DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE

NO. 3846





DEPARTMENT OF PUBLIC WORKS

AGRÉMENT SOUTH AFRICA (Approval of innovative construction products and systems)

Notice is hereby given that Agrément South Africa has, with effect from 28 June 2023, issued an Agrément certificate, details of which appear in the schedule hereto.

SCHEDULE

Agrément Certificate 2023/644

Subject:	Tri-Fluid Spray System
Certificate holder:	Fire Design House (Pty) Ltd
Description:	Tri-Fluid Spray System is a deluge liquid extinguishant spray system that provides fire protection to Class A combustible materials in storage racks. The system is capable to extinguish Class A fires or suppress and control fires of goods with a classification of Category 1 to Category 3, with reference to SANS 10287 . The following describes the working of the system and its main components:
	The tubing system is a wet tubing system up to the storage racks requiring protection, and dry tubing in the storage racks from the activation assembly further on.
	A storage tank with a capacity of not less than 40 000 litres and not more than 60 000 litres that contains an extinguishing liquid consisting of 99.9% of water and 0.1% surfactant called Silv-ex Plus to increase the efficiency of the water to suppress, control or extinguish fire in Class A combustible materials. The tank complies with NFPA 22 : <i>Standard for water tanks for private fire protection</i> .
	A dual pump supply provides the fire suppression system with an extinguishant. The dual pump supply is electronically configured in various configurations. The primary pump will also act as a jockey pump that maintains the designed static pressure.

A pressure switch continuously monitors the in-tube pressure and should the intube pressure drop below a pre-set value the active pump shall kick in to bring the static pressure back to the designed pressure. If any in-rack assembly has activated, this pressure setting shall not be achieved, and it shall not be possible to lift the system pressure to the designed static pressure and the pump shall keep running to supply the activated assemblies with extinguishant.

The Tri-Fluid Spray System is also provided with a fire pump connection and an inline pressure control valve, which is also one-way, ensuring that water is pumped through the system to the designated area, without creating backpressure or other problems.

The spray assembly inside the racks consists essentially of an activation strapping that is installed to cover all four sides of the perimeter of the rack. The system activates within seconds after the flame impingement onto the polymeric strap that holds the spring-loaded valve in a closed position. On flame impingement, the polymeric strap melts and releases the spring-loaded valve to open automatically and feed through the nozzles onto the goods. The time from the valve activation until the water sprays from the nozzles is less than 10 seconds.

A local alarm is triggered once the system activates. Additional alarm units are installed at designated areas. The alarm sound is at 116 decibel units and simultaneously activates a stroboscopic light combination which comply with **BS &EN 54-3.**

The main supply is pumped by two pumps, equal in capacity, in flow, and pressure. The drop in pressure of the system causes the main supply pumps to start automatically to feed the system. Should the first (primary) pump fail to start, the pressure will drop to a point at which the second pump starts. The nozzles spray the extinguishant in a manner that the liquid is sprayed onto the goods stored in the racks below. Though the nozzles are aiming downwards some water particles would wet goods immediately above the nozzles.

Tri-Fluid Spray System is designed to protect up to 0.8 m rack width and simultaneously protect an isle of up to 3 m wide. The maximum in rack storage height that can be protected by a single spray assembly is 2.4 m.

Every rack shall be protected individually whether in solid shelving or slated shelving. The other provision is that a spray assembly cannot protect a rack more than 2.5 m in height.

The installation of all fittings, tubing and other items shall be as per the design.

The Agrément certificate contains detailed information on the system and can be accessed at http://www.agrement.co.za

Copies are obtainable from: Chief Executive Officer (CEO) Agrément South Africa, P O Box 72381, LYNNWOOD RIDGE, 0040