

عنوان مقاله:

Design and Development of a Biodiesel Processor for Providing FFV's Reference Fuel

محل انتشار:

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خلاصه مقاله:

Fossil fuel crisis and pollution, have forced governments to produce and use renewable and clean fuels. Biodiesel is a clean and renewable fuel which is produced from straight and waste vegetable oils. It is used as a complementary or alternative for diesel fuels in internal combustion engines or thermal machines. There are many methods to produce biodiesel while each one has its own advantage and disadvantages from fuel quality view point. In this paper, various ways of biodiesel production have been investigated. Keeping in mind the lack of an equipment to produce biodiesel reference fuel, a biodiesel processor was designed and developed as an innovation. The fuel processor is able to produce the high quality biodiesel by different methods and a new combination of these methods. The capacity of this processor varies from 1 to 3 liter per batch with temperature controlling range from 20 to 110 °C by the means of elements and thermal sensors. The majority of processor functions are controlled by electric keys, electronic sensors and digital timers without the need to open the lid of the reactor. Sampling is made possible on line during each stage of reactions. Reactor was a vessel made from transparent glass in order to make all the reactions and processes visible, thus, its use is made easy. In addition, it can be used as an educational /instructional aid to teach students with the methods of standard quality biodiesel production based on ASTM D – 6751. The high quality biodiesel fuel produced via this processor can be regarded as a base reference fuel for testing the developed Flexible Fuel Vehicles (FFV's) in the R&D departments of the Iranian car manufacturing industries.

کلمات کلیدی:

Biodiesel; Biodiesel Processor; Flexible Fuel Vehicle; Reference Fuel

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