

# State-of-the-Art of Water Mist Technology

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International Water Mist Conference in Borås, Sweden  
November 4-5, 1993

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Even in 1993 was  
standardization  
one of the topics

# WORKING PRINCIPLES

- Water Mist technology utilizes some of the features of the sprinkler technology and some of the inert gas technology.
- The cooling effect of water can be 6 times better by evaporating water than simply heating water
- Water vapour (steam) is an inert gas, produced rapidly by Water Mist technology

# WORKING PRINCIPLES

- Water Mist technology is based on the rapid evaporation of small droplets. One challenge is to transport small droplets into the base of a fire.
- Another is to contain the evaporated water close to the fire base as long as suppression is needed.

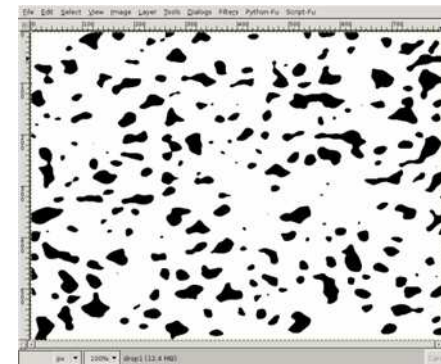
# Droplets



RF008075 fotosearch.com



paa174000062 fotosearch.com



# DROPLET SIZES

- Droplet sizes has "disappeared" from the presentations – but is still one of the most important factors.
- A water spray containing a variety of droplet sizes will be more universal for fire suppression than mono-disperse droplets



# Marine applications:

- Passenger ships
  - Cabins and corridors
  - Public spaces
  - Engine rooms
- Ferries
  - Ro-ro decks

## ■ Oil- and gas production

### ■ Offshore platforms

- Turbine hoods
- Combustion engine rooms
- Electrical switchboard rooms
- Suggested sections with limited size for enclosed platforms for arctic conditions

### ■ On-shore

- Process plants, petrochemical industry

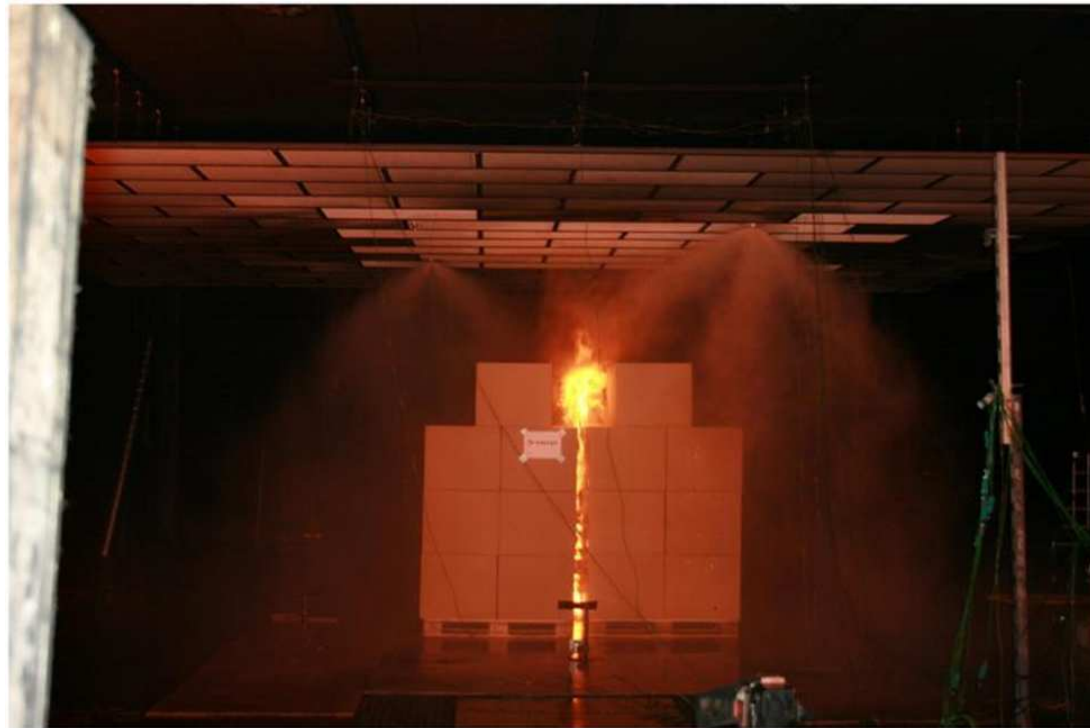
# Vertical 1 kg/s Diesel spray fire



# Applications with development potential

- Process industry
- Office buildings
- Care homes
- Prisons
- Residential buildings
- Heritage buildings
- Collections

- Water Mist Sprinkler Systems
  - Storage



## ■ Transport

- Road tunnels
- Railway tunnels
- Underground stations

- Air transport
  - Baggage compartment

# Standard development

- Water Mist technology can enter the market when Regulators and Authorities having jurisdiction (AHJ) have recognized a standard
- Without standards, documentation of each project is needed
- CEN TS 14972 is now forming the basis for water mist systems produced by a specialized manufacturer



# CALCULATION TOOLS

- Special projects can use advanced calculation tools to assist the engineering process
- Calculation tools should be verified through relevant fire tests (IWMA position paper)

# Challenges

- Develop and verify application of water mist systems in larger spaces
- Investigate the validity of zoned application
- Standards:
  - Follow the work in CEN to get TS 14972 accepted as a European Standard
  - Get IMO test protocols accepted for similar land-based application

# Trends

- Water mist is accepted as a special part of water-based fire suppression technology
- The differences between manufacturers systems is getting accepted
- Standards reflects that a responsible party has to exist for design, installation and maintenance



