

The Effect of Water Droplets Size in Fire Fighting Systems

Authors : Tassadit Tabouche

Abstract : Water sprays pattern, and water droplets size (different droplets diameter) are a key factors in the success of the suppression by water spray. The effects of the two important factors are investigated in this study. However, the fire extinguishing mechanism in such devices is not well understood due to the complexity of the physical and chemical interactions between water spray and fire plume. In this study, 3D, unsteady, two phase flow CFD simulation approach is introduced to provide a quantitative analysis of the complex interactions occurring between water spray and fire plume. Lagrangian Discrete Phase Model (DPM) was used for water droplets and a global one-step reaction mechanism in combustion model was used for fire plume.

Keywords : droplets, water spray, water droplets size, 3D

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