Biodiesel testing ensures quality, detects potential filter plugging problems

Testing biodiesel deliveries can be instrumental in avoiding potential maintenance problems. Like petroleum-based diesel, biodiesel can also contribute to fuel filter plugging if physical properties aren't monitored regularly and since there are currently no regulated refinement practices for producing biodiesel, quality can also vary.

Biodiesel content in diesel fuel is specified by the B-number. For example, B100 is 100% biodiesel, while B25 indicates 25% of the fuel is biodiesel and 75% is petroleum-based diesel. Testing can verify these percentages.

Suitability for use is more of a concern with biodiesel as its natural composition allows for a typical shelf life of about six months. As degradation begins, a natural breeding ground for biological growth can develop quickly. Testing for water is then critical because water accelerates microbial growth and attacks metallic fuel system surfaces and causing corrosion. Testing biodiesel for water, bacteria, fungi and mold can give users advanced notice of potential plugging problems. ASTM D-6751 is the standard for testing and monitoring of biodiesel properties.

Monitoring cloud point and free and total glycerin content can also pinpoint potential filter plugging problems. A diesel fuel's cloud point is the temperature at which wax crystals begin to form and then precipitate from the fuel. Although biodiesel typically has a higher cloud point than petroleum-based diesel fuel, it is just as important to monitor it during cold weather – not only to maximize performance but to determine when to use cold weather fuel additives as well. ASTM D-2500 is the recognized test method for determining the cloud point of biodiesel in the ASTM D-6751 standard specification for B100 biodiesel fuel blend stock.

Monitoring free glycerin can prevent injector deposits and glycerin buildup in fuel storage tanks. Total glycerin is the amount of free glycerin and the glycerine portion of any unreacted or partially reacted oil or fat. High levels of total glycerin causes injector deposits and filter plugging and affects a biodiesel fuel's cloud point. ASTM D-6584 is the test method for determining free and total glycerin.