



## Technical Bulletin 7

# BIODIESEL AND FILTERS

### **- BIODIESEL**

More and more often people are listening to the word “BIODIESEL” without actually knowing the meaning and the use of biodiesel.

Biodiesel is an alternative renewable fuel that is produced by modified animal fats or plant oils. The biodiesel and its specifications is described in ASTM D 6571 and EN 14214.

Pure biodiesel contains no petroleum, is biodegradable, non-toxic, and is effectively free of sulphur.

### **- USE OF BIODIESEL**

Biodiesel is normally mixed with normal petroleum diesel. The mixture is called a blend and it is described by the letter B and followed by a number showing the pure biodiesel percentage. For example a B20 blend, contains 20% biodiesel and 80% petroleum diesel. The pure biodiesel is many times called a B100.

The most common use of biodiesel is in blends of B2-B20, although many times higher percentages are used. Most automotive manufacturers limit the use of biodiesel that can be used in an engine up to B5 or B20 in some cases.

### **- PROBLEMS OF USING BIODIESEL**

- Cold weather operation: Biodiesel has higher cloud point than normal diesel (B100 can have a cloud point of 18°C compared to normal diesel that cloud point is -12°C), so in cold weather it becomes like a gel and so it should not be used in cold weather. Problem can be solved by using low percentage blends. B20 for example has a cloud point of 4-5 degrees above normal diesel.
- Stability & storage issues: It is recommended that B100 should be used within 30 days of its production and blends should be used within 90-120days due to the degradation and other reasons like moisture absorption, oxidation, microbial growth.
- Solvent properties: It will be discussed on the following section.
- Lower energy concentration than petroleum diesel.

### **- USING ALCO FILTERS WITH BIODIESEL**

Biodiesel has some solvent properties. These solvent properties will damage seals and fuel lines that are made of natural rubber. Deposits in the fuel tank and fuel system will come loose and end up plugging the fuel filter. These effects are minimized by utilizing a lower biodiesel blend of up to B20. Using a blend of B5 has almost no solvent properties.

ALCO Filters has done an extensive research regarding the use of biodiesel blends in our filters and we came to the conclusion that it is safe to use our filters with biodiesel blends as long as the below precaution measures are applied:

- Make sure that your biodiesel supplier supplies you with biodiesel that meets the ASTM D 6571 or EN 14214 standards. There are many suppliers of low grade biodiesel, so before getting any into your tank, always ask for the certificates that prove that the biodiesel is up to the standards.
- If you were using normal diesel before you started to use biodiesel then you should first make an attempt to clean up the fuel tank and fuel system from any deposits.
- The first time that you will use biodiesel your filter will need to be replaced very soon. How soon depends on how many accumulated contaminants are in your fuel system. The process of changing your fuel filter earlier will continue for some time, depending on the condition that the whole fuel system was and on the quality of the fuels that were used before. When this whole procedure finishes, then you can go back to changing the fuel filter at the normal intervals.

A wide range of ALCO Filters can safely be used with all biodiesel blends (Ask your local supplier if a particular part number is compatible or not). Blends of up to B20 can be used in any vehicle that the manufacturer recommends without any modification. Using blends that are close to B100 is not recommended by the automotive manufacturers as it will be impossible to run the engine without having many modifications on the fuel system of the vehicle, due to the fact that normal sealing materials will swell or deteriorate and may cause leaks. Also due to the high cloud point of 18°C, heated fuel lines and tank should be used at moderate weather (3-19°C).

Always ask the vehicle manufacturer if it is safe to use biodiesel blend in your vehicle before switching fuel. If the vehicle manufacturer does not recommend the use of biodiesel in a specific vehicle then ALCO Filters will bear no responsibility if any damage occurs.