World Academy of Science, Engineering and Technology
International Journal of Mechanical and Industrial Engineering
Vol:8, No:07, 2014

Combustion and Emission Characteristics in a Can-Type Combustion Chamber

Authors : Selvakuma Kumaresh, Man Young Kim

Abstract : Combustion phenomenon will be accomplished effectively by the development of low emission combustor. One of the significant factors influencing the entire Combustion process is the mixing between a swirling angular jet (Primary Air) and the non-swirling inner jet (fuel). To study this fundamental flow, the chamber had to be designed in such a manner that the combustion process to sustain itself in a continuous manner and the temperature of the products is sufficiently below the maximum working temperature in the turbine. This study is used to develop the effective combustion with low unburned combustion products by adopting the concept of high swirl flow and motility of holes in the secondary chamber. The proper selection of a swirler is needed to reduce emission which can be concluded from the emission of Nox and CO2. The capture of CO2 is necessary to mitigate CO2 emissions from natural gas. Thus the suppression of unburned gases is a meaningful objective for the development of high performance combustor without affecting turbine blade temperature.

Keywords : combustion, emission, can-type combustion chamber, CFD, motility of holes, swirl flow
Conference Title : ICMSE 2014 : International Conference on Mechanical Sciences and Engineering
Conference Location : Zurich, Switzerland
Conference Dates : July 30-31, 2014