



April 15, 2005

BIODIESEL TECHNOLOGY IMPROVES

Soybean oil is the most prevalent starting material for biodiesel, though other vegetable oils, animal fat, and waste grease are used too. But soybean oil's relatively high cost in the past has discouraged wider adoption to use it as a fuel. The Federal Jobs Bill has temporarily helped by providing a direct tax credit to fuel distributors of biodiesel. Now soybean biodiesel is the same price as number 2 diesel or within 1 penny per gallon. This is great news to area farmers because we can now order biodiesel and start burning more fuel that is not foreign based.

An Agricultural Research Service (ARS) scientist may have discovered a recent break through to remove a costly component of biodiesel production. Michael Haas, a biochemist with the ARS Eastern Regional Research Center's Fats, Oil and Animal Coproducts Research Unit in Wyndmoor, PA, has developed an new approach to synthesizing biodiesel.

The method developed by Haas and his colleagues eliminates the use of hexane, an air pollutant regulated by the U.S. Environmental Protection Agency, from the production of soy oil for biodiesel synthesis. Hexane, a colorless, flammable liquid derived from petroleum, is traditionally used to extract vegetable oil triglycerides from the raw agricultural material before biodiesel production.

The new method eliminates the conventional oil extraction step. Instead, the oilseed is incubated with methanol and sodium hydroxide, which are currently used to process extracted oil. The researchers found that the moisture naturally present in soybeans - as much as 10% in soy flakes - requires that a large amount of methanol be used in this reaction. However, using dried flakes greatly reduced the methanol requirement. Processing costs using dry flakes were estimated at \$1.02 per gallon, which is \$2.12 less than for biodiesel made from full-moisture soy flakes.

The researchers are refining their economic model to account for income from the sale of the lipid-free, protein-rich flakes left over from the biodiesel reaction for use as animal feeds and to account for differences in the cost of the refined oil and flaked soybean feedstocks.

ARS has filed a patent application on the process, which might be useful in producing biodiesel from lipids remaining in the corn meal byproduct of corn-to-ethanol plants.

If you have never tried biodiesel, now is the time. It is your vote against more foreign oil. It's better for the environment and better for your engine, due to criteria such as higher cetane number and higher lubricity. Most farmers I have talked to using B2 or B5 have been happy with the product.

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