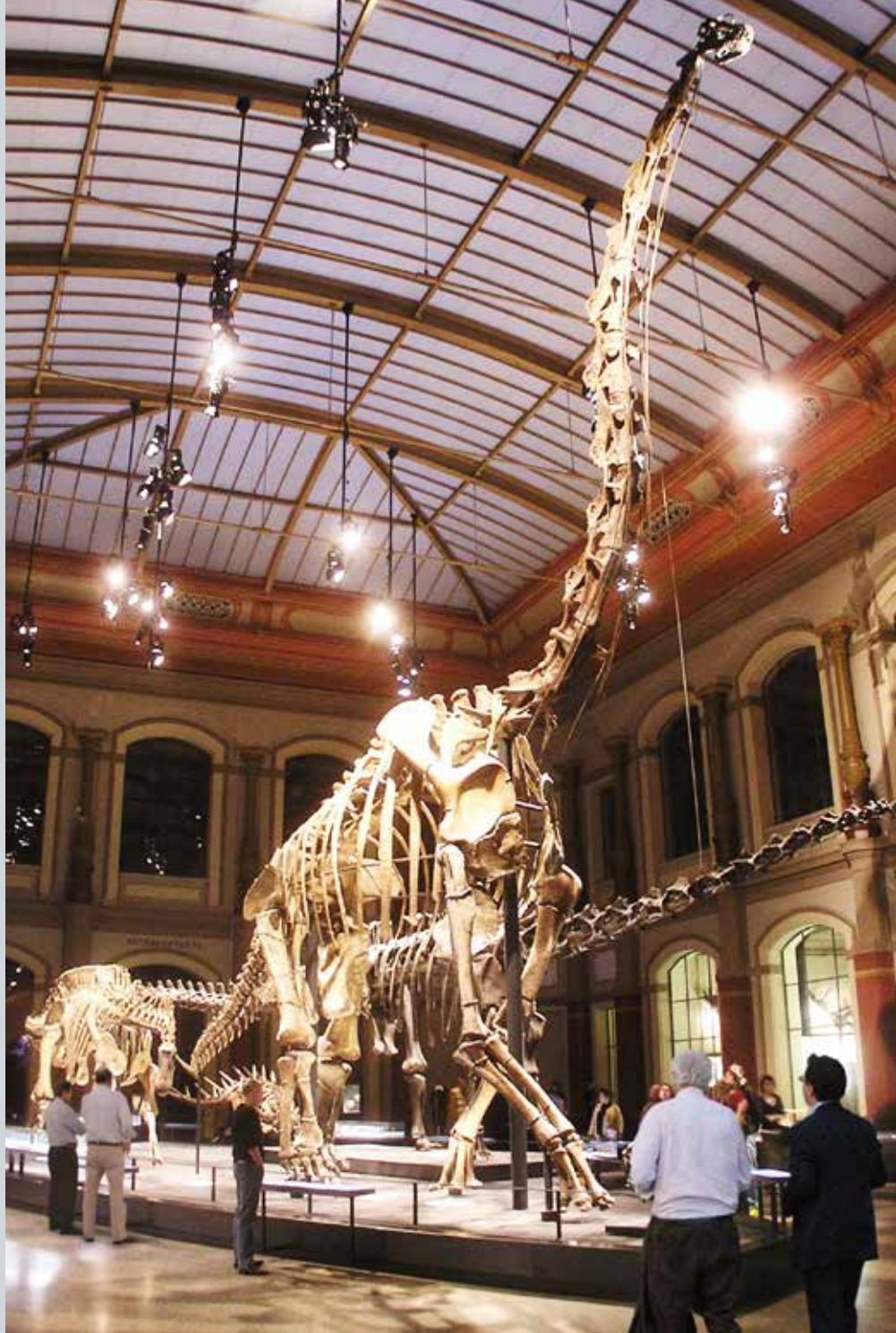
We wanted to make sure that public visitors to the museum would also be free to view this unique wet collection. But we also had to make sure that our scientists could work with the specimens, of course. We also thought it was very important not to let things like pipes disrupt the appearance of our wet collection. So we were delighted when WAGNER offered to provide us with an “invisible” solution which would blend in seamlessly with the existing architecture. The fire protection concept was also developed in cooperation with the fire department and other experts.

The integrated gas extinguishing system not only immediately suppresses a fire, it prevents additional risks and damage to the exhibits thanks to its non-destructive method of extinguishing. ■

What benefits do you see in the use of a FirExting® gas extinguishing system with nitrogen?

Just imagine what a sprinkler system would do to our wet collection. Even though it would probably put out a fire, it would certainly damage the hundreds of thousands of handwritten labels on the bottles, or cause them to come unglued. So we wouldn't even be able to put them back in order. I don't even want to think about what that would be like. So a gas extinguishing system with nitrogen was just the right choice for us. It will extinguish a fire without a trace and is so perfectly adapted to our rooms that it protects areas of drastically different sizes ranging from 68 to 2,976 m².

Thank you very much for this interview, Dr. Bartsch.



▲ Standing at a height of 13.27 metres, the brachiosaurus at the Museum of Natural History Berlin is the largest assembled dinosaur skeleton in the world

► A FirExting® gas extinguishing system from WAGNER protects the valuable exhibits in the wet collection



If you have to put out a fire, use inert gases

The purpose of automatic extinguishing systems is to extinguish fires when they are first developing in order to protect rooms or equipment from fires and their effects. An important element in a fire protection concept is the period of time between when a fire is detected and when it is extinguished. The shorter this time period is kept, the better the direct damage and consequential damage can be minimised.

FirExting® – extinguishing by oxygen displacement

The principle behind FirExting® extinguishing technology from WAGNER is surprisingly simple: Reducing the concentration of oxygen around a fire's source stops the process of combustion. The oxygen concentration in the ambient air is 20.9 % vol. If this concentration is reduced to below 11.6 % vol. by feeding in an extinguishing gas (in EDP areas, for example), the combustion process will be stopped. WAGNER extinguishing technology is based on the use of natural inert gases such as nitrogen, argon and IG541, which is made up of nitrogen (52 % vol.), argon (40 % vol.) and carbon dioxide (8 % vol.). ■

FirExting® BROCHURE

This brochure is available as a PDF file in German and English at www.wagner.eu/downloads and is also available as a printed version from your WAGNER contact person.



BDI position paper: Safety for Germany as an industrial nation

The BDI's Safety and Raw Materials department presented its first position paper on safety for Germany as an industrial nation in June 2013. This appraisal points out present and future safety challenges and includes specific policy recommendations for the course of action in overcoming them.

The BDI pursues its professed goal of developing a common understanding of safety between state, business and society. This basis should be used to transfer and implement the recommendations presented into an integrated approach towards increasing safety in Germany.

The paper is based on current worldwide market developments and economic connections. For instance, globalisation and technological progress opens up excellent opportunities for Germany as an industrial nation – but at the same time, they entail new and complex safety requirements, since the international infrastructures and digital networking are becoming increasingly vulnerable.

In this case, industry is assuming chief responsibility for protecting its employees, assets and processes. Global players, for instance, all have safety departments of their own. The BDI mainly sees a need for action amongst medium-sized companies, where transparency and awareness of potential safety risks tend to be lacking. Another important point is the unification of safety standards, i.e. harmonising statutory regulations so that they reach a single safety level, in order to support industries such as the highly time-sensitive logistics business. ■

About the Federation of German Industries (Bundesverband der Deutschen Industrie e. V. – BDI)

The Federation of German Industries was founded in 1949 and tends to the social market economy as a link between industry and politics. As a central organisation, it represents 38 industry associations and supports more than 100,000 companies in global competition.

ACCESS THE POSITION PAPER

Safety for Germany as an industrial nation



You can request the 20-page position paper as a PDF from its publisher, the BDI:

Bundesverband der Deutschen Industrie e. V., Berlin
Tel.: +49 30 2028 0
www.bdi.eu



Library of Birmingham

470 km – That’s not only the distance between Birmingham, England and Edinburgh, Scotland – it’s also about how long the line would be if you lined up all of the estimated 1.5 million books at the new Library of Birmingham in a row. After the library was completed in the spring of 2013, 24 km of shelves and 66,000 crates of cargo (1,100 of which were filled with nothing but books) from the old central library to the new building on Centenary Square in the heart of the city.

The new, nine-storey, 31,000 m² building now houses a public area which extends over four floors: two for offices and supply equipment, as well as a two-storey security archive. The top floor of the € 225 million project is a rotunda which houses the Shakespeare Memorial.

Since its official opening in September 2013, the new Library of Birmingham is one of the largest public libraries in the world, projected to attract 3.5 million visitors a year.

Active fire prevention with OxyReduct® was chosen as a central element in protecting the library’s world-famous archive. The fire prevention system protects the archive (which is divided into five separate areas ranging from 200 to 8,000 m²), as well as the utilities room on the eight floor. OxyReduct® reduces the oxygen concentration in the areas to be protected in a controlled fashion by feeding in nitrogen. This protective atmosphere makes it impossible for a fire to spread. And the protected areas remain accessible to personnel. In contrast to certain other fire protection technologies, OxyReduct® simply changes the mix-

ture ratio of the air in the room, so that the assets being protected will not be damaged by extinguishing gas or extinguishing water in the event of fire.

“We decided on the OxyReduct® fire prevention system, because it provides our unique collection of archives, photographs and rare books with all-round protection. The system also enables employees to access the storage areas, a major part of daily operations at a public library,” explains David Bishop, development director of the Archives & Heritage department. “What’s more, OxyReduct® does not detract from the storage area, nor does the system take up much space, which is very important for the long-term development of our collections.” ■



Work under controlled hypoxic conditions – it all depends on the dose!



Humans live on Earth in a luxurious environment which provides more oxygen than the human body even needs. Should the oxygen supply become scarce, the body has reserves to make up for the shortage for a while. Nearly everyone has had personal experiences in an oxygen-reduced atmosphere (known as “hypoxia”): whether on cable cars or ski lifts, on airplane flights or when diving. One can obviously withstand the shortage of oxygen without consequence in such cases.

But how can people work in an oxygen-reduced atmosphere for reasons such as fire safety? And what groups of individuals are not suited to the oxygen-reduced environment?

How is hypoxia measured and what factors affect human beings?

Isobaric hypoxia is usually specified as oxygen concentration in % vol. This always assumes the same pressure conditions. However, the concentration of oxygen is not of particular interest from a medical perspective. But the partial oxygen pressure is, since it pertains the proportion of the overall air

pressure which is caused by the share of oxygen. At sea level, this amounts to 20.9 % vol. of 760 mbar = 159 mbar. The correlation between pressure, percentage of oxygen contained and the corresponding altitude is explained in Figure 1.

It is essential to be aware that the partial oxygen pressure (and not the oxygen concentration) is virtually the only technically practical variable which of relevance to any risk assessment.

The body’s natural mechanism to adapt – such as a slightly higher pulse and increased respiratory minute volume – ensure that, at altitudes up to approx. 1,500 m or 17 % vol. oxygen, the human body will not even notice that it is not being exposed to sea level conditions. This will change as the distance from sea level increases. But the human body’s compensation mechanisms will work to avoid circumstances of acute danger. This even allows a person to remain able to act at altitudes

PERSONAL DETAILS



Prof. Dr. Thomas Küpper is an occupational medicine specialist at the Institute of Occupational Medicine and Social Medicine at Aachen University Hospital. One focus of his research is titled “Risk Profiles and Prevention in Work and Sports at Great Altitude or in Hypoxic Conditions.” He has worked as the scientific director of several hypoxia centres since 2009, including ones in Aachen and Frechen. He has provided his expert knowledge to the public in many German and international publications over the past few years.

of up to 5,000 m or oxygen concentrations of just 11.1 % vol. The symptoms of altitude sickness only appear after prolonged exposure to such a low-oxygen atmosphere. [1], [2], [3], [4]

But this does not mean that a person who is not acclimatised to it can be exposed to such extreme conditions as 11.1 % vol. of oxygen for indefinite periods of time, since the negative effects of altitude sickness will start to appear after a period with no symptoms ("latent period"). This can already happen starting at roughly 3,000 m or 14 % vol. oxygen. However, the symptoms would only appear after many hours, and could be easily avoided if one takes a break to get some normal breathing air after a few hours. This means that life-threatening altitude sickness is not possible in consideration of the conditions and duration of work under hypoxic conditions. It will only become life-threatening after 12 to 24 (lungs) hours or 24 to 96 hours (brain) of uninterrupted exposure at an altitude of over 4,000 m or in an atmosphere with less than 12.8 % vol. oxygen.

Working in oxygen-reduced atmospheres caused by a fire prevention system

Typical situations of working under hypoxic conditions are usually at altitudes of only 2,500-3,000 m, i.e. heights

that almost everyone has experienced themselves. They therefore present virtually no risk at all. Only people who have to watch out for hypoxia or altitude anyway on account of prior illnesses (such individuals are usually only able to work under restricted circumstances or have long-term work disabilities) should not access these work areas. However, abruptly entering an oxygen-reduced atmosphere does not pose a problem under actual working conditions. Even smokers or individuals suffering from anaemia will not experience any physical effects in such atmospheres.

Learning from mountain medicine

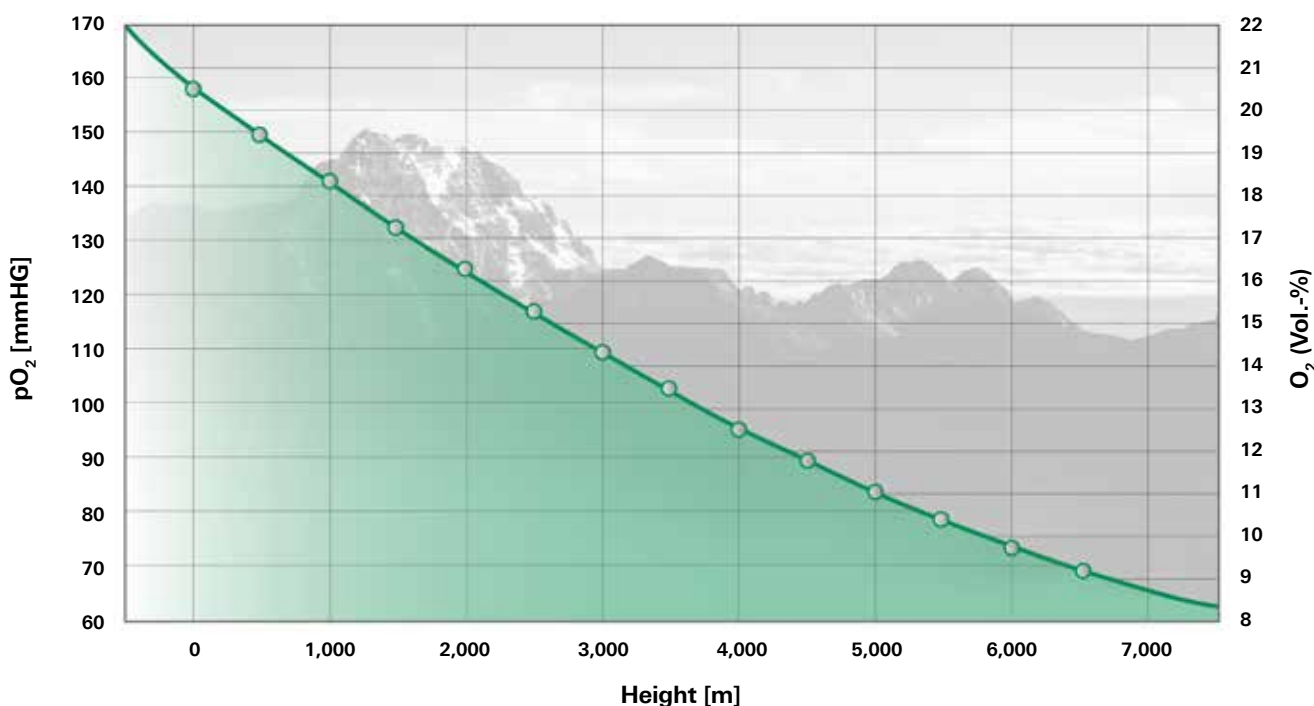
One interesting effect carries over from mountain medicine and frequently confuses occupational physicians and work safety specialists alike: In work safety, the rule of thumb is that the shorter or the less the exposure is, the lower the risk will be. With hypoxia, just the opposite holds true: if an employee is subjected to hypoxia on a regular basis, he or she will adjust to it somewhat and experience even less discomfort than before – if there was any at all in the first place.

As this information shows, the human body is capable of handling the conditions of an oxygen-reduced atmosphere without further restrictions.

This shows that it would be wrong to associate a technology such as fire prevention via oxygen reduction with a danger to employees out of ignorance. After all, it is a technology which not only prevents fire and safeguards material assets, it is above all intended to protect the persons present. [5], [6], [7] ■

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▲ Figure 1 shows three connections: 1. between partial oxygen pressure and altitude, 2. between oxygen concentration at isobaric conditions and the corresponding altitude 3. partial oxygen pressure and oxygen concentration at isobar conditions



KLM KÜHL- UND LAGERHAUS MÜNSTERLAND GMBH



KLM of Rheine has specialised in temperature-controlled logistics for frozen food and ice cream for over 25 years

The largest freezer in Germany relies on active fire prevention technology

The increasing level of automation technology in automated cold storage warehouses increases the risk of fire in these areas. This is exacerbated by the large amounts of easily flammable packaging materials and dry air in the storage area. But the OxyReduct® fire prevention system creates an atmosphere in which fires can no longer develop.

The new top-calibre cold storage warehouse commenced operations in 2013 and serves to store, commission and package big-name manufacturers' frozen foods and ice cream for import and export. KLM, a subsidiary of logistics service provider NewCold Advanced Cold Logistics, serves food product manufacturers such as apetito, Conditorei Coppentrath & Wiese, R&R Ice Cream Deutschland and many more. Boasting a volume of roughly 380,000 m³,

the new warehouse has room for 68,400 pallets, making it the largest fully automatic high-bay cold storage warehouse in Germany. This expansion to the existing warehouse in Rheine allowed KLM to increase its total capacity to 90,000 spaces. The cutting-edge automated loading and unloading system reduces loading times to a minimum, so that a truck carrying 32 pallets can be fully unloaded in just two minutes.

Increased risk of fire by nature

The enormous volume of goods which has to be handled each day demands processes that run without a hitch – and a fire breaking out could not only disrupt them, but result in incalculable losses. Smouldering cables, overheating on conveyor drives or technical defects in cooling systems mean that there is plenty of potential for a fire to start, even in a cold storage warehouse. The combination of a dry atmosphere and packaging materials such as paper, cardboard and plastic film means that a fire would spread more quickly than it would in a normal warehouse. At the same time, the narrow and high gaps between the shelves can cause fires to spread vertically (known as the “chimney effect”) and jump over to other pallet spaces.

Why spend so much time thinking about extinguishing equipment when a fire could simply be prevented?

KLM managing director Georg Grewe opted for an active fire prevention system to ensure that KLM’s customers always count on punctual and dependable delivery. The active fire prevention system OxyReduct® with VPSA technology uses controlled nitrogen feeding to reduce the oxygen content in the high-bay cold storage warehouse to 16.2% vol. This oxygen-reduced protective atmosphere ensures that any fire which does manage to start in the warehouse won’t be able to spread. The nitrogen required to reduce the oxygen content is produced directly on-site by generators with the latest VPSA (Vacuum Pressure Swing Adsorption) technology – and



The oxygen concentration in the warehouse is constantly monitored by oxygen sensors 1 so that the OxyReduct® system 2 will ensure the defined operating concentration of 16.2 % vol. in the event of a potential deviation. The nitrogen is distributed by the warehouse ventilation system. 3

all it needs to do so is the ambient air, making it highly energy efficient and climate friendly. Under optimal conditions, the new system can generate energy savings of up to 80 % compared to systems with conventional membrane technology, which makes it cost-effective for the operator. The use of natural nitrogen in fire prevention means that the food stored by KLM is not affected. As an added benefit, the oxygen-reduced atmosphere poses no significant danger to the employees and does not hinder access to the warehouse. ■



▲ Three VPSA systems with a nitrogen output of approx. 240 m³/h each were installed in KLM’s deep-freeze warehouse. One is a redundant back-up system, as required by the emergency concept

KLM MANAGING DIRECTOR GEORG GREWE SUMMARISES THE SITUATION



“In Rheine, we built the largest fully automated high-bay deep-freeze warehouse in Germany. Even before the planning stage, it was certain that the € 40 million investment and the stored goods had to be protected from fire and that our business processes and automatic logistics processes in the warehouse had to be maintained in any event. At the same time, the fire protection solution also had to be cost effective and approved by the VdS.

The protection objective was therefore very comprehensive. The resulting solution speaks for itself: Nothing can burn in our new high-bay cold storage warehouse thanks to active fire prevention using oxygen reduction. Thanks to the high energy efficiency of the VPSA technology installed, we not only score points in term of safety, we also keep operation costs down.”



Headquarters of Tyco Fire & Security in Ratingen, Germany



Tyco Integrated Fire & Security is the new partner of WAGNER Products

In 2013, Tyco became the new OEM partner distributing WAGNER's successful and highly sensitive TITANUS® air sampling smoke detector – alongside Bosch, Siemens and Honeywell. The company focuses on distributing the TITANUS® earliest possible fire detection systems in Germany.

Tyco Integrated Fire & Security is a business division of Tyco and is the world's largest specialist in the field

of fire protection and safety, supplying over three million customers all over the world. The company brings in an annual turnover of \$10 billion and has over 69,000 employees at over 1,000 sites in over 50 countries. Solutions from Tyco are used in many different industries worldwide. In Germany, the business fields safety and fire protection are bundled under a single umbrella brand: Tyco Integrated Fire & Security. With its subsidiaries ADT Deutschland, TOTAL WALTHER, ADT

Sensomatic, ADT Service-Center, CKS Systeme and TOTAL Feuerschutz, the company offers comprehensive expertise in all safety-related matters from a single source and designs, installs and supports integrated fire protection and safety systems for business, industry and state authorities, as well as private households. ■

Peter Clauss is the new chairman of the special extinguishing systems team at the bvfa

On 11 November 2013, Dipl.-Ing. Peter Clauss of WAGNER Group GmbH followed in the footsteps of Norbert Büll, who retired from his position as head of the special extinguishing systems team.

Peter Clauss' new position as head of the team adds to his nearly 20-year career in which he served bvfa, Bundesverband Technischer Brandschutz e.V., as member of the PR committee.

The special extinguishing systems team handles work with guidelines and various regulations and provides

the member companies with a convenient way of exchanging qualified information.

The leading manufacturers of products for technical fire prevention in Germany have banded together in the bvfa. WAGNER has been part of it since 1 April 1998. Together with other member companies, it pursues the goal of advancing technical fire protection in Germany. ■



Préventica Lyon 2013 – a double success for WAGNER



▲ The WAGNER France team rejoices over winning the Innovation Award at the Préventica Lyon 2013 (left to right): Hervé Debons, Lena Wiemann and Frank Siedler

Préventica, the national trade fair and conference for work safety, security and fire protection, was held on the Eurexpo premises in Lyon, France, from 24 to 26 September 2013. WAGNER put on its first exhibition at the Préventica and attracted great interest in its innovative OxyReduct® fire prevention system.

A double success with OxyReduct®.

For three days, the spotlight was on prevention at the exhibition centre in Lyon. Visitors from many industries and all fields of work took in more than 400 stands and 140 conference presentations. One of the highest-profile stands was the WAGNER exhibition: a big American truck to demonstrate active fire prevention with an oxygen-reduced atmosphere. The fire trial videos shown at the stand caused many visitors to stop in their tracks to find out more – and some even came to hear WAGNER's lecture during the conference.



The Préventica Innovation Award for 2013

The Préventica conference and trade fair has been organised twice a year in various regions in France for 15 years. At each event, Préventica bestows its Innovation Awards upon companies which offer high-performance, innovative products and services in the field of prevention and risk reduction. 25 candidates in total were nominated in Lyon for the various categories of Innovation Award, which was presented during the fair's opening ceremony on 24 September. And WAGNER won the Innovation Award in the fire protection category for its OxyReduct® fire prevention system.

The system constituted a significant advancement and innovation on the French market, since it bridged the gap between the traditionally separate fields of fire protection (Systems) and fire prevention (precautionary measures taken by employees). This resulted in a major advantage: Assuring uninterrupted operation for the site, reliability of delivery and data security. ■

Collective focus on IT centres

True to the motto "think global – act local," the STULZ Global Partner Meeting was held on 24 and 25 October 2013. It drew around 250 international participants who came to find out about new developments and trends in the IT sector.

Precision air conditioners from STULZ ensure ideal operating conditions for computing centres and telecommunications systems all over the world. WAGNER, a new STULZ Global Partner, provided information on the latest fire prevention solutions for IT and data centres in lectures as well as exhibitions. The outdoor road show truck gave attendees a chance to see how the solutions work in practice.

The event focused on safety and safeguarding operation in data centres. As the technology and requirements become increasingly complex, manufacturers, service providers and operators continually face new challenges. The intelligent fire protection concepts which WAGNER provides make an important contribution to ensuring availability in the event of fire without having to shut off the power, and even reduce the risk of a fire breaking out in the first place thanks to the OxyReduct® system. Tried and tested and awarded the Computing Centre Prize in the safety category in 2012 and 2013. ■



▲ Steen Hilmar, WAGNER Denmark, (centre) at a meeting with international STULZ partners

A promising plethora of “TGA Fachforen Brandschutz 2013”

In October 2013, Bauverlag GmbH held another of its TGA-Fachforen Brandschutz (specialised technical building equipment fora for fire protection) in cooperation with various partners from the industry. Nearly 300 specialists took part at the four dates in Leverkusen, Nuremberg, Berlin and Hamburg and gained information on topics surrounding fire protection in construction and building utilities in the lecture programme and accompanying specialised exhibition.



Stefanie Schnippenkötter, editor at Bauverlag: “I am glad we’re continuing the 2014 series and will again be having WAGNER on our side as a competent partner in the industry.”

Current trends and findings

In his lecture “Current Trends and Findings in Fire Detection, Prevention and Extinguishing,” Dipl.-Ing. Peter Clauss of WAGNER discussed the most common reasons why fires start and the related legal principles and subsidies, as well as possible approaches towards solutions for successful and dependable fire protection. He enlightened attendees on the principles of functioning and benefits of early fire detection systems, and pointed out the pros and cons of the individual

extinguishing technology systems. A particularly striking highlight was the demonstration of the consequences which triggering an extinguishing system can have at a computing centre.

Peter Clauss wrapped up his lecture with an overview of fields of application, mode of functioning and benefits of an active fire prevention system, which offers the unique possibility of preventing a fire from forming in a protected area from the very beginning.

In June 2014, the Bauverlag will be continuing its successful series of lectures on fire protection in technical building equipment planning with events in Stuttgart (4 June), Hamburg (17 June), Frankfurt am Main (24 June) and Cologne (26 June). Again, WAGNER will be presenting at them, informing participants of the advantages and potential fields of use of modern air sampling smoke detector systems. You can find more information at www.tab.de/fachforum ■

WAGNER safeguards Champions League broadcast

On 13 November 2013, an incident at the premises of the PULS 4 broadcast station at Media Quarter Marx in Vienna showed what devastating effects a tiny capacitor could have if it burns. Around 2:00 AM, one exploded inside a teleprompter and began to burn. The problem: The device stood in a central equipment room in the broadcasting station, a company belonging to ProSiebenSat.1 Media AG.

But PULS 4 ended up lucky: Before the smouldering capacitor broke out in flames, the highly sensitive TITANUS® air sampling smoke detectors from WAGNER

triggered the alarm and activated the FirExting® gas extinguishing system. Nitrogen was fed in and rapidly put out the fire – long before the fire department arrived at the scene.

“The equipment rooms are essential for the broadcasting station’s daily work. A failure would mean temporary death for us,” explains Andreas Kohlstock, production manager at ProSiebenSat.1 PULS 4. “We sure are glad we decided on a fire prevention system from WAGNER.” And so were the viewers: the next Champions League game was coming up a few days later, and PULS 4 was broadcasting it live. ■



▲ A capacitor in a teleprompter began to smoulder. The part is no larger than a thumbnail, but could have destroyed the entire equipment room, had it gone unnoticed

Preview of Issue 2/2014

Fire protection for Green IT New concepts for green solutions

Noris Network AG has built one of Europe's most sophisticated high-security computing centres in Europe. The use of the latest environmentally friendly green IT in the air-conditioning system – indirect free cooling from the outside air, known as "KyotoCooling" – posed new challenges in fire protection. You can read about the solution in the coming issue

WAGNER wins the GIT Safety Award 2014

WAGNER was commended for its VPSA (Vacuum Pressure Swing Adsorption) technology for environmentally friendly and energy-efficient nitrogen production with the GIT Safety Award 2014. The award is presented each year by the trade journal GIT Sicherheit + Management. We will explain everything VPSA technology can do in the 2/2014 issue.



TITANUS® – state-of-the-art technology

The TITANUS® family of air sampling smoke detectors from WAGNER has provided increased safety for over a decade now. The TITANUS® MULTI-SENS has meant a new milestone in technology.

BOOK TIP

Damage caused by insufficient fire protection

Authors: Gerd Geburtig and Ingo Schlegel, Publisher: Ralf Ruhnau, 175 pages (German only)

Insufficient fire protection measures may have devastating consequences in the event of fire and quickly lead to personal injury and property damage. The authors explain every mistake that can be made when planning and carrying out fire protection measures. After an extensive description of the principles of fire protection and the most important requirements it puts on buildings, the book covers common shortcomings in fire protection during planning, execution and operation. The steps to be taken to detect and overcome such shortcomings are explained



Released by Fraunhofer Irb Verlag Stuttgart, www.irb.fraunhofer.de/irb_verlag/
ISBN 978-3816788126

based on selected cases of fire damage and suitable preventative fire protection measures are explained.

On a Lighter Note

Several years ago, a business trip took WAGNER branch manager Michael Leibner to Prague. The memory of it still makes him tremble today – and for good reason.

An average day in the career of a field sales team member normally doesn't hold any great surprises. So what was it that brought nearly every unfortunate circumstance imaginable together on a single day? Michael Leibner thought he had seen it all until that fateful day. Nearly impossible to surpass in its strangeness, the event took place at the end of a business trip in Prague. On the morning he was about to head home – car already packed and waiting in front of the hotel for departure – Michael Leibner just wanted to have a quick breakfast to tide him over for the trip. As the key account manager exited the lobby a few minutes later with a full stomach, he was confronted not by his car, but by a gaping void. An extensive search of the entire car park did nothing to change the situation: his car was nowhere to be found.

After a brief intermezzo with the Czech police, Michael Leibner had no choice but to take a taxi to the airport. Once he arrived at the airport, the drama took its course. The flight was delayed and the hectic way the mechanic working on the plane fiddled about, shook his head and shrugged his shoulders could only mean one thing: he'd have to call a taxi to the train station!

The one good thing about it: Michael Leibner wouldn't have to haul his luggage around anymore on his unwanted tour through Prague. After all, it was packed away in his stolen car. The bad thing about it: The day happened to fall on a rather unfavourable time of year: February, when the temperature was estimated at -20 °C. So one could easily imagine why Michael Leibner still gets goose bumps today at the thought of that day in Prague. ■

Exhibitions, Roadshows & Events

15/05/2014

IT-Sicherheitstag, Langenhagen

22/05/2014

12. Windmesse Technik-Symposium, Hamburg

04/06/2014

TGA Fachforum Brandschutz 2014, Stuttgart

09/06/2014

NFPA Conference & Expo, Las Vegas, USA

17/06/2014

TGA Fachforum Brandschutz 2014, Hamburg

17/06/2014 - 19/06/2014

Firex International, London, UK

24/06/2014

TGA Fachforum Brandschutz 2014, Frankfurt/Main

24/06/2014

Das 5-Sterne-Rechenzentrum Plus, Frankfurt/Main

26/06/2014

TGA Fachforum Brandschutz 2014, Cologne

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