

# AN ADDITIVE THAT WORKS

*The industry still views diesel additives with suspicion, but Envirox stands out for pioneering the use of nanotechnology. Rupert King meets the company behind the technology that promises 4-10% fuel saving*

One of the first operational decisions Stagecoach made when it decided to re-enter the London bus market in August last year was to inject its diesel tanks with Envirox. The group has been using the additive since 2004 across virtually its entire fleet and calculates it saves around £4m on the fuel bill every year.

But despite glowing endorsements from the likes of Stagecoach in the UK and The Kowloon Motor Bus Co. (KMB) in Hong Kong, the firm behind Envirox finds itself still battling with operators sceptical about the real life benefits of, on the face of it, another 'magic potion', claiming to cut fuel consumption.

"When it comes to marketing this, we have a big problem," says Mike Atfield, Chief Executive Officer at Energenics Europe. "We're just the latest people to turn up in front of a fleet manager saying 'we'll save you 5%' – they've heard it all before."

And there is every right to be sceptical too, with a significant number of firms out there selling mysterious liquids or magnetic equipment that runs parallel to fuel lines, despite science telling us that there is nothing in diesel fuel that responds to a magnetic field.

"A tyre company can demonstrate what is going on pretty easily," adds Mike. "It's a new rubber compound or new grooves

that give better grip – people give them the benefit of the doubt. But speaking about Envirox can be like speaking another language."

## ■ NANOTECHNOLOGY

What sets Envirox apart from the additives crowd is its catalyst – cerium oxide. Similar to what diesel particulate filters are made from, cerium oxide is not soluble ordinarily, but, by using nanotechnology, scientists found a way to produce very very small particles of this mineral (10 to the minus nine). So small, the particles can be dispersed into a solution – Envirox.

The solution works in a ratio of 1:4,000 and can be added to diesel using electrically-controlled dosing units or via small automatic dispensers. Once combined with diesel, Envirox improves the way fuel burns so it delivers more work with every piston stroke, translating into better fuel economy.

As it is a catalyst, it also acts as a cleaning agent, burning away deposits from the inside of an engine, again boosting its fuel efficiency.

Nanotechnology is a very new technology and it was only around 2002 when Energenics decided Envirox was ready to take to the market. It did so by approaching large operators about trialling the additive and a near-perfect trial with then Stagecoach-owned Citybus in Hong Kong in



Envirox drum and dosing unit

2003 proved a breakthrough moment.

"Everything was in place for us," recalls Mike. "Citybus buys huge volumes of new vehicles at the same time, so we had 80 new buses, all brand new, 40 with Cummins engines and 40 Volvos." They also had two fuel tanks at the depot, and so one was dosed with the additive for 20 of the Volvos and 20 of the Cummins-engined buses to fill from, while the other 40 ran without additives as a control group.

"We had to take into account the seasonal aspect, of course," explains Mike. "If you introduce a fuel saving measure at a specific moment, what do you compare it to? In Hong Kong fuel consumption goes up in



Stagecoach has been a key customer



East London went back on to Envirox



Energenics CEO, Mike Attfield

summer as the air-con is switched on. We had to record results over a nine month period."

At the end of the trial, even Mike couldn't believe the results.

### ■ GROWING INTEREST

Over the full six months that Citybus was trialling Envirox it saw the 40 buses using the additive operating with 10% better fuel economy than the other 40. "It was pretty spectacular," Mike says. "But when Stagecoach sold Citybus the new managers just had no interest. It was seen as a cost to be cut, not something that was paying for itself and cutting the fuel bill."

But for Stagecoach back in the UK, interest was building. "They were impressed and it went all the way up to Brian Souter," says Mike. Brian Souter looked at suitable candidates for a domestic trial and chose the North West and London regions, which had a dozen depots in each.

In the North West were approximately 1,000 buses which demonstrated an impressive 7% improvement in fuel consumption once Envirox had 'kicked in'. And therein lies another hurdle to selling a fuel additive, they don't work overnight. Energenics says best results will usually be seen only after two-to-three months of constant, consistent use.

But, Stagecoach was suitably impressed with the 7% it recorded in the North West and a 5.3% improvement in London that it began nationwide rollout. By 2005 around 90 depots were kitted out with the Envirox dosing equipment and first drums of the additive, and it hasn't looked back since.

When Stagecoach sold its London business in June 2006, however, it was a similar story to the Citybus sale in Hong Kong, with new managers deciding to ditch the fuel saving technology. But there remained a sizeable number of depots

to serve in the provinces and in 2007, when Stagecoach introduced a new 5% biodiesel blend across its fleet, it wanted confirmation that Envirox was still working with the new fuel.

Across much of the North West, the Envirox dispensers were switched off and within three months, depots were reporting their fuel consumption had risen by an average of 4.3%. "Stagecoach called us up and said 'that's fine, switch us back on'. If they had left it, it could have got to 5, 6 or 7%, but it was costing them money!" says Mike. Last year came an even better call for Mike and Energenics. Within three weeks of Stagecoach buying East London back from receivership, the team took a call at Euro Bus Expo ordering the immediate re-introduction of Envirox across the London operation.

### ■ WORD OF MOUTH

Since 2008 when diesel prices really started to rocket, the coach and bus industry has looked more closely at what can be done from within to cut fuel usage. Telematics systems are growing in popularity as are economical driving training courses and fuel additives are an equally important part of the mix.

With Stagecoach as the flagship customer, Envirox is increasingly being used by smaller operators who might only get through a barrel of the additive per year, or many of whom just buy the solution in bottles from the internet site.

Bath and North East Somerset Council is a keen user as is Hamilton's Henderson Travel who has reported a 5% increase in fuel economy on the back of introducing Envirox. "I'm still shell shocked by the fuel price hikes we saw in 2008," says John Henderson. "And I vowed we would never experience it again, so we followed Stagecoach's lead and started to use Envirox. We're really impressed by the results."

And who wouldn't be? There's not an operator out there who wouldn't bite your hand off if you offered to cut the fuel bill by 5% and, as has been demonstrated elsewhere, the potential savings could be up to double that.

"Five percent is a typical figure for increased fuel economy," says Mike. "I think it can do more, but we'll not do ourselves any favours by over-stating it. If, as they are, operators come back and tell us they're getting seven, eight or ten percent, then great, but we always say at least four is achievable for anybody." ■

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