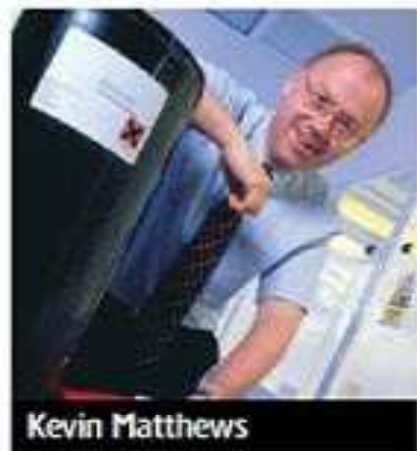


Winning innovators

The winners

OXONICA: INNOVATION WITH BEST ENVIRONMENTAL BENEFIT

Entered by: Sonia Bouzid



Kevin Matthews

With oil prices sky high and air pollution a continuing worry, a product that not only improves fuel efficiency in diesel engines but also reduces emissions has to be a winner. And this

is just what Oxford, UK-based nanotech start-up Oxonica has developed with its *Envirox* fuel-borne catalyst.

The innovation stemmed from the search for a simple, cost-effective diesel additive that would help air quality programmes in Asia, where Western solutions and engine retrofits were not

licensed it for development, explains chief executive officer Kevin Matthews.

The additive is cerium oxide, a well known oxidation catalyst, and one that had been shown to improve diesel combustion. Oxonica brought its nanotechnology expertise to bear to develop a very fine particulate form of the ceramic oxide and then coat this with a specific surfactant to ensure that the additive remains suspended in the diesel fuel during use.

As Matthews explains: '*Envirox* modifies the combustion process of the fuel so that it burns more efficiently and productively, so less fuel is required per kilometre travelled. The additive also improves emission levels by reducing hydrocarbon and particulates in the exhaust'. And all this is achieved with no engine modifications whatsoever or deleterious effect of engine lubrication.

The dose rate of the cerium oxide is just 5ppm, but independent tests have shown fuel savings of 5-10% can be achieved. Following a 12 month trial, *Envirox* has been adopted

Matthews describes Oxonica's strategy as one of using its core nanotechnology skills, arising from a deep knowledge of solid state physics, to develop products for which it will then develop the market. In the *Envirox* case, for example, it does not manufacture the catalyst, this is done in Australia by a company called ANT Fuels, nor will it enter the market as a fuel additive provider once the initial Stagecoach market entry has proved successful. 'Then we look for a strategic partner or licensing deals to access wider channels so we can grow faster'.

This process has also been successful in another of Oxonica's early successes – the development of nanotech sunscreen product *Optisol*, based on manganese-doped titanium dioxide pigment, which has been taken to market initially in partnership with UK retail chemist Boots, to demonstrate the workability of the novel UV absorber.

The company's third area of innovation at present is in biosensors, where it is bringing