

ENGINEERING BULLETIN

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Hastings Fuel Filters Compatible With Certified Bio-Diesel Blends

Hastings fuel filters currently in use in petroleum-based diesel applications are compatible with certified biodiesel blends up to and including B20. Our laboratory has conducted extensive soak testing with various blends of biodiesel. Through this testing, we have verified that the materials used in our current fuel filters are compatible with certified biodiesel blends up to and including B20.

Biodiesel, n. – a fuel comprised of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100, and meeting the requirements of ASTM D 6751.

Biodiesel blend, n. – a blend of biodiesel meeting ASTM D 6751 with petroleum-based diesel fuel designated BXX, where XX is the volume percent of biodiesel.

Overview

Biodiesel is an alternative fuel that is rapidly growing in use. However, biodiesel received a bad reputation after the problems that occurred in Minnesota in 2005 when some states mandated the use of B2 biodiesel blend statewide. One of the problems was very short fuel filter life. Further research revealed that the problems encountered were not due to the use of the biodiesel blend, but rather the use of biodiesel that did not meet the ASTM D 6751 specifications. The use of biodiesel that does not meet specifications may cause problems within the fuel system. **One false perception of biodiesel is that it can be made by simply mixing raw vegetable oil, waste vegetable oil or animal fats with diesel fuel. Due to their high glycerin content, these feed stocks must be refined and catalyzed to make biodiesel that meets the ASTM D 6751 specification.**

Filter Plugging

Biodiesel has some solvent properties and will act as a solvent in the fuel. Blends greater than B20 may have enough of a solvent effect to break down the varnish deposits on the walls of the existing fuel storage tanks or fuel systems. The break-down of these varnish deposits will contaminate the fuel with particulate, which can cause fuel filters to plug rapidly. Once the contaminant is removed from the fuel, the fuel filter life should return to normal. Biodiesel blends up to B20 should have minimal solvent effects on existing fuel systems and blends below B5 should have no solvent effect above that of regular diesel fuel meeting ASTM D 975 specification. Blends of B5 and below should also meet the ASTM D 975 specifications for diesel fuel.

Filter plugging problems can be prevented by effectively cleaning storage tanks before introducing biodiesel. Filter plugging can also be minimized by using low blends of biodiesel and/or ensuring the biodiesel that you are using is from a quality source meeting the ASTM D 6751 specifications. BQ9000 is a quality certification that certifies biodiesel suppliers that provide quality biodiesel meeting the ASTM D 6751 specification.

Using High Blends of Biodiesel

Filters that are used in special applications using high blends of biodiesel, those near B100 or unblended B100, should use solvent resistant materials. Continued use of standard rubber materials commonly found on most popular fuel filters may result in deterioration or swelling of the material, which may result in leaks.

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**If you have further questions,
please contact our
Service Engineering Team at (800) 887-8836.**