عنوان مقاله:

MODELING OF FLAMELESS COMBUSTION OF HYDROGEN IN COMBUSTOR OF A GAS TURBINE

محل انتشار:

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خلاصه مقاله:

Flameless combustion has attracted significant interest in recent years due to its high thermal efficiency, low pollutant emissions and homogenised temperature in thecombustion chamber. Moreover, it is convenient to replace common combustion systems by flameless combustion at relatively low cost. It is thus predicted that flameless combustion willbe used widely in the future. In this paper flameless combustion is modelled by use of anetwork of ideal reactors such as perfectly stirred and plug flow reactors. A flameless combustion chamber for a gas turbine is modelled by this approach. The proposed combustionchamber can be generalised for any given gas turbine. The fuel that is utilized is assumed to be hydrogen. High adiabatic flame temperature and carbon-free pollutant emissions are some of hydrogen advantages. It is shown that flameless combustion suppresses thermal NOx formation. Moreover, the effects of main parameters on flameless combustion are investigated.

کلمات کلیدی:

Flameless combustion, hydrogen, network of reactors, plug flow reactor, perfectly stirred reactor