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Dependence of Autoignition Delay Period on Equivalence Ratio for i-Octane, Primary Reference Fuel

Authors : Sunil Verma

Abstract : In today's world non-renewable sources are depleting quickly, so there is a need to produce efficient and unconventional engines to minimize the use of fuel. Also, there are many fatal accidents happening every year during extraction, distillation, transportation and storage of fuel. Reason for explosions of gaseous fuel is unwanted autoignition. Autoignition characterstics of fuel are mandatory to study to build efficient engines and to avoid accidents. This report is concerned with study of autoignition delay characteristics of iso-octane by using rapid compression machine. The paper clearly explains the dependence of ignition delay characteristics on variation of equivalence ratios from lean to rich mixtures. The equivalence ratio is varied from 0.3 to 1.2.

Keywords : autoignition, iso-octane, combustion, rapid compression machine, equivalence ratio, ignition delay
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