

Ronnaruchit Butrasankhom 2011: Study of Water Mist Fire Suppression by Computational Fluid Dynamics Method. Master of Engineering (Fire Protection Engineering), Major Field: Fire Protection Engineering, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Apichart Chaengbamrung, Ph.D. 77 pages.

This research studied the effect of the physical characteristics of water mist fire suppression on the water mist distribution and the temperature reduction by computational fluid dynamics. Physical characteristics that were studied are the diameter of water mist and the cone angle of water mist nozzle. Water mist diameters were varied from 50 μm , 100 μm , 150 μm , 200 μm , 250 μm , 500 μm , 750 μm and 1,000 μm and the cone angles of water mist nozzle were varied from 30°, 45°, 60°, 75° and 90°.

The results showed that the diameters of water mist had the effect on the distribution of water mist and the temperature reduction. For the diameters of the water mist equal to 50 μm to 100 μm , water mist distributions were mostly like cooling plume but for the diameters are larger than 150 μm , the water mist distribution were not like cooling plume but fall down directly. The effect of the cone angles of water mist nozzle on the water mist distribution showed that for the diameter of water mist is 50 μm ; the cone angle had no effect on the water mist distribution and also temperature reduction.

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Thesis Advisor's signature

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