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OEMs, Fleets Seek to Ensure DEF Quality for New Engines

By Dan Leone, Staff Reporter

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LAS VEGAS — As the deadline nears for implementation of the latest change in federal emission rules, truck makers and fleets are moving to ensure that the supply of required diesel exhaust fluid is pure.

Most truck original equipment manufacturers will switch to engines that use selective catalytic reduction in their 2010 models to meet rules from the U.S. Environmental Protection Agency. Those engines will require DEF.

"We need to make sure the quality of DEF is there," said Michele Calbi, vice president of procurement and shop operations for truckload carrier Swift Transportation Co., Phoenix. "That will ruin the industry, if you have someone who is out there distributing poor-quality DEF."

Swift currently is testing four SCR-equipped trucks — three from Volvo Trucks North America and one from Kenworth Truck Co. — Calbi said during the Diesel Exhaust Fluid Forum, held here Oct. 8-9.

A representative of American Trucking Associations echoed Calbi's concerns.

"As an end-user, we have no way of verifying the quality of the DEF that goes in the truck," said Richard Moskowitz, ATA's regulatory affairs counsel.

Engines that use SCR systems need DEF, a mixture of 67.5% distilled water and 32.5% urea, to interact with a catalyst that brings emissions of nitrogen oxides below the threshold of 0.2 gram per brake horsepower-hour mandated by EPA's 2010 emission rules.

Off-spec DEF might be "aqueous urea purchased from a farm supply store and diluted with tap or well water," said David McKenna, director of powertrain sales and marketing for Mack Trucks Inc., Greensboro, N.C.

DEF mixed with tap or well water could leave mineral deposits in a truck's SCR system, which would reduce the system's ability to cleanse exhaust gas, McKenna said, adding that bad DEF poses "no danger to the truck, whatsoever."

All North American truck engine manufacturers except for Navistar Inc. will use SCR and therefore need DEF.

A representative of Daimler AG, the world's largest truck maker, said that DEF quality is an issue even in Europe, where SCR trucks have been in commercial service for years.

"In Europe, we managed to set up the infrastructure, but what we are still struggling with, really, is to keep the quality of DEF really high," said Manfred Schuckert, Daimler's strategist for commercial-vehicle emissions and safety.

Tim Cheyne, director of automotive emissions at Integer Research Ltd. in London, said that problems in the European DEF markets stem from smaller chemical companies brewing off-spec exhaust fluid.

"In the last six months, we've seen companies getting involved that don't really understand the quality issues," Cheyne said.

Jim Spooner, vice president and general manager at Colonial Chemical in Tabernacle, N.J., drew parallels between off-spec DEF in Europe and questionable biodiesel brewed at some small U.S. refineries.

"Frankly, we're concerned about home-brews, as happens to some extent in the biodiesel business," Spooner said. "There's always that concern. That's why the [American Petroleum Institute] certification is important."

Colonial produces DEF for the U.S. retail market. The company supplies truck-stop chain TravelCenters of America, in addition to Mercedes-Benz automobile dealerships in the United States.

Some DEF makers that will sell the fluid in the United States have volunteered for a quality certification program administered by API, the trade group for oil companies.

To date, 11 DEF makers, including some of the largest global distributors of the fluid, have been certified in the API program.

API-certified suppliers, as of press time, were Airgas Specialty Products, Lawrenceville, Ga.; Cervantes-Delgado, Brea, Calif.; Colonial Chemical Co.; Cummins Filtration, Nashville, Tenn.; LSB Industries Inc., Oklahoma City; MidContinental Chemical Co., Olathe, Kan.;

Taiwan's NOVAX Material & Technology; Old World Industries Inc., Northbrook, Ill.; Omni Agri Trade Group LLC, Arroyo Grande, Calif.; Terra Environmental Technologies, Sioux City, Iowa; and Yara North America Inc., Tampa, Fla.

API does not test DEF; rather, it specifies a series of tests to which DEF blenders must subject their product. Blenders whose DEF passes tests at third-party laboratories then are allowed to mark their product with an API label.

The API certification also has an enforcement component, something that the European certification process still lacks, said Kevin Ferrick, the group's manager of training and certification programs.

"From the enforcement side, we would draw samples from the marketplace — not from the producers — and test it with the same tests that are required for certification," Ferrick told TT.

API has not finished its enforcement regimen, but Ferrick said that a likely course of action would be annual tests of all 11 API-certified DEF blenders. The group would randomize the location from which it draws the samples, Ferrick said.

"As far as quality, I'm thrilled that API has taken on the licensing program, ATA's Moskowitz said. "We think EPA has a very strong role to play in enforcing DEF quality."

Clifford Dean, senior adviser of EPA's compliance and innovative strategies division, told the DEF forum audience that the agency is "talking to our enforcement people" about DEF quality concerns.

Trucks with SCR engines use about one gallon of DEF for every 50 gallons of fuel they burn, said Mack's McKenna.