

New eco solution for large tank problems

Encapsulating volatile substances, hydrocarbons and dust to prevent a fire's devastating effects on the ecosystem is the new frontier of scientific research into new applications on the fire safety field. A new low pressure watermist system has been launched that happens to do just that.



Full-scale test using a fire on a floating roof tank and Tema Sistemi's new low pressure watermist system Aquatech Plus, which uses a mixture of water and F-500.

An innovative technology in fire suppression system was officially presented during a convention that brought together the major Italian refineries, universities, fire brigades and representatives from international oil and gas, and military sectors.

The event, held in Italy last 2010 February, was the synthesis of a partnership between the US multinational Hazard Control Technologies, their European affiliate Hazard Control Technologies Europe, and the Italian company Tema Sistemi.

Hazard Control Technologies' F-500 multi-purpose engineered fire suppression agent combines the benefits of a wetting agent (ie surface tension reduction, rapid spreading, penetration capability) with encapsulator technology.

Amphipathic molecular design is the foundation of F-500's fire suppression mechanics, which simultaneously act upon the heat, fuel, and free radical legs of the fire tetrahedron. F-500 is environmentally safe, nontoxic, non-corrosive, 100% biodegradable, and requires no specialized equipment – thus making it an attractive option for fire and flammable liquid spill control.

F-500 is also a new tool in the arsenal for fuel tank firefighting thanks to its high power cooling power, which also results in a significant reduction of smoke.

Tema Sistemi has dedicated its resources for research innovative systems using F-500, and it has created the new low pressure watermist system Aquatech Plus, which uses a mixture of water and F-500. The system uses water-spray nozzles designed and tested in Tema Sistemi laboratory to suppress fires by using F-500's ability to amplify water's high-cooling characteristics.

The release of very tiny drops allows the generated fog to penetrate even the most hidden environmental areas. The change in consistency of the drops reduces high temperatures and the oxygen quantity needed for combustion.

During the recent convention a full-scale test was carried out (see left) using a fire on a floating roof fuel tank. This type of fire is characterized by mobile flames along the seal.

The system, approved by the International Certification RINA (during the convention), was designed to act in the circular crown between the tank wall and the bulkhead on the roof.

The philosophy of the system is based on the simultaneous action produced by the nozzles' jets on the circular crown of the floating roof, cooling the side walls of the tank mantle. In this way is the fire is gradually extinguished and the cooling of the tank structure preserves the tank itself from any structural collapse problems.

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