SPECIAL HAZARDS
PROTECTION

AUTOMATIC FIREFIGHTING SYSTEMS IN

PAINT BOOTHS

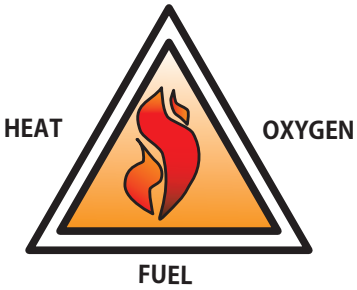
SIEX CO2

Hazard type

The risks considered, according to existing regulations, are

Class B risk:

fire of flammable liquid fuels.



Paint booths are elements used in industry for coating automotive, aeronautics or railway parts. They can be quite large.

The most common place where we can find these facilities is in body and paint shops, where they tend to be prefabricated modular cabins easily assembled onsite.

The booths must:

- Protect operators from toxic fumes
- Protect the environment from polluting emissions
- Protect the element being painted.

It is a work-suitable environment, well-lit and equipped with smoke control and fire protection equipment.

These enclosures are prepared for painting, coating and drying the parts to be treated. They must have:

- A generator set
- A filter-equipped fume extraction system prevents the emission of paint particles to the atmosphere
- Heat system for drying pieces with hot air
- Dashboard for controlling machinery.

The elevated material value is therefore evident. Breakdown or fire would generate large economic costs to the owner. Pain jobs would have to come to a halt during repair or replacement work, in addition to representing a serious workplace risk.

It poses high risk to workers due to the existence of toxic gases and flammable or combustible materials.

Safety Requirements

Paint booths pose a high fire risk because of work done inside with flammable and combustible materials, which leads to fast-spreading and high-toxicity fires. The accumulation of airborne vapours and paint dust creates an extra risk due to the danger of explosions. The high temperature generated internally during drying processes also increases the risk of ignition.

Since they are considered high-risk enclosures, booths must meet certain safety requirements to prevent accidental fires. The focus is on reducing ignition and explosion risk factors such as:

THE BOOTH CONTROLLER

It makes sure that the painting and heating tasks only run when the fan is running.

HEATING

Maintain a delay time between painting and heating with ventilation running to evacuate fumes. This prevents the creation of an explosive environment which could result in an accident.

CONSTRUCTION MATERIALS

Booths must be made of fire resistant and non-combustible material.

VENTILATION SYSTEM

This device prevents the vapour concentration from exceeding 25% of the lower flammable limit and the dust concentration below 50% of the minimum explosive concentration. (The electrical installation shall comply with the regulations for installations in facilities at risk of fire or explosion).

RISK FACTORS

- *Flammable materials*
- *Build-up of fumes*
- *Suspended paint dust*
- *High temperature*

SPECIAL ATTENTION

The Health and Safety regulations in the workplace also warns of high fire risk. Flammable products must not be stored in a paint area during more than one manufacturing shift.

SIEX recommendations

GENERAL CONSIDERATIONS

The booth fire protection system can work by total flooding or local application, depending on the cabin design, the extinguishing agent used and the amount of it required.

The most suitable equipment for a modular booth is a standalone system consisting of pressurized extinguishing agent in steel cylinders to prevent water connections to the grid, supply tanks and pumpsets. This saves space and the installation is easier to operate, in addition to requiring simpler maintenance than other systems using water or foam.

It may be of interest to have backup agent supply to ensure protection during recharge of the core system.

RECOMMENDED PROTECTION

The interior of a paint booth must be protected by an automatic extinguishing system to control any incident caused by leaks, spills or the accumulation of vapour from flammable and combustible liquids.

Triggering of the automatic fire extinguishing system must stop the ventilation system and activate the closure of fire doors to maintain the concentration of gas or chemical powder applied inside the premises for extinguishing purposes.

The extinguishing equipment must protect the environment, the plenum and the exhaust duct through nozzles properly located to cover all paint booth risk areas.

SPECIFIC PRODUCTS

Agents recommended by SIEX for this type of applications, given the hazard characteristics, are as follows:

- **SIEX-CO_2™**

Listed as extinguishing agents recommended for spray booths in NFPA 33: Spray Application Using Flammable or Combustible Materials.

The variety of cylinder sizes and dust or CO_2 containers facilitates the design of installation with a more cost-effective and tailored approach for each booth.

Our commitment

CHOICE OF SYSTEMS

SIEX has the widest range of products and systems to suit different needs, both as regards pressures and extinguishing agents.

COMPETITIVE PRICE

Optimizing all of our processes make us more and more competitive worldwide.

SPECIALIZED ENGINEERING

Our highly qualified staff ensure the best service for customers both as regards technical advice on the choice of system, and solving any problems that might arise after installation. Backed up by our extensive experience and a track record of successful projects.

QUALITY GUARANTEE

All products meet the highest quality requirements and internationally recognised official approvals.

SIEX-CO_2™ is composed of high-pressure cylinders, either modular or in a bank, depending on the amount of gas needed. Each application is studied individually prior to designing an installation.

CUSTOM APPLICATION
IMMEDIATE EXTINGUISHING
DOES NOT CONTAMINATE PRODUCTS
DOES NOT DAMAGE EQUIPMENT
COST-EFFECTIVE AND EASY TO OBTAIN
APPROPRIATE AND STABLE IN EXTREME TEMPERATURES

The high CO_2 pressure allows using long pipe runs in large installations and being able to separate cylinders from the protected hazard to avoid damage in the event of explosions.

The SIEX-CO_2™ systems are valid for **total flooding with calibrated radial nozzles and for local cup nozzle applications**. Installation design is calculated by SIEX using our VdS-certified proprietary software for proper calibration of nozzles and sizing of pipe diameters.

SIEX has a very reliable VdS-approved weighing device. This allows efficient and accurate control of the cylinder loads which alerts the panel of leakage and prevents accidents.

AGENT and SYSTEM FEATURES

FAST RESPONSE AGENT AND EQUIPMENT

The quicker the response time to a fire, the less the equipment will be damaged and the risk of uncontrolled fires and explosions will be reduced.

To this end, it is necessary to have a detection system that automatically triggers the extinguishing system so discharge occurs almost immediately upon detection of the fire.

This may be done electrically through a fire panel, mechanically through a line of thermal fuses or pneumatically through a detection box and pilot cylinder.

AGENT SUITABLE FOR THE TYPE OF FIRE

For extinguishing in a paint booth, we will use an agent that is capable of suppressing a class A type fire for the material and equipment that make up the booth itself and the parts being painted. It must also have good effectiveness against Class B fires for flammable and combustible liquids used in paint work.

OTHER SPECIAL HAZARDS PROTECTED BY SIEX:

WIND GENERATORS

ELECTRIC GENERATORS

TRANSFORMERS

DATA CENTERS

SOLAR ENERGY

OIL AND GAS

TELECOMMUNICATION

TURBINES

ARCHIVES AND LIBRARIES

HOTELS

HOSPITALS

EDUCATIONAL FACILITIES

STEEL INDUSTRY

MACHINE TOOLS

PAINT SPRAY BOOTHS

ELECTRICAL PANEL ROOMS

CLEAN ROOMS

PRINTING INDUSTRY

TIMBER INDUSTRY

OFFSHORE PL

C/ Merindad de Montija, 6
P.I. Villalonquéjar
09001 Burgos (SPAIN)

tlfno: +34 947 28 11 08
fax: +34 947 28 11 12

siex@siex2001.com
www.siex2001.com

SIEX®