Chef Bio-D

August 2008: RE Power Plant is incorporated, and biodiesel processing will commence soon. To all those biodiesel makers, now and wannabes, be warned that it is

not a task you can take too lightly. Images to follow within my brief introduction into what can happen if you use biofuel that is of questionable quality.

Or just view the images .

One example of problems that could arise from poor quality biodiesel , or if you are silly enough like me to use the bottom of the barrel in a pinch.

The most important thing to remember is that it is never as simple as you might think, and that there are good things discovered about your truck or vehicle in the process. As I looked at it, I discovered in my experience with bad fuel, is (1) who I can count on as trustworthy mechanics, (2) who knows my truck, (3) who knows biodiesel, (4) basic observable chemistry, (5) How to clean up the muck, (6) How to properly replace an fuel filter, (7) The fuel system, the parts, and how it works, (8) How to properly clean a tank and how mechanics might not, (9) What a filthy tank looks like (10) How glycerin can affect your vehicle fuel system.

Let me explain my story briefly:

I failed inspection due to emissions. I made a rash decision to place biodiesel--that had been sitting around in the sun and seemed clear and was "bubbled" to remove water--in the tank of my 1998 GMC Sierra C2500 6.5L Turbodiesel. It passed emissions in flying colors (I will look for the scanned report). However, I noticed that it immediately begins to have start up problems. I filled the tank with regular diesel to move the biodiesel back out of my tank. Eventually the truck no longer starts. It cranks, the fuel pump is engaged, but there is no self-ignition.

Time for repairs. The mechanics at Jet Towing (trustworthy team) claim to have discovered a molasses type goo in my fuel filter. The filter was replaced, and I drive until it eventually fails again. This time I replace the filter, coming to witness the severity of the problem. There is goo still in the system. I suspect the tank.

You say that this is common and that I should have had the tank flushed and boiled before placing biodiesel in it. I did. Twice. What was the problem. Little did I know, the previous mechanics (Tony Mula in Calverton & Eagle Auto Mall in Riverhead), or their subcontracted workers decided to use a short cut technique--pierce a hole in the top of the tank, and try to wash it out as good as possible without dropping the tank. Efficient, but not necessarily a great idea. Some areas might not be cleaned.

The tank is drained and dropped. The diesel fuel drained appears clean and green tinted. What remained in the tank was a 1/8 thick of gooey substance at the bottom of a tank. The bottom of the tank seems clean, but the side walls were not. They had a rusty, pasty, silty substance on the side. The sender unit has a metal sock filter which was caked with the thick goo.

But the real culprit was the biodiesel fuel. If your biofuel sits in a container for awhile and is in the sun, expect it to settle, and whatever glycerin that was in it seems invisible through a translucent tote container, (not to mention any bacterial growth) I removed the water from the biodiesel by placing bubbles through the solution. But this doesn't remove the glycerin or bacterial growth.

Glycerin cleans you tank nicely. So nicely that it created a goop in the tank which was drawn into the fuel line system. I had placed injector pump cleaner in the tank, but this may have increased the volume of goop into the fuel filter/water separator and into the 2 micron filter just before the injector pumps. It is even possible that the injectors have some of the goop on them.

After replacing the tank and sender unit, and cleaning the 2 micron filter, the engine ran for a while but still had starting problems and power loss. It would drive at all speeds once you got it started, and idled rather smoothly. However, when you changed gears, it would likely stall unless you pushed fuel manually with the fuel pedal.

Back to action. I removed the fuel filter to see a little more goo inside the filter and at the bottom. I decided to clean the bottom of the fuel filter casing with Diesel Kleen (smells like Mystery Oil), a diesel injector cleaner. During my experiment, dubbed "goop experiment", I found the not many chemicals break it down. Isopropyl alcohol was second

best. I drained the casing of diesel fuel with a syringe, then used paper towels and q-tips doused with Diesel Kleen to clean the bottom of the casing and the thin intake chamber that the fuel filter perches on.

When cleaned, I placed the diesel fuel back in, and the truck started and power was restored. It stalled later on, which suspects the cleaning job I did was not suffiicent.

Summed up? bad batch of biodiesel teaches quite a few things. Of course, now that you heard my story, perhaps you don't have to do this yourself. Make sure your fuel is certified to meet the ASTM 6751, or at least make sure you can trust the biodiesel fuel maker to give you excellent quality. And even when quality is trusted, make sure you don't use the bottom of the barrel 1 year later after it has been baking in the sun.

More update later. I recently cleaned things even BETTER.