



# CO<sub>2</sub>

## "Accumulated experience"

The carbon dioxide is a colorless, odorless, inert, electrically non-conductive, non-corrosive and clean gas (does not leave residue). It is 1.5 times heavier than air and it is stored in liquid in high pressure bottles.

CO<sub>2</sub> is probably the most popular clean agent all over the world. Its accumulated experience facilitates the engineering of multiple applications that have been standardized, as kitchen hoods, transformation facilities, etc.

The avalanche of new alternatives to replace Halon, due to its banning, has created certain confusion to the fire suppression industry, as many designers do not know which is the suitable solution for some particular cases. This confusion our doubt has made the CO<sub>2</sub> applications stronger, well known among all the engineers.

Its low cost and easy acquisition all over the world, has made CO<sub>2</sub> a leading product in multiple applications, as in the shipping industry. It is easy to test at real scale, the refills are immediate and inexpensive.

The extinguishing mechanism is based mainly in physical principles. On one side, it reduces the oxygen concentration below 15% and on the other side cools down and absorbs the heat of the flame. In oxygen concentrations below 15%, most of the fires can not maintain the combustion. The versatility of the CO<sub>2</sub> makes it suitable to be used in total flood applications, in local applications and even in fixed spots with hoses.

CO<sub>2</sub> is typically used in non-occupied spaces, as it may cause suffocation in normal extinguishing concentrations. If it is used in normally occupied areas, some safety precautions must be taken.

SIEX develops and manufactures CO<sub>2</sub> fixed/permanent systems with a wide range of possibilities, adaptable to the special demands of every hazard and every customer. The nozzles are suitable to be used in total flood or local application protection hazards. To protect flammable liquids trays there are low speed nozzles to avoid leaks during CO<sub>2</sub> discharge.

( SIEX System  
is efficient  
365 days  
a year )

To minimize equipment cost when several hazards must be protected, SIEX supplies systems with fast opening and total bore (minimum pressure drop) directional valves. When a continuous control of the CO<sub>2</sub> load in the cylinder is required, it is suitable to use the SIEX continuous weighing system. Directly connected to the fire control station, we would know at all time the operational capacity of our fire extinguishing system.



## Physical properties

Chemical name	Carbon dioxide
Chemical formula	CO <sub>2</sub>
Molecular weight	44.01
Liquid density at 20°C	777 kg/m <sup>3</sup>
Critical temperature	31°C
Critical pressure	73.82 bar
Vapor pressure at 20°C	57.1 bar
Maximum fill density	0.75 kg/l
Relative density related to air	1.5
Design concentration (for Class A surface)	Variable (depending on the standard)
Flood factor (for Class A surface)	Variable (depending on the standard)
Ozone Depletion Potential	0
Global Warming Potential	1
Recommended piping	schedule 40/80

Local application,  
total flood,  
systems with  
hoses...

## General characteristics

- *Zero ozone depletion potential.*
- *Electrically non-conductive.*
- *Easy acquisition.*
- *Low cost.*
- *Clean, does not leave residues.*
- *Versatile, local application and total flood.*

## Applications

- *Transformation facilities.*
- *Rotary press.*
- *Flammable liquids storage areas.*
- *Kitchen hoods.*
- *Electric generators.*
- *Painting cabinets.*
- *Electrical cabinets and substations.*
- *False floor.*

For more information:



# SIEX

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