

## Fuelstar - Diesel Engines

### Comparison of Fuelstar Combustion Catalysts with Diesel Oxidation Catalysts (DOC's) and Soot Traps

	Fuelstar	DOC's	Soot Traps
Acts as a catalyst in the combustion process	Yes	No	No
Improves engine efficiency	Yes	No	No
Reduces operating and exhaust gas temps	Yes	No	No
Improves power	Yes	No	No
Improves fuel consumption	Yes	No	No
Prolongs life of injectors	Yes	No	No
Reduces wear metals in engine oil	Yes	No	No
Prolongs life of engine oil	Yes	No	No
Reduces NOx emissions	Yes	(Note 1)	No
Reduces PAHs	Yes	No	(Note 3)
Reduces COs	Yes	Yes	No
Reduces soot	Yes	(Note 2)	(Note 3)
Kills diesel bacteria	Yes	No	No
Operates from startup	Yes	No	Yes
Not poisoned by other substances	Yes	No	No
Compatible with soot traps	Yes	No	N/A
Low/no maintenance	Yes	Yes	No
Indicative initial cost - 300 bhp engine - USD	900-1,000	5-10,000	6-11,000
Indicative maint'ce cost - 5,000 hours - USD	Nil	(Note 4)	(Note 5)

1. NOTES The report "Evaluation of Biodiesel Fuel and Oxidation Catalysts" issued in September 1998 confirms that DOC's reduce the level of NOx but increase the level of nitrogen dioxides (N02).
2. The VERT report published in April 1998 concludes that DOC's do not reduce soot; they produce sulfate particulates and have an unfavourable gaseous phase reaction.
3. The VERT Final Measurements report issued in March 1999 confirms that while they may be effective in reducing soot, soot traps are susceptible to increasing back pressure which leads to overheating and proportional deterioration of fuel consumption. This causes more raw emissions. Fuelstar does not create back pressure on the exhaust.
4. DOCs have a limited life (3,000 hours+-). The Fuelstar catalyst has a long life (at least 5,000 operating hours) and is maintenance free in a diesel application.
5. Soot traps do not operate properly unless using low sulfur diesel fuel. They normally require high maintenance in burning off the soot. This can be as frequent as every 3 hours of operation and can take 20 minutes to carry out. This can impact greatly on schedules and create considerable down-time. Refer VERT report "Selection Criteria for Diesel Particulate Trap Systems", December 1998.
6. The abovementioned reports may be found on the internet at [www.dieselnet.com](http://www.dieselnet.com)