

{tag}

{/tag}

on Advances in Emerging Technology
© 2016 by IJCA Journal

IJCA Proceedings on International Conference

ICAET 2016 - Number 5

Year of Publication: 2016

Authors:

Princepreet Multani

Sumit Taneja

Perminderjit Singh

{bibtex}icaet062.bib{/bibtex}

Abstract

In day today's relevance, it is mandatory to device the usage of diesel in an economic way. In present scenario, the very low combustion efficiency of CI engine leads to poor performance of engine and produces emission due to incomplete combustion. Study of research papers is focused on the improvement in efficiency of the engine and reduction in emissions by comparing different techniques and using various blends. Engine manufacturers are compelled to incorporate different type of techniques to reduce emissions especially NOx

and particulate matters from the engine. This paper mainly deals with the application of Exhaust Gas Recirculation (EGR) technique and use of various alternative fuels for reduction of oxides of nitrogen (NO_x) emissions from diesel. High combustion temperature leads to formation of NO_x and this paper indicates that EGR is an attractive method to reduce combustion temperature. EGR temperature plays an important role while admitting higher percentage of EGR in the engine. When the higher ratios of EGR are applied then cooled EGR can be advantageous. Some other emissions like CO & HC are also found to be reduced using different types of blends such as biodiesel and additives which are also known as cetane improvers.

Refer

ences

- PG. Sapre, KA. Bhagat 2014. Emission Characteristics for Single Cylinder DI Diesel Engine with EGR (Exhaust Gas Recirculation) System. ISSN: 2277-9655. Scientific Journal Impact Factor: 3. 449. (ISRA), IJESRT. (Sapre, 3(9): September, 2014).
- Iliev S. Simulation on single cylinder diesel engine and effect of compression ratio and EGR on engine performance and emission. Machines technologies materials. ISSUE 8-2014. ISSN 1313-0226 (2014).
- Ghazikhani, M. , Kalateh, M. R. , Toroghi, Y. K. , and Dehnavi, M. 2009. An Experimental Study on the Effect of EGR and Engine Speed on CO and HC Emissions of Dual Fuel HCCI Engine. World Academy of Science, Engineering and Technology- VOLUME 40(APRIL 2009) ISSN: 2070-3740.
- M Chaichan, K Abaas (2015). EGR and Injection Timing Variation Effects of an Engine Run in HCCI Mode Performance and Emitted Emissions. International Journal of Engineering Trends and Technology (IJETT) – Volume 19.
- S Choi and Y. Taig Oh (2014). Decrement of toxic emission from direct injection engine by using animal fat biodiesel and cooled-exhaust gas recirculation system. JOURNAL OF RENEWABLE AND SUSTAINABLE ENERGY 6, 042011.
- Jinlin Xuea, Tony E. Grift, Alan C. Hansena. Effect of biodiesel on engine performances and emissions. Renewable and Sustainable Energy Reviews 15 (2011) 1098–1116
- D. C. Rakopoulos a, C. D. Rakopoulos a*, E. G. Giakoumis a, A. M. Dimaratos a, D. C. Kyritsis b. Effects of butanol–diesel fuel blends on the performance and emissions of a high-speed DI diesel engine. Energy Conversion and Management 51 (2010) 1989–1997.
- Sehmus Altun, Cengiz Oner, Fevzi Yas) ar, and Hamit Adin. Effect of n-Butanol Blending with a Blend of Diesel and Biodiesel on Performance and Exhaust Emissions of a Diesel Engine. Article in Industrial & Engineering Chemistry Research • July 2011, Ind. Eng. Chem. Res. 2011, 50, 9425–9430.
- L Zhu, W G Zhang, and Z Huang. Influence of biodiesel–methanol blends on the emissions in the low-temperature combustion of a direct-injection diesel engine using high levels of exhaust gas recirculation. Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering 2011 225: 1044
- Nadir Yilmaz. Comparative analysis of biodiesel-ethanol-diesel and Biodiesel-methanol-diesel blends in a diesel engine. Energy 40 (2012) 210e213.

- Mohd Hafizil Mat Yasina, Rizalman Mamata, Ahmad Fitri Yusopa, Amir Aziza and Gholamhassan Najafib. Comparative study on biodiesel-methanol-diesel low proportion blends operating with a diesel engine. *Energy Procedia* 75 (2015) 10-16
- Lei Zhu, C. S. Cheung, W. G. Zhang, Zhen Huang. Emissions characteristics of a diesel engine operating on biodiesel and biodiesel blended with ethanol and methanol. *Science of the Total Environment* 408 (2010) 914–921.
- Erinc ULUDAMAR, Ceyla ÖZGÜR, Tayfun ÖZGÜR, Kadir AYDIN. Performance and emissions characteristics of a diesel engine fuelled with ethanol additive in diesel-soybean biodiesel fuel blend. *The Journal of MacroTrends in Energy and Sustainability* Vol 3 Issue 1 2015.
- Xiaoyan Shi, Xiaobing Pang, Yujing Mu, Hong He, Shijin Shuai, Jianxin Wang, Hu Chenb, Rulong Li. Emission reduction potential of using ethanol–biodiesel–diesel fuel blend on a heavy-duty diesel engine. *Atmospheric Environment* 40 (2006) 2567–2574.
- Gokhan Tuccar ?, Tayfun Ozgur, Kadir Ayd?n. Effect of diesel–microalgae biodiesel–butanol blends on performance and emissions of diesel engine. *Fuel* 132 (2014) 47–52.

Computer Science

Index Terms

Information Sciences

Keywords

Egr Biodiesel Bsfc Bte Egt Vcr.