

Focus on Fuels

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TM&C Services

Biomass Based Diesel in Transportation Fuel

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TM&C Services in Fuel Regulations

TM&C provides a full range of services in its fuels regulatory practice. Some of these services are listed below.

- Preparing, reviewing and submitting fuels reports, including

Federal Renewable Fuel Program

The federal renewable fuel program requires the EPA to set a biomass based diesel standard for each year based on the expected biodiesel supply. EPA has gradually increased that requirement from 500 million gallons in 2009 to 1.8 billion gallons in 2016. The EPA's estimate for 2016 total diesel demand was about 3.8 million barrels per day or about 58 billion gallons per year. The proposed RVO of 1.8 billion gallons is about 3 vol% of total diesel demand. The petroleum industry has demonstrated in prior years that the systems are in place to add 1.8 billion gallons of biodiesel into the transportation pool; however, there are some considerations that can limit the addition of biodiesel at higher levels.

Biomass Based Diesel in Transportation Fuel

by Tom Hogan

The federal regulations do not require any special labeling if the addition of biodiesel is not more than 5 vol%. This leads to an interesting dynamic in that without a requirement to identify the biodiesel level, every time the diesel changes hands in the distribution system, the recipient can add up to 5 vol% biodiesel and pass it on to the next person. Theoretically, by the time it gets to the consumer it can contain significantly more than 5 vol% biodiesel.

Methylester biodiesel, the majority of biodiesel available, generally increases the pour point or cloud point of the blend. Therefore, in

- CDX submissions.
- Facility audits for compliance with fuels programs.
- Interaction with EPA to pose fuels-related questions.
- Industry specialist assistance for required gasoline attestations.
- Industry specialist assistance for in-line blending audits.
- Assistance in setting up a fuels compliance group/program.
- Personnel reviews of compliance-related groups.
- Compliance status reviews and recommendations.
- Negotiations/consultation during EPA enforcement actions.
- 3rd-Party Engineering reviews.
- Due diligence reviews of facilities and companies in RFS RINs Program.

cold weather, a biodiesel blend could perform poorly. As a result, more biodiesel can be blended in the summer than in the winter in colder climates. Therefore, biodiesel blenders must install tankage and other equipment that might be underutilized in the winter months.

Biodiesel can also exacerbate filter plugging problems from biological growth. Bacteria grow in the water/biodiesel interface. Recipients of imported diesel/biodiesel mixtures in Europe are considering including a new specification of filter blocking tendency (FBT) to reduce plugging problems in diesel engines.

Similar to ethanol and the 10% blendwall, biodiesel is limited by performance of the ultimate blend. The difference between ethanol and biodiesel is that ethanol in gasoline in the U.S. has hit the 10% blendwall and biodiesel usage has not yet been limited by the quality of the final blend. It is difficult to identify the diesel blend wall because it is highly dependent on the ambient conditions as well as the quality of the biodiesel. The most public indicator of biodiesel limitations comes from the Minnesota regulations.

State Regulations

The various state regulations are detailed in the U.S. Department of Energy's Alternative Fuels Data Center. State regulations are generally oriented toward tax or other incentives to encourage the use of biodiesel.

1. Several states including Arkansas, Colorado, Indiana, Illinois, Kansas, Maryland, Missouri, New Hampshire, New Jersey, New Mexico, North Carolina, Ohio, South Carolina, South Dakota, Texas and Virginia require from 2-5 vol% biodiesel be used in some or all diesel-powered, government-owned vehicles.
2. Louisiana and Pennsylvania require the use of biodiesel when the state production of biodiesel meets a certain threshold. It does not appear that the thresholds in either state have been met yet.
3. New Mexico is scheduled to require a minimum of 5 vol% biodiesel in all diesel sold in the state beginning in November 2015.
4. The state of Washington requires the use of 2 vol% biodiesel in all diesel sold in the state. This percentage must increase to a mandatory 5 vol% when producers in the state can produce at least 3 vol% of the demand.
5. Oregon requires 5 vol% biodiesel in all diesel sold in the state.
6. Minnesota has, by far, the most significant biodiesel requirement. Minnesota legislated a minimum use of biodiesel beginning in 2005. Relevant dates are listed below.

- 2002 - Legislature passed a bill requiring a minimum of 2 vol% biodiesel in almost all diesel
- 2005 - Law went into effect
- July 1, 2014 - Minimum 10 vol% biodiesel during summer months and minimum 5 vol% in the winter months
- May 1, 2018 - Minimum 20 vol% biodiesel during summer months and minimum 5 vol% in the winter months

Conclusions

Biodiesel will continue to be an important part of the renewable fuel program. Currently, it is unlikely that it will be as major a player as ethanol for three reasons:

1. Diesel demand in the U.S. is only about 40% of the gasoline demand;
2. There appears to be a limit (maybe 5 vol%) on how much methyl ester biodiesel can be blended into petroleum diesel based on performance in the winter time in colder climates; and
3. The state mandated volumes are relatively small with only four states requiring, or scheduled to require, some biodiesel usage in all diesel sold in the state.

Although biodiesel volume requirements by the states are limited, essentially all states have programs designed to encourage investment in biodiesel production or use. These incentives are not nearly as powerful in increasing demand as the direct mandate to use a certain volume of biodiesel. This is unlike the growth in ethanol demand. In the early years of the renewable fuel program, the economics favored the addition of ethanol in excess of the mandated volumes. Indeed, until the blendwall was reached, ethanol use exceeded the mandated volumes. It was only when the blendwall was reached that RIN values, an indicator of the difficulty in using added ethanol, rose from a few pennies a gallon to over a dollar a gallon. It is likely that the only way biodiesel use in transportation fuels will grow is through increased, directly mandated volumes or as a substitute for difficult-to-blend renewable fuel mandates (ethanol) due to the blendwall.

Turner, Mason & Company stays abreast of developments in alternative transportation fuels. Give us a call if you have any questions or just want to catch up on the latest developments.