

Researches regarding the animal fats use at a truck diesel engine

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Abstract

The paper objectives answer to European Commission requires which decided for transport sector a 90% reduction of pollutants emissions till the year 2050. Alternative fuels like animal fats can represent a viable solution for diesel engines due to their good combustion properties, pollution reduction, and the possibility of raw state use in blends with diesel fuel or as biodiesel. A D2156 truck diesel engine is fueled with preheated raw animal fats, blend with diesel fuel in 5% and 10%. At the 55% engine load and 1450 rpm engine speed, for 10% animal fats-diesel fuel blend, the pollutant emissions levels decrease with 21% for NO_x, with 50% for HC, with 66% for CO, with 30% for smoke due to the decrease of carbon content and increase of oxygen content. The CO₂ emission level decrease by 14%. An important novelty aspect is a good correlation between engine running regime, diesel fuel, and animal fats cyclic dose, pollutants emissions level and exhaust gases temperature. The use of animal fats is a good opportunity to improve the environmental protection from pollutants emissions and greenhouse gases for diesel engines. The use of raw animal fats does not require significant changes to the diesel engine design.

Keywords: diesel engines, animal fats, diesel fuel, CO₂ diesel engines, emissions, pollutants emissions

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