

EMISSION CHARACTERISTICS OF A DIESEL ENGINE USING BIODIESEL PRODUCED FROM RAPESEED OIL

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UDC: 621.43

ABSTRACT: The paper discusses the influence of rapeseed oil on the engine emission characteristics. The treated engine is an industrial vehicle diesel engine with an injection M system. The considered fuels are various mixtures composed of conventional mineral diesel and rapeseed oil. The engine characteristics are obtained by numerical and experimental procedures. Various engine operating regimes are considered. Besides of the fuel composition, the injection pressure, in-cylinder gas pressure, ignition delay, and other engine working condition are varied and analysed. Consequently, the heat release rate, exhaust gas temperature, harmful emissions, specific fuel consumption, engine power spectra, and other engine performances are determined. Special attention is devoted to NOX-emissions due to the lower cylinder temperatures caused by several biofuel influencing factors.

KEYWORDS: Biodiesel, NOX Emission

KARAKTERISTIKE EMISIJE DIZEL MOTORA KOJI KORISTI BIODIZEL DOBIJEN OD ULJANE REPICE

REZIME: U radu je predstavljen uticaj uljane repice na karakteristiku emisije motora. Korišćen je industrijski dizel motor sa M sistemom za ubrizgavanje. Korišćena goriva su različite mešavine konvencionalnih mineralnih dizela biodizela od uljane repice. Karakteristike motora dobijene su računskim i eksperimentalnim putem. Posmatrani su različiti režimi rad motora. Pored smeše goriva, pritiska ubrizgavanja, pritiska gasa u cilindru, kašnjenja paljenja varirani su i drugi radni uslovi. Istovremeno su određivani i analizirani: brzina oslobađanja toplote, temperatura izduvnih gasova, emisija štetnih gasova, specifična potrošnja goriva, spektar snage motora i ostale performanse motora. Posebna pažnja je posvećena emisiji azotoksida nastalu smanjenjem temperature u cilindru što je rezultat nekoliko uticajnih faktora bio goriva.

KLJUČNE REČI: Bio-dizel, NOX emisija

¹ Received September 2012, Accepted October 2012