Case Study	**PRUDUCTION AND INDUSTRY**
References	ABRASIV Muta, GORENJE Velenje, KNAUF INSULATION Ajdovščina, JERA MIX begunje pri Cerknici, RUT Grahovo ob Bači, LAFARGE CEMENT Trbovlje, ARCONT Gornja Radgona, HOTEL IN IGRALNICA Sežana, KOLEKTOR KOLING Kočevje, SEL Medvode, SKUPINA VIATOR&VEKTOR Ljubljana, KOMEL Hoče, OMV Vrtojba, KEMIS Radomlje, bencinski servisi MAXEN, UNIOR Zreče, DARS Ljubljana, TET Trbovlje, JADRANSKI NAFTOVOD Melnice, JADRANSKI NAFTOVOD Bosiljevo, HOTEL NATUR Rogla, GOSPODARSKA ZBORNICA Ljubljana, GEBERIT Ruše
Areas of installation	➢ **Business and auxiliary premises** ➢ **Industrial plants and machines,** ➢ **Transformer stations, switch gears and boiler rooms** ➢ **Electrical and communication cabinets**
Implemented solutions	➢ Self-activated fire extinguishing ampoule BONPET ➢ Fixed fire-safety system BONPET ➢ "Mini" stable system BONPET

Self-activated fire extinguishing ampoule BONPET - Fire safety for your home and business

Ampoule is the most effective product for extinguishing a fire in small and indoor areas without being constantly present and a fire extinguishing product with an aesthetic appearance. Indispensable everywhere you assume that the temperature will rise rapidly, when the fire starts (ceiling or closed wall to the potential location for a fire).

The best effect for extinguishing fires of class A, is when the ampoule covers approximately 8m3 of an area. Suitable for extinguishing fires of classes A, B and F. It has a 10-year product life expectancy and 10-year warranty with no need for maintenance.

No false alarms, without additional damage and it is human and environment friendly (no halons).

Ampoule Bonpet – how it works? Fire safety and how to prevent fire?

- *When a fire breaks out in a small enclosed area and temperature rises, extinguishing liquid simultaneously begins to heat and as a result, the liquid starts to extend in the glass ampoule.*
- *When the temperature of the extinguishing liquid is approximately 85°C ± 5°C the glass breaks into pieces which allows the liquid to drop into the area, where endothermic process begins.*
- *It takes the energy from the fire and starts to cool the area. As a side product of this endothermic reaction, small quantities of nitrogen and carbon dioxide are released. Their function is to prevent the entrance of oxygen to the burning area.*
- *Remaining components that do not decay, form a protective layer over the surface of the extinguishing liquid, which prevents re-ignition. Ampoule BONPET can be used manually by throwing the ampoule directly into the source of a fire.*

Fixed fire-safety system

Simple, reliable and uncomplicated way to protect your wealth and property, especially in large open areas threatened by fires.

Fixed fire-safety system Bonpet uses liquid Bonpet and it was designed as zone fixed fire-safety system, which can be used indoors. It is used to extinguish fires of classes A, B and F. Fixed fire-safety system Bonpet offers not only self-activation but also manual activation for extinguishing a fire. It is suitable for varnishing chambers, transformers (outdoor and indoor), hydraulic generators, vacuum thermoforming plastic machines, warehouses of inflammable fluids, wood industry (filters, etc.), warehouses, tunnels (in testing), etc.

Function

It works by spraying the fire extinguishing liquid. The installation of pipelines and jets is similar to the ones for water spraying system, the only difference is the quantity of extinguishing. The main purpose when using water spraying system is, that the spraying water enables intervention of firefighters and that is why it has to spray longer. The main purpose of fire extinguishing liquid Bonpet, is to extinguish a fire and because of its effect, the spraying time is shorter (around 20 seconds) and it does not need an irrigation. Because of this extraordinary feature the tank contains relatively small amount of liquid Bonpet (calculated according to an area of extinguishing).

Nitrogen creates pressure in the container with the extinguishing liquid Bonpet. Flow of the extinguishing liquid into the pipeline is suppressed with automated ball valves which are opened by a signal from the fire fighting control centre and thus enable the flow of liquid to the nozzles in the fire extinguishing zones.

Equipment

Fixed fire-safety extinguishing system is formed from elements of mechanical and electrical equipment and is one of the low pressure systems with a working pressure of extinguishing up to 5 bars. Pipe and tube fittings used for construction of a piping system have 7,5 bar of a low pressure test (plumbing installation).

Advantages

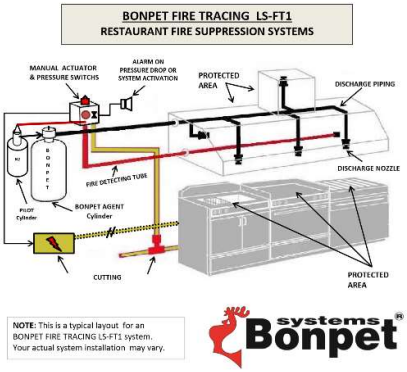
- Liquid Bonpet does not cause any damages during the fire extinguishing and its remaining components are easily cleaned.
- It is human and environment friendly.
- At regular maintenance – unlimited product life expectancy.
- Costs of maintenance are signed with a contract.
- Slovenian product.
- Free consulting and viewing

References

ABRASIV Muta, GORENJE Velenje, KNAUF INSULATION Ajdovščina, JERA MIX begunje pri Cerknici, RUT Grahovo ob Bači, LAFARGE CEMENT Trbovlje, ARCONT Gornja Radgona, HOTEL IN IGRALNICA Sežana, KOLEKTOR KOLING Kočevje, SEL Medvode, SKUPINA VIATOR&VEKTOR Ljubljana, KOMEL Hoče, OMV Vrtojba, KEMIS Radomlje, bencinski servisi MAXEN, UNIOR Zreče, DARS Ljubljana, TET Trbovlje, JADRANSKI NAFTOVOD Melnice, JADRANSKI NAFTOVOD Bosiljevo, idr.

Mini stabile system

Self-activated, effective and easy to use for extinguishing fires in kitchens or smaller flammable risky areas. "Mini" stable system is suitable for extinguishing fires of classes A, B, F and it has great effect at extinguishing with a low amount of liquid Bonpet



Function

It functions as a special pipe that acts like a heat detector. The pipe is flexible and elastic and it can be installed everywhere. On one end the pipe is connected to a special valve with a trap, on the other end to a manual trigger. The pipe is under the pressure of 18 bars, diameter is 6 mm. The pipe transforms and activates at the temperature of 160-180°C. In case of a fire high temperature and flames cause the explosion of the pipe which leads to a drop of a pressure in the pipe causing self- activation and extinguishing a fire.

Equipment

There are two fire-fighting tank cuisines namely 6 lit. and 11-lit, with different types of nozzles. Reservoir must be under constant pressure of 16 bars (at the temperature of 20°C).
Working temperature of the system is from 0°C to 60°C. Propellant is nitrogen (N_2).
Piping and nozzles must be installed above a kitchen block and in the catch drain canals. Piping, dimension and location have to be certified by registered engineer.

Advantages

- No false alarms, system only activates when the temperature rises.
- Does not cause any damages during the fire extinguishing and its remaining components are easily cleaned.
- Unlimited product life expectancy with 1-year warranty (subject to regular maintenance of the system).
- Maintenance is bounded only on switching the liquid Bonpet.
- Extinguishing without sealing a premises (in comparison when extinguishing with CO2).
- The extinguishing is not subject to prior evacuation of staff.
- It creates a layer on surface to prevent another ignition.
- Unlimited options for detecting and consequently extinguishing a fire in the early stages.
- Easy to install the flexible pipes for detecting the fire; the fire can be detected on all the locations with high stage of fire hazard, like on inaccessible locations.
- No outside factor can trigger the detector (like vibration, shock, high concentration of oil, fat or dust).
- Source and voltage cannot trigger the detector

References

HOTEL NATUR Rogla, GOSPODARSKA ZBORNICA Ljubljana, GEBERIT Ruše

Fixed fire-safety system installation:

Ampoule BONPET installation in transformer stations, electrical and communication cabinets:

Ampoule BONPET installation in business and auxiliary premises: