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Biodiesel and Your Diesel Engine

Biodiesel fuel is not compatible with every diesel engine. This is why it is so important for you to check your Owner's Engine Manual to find out what types of fuels you can use.

The biggest drawback of biodiesel is that it is not compatible with all engine components. However many manufacturers such as Ford and Volkswagen have or are in the process of creating a diesel car or diesel engine more compatible with low sulphur diesel fuels.

The main problem arises when you try to put biodiesel fuel into the diesel engine of older machines. Even blended biodiesel will soften and degrade certain types of elastomers and natural rubber compounds in your diesel engine over time. Undiluted biodiesel can destroy certain types of gasket, hose, and seal compounds like natural rubber, Buna-N, and nitrile, which can create fuel system leaks. Unfortunately these materials are what most fuel hoses and fuel pump seals are made of.

Most manufacturers recommend that natural or butyl rubbers not be allowed to come in contact with pure biodiesel. One way around this is to replace your hoses and fuel caps with a material that is compatible with biodiesel. Another suggestion is to use the diesel fuel blend that is recommended not to cause stress and wear on your hoses and sealants.

In general it is thought that that blends of B20 (20% biodiesel and 80% diesel fuel) or lower cause the least stress for diesel engines. Once again, it cannot be stressed enough that you must consult with the manufacturer of your vehicle or machine and read your owner's manual before playing around with biodiesel. As a rule of thumb, never ever pour pure (B100) biodiesel into a diesel engine of any kind! Always use a blend because experimentation with biodiesel fuel could prove to be expensive.

The single greatest factor that can affect biodiesel's performance in your engine is a cold temperature. Cold weather can cloud biodiesel and turn into gel. Users of a 20 percent biodiesel blend with #2 diesel will usually notice problems when the temperature reaches approximately 2 to 10° Fahrenheit. Below that you could experience gelling in your fuel pumps and hoses.

Given the above information you can also see why you would never use 100% pure biodiesel in a diesel engine in cold temperatures. It stands to reason that neat biodiesel will gel even faster than blended biodiesel. Solutions for winter operability with neat biodiesel include blending biodiesel with No. 1 petroleum diesel fuel. Storing the vehicle in a heated garage so that the biodiesel blend in the diesel engine does not have a chance to gel is also recommended.

Both blended and neat fuels in a diesel engine will respond to the use of cold flow improvement additives such as regular anti-freeze and kerosene. However, make sure that your manufacturer approves any additives you add to your biodiesel.

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