



**Better
Solutions**



**in
Fire
Protection**

Wagner Fire Safety Management Consultants

Presents:

OxyReduct® - Active fire prevention

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Speaker:

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Senior Engineering Consultant



Our Vision

No possibility of fire in your facility!

**Continuous fire prevention
twenty-four hours a day!**



Our solution has a name:

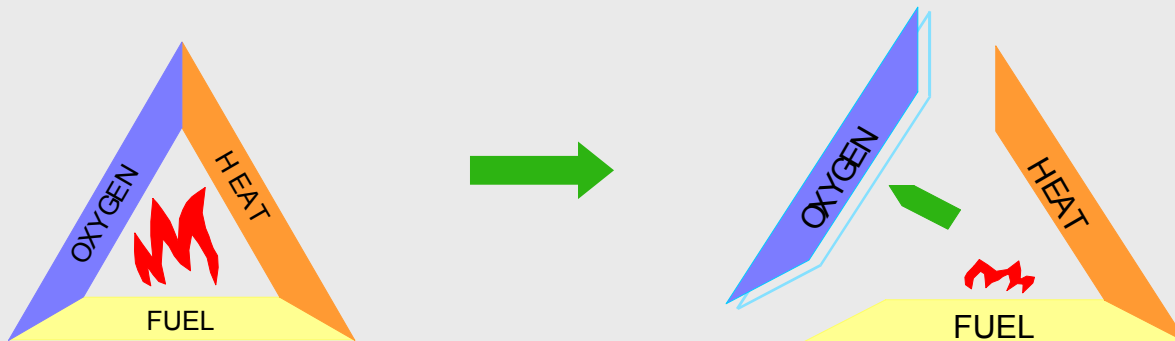
OxyReduct®

An innovative system
for active and reliable
fire prevention.



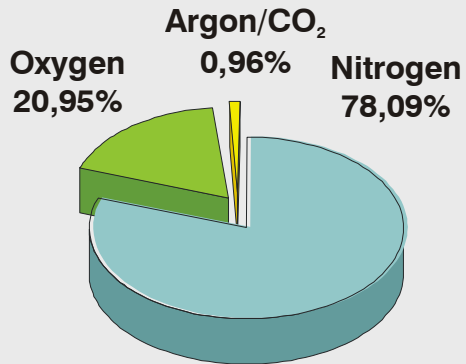
Principle of our Our Solution

The inflammability of nearly all solid and liquid substances decreases when the content of oxygen in the air is reduced.

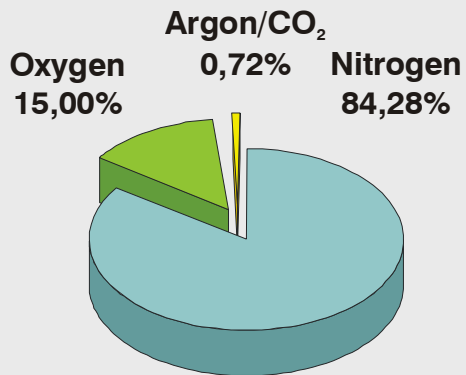


How do we reduce the oxygen?

By adding nitrogen



Natural atmosphere



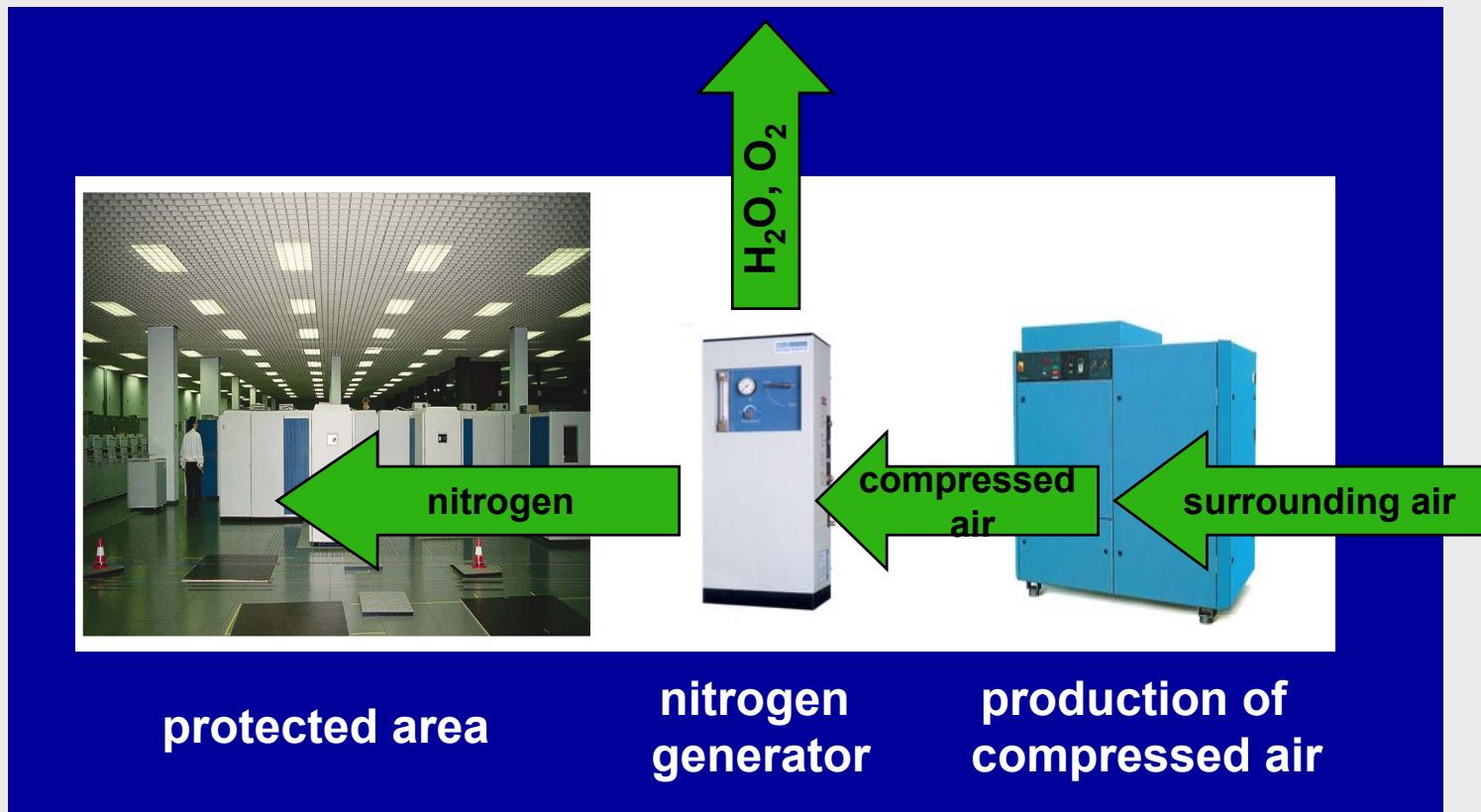
OxyReduct® atmosphere

Why Do We Use Nitrogen?

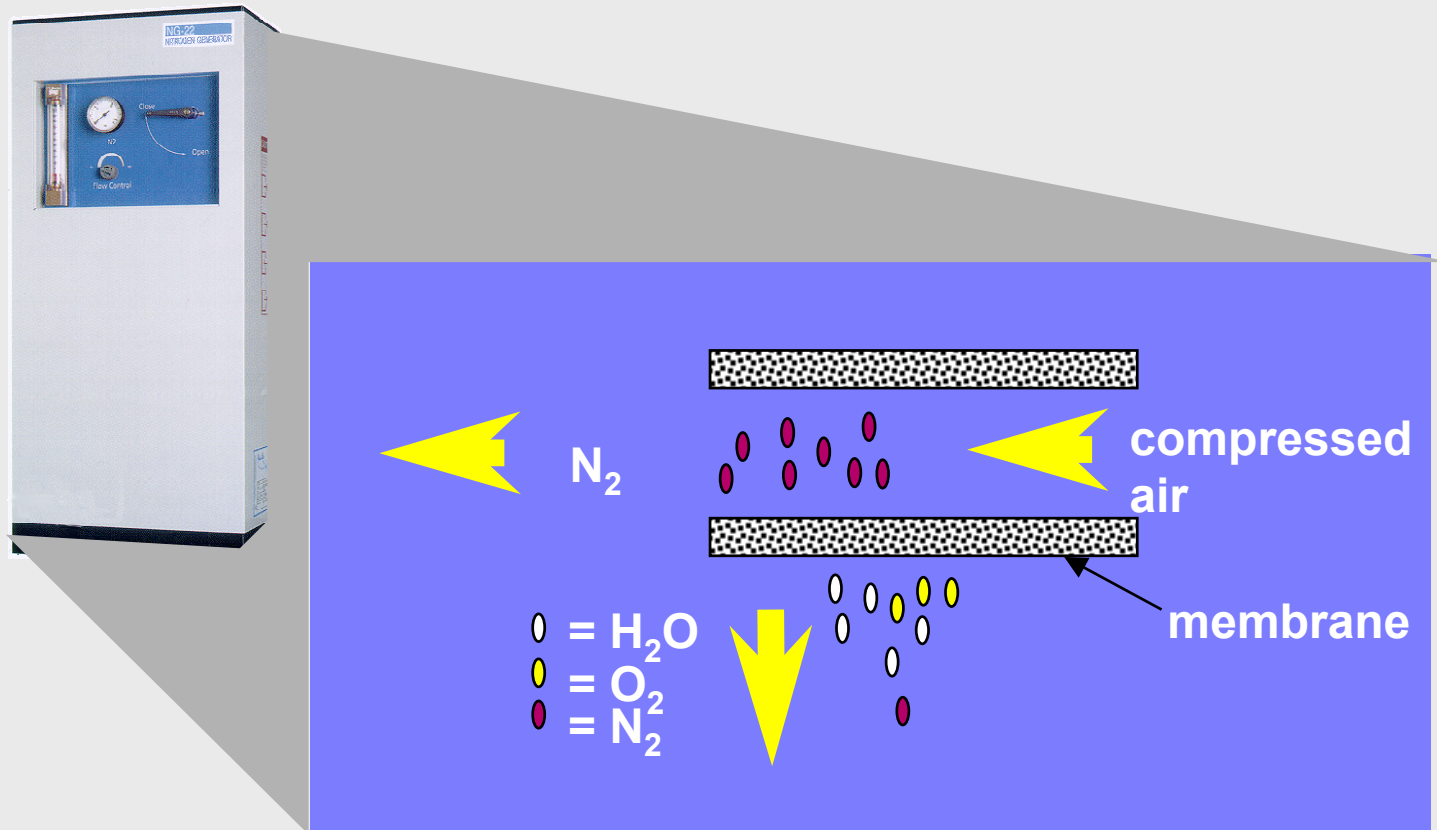
- In combination with air nitrogen has the lowest effect on the human breathing system
- Nitrogen Already represents 78 % of our air
- Nitrogen is non-toxic
- Nitrogen and air form a Homogeneous
- No independent decomposition



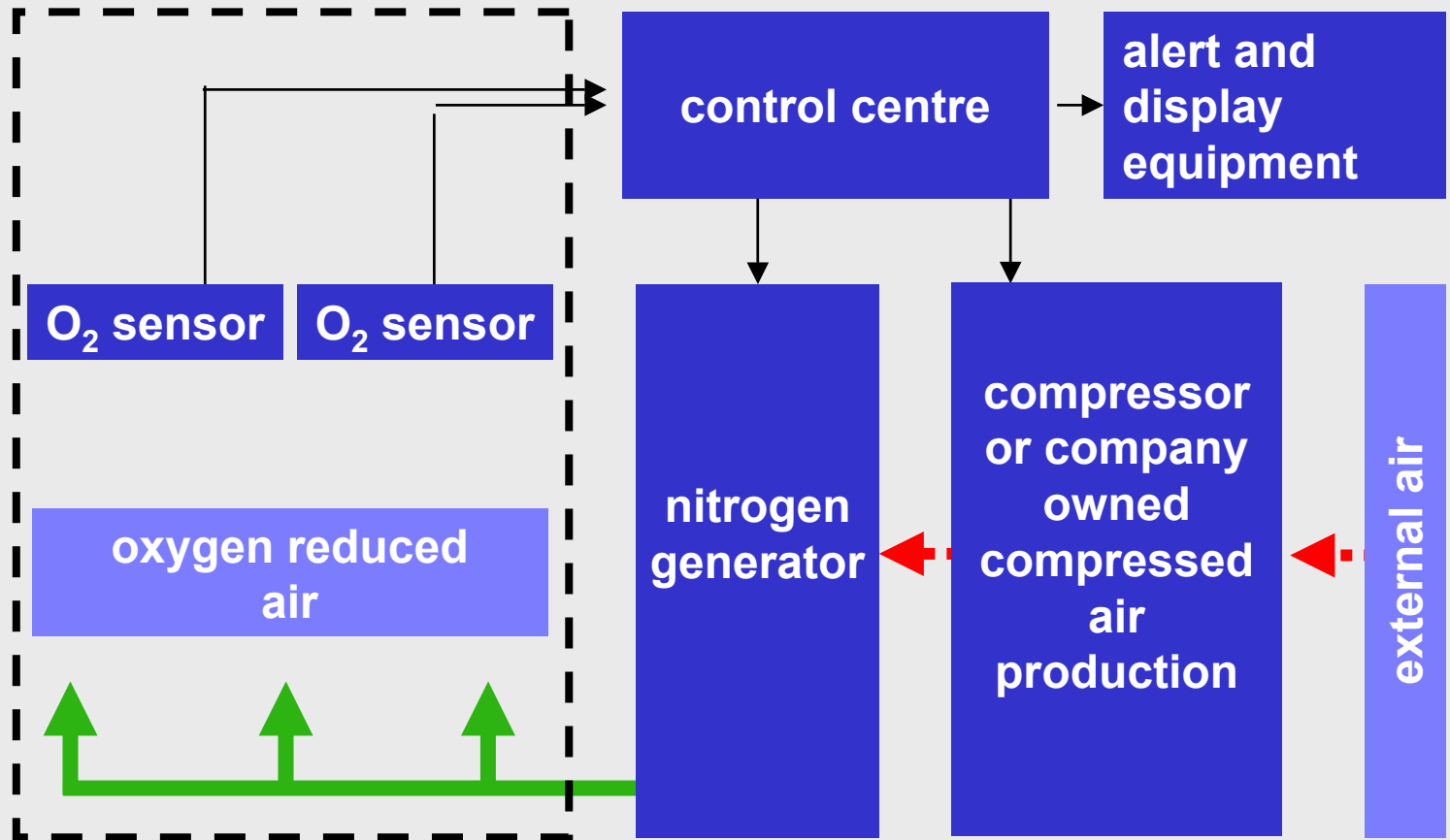
Oxygen Reduction by Adding Nitrogen



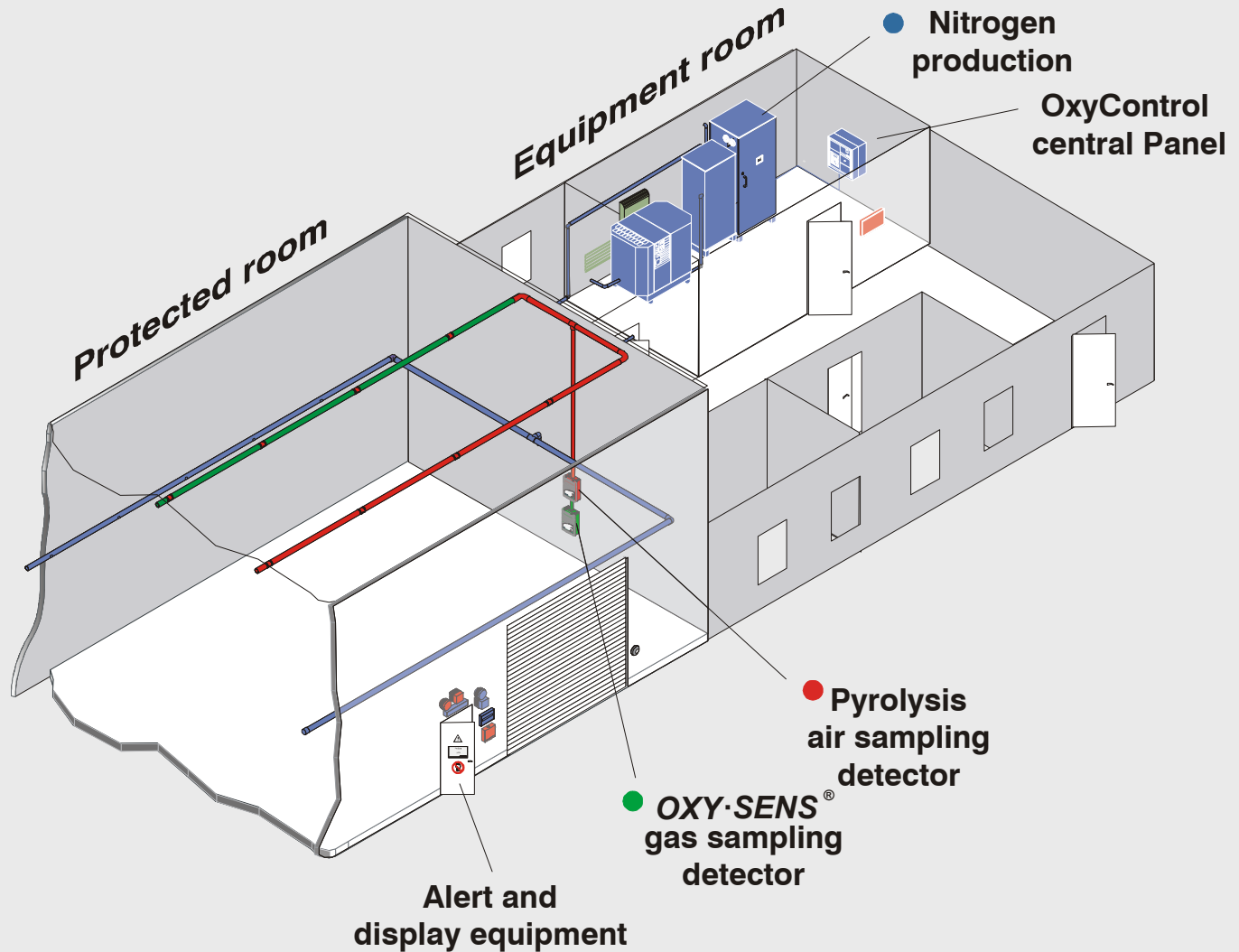
Nitrogen Extraction by Using Membrane Technology



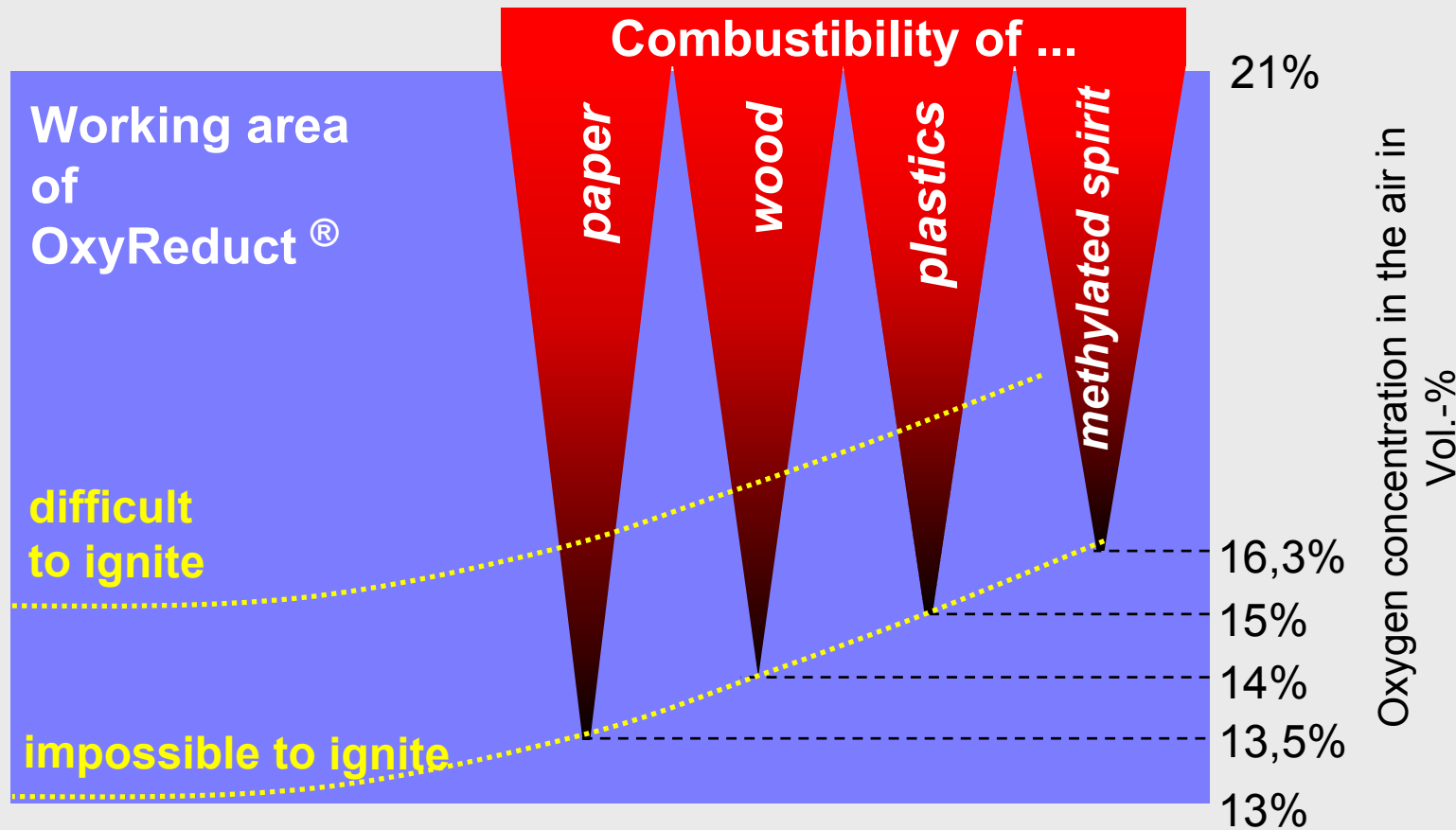
OxyReduct[®] - Pattern



OxyReduct[®] System Components

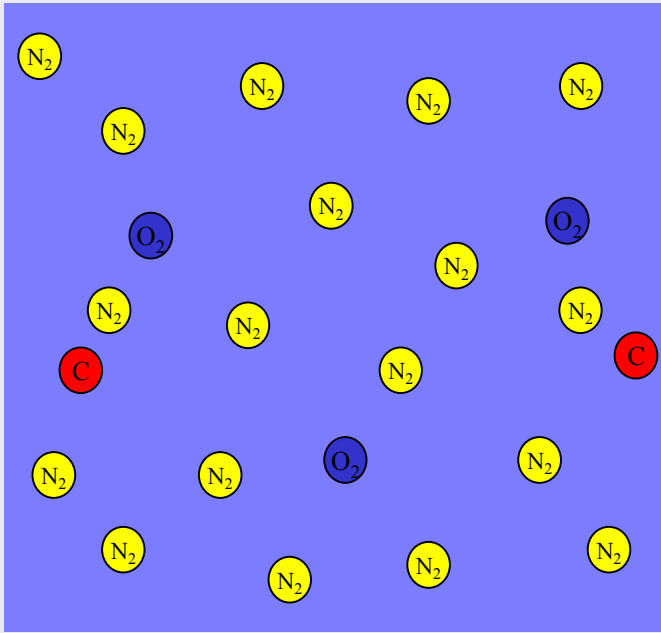


What Concentrations of O² are necessary?

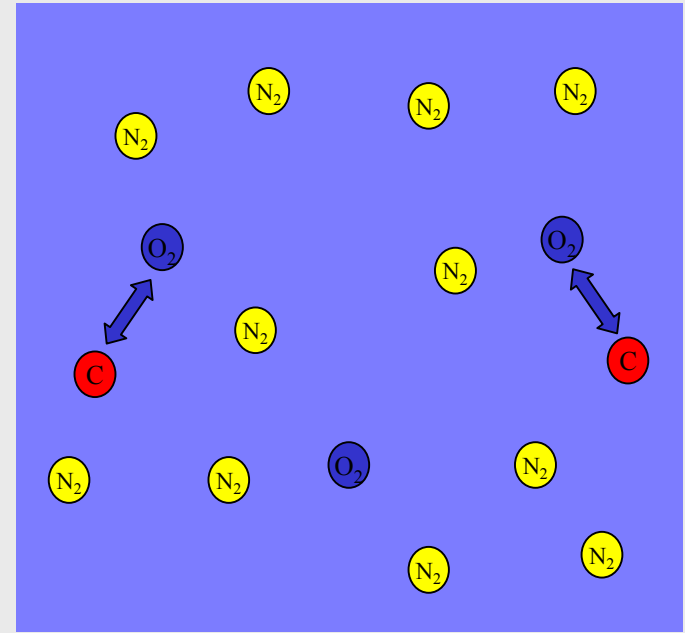


Why is Fire possible on a Mountain?

OxyReduct[®] installation
(at sea level)



Mountain at about 3000m height

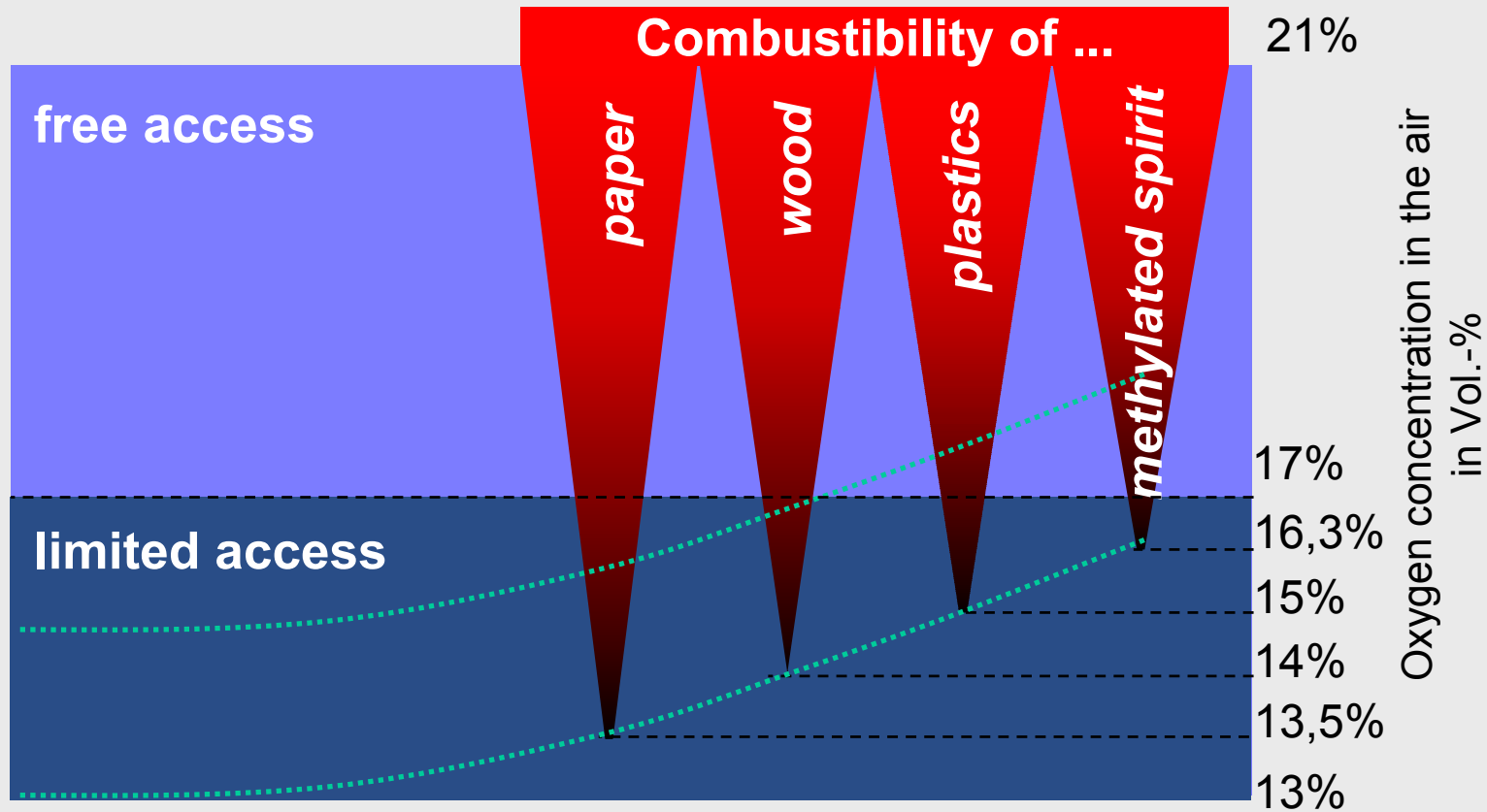


Influences on :

Fire: ratio of oxygen and nitrogen

Man: particle pressure of oxygen

Access and Oxygen Concentration



Comments of the responsible employers liability insurance association

People may enter areas in which the oxygen level has been reduced for fire protection reasons (eg. by an OxyReduct® installation), if the following conditions apply:

- **Any person:**

21 Vol.-% > oxygen concentration \geq 17 Vol.-%

- ***People following a medial check-up:***

17 Vol.-% > oxygen concentration \geq 13 Vol.-%

Health Related Aspects



© Hypoxico Ltd. USA

Fitness centre in the USA:

Artificial reduction of the oxygen concentration to 10 Vol.-% to improve the physical condition.

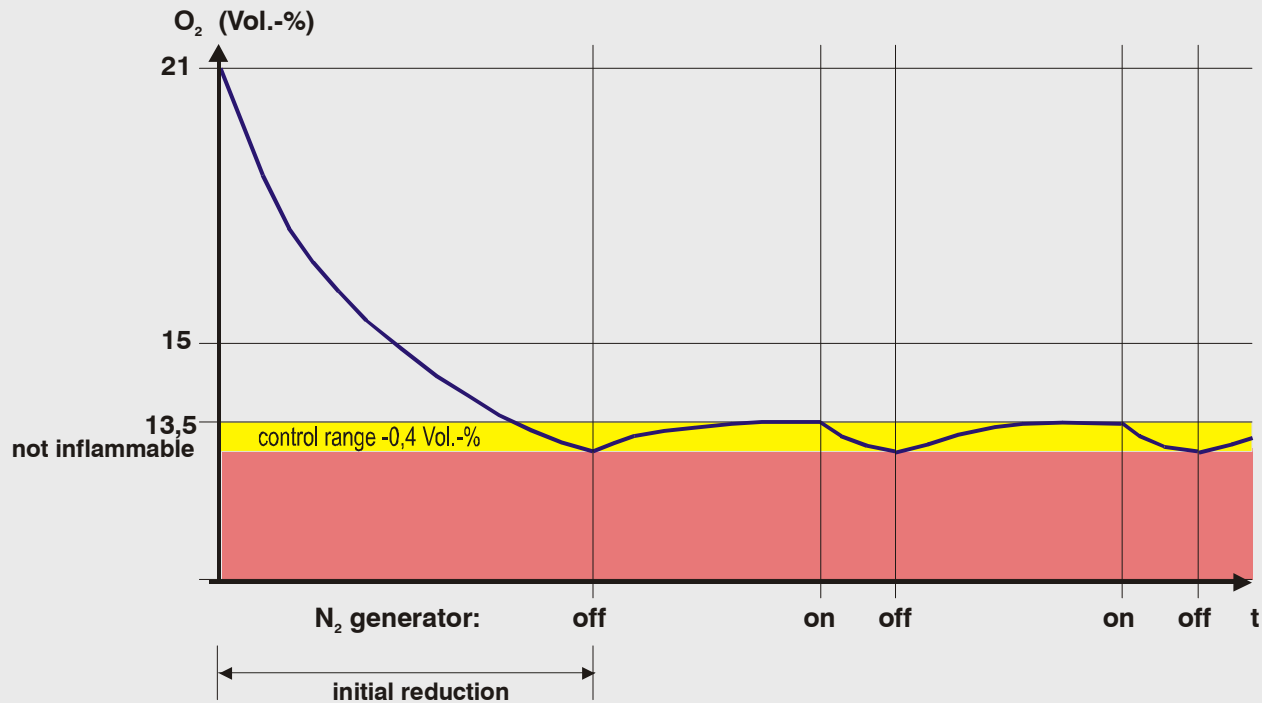
Sleeping tents with a reduced oxygen level to increase the red blood cells



© Hypoxico Ltd. USA

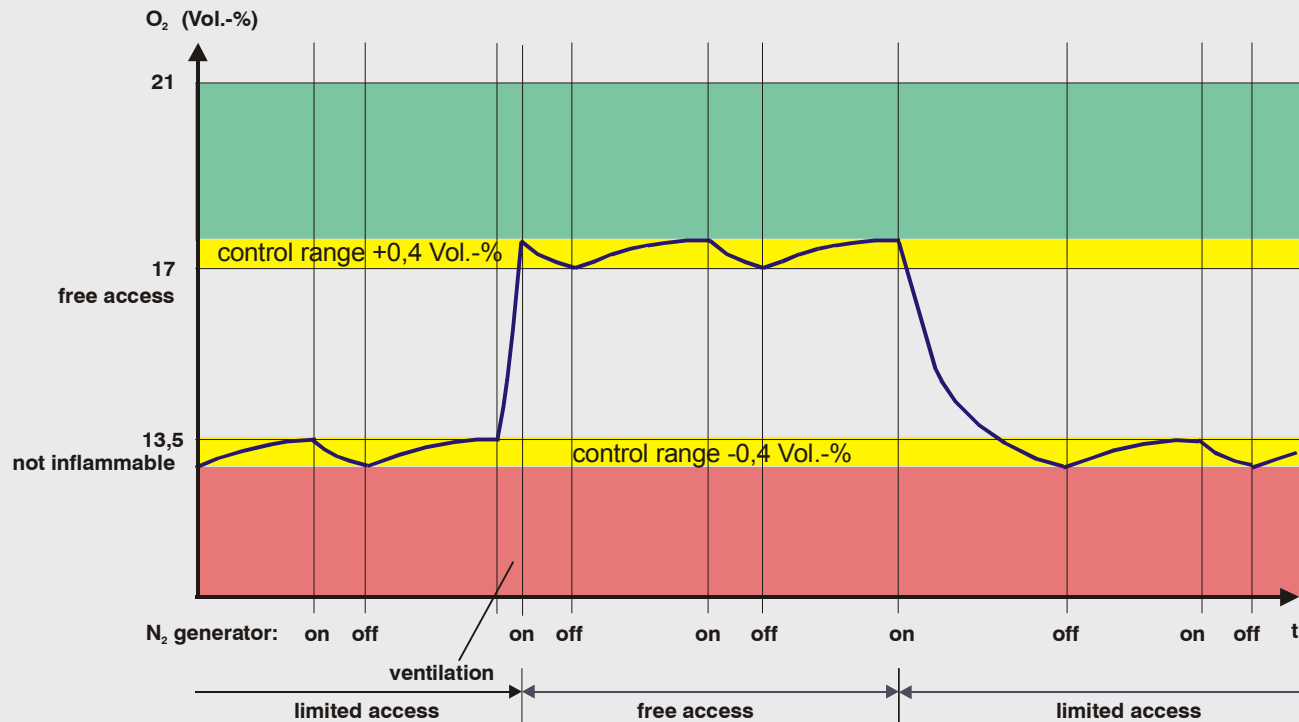
Maintaining the Oxygen Concentration

Constant level of the area-specific oxygen level



Maintaining the Oxygen Level

Variable reduction of the oxygen level



Application Areas

- Information technology IT / KT
- Logistics centres and storage areas
- Data and other archives
- New application areas develop depending on your own demands



IT and Telecommunication

- **Computer centres**
- **Telecommunication Network nodes**
- **Lampertz Modular IT safety rooms**
- **Control centres**
- **Switch rooms and distribution cabinets**



EDP Centre Centrale TÜV Rheinland

Demand: De-installation of a CO₂ installation

High number of servers
International router node point

Surrounding conditions:

Very air tight protected area
Air handling unit

Aim:

Absolute fire protection without
restricting operational ability

Installation in operation since July 2001



RZ Service Provider in Stuttgart



Site conditions:

- Small room 75 m³
- High number of servers
- High number of operations
- Process leasing
- Air handling unit
- Air tight room on 5th floor

Aim:

Absolute fire protection without restrictings operational ability

**Installation in operation since
May 2002**

Logistics Centres and Storage

- **Logistic centres**
- **High rack storage**
- **Deep freeze storage**
- **Hazardous goods storage**



Wacker-Chemie GmbH Burghausen

Site condition:

- Fully automated storage and logistic centre for hazardous goods
- 67 000 m³ High rack storage
- Hazard risk class 1-3 for water
(difficult to get water introduced)

Installation in operation since February 2001



Archives

- **Museum Archives**
- **Libraries**
- **Safes**





Insurance Data Archive

- **Site condition:**
- Customer files are stored in part of an underground railway tunnel (originals without back-up on a data medium)
- No emergency exit available
- High air tightness
- No air-conditioning
- Extinguishing not possible because of restrictions by the fire department

Installation in operation since December 2001

New Dimensions in Fire Protection

- Offers new possibilities in fire protection
- Great interest in the market
- Positive reaction from authorities and insurers
- Positive comments from the employers liability insurance association
- Trend-setting for guidelines and regulations





Your advantages with OxyReduct®

- **Safe prevention of the development and spreading of fires**
- **Avoiding damages caused by smoke, fire or extinguishing agents**
- **Easy adaption to a new fire risk**
- **Attendance without business interruption**
- **Elimination of constructional fire prevention arrangements possible**



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