



HYDROFIRE ΕΠΕ

Buildings - Industry - Marine - Waterworks
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FIRE SUPPRESSION SYSTEMS

INERT-SIEX 541 (N₂+Ar+CO₂) IG-541

"Extinguishing agent harmless for people"

The INERT-SIEX 541 extinguishing agent is a blend of three gases, consisting of 52% nitrogen, 40% argon and 8% carbon dioxide. Since it consists of atmospheric gases, its ozone depletion potential and global warming potential are both zero. It is a colourless, odourless, tasteless, electrically non-conductive and chemically neutral gas. It is a clean gas which generates no residue and is therefore suitable for use in risks where the cleanliness of the extinguishing agent might be an issue or is likely to affect installed equipment. It is non-toxic, so is not harmful to people when used at design concentrations. It does not generate chemical compounds which are toxic or have long atmospheric lives, it is non-corrosive and can be used at normal temperatures with materials typically used in industry and construction. It is electrically non-conductive and is therefore highly recommended for protecting electrical and electronic materials with no harm to the equipment.

INERT-SIEX 541 attacks fires by reducing the concentration of oxygen in the risk area to below the threshold for the combustion of a material. So the fire cannot burn because there is not enough oxygen to support combustion. Although the extinguishing method is the same as, for example, for CO₂, IG-541 is safe for use in occupied areas.

IG-541 has a high inerting capability.

Carbon dioxide stimulates the body to breathe more rapidly and deeply thereby offsetting low oxygen levels

Tests results indicate that propane/air and methane/air mixes are successfully inerted at concentrations of between 40% and 50%.

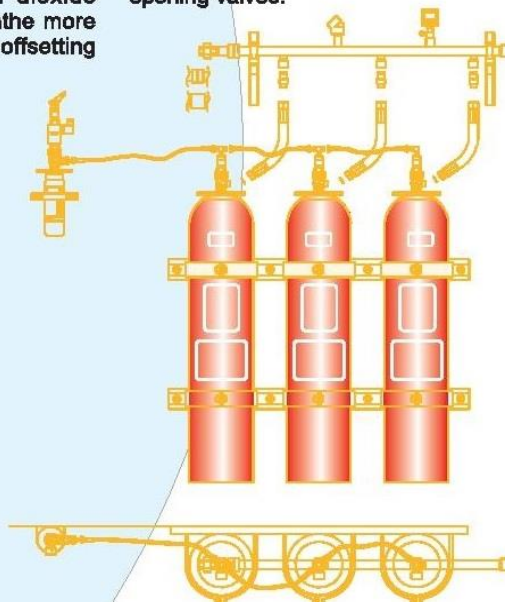
As a general rule, the agent concentration will be sufficient to allow extinguishment when the oxygen content in air is reduced from its normal level of 20.9% to values 15%, where the most typical combustibles do not burn. The normal atmosphere in a room contains about 21% oxygen and less than 1% carbon dioxide. IG-541 reduces the oxygen content to about 12.5% while increasing the CO₂ level. These concentrations, however, are sufficient to be able to breathe normally.

Depending on the type of risk, the concentration of carbon dioxide should be increased to about 3% in the protected area. This increase in CO₂ concentration enhances the respiratory rate and the body's ability to absorb oxygen. That is, carbon dioxide stimulates the body to breathe more rapidly and deeply thereby offsetting low oxygen levels.

INERT SIEX-541 is ideal for the protection of archives, museums, libraries and other risks containing high value or unique items. It is equally suitable for protecting computer rooms, telephone switchboard equipment and any other electrical installation which is considered a risk. After a discharge, visibility remains good. In the event of people being in the risk area at the time of activation, emergency exits remain visible, thus preventing the potential panic that could result from low visibility and facilitating the evacuation.

The agent is stored in the form of compressed gas in high-pressure cylinders. SIEX has three types of systems depending on the storage pressure. INERGEN-SIEX 150, 200 and 300 bar. This high-pressure storage makes it possible to use long pipe runs to cover large distances and avoid obstacles.

Directional valves may be used virtually without limitations with this extinguishing agent to protect several risks simultaneously with the same unit, thus cutting installation costs. The directional valves supplied by SIEX range in diameter from 1/2" to 4" and are designed for a nominal pressure of 365 bar. They are low-pressure loss, full bore, fast opening valves.





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INERGEN - physical attributes

Chemical formula	N ₂ /Ar/CO ₂
Molecular weight	34 g/mol
Boiling point at 1.013 bar	-196°C
Freezing point	-78.5°C
Critical temperature	—
Critical pressure	—
Vapour pressure at 20°C	152bar
Specific vapour volume (1.013 a 20°C)	0.697 m ³ /kg
Flooding factor for heptane at 20°C	0.447 m ³ /m ³
Design concentration (for Class A surface fires)	36.5%
Flooding factor (for Class A surface fires)	0.439 m ³ /m ³
NOAEL	43%
LOAEL	52%
Ozone Depletion Potential	0
Greenhouse Warming Potential	0
Recommended piping	Schedule 80/120/160

He is not toxic,
is not harmful
for the people

General features

- *Allows long pipe runs.*
- *Cost-effective directional valves*
- *Post-discharge visibility is clear, facilitating evacuation.*
- *Inert and non-toxic gas, which makes it suitable for occupied areas.*
- *100% environmentally-friendly extinguishing agent.*
- *Easy to recharge anywhere in the world.*
- *At concentrations between 40% and 50%, effectively inerts mixtures of propane and methane in air.*
- **Worldwide approval:**
ISO 14520, UNE 23575, NFPA 2001, CEA 4008 (CEPREVEN).

Applications

Particularly suited to applications requiring an electrically non-conductive atmosphere and a clean gas that leaves no residue after discharge. It is therefore suitable for:

- *Computer rooms, control rooms.*
- *Electrical panels, telephone switchboard equipment.*
- *Electric and electronic applications.*
- *False floors and false ceilings.*
- *Archives, museums, libraries, etc. since it is especially suitable for large spaces.*