



12 December 2006 11:43:58

NORTH AMERICA

Change Language/Region

SEARCH

Home - Highlights - Highlights - **BIODIESEL: WHAT YOU NEED TO KNOW NOW**

PRODUCTS

DEALER LOCATOR

USED EQUIPMENT

PUBLICATIONS

MERCHANDISE

ABOUT US

CONTACT US

CNH CAPITAL

NEWS & EVENTS

HIGHLIGHTS

FINANCING

PARTS & SERVICE

Highlights

Biodiesel: What You Need to Know Now

Steiger® /Magnum™/
Maxxum® Screensaver

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Biodiesel Basics

What you need to know now.

Biodiesel: What You Need to Know Now

Diesel fuel blended with biodiesel is drawing wider interest as an alternative fuel. Farm equipment manufacturers including Case IH are endorsing the use of blends up to B20 (20% biodiesel and 80% petroleum-based diesel), and various regulatory agencies are requiring biodiesel use. A Minnesota directive mandates that diesel fuel sold in that state contain at least 2% biodiesel.

Biodiesel is a diesel fuel replacement manufactured from vegetable oils, recycled cooking greases or oils or animal fats. Soybeans are a primary source for biodiesel.

Biodiesel blends are proving to reduce emissions, improve fuel lubricity and reduce fossil fuel demands while creating new demand for soybeans.

Currently, commercial biodiesel production and distribution is located primarily in the Midwestern United States. Whether you use it voluntarily or because it's mandated, there are a few things you need to be aware of.

Blend percentages

Biodiesel is typically blended with diesel fuel by fuel distributors. Most blends are B2 or B5, with some up to B20. Blends beyond B20 have not yet been acknowledged by major engine manufacturers as an approved fuel. It's the B2 to B20 blends you'll most likely encounter.

Storage issues

As an organic material, diesel fuel is a food source for various types of microbes that feed and grow at the fuel/water interface. Water works its way into storage systems from humidity, condensation, etc.

Because on-farm fuel supplies are used fairly quickly (rather than stored unused for months), algae and other types of organic growth haven't been much of an issue with pure diesel fuel.

However, biodiesel is a richer food source. It is more highly

oxygenated, and presents more interfaces with water. This microbial activity creates sludge that can plug filters.

Similarly, biodiesel can have a cleaning effect that loosens accumulated sediment in storage tanks and equipment tanks. Although the U.S. Department of Energy says that "B20 is sufficiently diluted so that most (cleaning effect) problems are insignificant," field reports indicated this is a possibility even with the B5 blends, especially if your fuel storage and handling systems are old or have not been carefully maintained.

So what should you do to successfully use biodiesel? Basically, remember the old adage, "Use clean fuel. Keep it clean."

Purchase your biodiesel blend from a trusted fuel supplier. Treat your storage tanks for moisture with a moisture dispersant. An algacide is recommended.

Add or upgrade in-line filters, add a fuel/water separator, and take steps to minimize in-tank condensation, by keeping tanks topped off. If your on-farm fuel storage system is due for replacement, adopting biodiesel blend usage can be a good reason to do so.

Take similar steps to clean and protect equipment fuel systems. Be prepared to replace fuel filters more often, especially in the early stages of your biodiesel blend usage. Fuel filters for current diesel engines are very efficient, but they cannot do their job if they become overloaded with contaminants.

Biodiesel blends, especially B2 and B5, appear to be good alternatives to pure diesel fuel and improve lubricity and emissions.

While B100 biodiesel contains about 8% less energy per gallon than number 2 diesel, the U.S. Department of Energy says that blends of B5 or less "do not cause noticeable differences in performance compared to number 2 diesel." B20 blends, the department says, will lose only 1% to 2% in power, torque and fuel economy."

Case IH Engine Biodiesel Blend Statement

Case IH fully supports the use of B5 blends on all engines it manufactures for Case IH agricultural equipment as well as B20 in certain applications. Take a look at the individual product sites on this Web site, or consult your Case IH dealer to determine which blends are suitable for your equipment.

B5 blends must meet the requirements of U.S. standard ASTM6751 on the base biodiesel stock or European standard EN14214. When using higher 20% blends, certain handling and maintenance requirements come into play, and customers are advised to speak with their dealers on specific issues.

Case IH is committed to working with its partners to push toward higher-level biodiesel that will be a compatible fuel source in future low-emissions compliant engines. Case IH has initiated aggressive field tests to evaluate performance with

100% biodiesel.

Biodiesel Blend User Tips

- Use biodiesel blends from a trusted source. Preblends are recommended to on-farm blending, which can result in a nonhomogenous mixture.
- Use storage tanks that are clean and free of sediment.
- Avoid copper, brass, lead, tin and zinc in tanks and fittings.
- Minimize water forming through condensation by keeping tanks topped off.
- Use an algaecide in primary storage tanks.
- Add fuel filters and water separators on your primary storage tank.
- Follow recommended maintenance schedules for equipment fuel filters and water separators. Expect to change filters more frequently, especially during the early stages of biodiesel blend use.
- Avoid storing equipment more than three months with biodiesel blends in the fuel system, due to potential stability problems with biodiesel blends. If necessary, run the engine on pure diesel fuel for 20 to 30 minutes to flush the biodiesel blend out of the system.

Fuel Treatment

Biodiesel blends are more prone to microbial growth than straight diesel fuel.

Case IH dealers carry fuel treatments that prevent microbial growth and the resulting slime that can clog filters.

These include Fleetguard's Fleet-tech Microbicide and a Valspar fuel additive (part number B50546, 16 ounce, or part number B50547, 23 ounce).