

Providing a thermodynamic model to simulate the spark ignition engine fueled with natural gas and ethanol

Zamani Hassan^{1,*}

¹ Department of Biosystems Engineering, University of Shahrekord, Iran

Received: April 2016, Revised: May 2016, Accept: May 2016

Abstract

Natural gas as an alternative fuel and less pollution from the combustion properties are suitable and can be a good choice for the next generation. In this study the thermodynamic model for thermodynamic parameters of a spark ignition engine with a combined fuel methane (C₂H₆O) and ethanol (CH₄) will be discussed. The thermodynamic parameters including temperature and pressure inside the cylinder engine, output power, heat transfer and heat dissipation due to leakage in the cylinder wall. to simulate the engine, the governing equations for modeling the combustion zone is used. This relationship has become in MATLAB code and end up with the plot are analyzed. The results suggest that adding higher percentages of ethanol to methane, increasing amounts of pressure inside the cylinder, output power and heat (in the power) comes. This is despite the fact that pure methane leakage through the lowest and the highest temperature in the area of energy waste is burned.

*Corresponding author: hasanzamani8@gmail.com

Keywords: Spark ignition engines, methane and ethanol, thermodynamic simulation, engine performance parameters..

Please cite this article as:

H. Zamani, M. Providing a thermodynamic model to simulate the spark ignition engine fueled with natural gas and ethanol, Journal of Energy Conversion, 2(2)(2016)31-40 [In Persian]