

Fuelstar sparks expansion

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Fuelstar Fuel Combustion Technology of Auckland is set to become a multimillion-dollar exporter. The company, which has been battling sceptics for years, has recently made a major breakthrough with its fuel combustion catalyst that will reap huge rewards for the operators of high-use diesel engines.

"Any product which can reliably achieve reductions in fuel consumption by 15 per cent and more must attract the attention of operators of ships, locomotives, gensets and trucks," said Fuelstar boss Ian Cornelius. "Until recently we had been relying upon the natural harmonics of a moving vehicle. With cars this worked satisfactorily, but with larger engines such as those used in trucks and, in particular, stationary engines in power generation plants, we were not seeing results on a reliable basis.

"However, all of that is now in the past. During the past few months, Fuelstar has developed a vibratory mechanism thus taking control of this all-important function. We can now reliably control the rate of release of metallic particles into the fuel stream.

"The result is that we can achieve an improvement in engine efficiency (specific fuel consumption) by 15 per cent and more on each and every occasion."

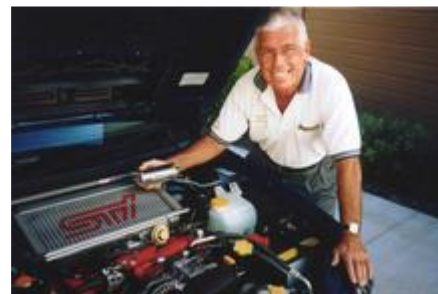
Fuelstar has been around since 1992 helping car, van, truck and motorcycle owners save fuel.

The product is a fit and forget fuel combustion catalyst that provides greater overall engine efficiency by giving a better and more complete combustion. The benefits are improved performance, better fuel economy, a cleaner engine and lower exhaust emissions.

The unit is about the size of a soft drink can (car engine model) and is plumbed into the fuel supply line and attached to the engine, or inside the engine bay. Fuel flows through the unit, on its way to the carburettor or injection system.

As the fuel passes through the canister, minuscule particles of metallic tin (in powder form) are released into the fuel supply and are carried through to the combustion chambers, where they act as a catalyst in the combustion process. These particles are of sub-micron dimension, 100 nanometres and less (the width of a human hair is 88,000 nanometres) and are far too small to damage engine components. The tin changes the combustion characteristics of the fuel, giving a more complete and more prolonged fuel burn. This results in improved engine efficiency and performance.

"We can make the product available at a price where the expected benefits recover the cost 20 to 30 times over, payback is less than three months compared with a life of five to eight years and the break-even point is a reduction in fuel consumption of 0.5 per cent and less," said Cornelius.



Ian Cornelius says the Fuelstar system will improve most engines. Photo / Supplied

With reduced fuel consumption comes reduced emissions. With carbon dioxide emissions at 2.6kg per litre of fuel burned, this means Fuelstar has the potential to reduce the emission of carbon dioxide by several millions of tonnes per annum.

A line haul truck travelling 250,000km a year would use about 125,000 litres of fuel depending on driving conditions. A reduction of 15 per cent would save the operator 18,750 litres (worth \$25,000 at current prices) and reduce carbon dioxide emissions by 50 tonnes a year.

The company is in discussion with its financial backers to raise enough capital to complete comprehensive third party verification testing. The company is also in discussion with leading engine manufacturers around the world for its technology to be adopted for use in new engines.

While waiting for further tests to be carried out, a Fuelstar was installed in a 6.9 litre diesel Nissan truck by California Environmental Engineering (CEE) in 2002. The test revealed reductions in fuel consumption by 27 per cent, CO₂ by 30 per cent and particulate matter by 24 per cent.

"The figures are certainly significant and if anything, as the report states, they are conservative," said Cornelius.

Fuelstar has been successfully tested by many other governmental and non-governmental agencies. It is being used increasingly by commercial fleets and is of interest to various engine manufacturers.

The unit meets the various compliance and practice requirements relating to modification to vehicles and contains no toxic substances.

In many countries, the supply of leaded petrol has been, or is being, terminated. Fuelstar enables engines designed for leaded petrol to operate on unleaded petrol without loss of performance, pinging and detonation and without valve seat recession.

The particles of metallic tin are oxidised during the combustion process and are thought to form a refractory coating on the valve mating surfaces. This acts as a flux, interrupting the fusion process, or microscopic welding, the cause of valve seat recession.

Not only have haulage companies and the like noticed gains in fuel economy, the ordinary motorist has been impressed also. "I purchased my first unit, in April 2006 and installed it in my 1998 Ford Mondeo Diesel," said Terry Brown. "This vehicle is fairly economical anyway with a range of almost 800km per tank of fuel. To my surprise, the engine now runs better and the range of the tank has been extended to beyond 1000km.

"To confirm the result, I then purchased a second unit, and installed it in my 1991 Toyota Camry. The fuel consumption is normally 8.65 litres/100km but improved after three weeks' running to 6.37 litres/100km.

"One observation which amazed me was that the turbo, which had not operated for the last 100,000km resumed operating after just 10km of running with the Fuelstar. I spoke to Graham Savage, the senior lecturer in mechanical engineering at Waiariki Institute of Technology about this who said that tin is a known lubricant and it obviously freed up the turbo waste gate."

The unit achieves these benefits in both petrol, diesel and LPG engines of all sizes ranging from motor

scooters and motorcycles, through to cars, 4WD's, buses, trucks, off-road equipment, boats and ships.

There is a money-back guarantee that the product will save fuel by at least 10 per cent or increase power output by at least 5 per cent in all engines. Guaranteed life of product is five years or 500,000km (12,000 hours) whichever comes last. Fuelstar can be installed by any competent mechanic in less than one hour.

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