



Technology Fact Sheet

Tadger Emission Reduction Unit

Performance Claim

Description

The Tadger reduces airborne pollutants, soot and particulate matter from any Diesel or Gas combustion engine.

Application

As of April 2007 Tadgers have been installed on various engines in heavy truck, marine, mining, fire, mixers, ambulance, police, transit, courier, municipal fleet and highway coach.

Patents

The Tadger process is world-wide patent protected by one or more of the following patents:

US 7044114

The Tadger Emission reduction unit is capable of reducing airborne toxic emissions as well as soot from the exhaust of diesel engines. The product also works on gasoline combustion engines.

Diesel

Gas

Carbon Monoxide (CO)	7 – 61%	Carbon Monoxide (CO)	9 – 100%
Oxides of Nitrogen (NOx)	3 – 13%	Oxides of Nitrogen (NOx)	5 - 94.1%
Particulate Matter (PM)	5.5 – 11.0%	Hydrocarbons (HC)	3 – 86%
Carbon Dioxide (CO2)	1.4 – 6.6%	Carbon Dioxide (CO2)	0.7 – 19.8%
Opacity	7.1 – 84%	Fuel Economy	3.5 – 7.0%
Fuel Economy	1.5 – 9.9%		

The emission reduction claims are based on independent Ontario Drive Clean testing at Government approved testing facilities, testing by Environment Canada, testing by the Department of Energy Utilization in China, testing by Belgrade University, testing by Hong Kong Polytechnic Institute and in-house testing using a calibrated ECOM AC-Plus 5 gas emission analyzer.

The fuel economy claims are based on TMC Type IV fuel economy testing following industry standard SAE guidelines. Additional data is available from

testing by Environment Canada, Department of Energy Utilization in China, Belgrade University, Hong Kong Polytechnic Institute and in-house testing using a standard test protocol with fuel records from individual fleets.

Technology Description

The Tadger is a patented means to allow the fuel, on any gas or diesel engine, to burn more efficiently. The Tadger is a proven toxic emission reduction system that also extends oil life and improves mileage to the end user.

Technology Operation

As fuel enters the TADGER, the fuel velocity is increased (Continuity Equation & Bernoulli Equation). The fuel continues through the TADGER and passes over two baffles fixed at 90deg. to each other. This section also increases the fuel velocity as well as creates an initial disruption in the viscous forces (laminar flow). The fuel then enters a fixed venturi configuration causing fluid inertia to further disrupt the already disrupted flow. The factor that determines which type of flow is present in the ratio of inertia forces to viscous forces within the fluid, expressed by the non-dimensional Reynolds Number. Fluid flows are laminar for Reynolds Numbers up to 2000. Beyond a Reynolds Number of 4000, the flow is completely turbulent. The fuel flow exiting the TADGER exhibits a controlled turbulence with a Reynolds Number between 2000 and 4000. This controlled turbulence promotes enhanced heat transfer through convection and decreases the droplet size. By exposing more of the fuel molecules to oxygen, more of the fuel will be converted to energy. The result of a better burn is less unburned fuel being blown out the exhaust as pollution.

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