

# AN OPTION IS THE MORE COMPLEX EVALUATION OF BIO-DERIVED AUTOMOTIVE FUELS

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**F**uels derived from bio sources have intensively been investigated in internal combustion engines. The assessment of renewable fuels on the basis of the results of internal combustion engine's tests is not clearly good or not good. Firstly biofuels can be a part of sustainability from energy sources, energy security, and energy diversity point of view. They have worse ICE relevant physicochemical properties while the bound oxygen can improve the combustion efficiency. The situation is in question from air pollution point of view. Comparison test series has been conducted with three different fuel and their controlled blends. These fuels were fossil diesel, FAME-biodiesel, and the TBK-biodiesel which is a new type of biodiesel. Tests series covered the physicochemical properties of the fuels, the engine external parameters, the parameters of combustion and the exhaust emission of an internal combustion compression ignition engine. Furthermore, external costs have been calculated based on the air pollutant emission results. In our opinion, this technical parameter's groups are needed to be investigated if one would like to get a complex picture about using biodiesel in internal combustion engine. On the basis of the results it can be established that almost in case of the most parameters, the direction of their changes can be evaluated as negative. Thus the evaluation's centers of gravity have been observed as shifted in the negative direction compared to fossil diesel. Our goal is to work further on the evaluation process, to prepare a sophisticated one.

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