



**SIMTERM
2011**

PROCEEDINGS

**15th Symposium on Thermal Science
and Engineering of Serbia**

Sokobanja, Serbia, October 18-21, 2011

University of Niš, Faculty of Mechanical Engineering Niš
Society of Thermal Engineers of Serbia



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ECOLOGICAL AND ENERGETIC DIESEL ENGINE CHARACTERISTICS WITH BIODIESEL

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Abstract: Bio fuels are often considered as a renewable fuel and neutral in terms of CO₂ emissions. In spite of the desires of researchers to find new fuels, engines and vehicle technologies, it should be known that there are no "clean" vehicles, or "clean" energies, or "fully renewable" fuels. According to our knowledge, there is no correct scientific definition of the meaning of the word "renewable" – existing meanings contain very small differences. Technically, all energy sources are renewable, but in different time intervals. The correct use of the term "renewable" fuels is pointed in the first part of the paper, while the results of own experimental research on the engine fuelled with biodiesel and diesel fuel are presented in another part of the paper.

Key words: biodiesel, ecological characteristics, energy characteristics, IC engine

1. RENEWABLE AND NONRENEWABLE ENERGY

It took more than 200 million years, to create the total amount of oil beneath the surface of the Earth. People are able to deplete half of these reserves for 200 years. According to this, if natural resources can "deplete", they are divided in the literature into non-renewable and renewable, [1].

Renewable Energy – Energy derived from sources that are not depleted when used, therefore their use causes little environmental impact. Examples are wind power, hydroelectric energy and solar energy.

There are some definitions of Renewable energy resource:

- Renewable energy resource is: an energy resource that is replaced rapidly by natural processes. Some examples of renewable energy resources are sunlight, hydropower (water

