

Title: Biodiesel From Used Frying Oil

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Summary:

The aims of this project were to use chemical examinations to establish criteria for assessing the suitability of used frying oil (UFO) and fats for producing methyl ester, and to use serial examinations to detect interconnections between the quality of the source products and the fuel parameters of the resulting used frying oil methyl ester (UFO-ME). The UFO samples gained after transesterification showed very homogeneous results which are necessary for successful processing. Tests show most of the samples have met the standards, except a few whose slightly higher values were attributed to changes in the reaction conditions rather than changes in oil quality.

The engine-related results lead to the following comparisons between biofuels and diesel: The biofuels rapeseed methyl ester (RME) and UFO-ME produce better results in real world, dynamic conditions than in stationary test rig trials. With biodiesel RME and UFO-ME, hydrocarbons and carbon dioxide raw emissions, soot emissions are lower than diesel. PAH emissions were roughly the same for diesel and RME and significantly lower for UFO-ME. In dynamic conditions with oxicate, RME and UFO-ME show advantages with regard to NO_x and particulate emissions. However, in stationary tests and tests without oxicate there are disadvantages to using RME and UFO-ME.

Market Segment: General Interest

Accessibility: Private

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