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Influence of Flame-Holder on Existence Important Parameters in a Duct Combustion Simulator

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Abstract : The effects of flame-holder position, the ratio of flame holder diameter to combustion chamber diameter and injection angle on fuel propulsive droplets sizing and effective mass fraction have been studied by a cold flow. We named the mass of fuel vapor inside the flammability limit as the effective mass fraction. An empty cylinder as well as a flame-holder which are as a simulator for duct combustion has been considered. The airflow comes into the cylinder from one side and injection operation will be done by four nozzles which are located on the entrance of cylinder. To fulfill the calculations a modified version of KIVA-3V code which is a transient, three-dimensional, multi phase, multi component code for the analysis of chemically reacting flows with sprays, is used.

Keywords : KIVA-3V, flame-holder, duct combustion, effective mass fraction, mean diameter of droplets
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