



WORKING TOWARDS A BETTER WORLD


# Water Mist Design on Fryer & Associated Plant & Equipment

Presentation compiled by:  
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# Introduction to Xcell Misting Ltd

The Xcell Misting team have over 20 years experience in fire suppression and in particular water mist.

We have designed and installed detection and water mist on numerous risk types:

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- Food processing plants
  - Hospitals
  - Hotels
  - Offices
  - Library's
  - Museums
  - Schools
  - Archive stores
  - Windfarms
  - Transformers
  - Switch rooms
  - Generators
  - Data rooms
  - Plant rooms
  - High Hazard areas
  - Gas Turbines






# Companies who have Xcell Misting Ltd Water Mist Systems

We have designed and installed detection and water mist systems for many blue chip clients:

- Pepsico
- Quorn
- Kolak
- Kerry Foods
- Largo
- Intersnacks
- Croky
- Kettle Foods
- Tayto
- Speedibake

- Noon Foods
- Bakkavor
- Greencore
- Youngs Seafood's
- Hain Daniels
- Hills Biscuits
- P&O Ferries
- 2 Sisters Food Group
- Interflex
- Greggs the Bakers

# Fire Classes & Where to use Water Mist Fire Suppression

CLASSES OF FIRES	TYPES OF FIRES	PICTURE SYMBOL
<b>A</b>	Wood, paper, cloth, trash & other ordinary materials.	
<b>B</b>	Gasoline, oil, paint and other flammable liquids.	
<b>C</b>	May be used on fires involving live electrical equipment without danger to the operator.	
<b>D</b>	Combustible metals and combustible metal alloys.	
<b>K</b>	Cooking media (Vegetable or Animal Oils and Fats)	

Yes

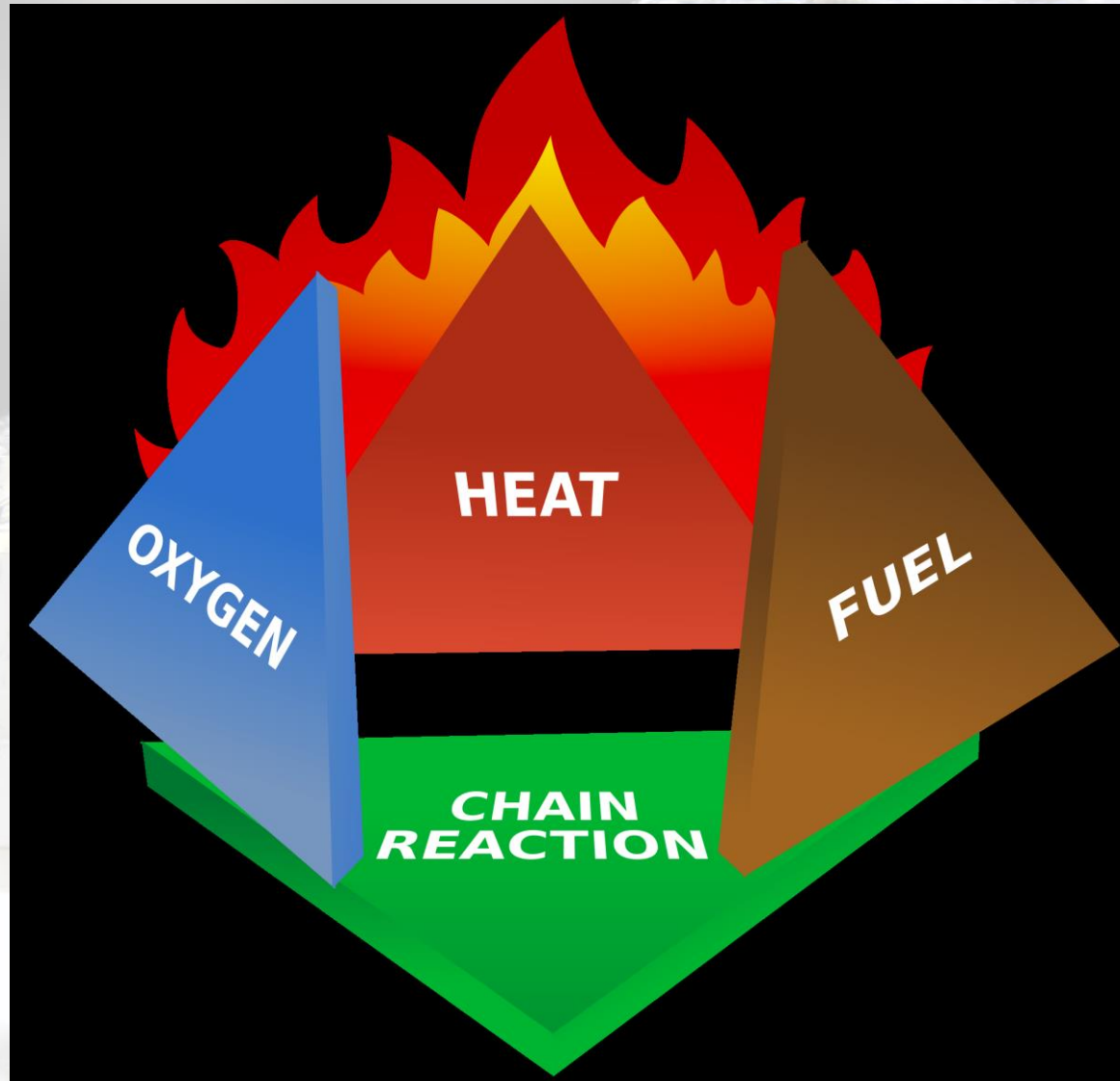
Yes

Yes

Not all Metals

Yes

# Water Mist & How it Works



# Water Mist & How it Works



**A**



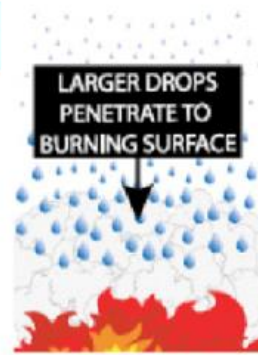
- Evaporation (heat extraction) is a function of surface area of droplets
- Reducing droplet size increases surface area
- Increase in surface area allows for larger cooling effect for a given flow

**B**



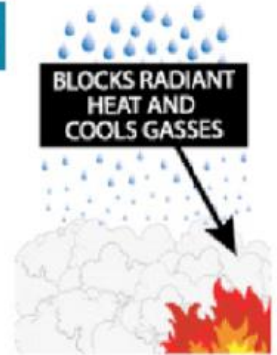
- Water converts to vapour expanding by a factor of 1650 times
- Oxygen is displaced and diluted, thereby blocking it from the fuel source
- Higher heat level causes a faster vaporization

**C**



- Fire extinguishment is improved with direct contact of water droplets
- This type of extinguishment is normally associated with standard sprinklers
- Important part of operation if ventilation is a factor and Class A combustibles are present

**D**

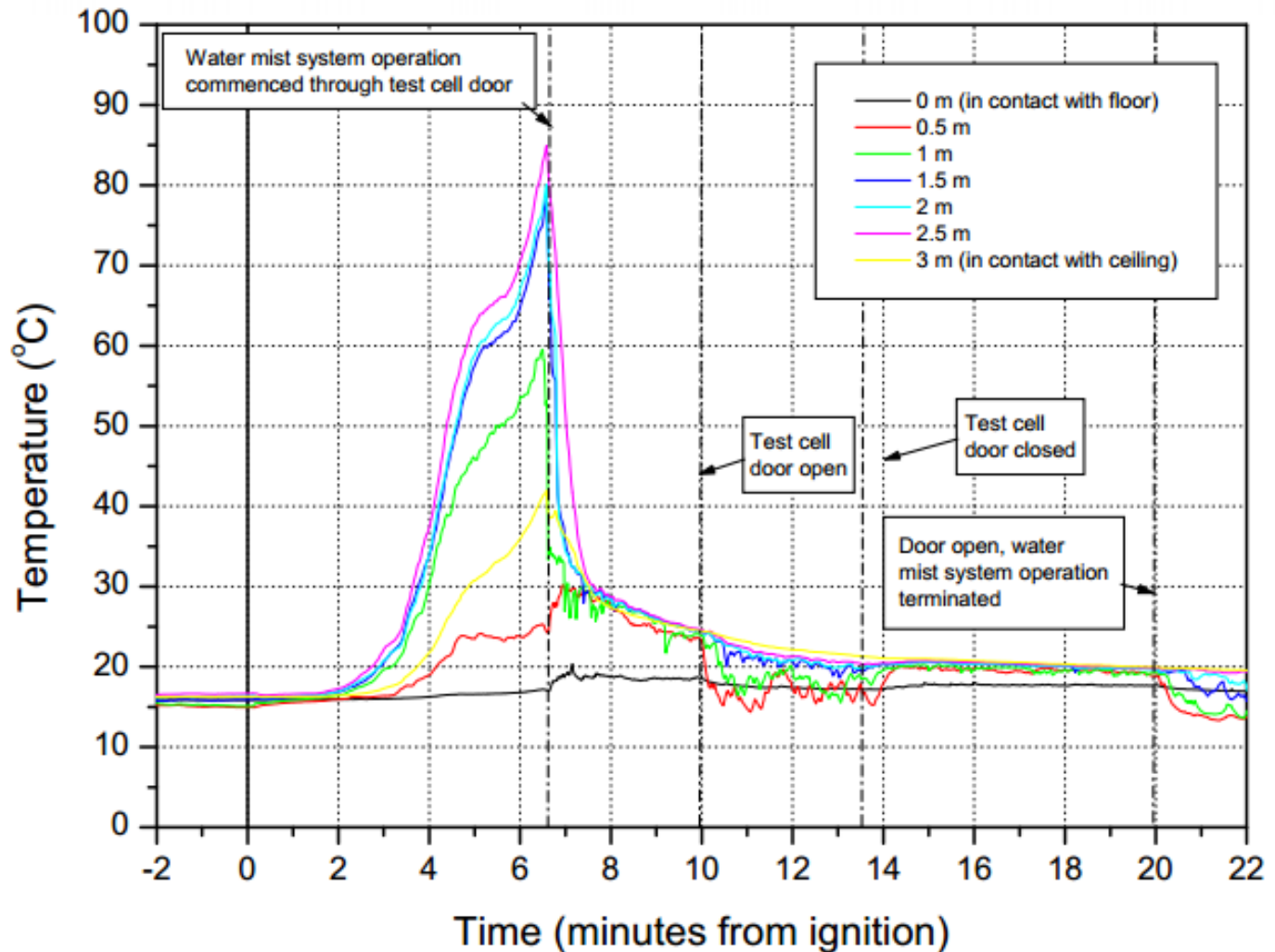


- Small water droplets tend to remain suspended
- The expanding mist will expand and cool the gases and other fuels in the area
- Blocks the transfer of radiant heat to the adjacent combustibles and pre-wets them



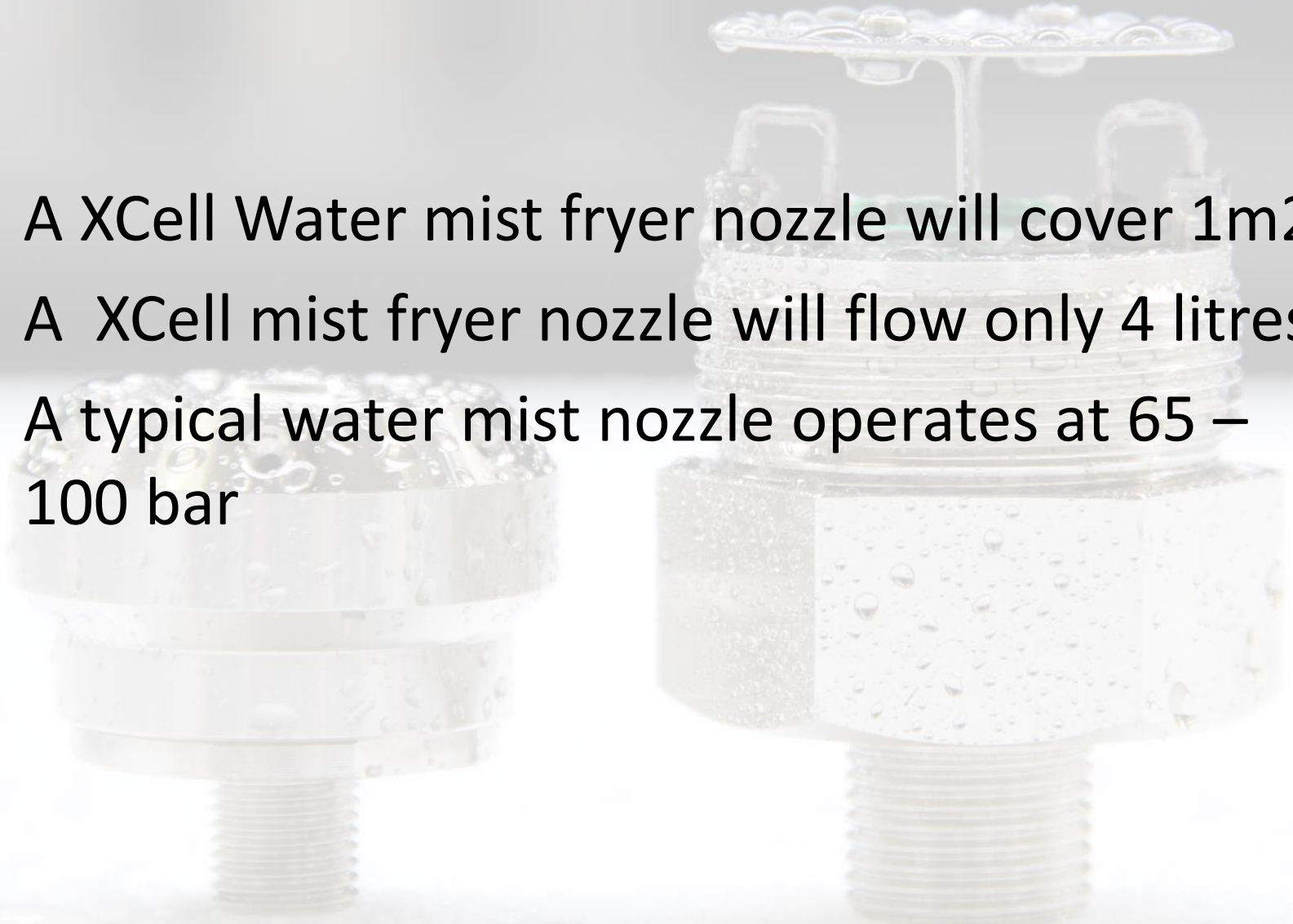
# Fire Extinguishment & Heat Drop

Temperatures measured at the door location are shown in Figure 13.



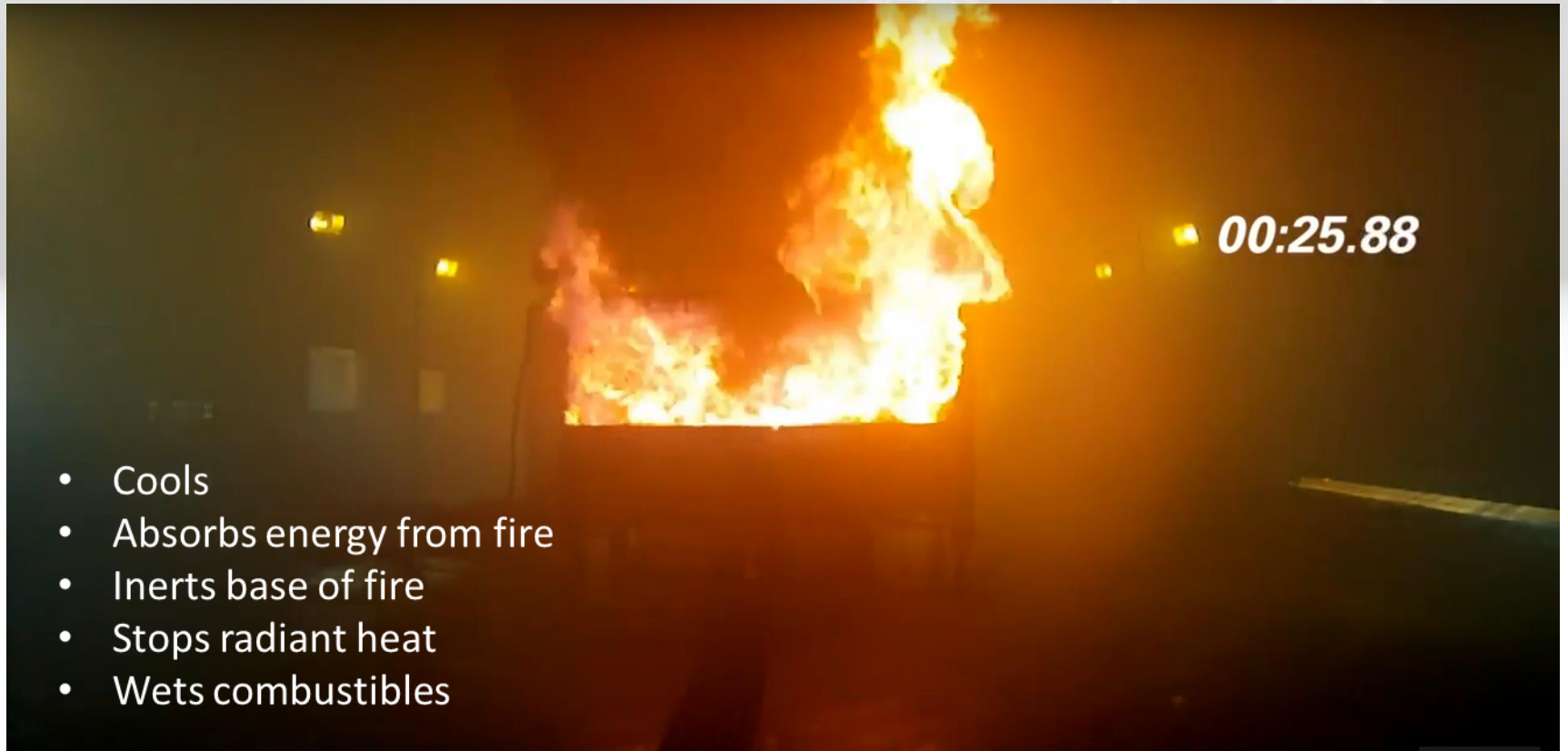
# Coverage, Flow & Pressure

- A XCell Water mist fryer nozzle will cover 1m<sup>2</sup>
- A XCell mist fryer nozzle will flow only 4 litres
- A typical water mist nozzle operates at 65 – 100 bar

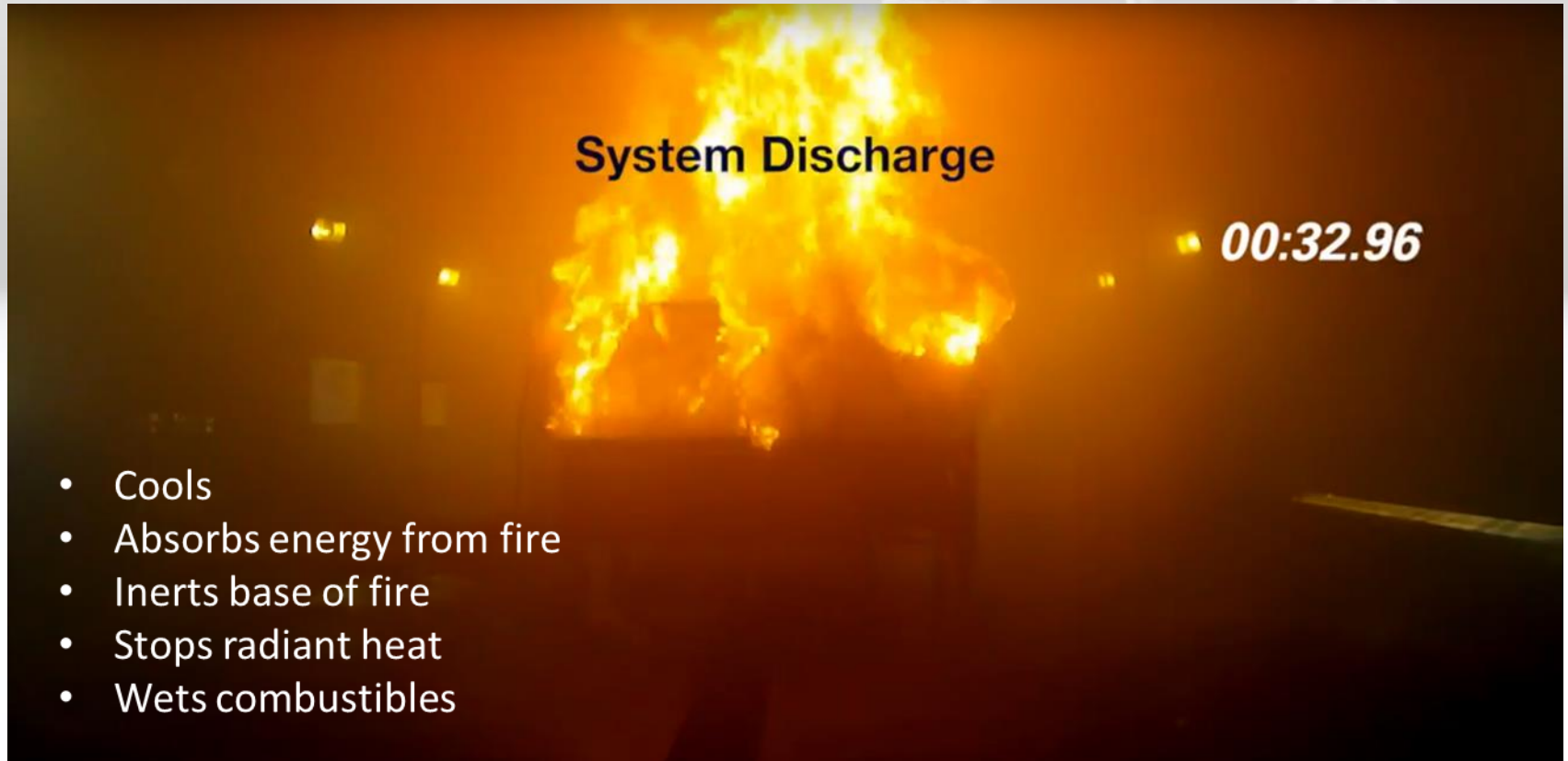




# Water Mist & How it Works



# Water Mist & How it Works







# Water Mist & How it Works

Fire Extinguished: 8 Seconds

00:38.00

- Cools
- Absorbs energy from fire
- Inerts base of fire
- Stops radiant heat
- Wets combustibles

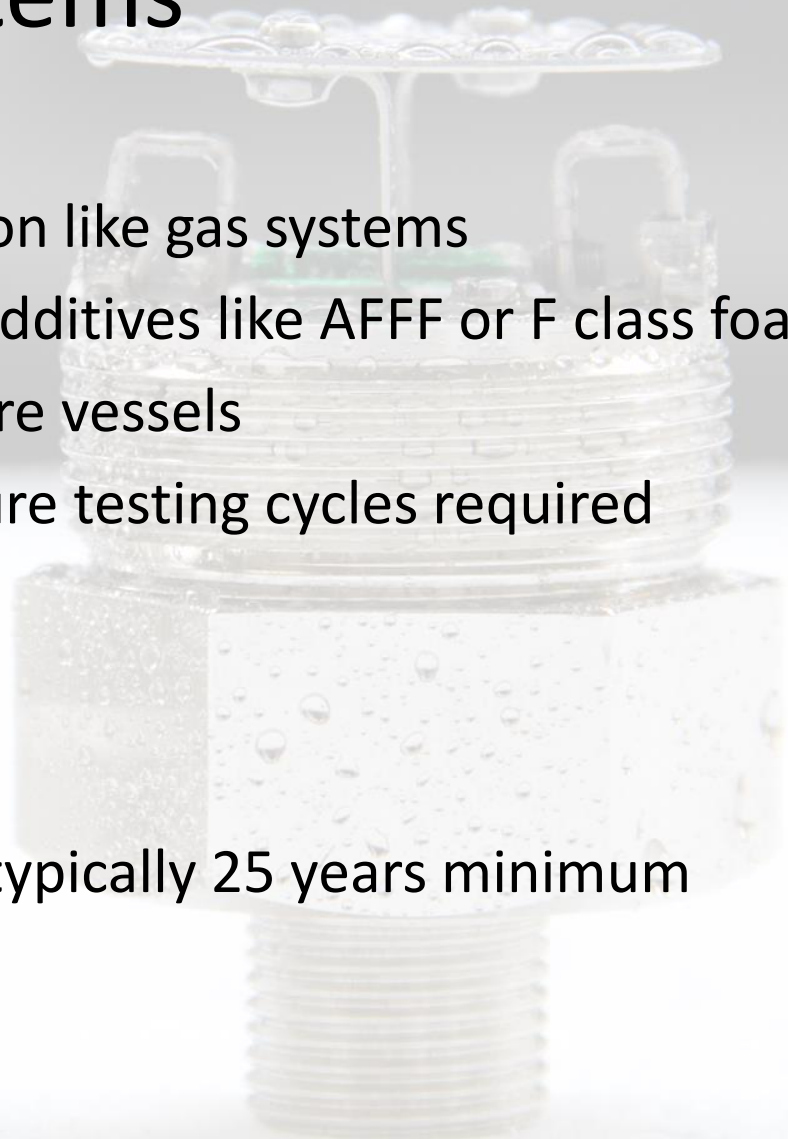
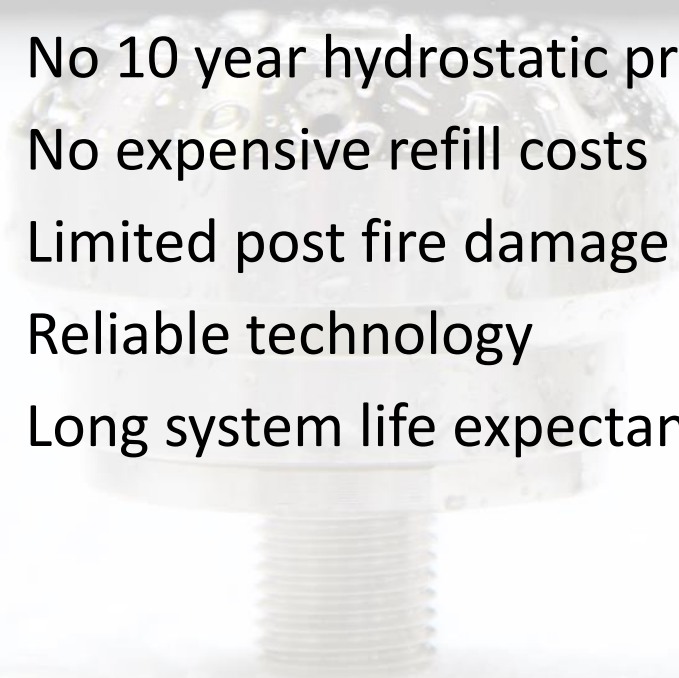
# Efficient, Environmentally Friendly & Safe

- Extinguishes fires fast 
- Only water so 100% green 
- Safe for the environment, humans and animals 
- Ticks the Environmental box on all fronts 



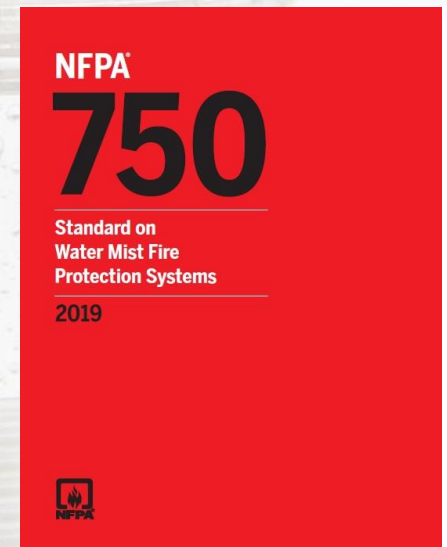
# Comparison to other Suppression Systems

- Less water than sprinklers
- Requires no compartmentation like gas systems
- Only water, no chemicals or additives like AFFF or F class foam
- No cylinders or stored pressure vessels
- No 10 year hydrostatic pressure testing cycles required
- No expensive refill costs
- Limited post fire damage
- Reliable technology
- Long system life expectancy, typically 25 years minimum



# Standards & Laboratory Testing

- British Standard BS8489: 2016
- NFPA 750: 2019
- CEN Pr 14972





**Thank You for your Attention,  
Any Questions?**

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