

The background of the image features a large, stylized flame graphic in shades of orange and yellow, overlaid with a black 'X' symbol. This graphic is composed of several hexagonal segments. A large red hexagon is positioned on the left side of the image, containing the text 'EXPLOSION PROTECTION SAFETY SOLUTIONS'. The top right corner of the image is white, containing the 'PYROBAN' logo in red. The bottom left corner is white, containing the text 'MATERIALS HANDLING' in grey. The overall design is industrial and safety-oriented.

PYROBAN®

**EXPLOSION
PROTECTION
SAFETY
SOLUTIONS**

**MATERIALS
HANDLING**

SCIENCE OF EXPLOSIONS

PROTECTING INDUSTRY

There is always the risk of a flammable material release in businesses that produce, store or move flammable gas, liquid or powder.

If the released gas, vapour or powder comes into contact with air and an ignition source, an explosion could happen.

The expertise of explosion protection lies in keeping these elements apart. Gas is not smart or selective and the consequences of such an ignition have been well reported over the last few years.

These incidences significantly affect people, our environment, brand reputation, share value and production levels.

Pyroban is an established leader in the provision of explosion protection solutions.



MANAGING THE RISK



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HAZARDOUS AREA EQUIPMENT

TRAINING AND CONSULTING

EX- CONVERSIONS

ZONE 1, 2, 21 & 22

system6000™



**SERVICE,
SUPPORT,
TRAINING
AND PARTS**

ADDED SAFETY

Gascheka duo™



HAZARDOUS AREA EQUIPMENT

TRAINING AND CONSULTING

LEGAL COMPLIANCE

Regional legislation governs Health and Safety issues relating to the explosion protection of equipment across the world. Regulations usually affect the hazardous area (site) and the equipment operating in the areas.

Local and regional guidelines exist such as ATEX in Europe, NEC / NFPA in the US and the international IECEx.

ZONE 1 OR ZONE 2?

Businesses should define their hazardous areas correctly according to the appropriate zones.

Pyroban can help you check that classified hazardous areas are accurately defined before introducing new equipment such as explosion proof forklift trucks, to ensure the correct level of protection for your application.

CONSULTING

Pyroban provides expert hazardous area consulting and training to our customers. We assist customers across the world, helping to ensure that they operate safely in potentially explosive atmospheres.

Services include:

- Product gap analysis and equipment safety audits
- Hazardous equipment risk assessment
- Ex equipment compliance inspections
- Design product manufacturing, certification and documentation

TRAINING

Pyroban's training team provides a wide range of explosion protection training services across the world, either at Pyroban facilities, or at customers' locations.

The training courses are designed to cut through the science and vast quantity of explosion proof legislation associated with materials handling equipment, including standards and guidance, incorporated into a flexible learning experience. The courses suit all levels of the materials handling supply chain including operators, service teams and engineers.



EXPLOSION PROOF CONVERSIONS



CERTIFICATION AND TESTING

Certification and testing are crucial elements in the Pyroban business. All Pyroban products are certified, with many having tri-certification to ATEX 2014/34/EU, IECEx, GB and NEC 505. With in-house test facility procedures and approval to national standards, Pyroban can ensure quality at every step in the process.

OEM APPROVAL

Be aware that ISO standards stipulate that trucks should only be modified with approval by the original equipment manufacturer.

When buying an explosion protected truck, we advise checking with your truck supplier to ensure that there is written consent by the manufacturer to the explosion protection provider. This will prevent any problems with product and public liability, warranty and technical support.

ZONE 1 (GAS/VAPOUR) ELECTRIC & DIESEL

Pyroban can convert almost all forklift trucks and vehicles for safe operation in Zone 1 areas. Many are standardised designs already approved by the manufacturer.

All ignition sources are protected so that the equipment is safe to use in a potentially explosive atmosphere. Conversions may include flameproof Ex d enclosures for arcing and sparking components, surface temperature limitation, Ex e components, Ex i intrinsically safe circuits, Ex m encapsulation, Ex e battery, inlet and exhaust flame arrestor and spark arrestor (on diesel engines) and cladded forks.

Converted equipment is ATEX 2014/34/EU compliant or compliant to relevant local regulations.



ZONE 21 & 22 (DUST) ELECTRIC & DIESEL

Pyroban can convert almost all forklift trucks and industrial vehicles for safe operation in Zone 21 or 22 areas. Zone 1 and Zone 2 combinations are also available. Many are standardised designs already approved by the manufacturer.

Conversions may include explosion proof Ex d enclosures for arcing and sparking components, surface temperature limitation, Ex e components, Ex i intrinsically safe circuits, Ex m encapsulation, Ex e battery, IP enclosures, clad forks and more.

Converted equipment is ATEX 2014/34/EU compliant or compliant to relevant local regulations with the manufacturer's approval.



ZONE 2 (GAS/VAPOUR) ELECTRIC & DIESEL

The most popular 'Zone 2' conversion features **system6000™**, an active system that enables the operator to be continuously informed if the operating area is safe or becoming hazardous.

system6000 includes restricted breathing enclosures for arcing and sparking components, surface temperature limitation, gas detection (option of infrared or pellistor heads) and shutdown system with audible and visible alarms, spark arrestor and clad forks.

Pyroban ensures converted equipment is ATEX compliant or compliant to relevant local regulations. Many are standardised designs already approved by the manufacturer.



An atmosphere where a mixture of air and flammable substances in the form of gas, vapour or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only. These can be both process and storage areas.

ZONE 2



**1**

Arcing and sparking components

Electric sparks and arcs (i.e switches), mechanical sparks (i.e friction) and static electrical sparks.

See more at:

www.youtube.com | 'Pyroban Sparking Video'

2

Hot surfaces

A forklift truck has many surfaces which each individually have the risk of becoming hot and therefore sources of ignition. Surface temperature limitation ensures the engine, motors, brakes, electrics and other components remain below the auto-ignition temperatures (T Class) of flammable materials.

3

Engine overspeed or flame from inlet or exhaust

If flammable gases/vapours are present in the atmosphere, the diesel engine could ingest them through the air intake. The result can be flashbacks through the inlet or backfires in the exhaust.

Overspeed can also occur when the engine ingests flammable gas mixed with air and diesel fuel which can lead to the engine running out of control at elevated speed. This can result in catastrophic failure of the engine. Another risk can be misfiring of the engine which can lead to an explosion further down the exhaust system which could then ignite the surrounding atmosphere.

ADDED SAFETY

MANAGING THE RISK

For discretionary safety areas, extended hazardous areas adjacent to formally classified Zones or for use in some hazardous area maintenance situations, Pyroban provides the added safety system **Gascheka duo™**.

Gascheka duo is a gas detection and shutdown control solution for all types of electric, diesel and LPG equipment which is supplied as a kit for on-site installation.

Gascheka duo provides visual and audible warning to operators of the presence of gas/vapour and uses either infrared or pellistor sensing technology.

Gascheka duo™



These areas are not formally classified yet the risk of explosion cannot be ruled out. Typically storage and transit areas.

**DISCRETIONARY
SAFETY AREAS**

ENGINEERING EXCELLENCE

With more than 40 years experience delivering complex engineering solutions, Pyroban has developed a global footprint of engineering excellence to deliver high quality products across the world.

Our engineering principle is to “understand the science behind the technology” to ensure the products and solutions are fully aligned to the markets served, focused on compliance, functionality, quality, reliability and life cycle cost.



Additional to the ISO9001:2015 quality standard certification, each Pyroban attains the required level of 3rd party certification for the business markets it serves including ATEX, IECEx, GB and NEC.

QUALITY



SERVICE AND SUPPORT

Pyroban provides all levels of service to suit the application and customer requirements, providing either direct support or support through the equipment dealer. Our goal is to ensure maximum equipment availability and continued safety for operators in hazardous areas. We advise three steps to ensure ongoing safety:

1. Maintenance should be performed by trained engineers
2. Follow maintenance schedules defined by the manufacturer
3. Undertake an annual audit (now a legal requirement in the EU) known as the EX-ASA

SPARE PARTS

Pyroban supplies all replacement parts required to keep your explosion proof equipment functional and up to standard.

Parts can be shipped quickly from Pyroban locations across the world or directly from Pyroban's global parts distribution centre in the UK



Protecting people,
their investment and
our environment

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