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Fire Safety Engineering of Wood Dust Layer or Cloud

Authors : Marzena Półka, Bożena Kukfisz

Abstract : This paper presents an analysis of dust explosion hazards in the process industries. It includes selected testing method of dust explosibility and presentation two of them according to experimental standards used by Department of Combustion and Fire Theory in The Main School of Fire Service in Warsaw. In the article are presented values of maximum acceptable surface temperature (MAST) of machines operating in the presence of dust cloud and chosen dust layer with thickness of 5 and 12,5mm. The comparative analysis, points to the conclusion that the value of the minimum ignition temperature of the layer (MITL) and the minimum ignition temperature of dust cloud (MTCD) depends on the granularity of the substance. Increasing the thickness of the dust layer reduces minimum ignition temperature of dust layer. Increasing the thickness of dust at the same time extends the flameless combustion and delays the ignition.

Keywords : fire safety engineering, industrial hazards, minimum ignition temperature, wood dust
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