

Analysis of Syngas Combustion Characteristics in Can-Type Combustor using CFD

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Abstract : This study focuses on the flow and combustion behavior inside gas turbine combustor used in thermal power plant. The combustion process takes place using synthetic gas and the baseline solution was made on gas turbine combustor firing natural gas (100% Methane) as the main source of fuel. Attention is given to the effect of the H₂/CO ratio on the variation of the flame profile, temperature distribution, and emissions. The H₂/CO ratio varies in the range of 10-80 % and the CH₄ values are fixed 10% for each case. While keeping constant the mass flow rate and operating pressure, the preliminary result shows that the flow inside the can-combustor is highly swirling which indicates good mixing of fuel and air prior to the entrance of the mixture to the main combustion zone.

Keywords : cfd, combustion, flame, syngas

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