# CHEMICAL POWDER (DRY CHEMICAL)

*"Developed Technology for special fire protection"*

Fixed fire protection systems with chemical powder, developed by SIEX, are used for fire protection where important quantities of this agent are required, such as Class B and Class C fires and open spaces (local application). They may also be used in fires involving electric equipments, as generators with turbines or transformers. Chemical powder rarely needs water to complete the extinguishing if we talk about Class A fires. However, they are not effective for very deep Class A Fires.

It's important to know that Chemical Powder is considered as a temporal extinguish agent and it does not produce a lasting inert atmosphere over the surface of an inflammable liquid, as they do not keep a total flooding concentration in a close space. Consequently, its use wouldn't be effective in a permanent extinguishing if there are reignition sources, as for example metallic surfaces or persistent electrical arcs.

There are two types of fixed fire protection systems with chemical powder:

- Total flooding: a certain quantity of chemical powder is discharged through the piping and nozzles placed on the hazard. Total flooding is only applicable when the hazard is totally closed or when all openings around the hazard can be closed automatically once the system discharge. If there is a leakage possibility due to the openings, an extra amount of extinguish agent must be added to compensate those loses. Total flooding can be only used where the reignition is not immediate as the extinguish action is provisional.

- Local application: this differs from total flooding because in this case nozzles discharges directly on the fire. Local application is useful in those cases in which hazard can be isolated from other hazards, from fire wouldn't expand to other close protected areas, and where all the hazard can be protected. Local application systems main use is to protect open tanks with inflammable liquids. Same than with total flooding systems, these local systems are not effective at least the extinguish is immediate and there aren't re-ignition points.

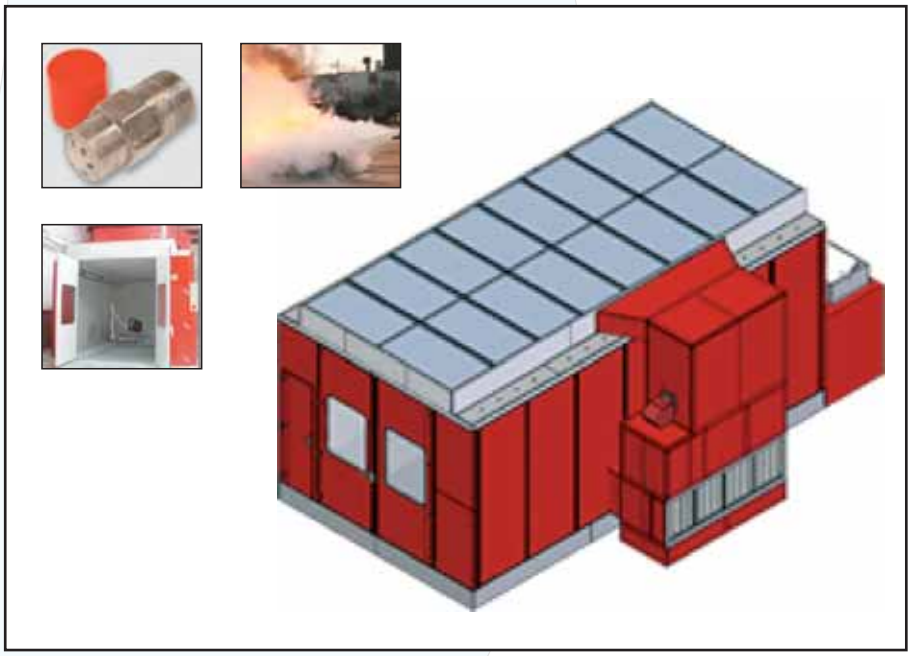
Possibility of using as total flooding or local application

Powder deposits from 10 to 1000 kg

Manufactured systems by SIEX with this extinguish agent are compound by 2 main parts: chemical agent tank with its accessories and the nitrogen cylinder (driving force) with accessories.

- Vertical chemical agent tank with different capacities (from 10 to 1000 kg of agent), made of steel with $N_2$ inlet at the bottom, equipped with pneumatic actuation valve outlet with the proper diameter, pneumatic actuator (work pressure 10 bar), pressure reducer, control pressure gauge (0-24 bar) and safety valve.

- Nitrogen cylinder to 150 bar (driving force) manufactured according to CE Standard and the portable high pressure systems 199/36/CE Directive for a test pressure of 250 bar. Equipped with RGS-MAM-20 valve, made of brass, with a 210 bar bursting disc, 0-200 bar control pressure gauge (Mod. 5140-P200), solenoid, manual actuator and brackets. Nitrogen cylinders number and capacity per tank are indicated in the following chart:



## Characteristics of the deposits

| CAPACITY (Powder-kg) | OUTLET DIAMETER | $N_2$ CYL. | MIMIMUM REQUIRED SPACE | | | Code |
|---|---|---|---|---|---|---|
| | | | Height (mm) | Diameter (mm) | Filled weight (kg) | |
| 10 | 3/4” | NO | 510 | 245 | 27 | SIM13 |
| 18 | 3/4” | NO | 605 | 300 | 38 | SIM26 |
| 40 | 1” | NO | 1160 | 300 | 79 | SIM60 |
| 80 | 1 1/2” | NO | 1480 | 374 | 147 | SIM120 |
| 120 | 1 1/2” | 1 of 13 L. | 1370 | 560 | consult | SIDP120 |
| 300 | 2 1/2” | 1 of 26 L. | 1040 | 1010 | consult | SIDP300 |
| 500 | 3” | 1 0f 67 L. | 1200 | 1010 | consult | SIDP500 |
| 800 | 3” | 2 of 67 L. | 1750 | 1010 | consult | SIDP800 |
| 1000 | 3” | 2 of 67 L. | 1820 | 1010 | consult | SIDP1000 |

SIEX also offers the possibility of automatic and autonomous work, not depending of any other exterior power supply. This is due to the detection-activation system which has: fusible links, mechanical control panel and steel cable with corner pulley . When the fusible link is activated by a temperature raise, it cracks and a sign is sent through the steel cable to the mechanical control panel, which pneumatically activates the cylinder where the agent is contained.

For more information: SIEX

## General characteristics

- *Electrically non-conductive.*
- *Suitable for inflammable liquids.*
- *Local or total flooding applications.*
- *Specific development (detection-activation) for paint cabinets.*
- *Automatic activation system by mechanical detection (fusible link) or electronic (control panel).*
- *Possibility of autonomous and automatic system.*

## Applications

- *Paint cabinets.*
- *Petrol stations.*
- *Inflammable liquid tanks.*
- *Inflammable liquid stockrooms.*
- *Turbine enclosures.*
- *Electrical transformers.*

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