

CO₂

- Contrasting technology and efficacy
- Low refilling cost
- Local application or total flooding application
- Applicable to deep - seated fires
- No residue to clean up after the discharge
- Zero Ozone Depletion Potential
- Electrically non-conductive
- Excellent grade of risk penetration

At atmospheric pressures carbon dioxide (CO₂) is a colourless, odourless and non- conductive gas capable of penetrating quickly and efficiently the area to be protected. Its density is approximately 50% greater than the air. CO₂ is stored in high pressure cylinders as liquefied gas.

CO₂ has been used effectively for many years, not only in fire protection but also other commercial applications. Although the use of CO₂ as extinguishing agent has declined with the introduction of halons, it is still widely used for fire protection, specially since the Montreal Protocol was introduced (Where bases were established to ban the use of Halon Extinguisher).

CO₂ extinguishes fire by physical means according to two main mechanisms. The first one is by decreasing the oxygen level inside the enclosure from 21% to a level below 15%. Most fires are unable to maintain combustion at such low levels. The second mechanism is by means of cooling and heat absorption.

When dealing with the protection of occupied areas, consideration shall be given to the fact that if CO₂ is inhaled, even in low concentrations, it may lead to asphyxia. Under required safety precautions, CO₂ has been effectively applied for over 50 years to protect areas such as transformer rooms, archives, electrical hazards, record stores and computer rooms. In some countries regulations ban automatic control of CO₂ systems for the protection of occupied areas.



VdS
Schadenverthutung
Vertrauen durch Sicherheit



Agencia Protección Contra
Incendios Ministerio del
Interior



VNIPO
Russian Certification Body

CO2

In other countries it is allowed, as long as the system and protected area have the relevant safety devices fitted.

Thanks to their experience in the field of fire protection gained through CO2 systems, the fire extinguishing systems are now installed in more than 40 countries in Europe, America, Asia and Africa.

The range of CO2 systems include two types of valves fully developed by LPG, approved by the most renowned independent organisations.

The 128 valve is fitted on pilot cylinder and allows for electrical actuation using solenoid or pyrotechnical charge.

The 110 valve is fitted on auxiliary cylinders and activated using pneumatic pressure provided by the pilot cylinder. They offer greater flexibility for all types of actuation and release systems currently in use on the market, even allowing combinations of several of them. Incorporated in their design protection elements against accidental actuation due to leakages. They also allow checking and maintenance of all critical elements contained in a fixed extinguishing system, at the time of commissioning and later system preventative maintenance, thus preventing the risk of accidental discharge.

To check for weight loss of the extinguishing agent in the cylinders, has available a charge cellular weighing system, which allows continuous control of condition of charge cylinders containing CO2.

The CO2 system and its components are certified by VdS and VNIIPO.

Physical properties

Chemical name:

Carbon Dioxide

Chemical formula:

CO2

Molecular weight:

44.01

Triple point temperature

-55.50C

Triple point pressure:

517,8 kPa

Liquid density 20C:

777 kg,M3

Critical temperature:

31.0C

Critical pressure:

73.82 bar

Pressure at 21C

58.8 bar

Vapour pressure at 20C:

57.2 bar

Maximum fillingdensity:

0.75 kg./l.

Air relative density:

1.5

Deep seated electrical fire concentration Vol <57M3:

1.6 kg.M3

Deep seated electrical fire concentration Vol >57M3:

1.33 kg./M3

Archive extinguishing concentration:

61% (2.0 kg./m3)

Ozone depletion potential:

0

Greenhouse effect pollution:

1

Surface fire design concentration:

34%