



Filter Knowledge, Unfiltered

## Technical Service Bulletin 06-1

---

### The Effects of Biodiesel on Fuel Filters

**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 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 or waste vegetable with diesel fuel. Due to the high glycerin content in vegetable oil, 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, subsequent fuel filter service intervals 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.

### **Filter Compatibility**

Most fuel filters currently used in petro-diesel applications are compatible with bio-diesel blends up to B20. Check with your filter manufacturer for verification.

### **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 sealing materials. Continued use of standard sealing materials commonly found on most popular fuel filters may result in deterioration or swelling of the material, which may cause leaks.

For more information on biodiesel visit [www.biodiesel.org](http://www.biodiesel.org) Website. This site is not affiliated with the Filter Manufacturers Council.

For additional information, contact:

Filter Manufacturers Council  
P.O. Box 13966  
Research Triangle Park, NC 27709-3966  
Phone: 919/406-8817 Fax: 919/406-1306  
[www.filtercouncil.org](http://www.filtercouncil.org)

Administered by Motor & Equipment Manufacturers Association