

# Scotch Mist<sup>®</sup>

Fine Water Spray  
Fire Suppression System

-  SCOTCH MIST<sup>®</sup> IS NON-TOXIC
-  IDEAL ALTERNATIVE TO HALON
-  INERTING CAPABILITY
-  RAPID SUPPRESSION OF FLAMING FIRES
-  REDUCES FIRE PLUME TEMPERATURES
-  FOR FURTHER INFORMATION LOG ON TO  
[www.scotchmist.uk.com](http://www.scotchmist.uk.com)

# Scotch Mist®

## The Award Winning Team



## Fine Water Spray Fire Suppression System

**The Scotch Mist® suppression system is the latest development in a new breed of fire fighting systems.**

Environmental issues concerning the use of gas as an extinguishing agent have re-focused fire technology onto water, the oldest combatant known to man. It has been known for a number of years that, when delivered as a fine mist, water can rapidly suppress the seat of a fire and now this principle has been refined to provide a proven and effective replacement to Halon.

The Scotch Mist® system takes this technology a step further to provide today's most effective solution for fire control, suppression and extinguishment. Scotch Mist® is non-toxic and produces no harmful products during the fire fighting process. The oxygen reduction properties of the system occur locally around the fire and therefore present no hazard to personnel. The ability of Scotch Mist® to rapidly reduce temperatures and to wash out post-combustion smoke makes it an ideal alternative to Halon.

At the heart of the Scotch Mist® system is the fully patented BLASTER (Boundary Layer and Surface Tension Energy Release) fire-fighting nozzle, an innovative design that was awarded the prestigious J. Logie Baird award for the best invention of 1996. The precision engineering of this turbo-fog nozzle allows for rapid production of inert water vapour that is transported into the heart of the target fire by means of a carefully designed series of small and medium sized droplet jets.

The unique quality of the Scotch Mist® system, the BLASTER effect, causes the vapourising water from the nozzle to expand 1800 times! At an expansion rate of only 1600, rarefaction of the air occurs leading to a reduced oxygen content around the fire and hence, the atmosphere is inerted. The Scotch Mist® system, therefore, inherently produces the rate of water expansion or vapourisation required for inerting without the need for direct contact with the fire.

# Why Scotch Mist® Works

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Scotch Mist® can be effective on both Class 'A' (solid fuel) and Class 'B' (liquid) fires as research has shown that smaller droplets are essential for extinguishment of the former and larger drop sizes are effective for the latter, which benefit from fuel wetting.

However, NFPA 750 concludes that drop size distribution alone does not determine the ability of a fine water spray to extinguish a fire because factors such as fuel properties, enclosure characteristics, spray flux density and spray velocity all have their part to play in the extinguishing process.

Momentum enhances the effectiveness of cooling and suppression and as momentum is the product of velocity and the mass of dispersed water droplets, it can be seen that all three variables – drop size distribution, flux density and velocity – are involved in the extinguishing process.

Scotch Mist® is an advanced system whose nozzles have been independently tested and shown to produce mists with the exact characteristics described in NFPA 750.

The Scotch Mist® suppression system is controlled and energised by automatic detection systems or manual devices that comply with the latest standards and whether incorporated into a new build or as part of a refurbishment programme, Scotch Mist® is the most effective fire protection system available today.



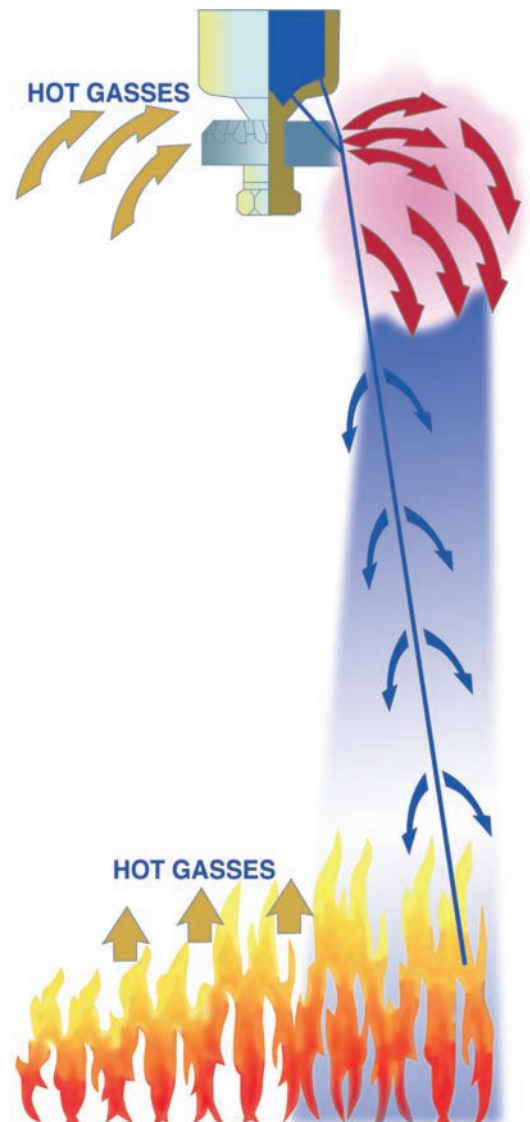
# How Scotch Mist® Works

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The characteristics of the BLASTER nozzle are such that minute droplets of water are produced by a spinning turbine and then carried downward by the shattered residue of the vapourising jets. The resulting spray forms a conical, expanding and downwardly progressing curtain which rapidly floods the whole combustible area with a mixture of water vapour and minute, inert droplets.

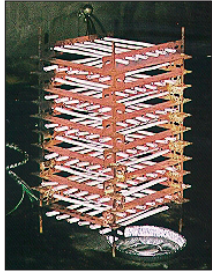
These have a far greater heat sink potential than has been previously available and, because of the huge surface area per unit of weight, snuff out fires with the minimum of water damage.

Should the Scotch Mist® system encounter a serious conflagration, the nozzle outputs work as a unit and the steam is instantly cooled and condensed by the spray and water vapour. This is still hotter and less dense than the surrounding air, so it tries to rise but the descending cold spray obstructs it. This interaction causes a continuing circulation and delivers fresh spray and vapour until the flames are quenched.



# Testing

Fire condition testing of Scotch Mist® has shown the system to be an highly effective means of suppression and control whilst independent laboratory tests of drop size distribution, flux density and velocity prove that Scotch Mist® has the special attributes described in the NFPA 750 Standard on Water Mist Fire Protection Systems 2000 Edition as being the most effective for fire extinguishing.



The PVC crib used in fire tests



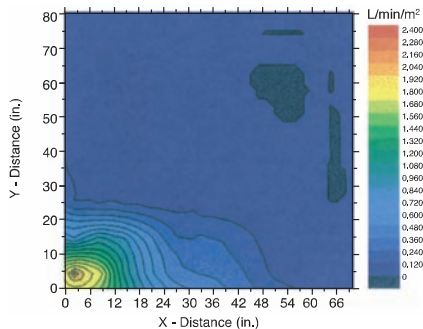
The PVC crib during the pre-burn period



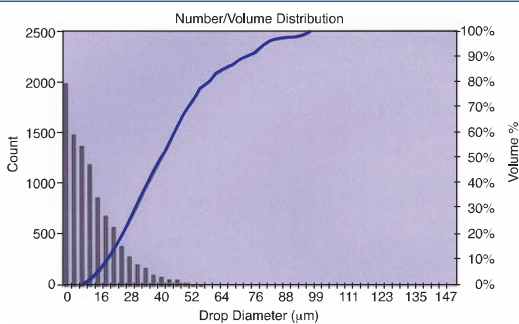
The PVC crib after suppression by Scotch Mist®



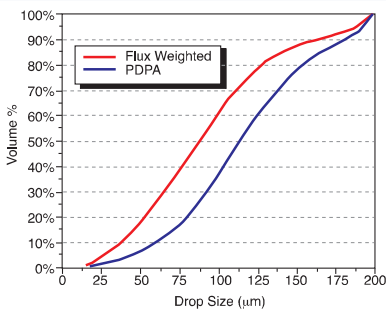
A nozzle under test



Typical plot of volume flux



Typical plot of droplet size



Typical plot of volume distribution

During testing, volume flux and drop size was measured in accordance with NFPA 750 and ASTM E799 using a one-dimensional Aerometrics Phase Doppler Particle Analyser (PDPA).



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