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Biodiesel Catalysts

The process of homemade biodiesel production is similar to making soap. Vegetable oils and animal fats are triglycerides, containing glycerine. To turn vegetable oil into biodiesel fuel you must first eliminate the glycerine. When fat or oil is separated from glycerine it is considered to be 'esterfied'.

During both homemade and professional biodiesel production, alcohol (either methanol or ethanol) is added to displace the glycerine so that it becomes a waste product. The chemical reaction for this process is triggered by the addition of lye.

When you purchase methanol you might notice that it is also marketed under a lot of different names. Among them are alcohol, wood alcohol, wood naphtha, wood spirits, methyl hydrate (or 'stove fuel'), carbinol, colonial spirits, Columbian spirits, Manhattan spirits, methylol, methyl hydroxide, hydroxymethane, monohydroxymethane and pyroxylic spirit. The bottom line is that all of these nicknames and brands describe one product - methanol.

Be careful when buying something called methylcarbinol as this name can be used to describe both methanol and ethanol. Check the ingredients to make sure that it is methanol you are buying and not ethanol. Ethanol is just simply harder to work with when it comes to creating homemade biodiesel.

Another mistake would also be to substitute Methylated spirits (denatured alcohol) or isopropyl alcohol (rubbing alcohol) as neither succeeds in creating biodiesel fuel. You can also buy large amounts of methanol from bulk liquid fuel distributors who supply to biodiesel production.

It is lye that changes the glycerine into biodiesel fuel (or the fat to soap in the soap making process. The lye catalyst can be either sodium hydroxide (caustic soda, NaOH) or potassium hydroxide (KOH). Sodium hydroxide is often easier to obtain and it's cheaper to use.

If you use potassium hydroxide, the process is the same, but you need to use 1.4 times as much. You can get both NaOH and KOH from craft stores, soap makers' suppliers and from chemical suppliers. Other chemicals that are necessary for biodiesel production, such as isopropyl alcohol (isopropanol) for titration, are available from drug stores and chemical suppliers.

Of all of the chemicals used in biodiesel production, the lye is the most dangerous. Don't get it on your skin or in your eyes, don't breathe any fumes, keep lye away from food, and keep it away from children and pets. Lye also reacts with aluminum; tin and zinc so don't use any of these metals as a vessel or container for holding your biodiesel.

By the end of the biodiesel production process the glycerine will be sitting at the bottom of a container in two floating layers. The bottom glycerine layer will be clearly separated from the biodiesel. The biodiesel at the top can then be removed or siphoned off and used neat in a diesel car or diesel engine blended with petroleum-based diesel fuel.

REPRINRED FROM: Ash Reid, Eutech Associates 2nd Floor, 145-157 St. John Street, London, EC1V 4PY, United Kingdom