



NOx is next

Feature: Environment



Steve Banner reports on the latest developments on emissions and environmental concerns.

NOW that most operators who need to be are compliant, demand for filtration systems that will enable pre-Euro 4 buses and coaches to comply with the tougher London Low Emission Zone regulations introduced in January is gradually fading away.

So what further steps will be taken to tighten the rules? Odds are

Tackling NOx emissions could prove to be a tougher nut to crack than particulates.

that they will focus on emissions of NOx – nitrogen oxide – and Transport for London (TfL) is already taking preparatory steps in this direction.

NOx can cause lung inflammation and lower resistance to respiratory infections. As a consequence TfL has been engaged in a year-long trial that has involved equipping 16 Euro 3 buses in London with NOx reduction technology.

Aimed at bringing them up to the Euro 4 NOx standard, the trial has been such a success that up to 1,000 buses are to be fitted with the necessary equipment at a cost of £10million: ie £10,000 a vehicle. The bill is to be split equally between TfL and the Department for Transport.

With an eye to ensuring that all London

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buses meet the Euro 4 NOx standard by 2015, funding is now being sought to equip a further 1,000. All 8,500 already meet the Euro-4 particulate standard in line with LEZ requirements and are fitted with particulate traps.

Eminox has been closely involved with the TfL initiative says Eminox marketing manager, Kathye-Ann Henderson, which involves retrofitting the vehicles concerned with Selective Catalytic Reduction (SCR). "As a consequence of the work that's being done they are in fact now capable of reaching Euro 5 NOx levels," she reports.

"As it happens it is possible to get some, though by no means all, Euro 2 vehicles to the Euro 5 NOx standard although it is obviously not a requirement in this case," she adds.

Installing an SCR system involves finding space for an AdBlue tank plus the necessary dosing kit: not easy given the tight constraints on space a bus' body can impose.

"It's a challenge, but it is one we've overcome before," says Henderson.

"We've retrofitted systems to 43 buses in Edinburgh, to around 250 operated by De Lijn in Belgium and to no less than 363 in Barcelona: and many of those buses were low-floor.

"Admittedly it isn't a cheap option, and the system has to be individually designed for each make and type of vehicle, but it's cheaper than buying a completely new bus."

Other bus and coach operators whose vehicles regularly go in and out of the LEZ may eventually have to adopt the technology too says Astra Vehicle Technologies managing director, John

Chadderton. While details of future LEZ regulatory changes have yet to be unveiled, it would not be surprising if tougher NOx limits were introduced in four or five years time, he believes.

"NOx is as much of a problem as particulates, especially in London," he observes.

A number of cities around the UK are considering introducing LEZs of their own and. Henderson worries that they will all follow different requirements, confusing operators and increasing their costs. "Obviously the government has a strong localism agenda and will not wish to force local authorities down a particular path if it can help it, but in this case it is important that an agreed national standard is achieved," she says.

As operators grow more used to particulate filters they are becoming more aware of their maintenance requirements and the risk that they will become blocked and need cleaning out. It is a particular risk with urban buses because on stop/start work their exhausts may not become hot enough to allow the filter to regenerate.

In response, Energenics has recently developed an additive called Envirox DPF Assist. Developed from Envirox, the company's cerium oxide based fuel additive, it is a fuel-borne catalyst that helps to burn off trapped soot particles.

As well as decreasing the level of soot particles produced during combustion by up to 18 per cent, it significantly lowers the exhaust gas temperature that has to be reached to allow them to be burned away, says Energenics Europe chief executive officer, Mike Attfield. "It brings it down from 600 degrees C to

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around 450 degrees C," he says.

Including a detergent to clean the engine's fuel injectors and preserve their optimal spray patterns, DPF Assist comes in a 500ml bottle with a 25ml dispensing chamber.

"You tip 50ml into every 50 litres of diesel if you are already suffering from blockages and reduce the dosage rate to 25ml once the situation is under control," he says.

At £33 a time, plus VAT, each bottle can treat up to 1,000 litres of fuel which Attfield points out compares well to the cost of having to clean out filters continually.

Said to be capable of delivering fuel savings and a consequent cut in CO2 emissions of anywhere from 4 to 11 per cent by delivering a cleaner burn within the combustion chamber, Envirox itself has been in service with Stagecoach nationally since 2005 and has more recently been adopted by East Yorkshire

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NEW Fuel Treatment for Particulate Filter regeneration







assists unblocking



combats blocking

ENERGENICS

Envirox™
DPF ASSIST

Envirox™ DPF Assist is a new Fuel Treatment for regenerating Diesel Particulate Filters (DPFs). It is a fuel borne catalyst formulation that helps to burn off the trapped soot particles that build up in DPFs. This can alleviate the problems associated with blocking - including expensive visits to the workshop - whilst saving money by guarding against worsening fuel economy. It is easy to use, highly effective and has been thoroughly tested.

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