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Cold Flow Investigation of Silicon Carbide Cylindrical Filter Element

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Abstract : This paper reports a computational fluid dynamics (CFD) investigation of cylindrical filter. Silicon carbide cylindrical filter elements have proven to be an effective mean of removing particulates to levels exceeding the new source performance standard. The CFD code is used here to understand the deposition process and the factors that affect the particles distribution over the filter element surface. Different approach cross flow velocity to filter face velocity ratios and different face velocities (ranging from 2 to 5 cm/s) are used in this study. Particles in the diameter range 1 to 100 microns are tracked through the domain. The radius of convergence (or the critical trajectory) is compared and plotted as a function of many parameters.

Keywords : filtration, CFD, CCF, hot gas filtration
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