

## DEF gets its hearings

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Confidence in the widespread availability of diesel exhaust fluid to support 2010's SCR technology got a couple of big boosts recently. In Greensboro at the beginning of September, Gilbarco Veeder-Root showed off its fuel-island dispensing pump, which will become a familiar sight in truckstops and gas stations around the country over the next few years. Mid-month, Pilot went on-line with a bulk DEF dispenser in its first truckstop installation. And Pilot even announced the price: \$2.79 a gallon.

In case you haven't been following the technology debate for the Environmental Protection Agency's 2010 diesel emissions regulations, DEF is the solution that makes the selective catalytic reduction aftertreatment of NOx out of a big diesel possible. The solution releases free ammonia – NH<sub>3</sub> – that reacts with the NOx. In the presence of a catalyst in the exhaust reaction chamber, the nitrogen atoms combine to give nitrogen (N<sub>2</sub>), and the hydrogen and oxygen combine to make water (H<sub>2</sub>O) – both gases we breathe harmlessly with every lungful of air.

There are issues to using DEF that are the subject of some debate, but availability of the automotive-grade urea solution was a significant one. Early on, it looked like it would be a problem for early purchasers of trucks that will use the SCR aftertreatment.

But during six one-hour live webinars, held during the fall meeting of the Technology and Maintenance Council of the American Trucking Associations, that and other DEF issues were laid to rest. (The webinars were led by Dave Siler from Detroit Diesel and moderated by yours truly.)

If fact, while Pilot is early in the game with bulk dispensing at the fuel island, there will be no shortage of available diesel exhaust fluid, a point made during the Gilbarco/GasBoy press conference, where representatives from Terracair were in attendance to support the dispenser announcement. It seems there is absolutely no shortage of the fluid. Even when all trucks in the nation (except Internationals, which are using advanced EGR technology instead) are running with DEF aftertreatment, it will still only account for 2 percent of the nation's demand for urea. Most of the rest goes to the farming industry as a fertilizer.

That silences another criticism of DEF: that the solu-



There are aspects of SCR that are the subject of some debate, but DEF availability no longer appears to be one of them.

tion becomes toxic at high temperatures. No. It doesn't. And it's not toxic if spilled. As the Terracair folks pointed out, spilled DEF might make the grass grow fast and tall, but that's about it.

There is one issue with the fluid, though, that requires consideration and creative solutions: It freezes at 12 degrees. Actually, it doesn't really freeze; it goes slushy – rather like the consistency of a Slurpie you can often also find at a truckstop. (DEF, though, is a whole lot cheaper than a Slurpie – maybe less toxic, too...)

So the Gilbarco folks, in developing the dispensers you'll see at the Pilot fuel islands, have a special dispensing nozzle and cabinet that is heated to prevent freezing. It is a little more trouble to use than a standard fuel nozzle. But only a little – a two-handed operation instead of the quick single-handed action required to get diesel fuel.

And on the truck, tanks are universally on the driver's side, ahead of the saddle tank on that side. At 20-25 gallons for an over-

the-road truck, the tank is small. It comes, by the way, with a blue cap and a filler neck that will only accept a DEF nozzle. Some truck OEMs are going to put a magnetic collar around the filler neck, so that the dispenser only turns on when the nozzle is in the tank. Less chance of a spill, no chance of a driver filling a buddy's 2- or 5-gallon container on your dime.

The fluid is also heated in the vehicle tank when temperatures are low, so there's no chance of freezing up in the winter months.

All in all, it looks like the stakeholders in SCR technology have done their homework, got the infrastructure in place to supply the fluid, and have proven it works to the satisfaction of EPA.

Now all we need is for the economy to get back into gear so we can start buying those SCR aftertreatment trucks and enjoying the benefits of diesel's clean-air exhaust.

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