

The new diesel is here, and BG is ready

As of June 1, 2006, Ultra Low Sulfur Diesel (ULSD) is no longer the diesel fuel of the future. In years past, diesel fuel contained as much as 5,000 parts per million of sulfur. In the 1990s diesel fuel contained levels of 500ppm. Diesel fuel sulfur now has been dropped to the very low level of 15ppm! Hence the moniker, “Ultra Low.”

By mandate of the United States Environmental Protection Agency come October 15, 2006, 80 percent of all refined Number 1 and Number 2 diesel fuel for on road use must meet the <15ppm sulfur limit.

Why all the fuss about sulfur? Tailpipe emissions!

One of the most effective ways of reducing noxious tailpipe emissions is to use EGR (Exhaust Gas Recirculation). EGR-equipped engines do two things well: unspent fuel hydrocarbons found in the exhaust gas are re-burned; and they also lower the induction temperature of the incoming fuel mixture. By doing these two things simultaneously, EGR systems produce a cleaner burn, thus cleaner exhaust.

But is this enough for diesels to meet future air standards? Not quite. An additional method of reducing the output of particulate matter producing black smoke (soot) is needed. Soot is actually tiny particles of burned and partially burned fuel. New 2007 engines also incorporate a new high efficiency particulate filter (trap) to catch all those

particles before they have a chance to escape into the air. These traps are highly efficient and “scrub” the exhaust plume so that when it exits the exhaust pipes, it is almost as clean as the emissions produced by a gasoline engine.

However, there is one catch—continued use of 500ppm sulfur fuel will quickly coat the particulate filter. Over time sulfur will poison and plug up the filter, thus rendering it useless. Without the filter operating as it should, all emissions gains are lost!

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— Mike Belluomo

Much like the way phosphorus and silicones ruin oxygen sensors and catalytic converters, so sulfur will coat the substrate of the particulate diesel filter traps. What can be done? Lower the fuel sulfur content.

By incorporating new emissions control devices on all 2007 diesel engines, far less air pollution will be produced. To underscore this fact, the USEPA estimates that by using the new Ultra Low Sulfur Diesel fuel, emissions of nitrogen oxide will be cut by 2.6 million tons each year and soot or particulate matter will be reduced by 110,000 tons a year!

Technically speaking, ULSD is mandated for use in all 2007 and newer engines. Earlier models may legally use the higher 500ppm sulfur fuel. However, the reality is that <15ppm ULSD will probably be the only fuel sold; hence the only fuel available for all engines, regardless of manufacture date.

Where does this leave all 2006 and earlier engines? While ULSD is expected to help lower tailpipe emissions, it is also projected to cause lubricity problems for owners of older diesel engines. “A common misconception is that sulfur alone in diesel fuel is the primary lubricant.

To be more accurate, the severe refining required to bring the sulfur to the ultra low 15ppm level also removes other beneficial lubricating substances—like the heavier waxes,” said Mike Belluomo, BG’s Product Technical Service Representative. By removing the lubricating aspects of the fuel, older engines (not designed for such “dry” fuel) may be adversely affected.

What’s the cure?

“BG’s premium diesel conditioners have always provided lubricity as part of their package,” Belluomo said. Other beneficial ingredients of BG diesel supplements include corrosion protection, deposit removal, fuel stability and fuel gelling control in cold temperature.

“In fact, our newest product has been formulated especially for consumer use. BG Diesel Fuel Lubricant with Conditioner, Part No. 227D, will greatly enhance diesel fuel lubricity and prevent fuel-related wear,” Belluomo added.

What to use in ULSD-fueled vehicles?

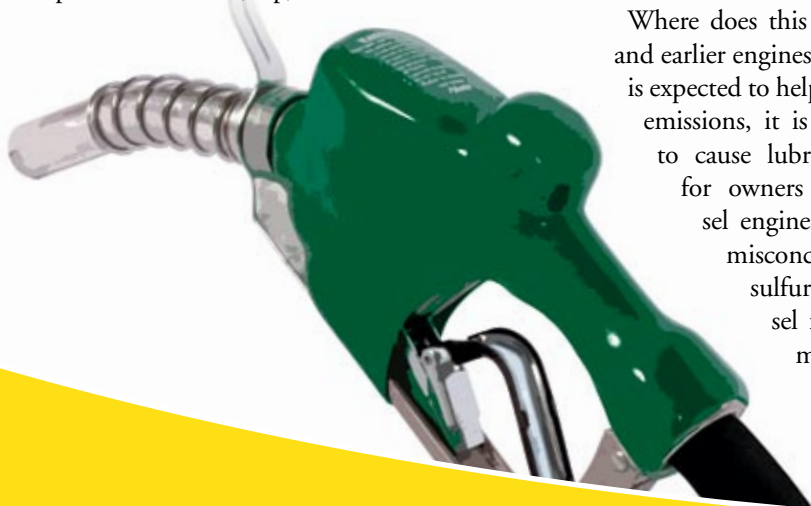
An important point to note: ULSD fuels—even fuel supplements—must conform to the new ultra low sulfur standard. All diesel fuel pour-in products are required to meet the same <15ppm standard as the fuel. That means that they *must* be labeled as meeting the <15ppm sulfur Federal guideline. If a product is labeled for diesel use and does not contain a statement on the label indicating that it meets these requirements, then it should not be used.

Keep an eye on tomorrow

As fuel prices continue to rise and fuel reserves remain tight, look for a greater influx of alternative fuel sources like bio-based diesel (B5, B10, B20, B100). Also, watch for a growing trend of ethanol blending for gasoline engines.

Looking to the future

“If we hope to gain the best economics and value from our fuel dollars, we’ll



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need to keep our eyes on the news as it relates to fuel quality, fuels blends, and engine design and requirements,” said Belluomo. BG teaches that the best defense is a good offense—keeping the diesel system as clean as possible. “Our cures have always been in place, now they just have greater value,” Belluomo continued. “We have proven success and are at the forefront of technology with solving these problems. Add to that our research strengths in comprehensive fuel science, and we know that we are well-positioned for anything that comes our way in the future.” 🟡