



Exceeding Expectations

What is FAME?

- a) The title of a song released in 1975 by David Bowie
- b) A 1980 musical drama about a bunch of kids at New York's High School for the Performing Arts
- c) Fatty acid methyl esters
- d) Widespread reputation, especially of a favorable character; renown; public eminence
- e) All of the above

If you answered "e" all of the above, you are correct but if you asked AmSpec, a BQ 9000 certified laboratory, how it pertains to Biodiesel, "c" would be the best answer.

Before we describe FAME, first we have to define biodiesel.

Biodiesel is a renewable diesel fuel that is also known as FAME (fatty-acid methyl ester) in the European Community. It is made from animal fats, vegetable oils or recycled restaurant greases. Biodiesel has the advantage that it works just as well as normal diesel fuel, but the combustion process expels lower concentrations of toxic emissions.

"Biodiesel is a fuel derived from a process known as transesterification whereby the oils produced by oiliferous plants are combined under the correct conditions with a methoxide catalyst to cause separation of the oil into usable fuel oil and glycerol by-product.

In layman's terms, transesterification can be thought of as the process of converting one ester into another ester. An ester is a chemical combination of fatty acids attached to alcohol. Animal and vegetable fats, oils and biodiesel are examples of esters.

If both vegetable oil and biodiesel are esters, why is it not practical to use vegetable oil in a diesel engine instead of going through the process of creating biodiesel? In other words, why is there a need for transesterification?

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The answer lies in the difference in viscosity, which is the thickness or resistance to flow, between the two esters. Vegetable oil has too high a viscosity for diesel engines, designed for fossil diesel, to cope with. This is because the constituent alcohol molecule of the vegetable oil ester, glycerol, is very large. Hence we need to reduce the thickness of the vegetable oil by replacing the glycerol with an alcohol that is smaller in molecular size, methanol, and thus create a different ester.

This is what the process of transesterification allows us to do. By converting the vegetable oil ester into the biodiesel ester, it separates the larger glycerol molecules from the fatty acids within the vegetable oil. The methanol combines with the fatty acids producing smaller methyl esters thus creating the more free flowing biodiesel.” (1)

Confused? Don't be! Ask AmSpec ...we are one of two inspection companies IN THE WORLD, that's right in the world, that have three locations that are BQ9000 certified.

Please visit www.bq9000.org and reference certified labs. You will see AmSpec has accredited labs in St. Rose Louisiana (Port of New Orleans), Linden, NJ (Port of New York Harbor and Galena Texas (Port of Houston). AmSpec management recognized biofuels as an up and coming alternate fuel source and therefore made the investment to service the biofuel market. AmSpec prides itself as BQ9000 accredited.

“The National Biodiesel Accreditation Program is a cooperative and voluntary program for the accreditation of producers and marketers of biodiesel fuel called BQ-9000®. The program is a unique combination of the ASTM standard for biodiesel, ASTM D6751, and a quality systems program that includes storage, sampling, testing, blending, shipping, distribution, and fuel management practices.

BQ-9000® helps companies improve their analytical testing capabilities for renewable fuels and greatly reduces the chances inferior fuels will be introduced into the market as a result. To receive accreditation, companies must pass a rigorous review and inspection of their quality control processes by an independent auditor. This ensures that quality control is fully implemented to reduce the risk for suppliers and consumers alike.”(2)

(Sources, (1) www.stationaryengineparts.com : (2) www.bq9000.org)

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