

Impact of an Onboard Fire for the Evacuation of a Rolling Stock

Authors : Guillaume Craveur

Abstract : This study highlights the impact of an onboard fire for the evacuation of a rolling stock. Two fires models are achieved. The first one is a zone model realized with the CFAST software. Then, this fire is imported in a building EXODUS model in order to determine the evacuation time with effects of fire effluents (temperature, smoke opacity, smoke toxicity) on passengers. The second fire is achieved with Fire Dynamics Simulator software. The fire defined is directly imported in the FDS+Evac model which will permit to determine the evacuation time and effects of fire effluents on passengers. These effects will be compared with tenability criteria defined in some standards in order to see if the situation is acceptable. Different power of fire will be underlined to see from what power source the hazard become unacceptable.

Keywords : fire safety engineering, numerical tools, rolling stock, evacuation

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