**A Pilot-Plant Continuous Process for the Production of Biodiesel.**

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# A PILOT-PLANT CONTINUOUS PROCESS FOR THE PRODUCTION OF BIODIESEL

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The most used method of production of bio-diesel is the Transesterification of tri-glycerol fatty acid with methanol (or in general the aliphatic alcohol). The products of the process are biodiesel and glycerol, usually in a mixture of large surplus of alcohol, most commonly, methanol. Chemical reaction requires the presence of a catalyst, which may be enzymes[1], chemical catalysts (alkalis, acids, heterogeneous catalysts), in industrial practice is particularly important today, however, the alkaline process. The essence of the technical solution is the new layout of the process in which a mixture of aliphatic alcohol and oil or fat leads to a cascade of stirred tank reactors (CSTR) or continuous flow of columns, filled with the enzyme at a suitable medium, immobilized when between individual members are involved in flow-through reactor cascade pole mobile liquid phase, and when to at least one member of the reactor cascade is located the source of the ultrasound[2], which is continuously into the system or in the form of short pulses of ultrasound, which has been introduced raises the effective turbulence in cascade, leading to an intensive dispersion immiscible phases, increasing the interphase surface and the intensive contact folders with immobilized catalyst for reaction. Different techniques for the production of biodiesel from waste vegetable oil were published recently[3]. In our intensive study[4], we examined the process and reactor for the preparation of methyl-esters fatty acids from waste grease, using ultrasound, underpinned by the enzymatic reaction in a multi-stage system. The product is a suitable alternative for the production of bio-diesel. On the basis of laboratory tests of the enzymatic Transesterification of different types of lipids and oils in a batch by using immobilized lipase arrangement, as in the continuous arrangement on the pilot apparatus, consisting of a cascade of two CSTRs with immobilized enzyme and two phases separators, functional samples have been prepared and tested in a pilot scale for application as additive to biodiesel.

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