

Press Release

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Volvo Car Corporation: Delivering on the world's toughest emission control standards

Imagine a car that meets one of the world's strictest auto emission standards. That car exists. Named the Volvo S60 PZEV, it is already being sold to environmentally aware car buyers in the US.

Capable of accelerating from zero to 100 km/h (62 mph) in 9,6 seconds, the sporty Volvo S60 PZEV sedan not only delivers power, extraordinary handling, safety and refined ride comfort but also cleaner air that meets the world's strictest auto emission regulations.

PZEV stands for partial zero emission vehicle, which means the Volvo S60 variant in heavy city traffic produces emissions lower in hydrocarbons and nitrogen oxide than the air going into the engine. Put another way, the 167 horsepower Volvo S60 PZEV actually helps purify the congested traffic air of such pollutants. The Volvo S60 PZEV engine also features special PremAir® catalytic coating in the radiator that tests have shown converts up to 75 per cent of the ozone in the radiator cooling air into oxygen.

The US Environmental Protection Agency (EPA) has acknowledged Volvo Car Corporation's pace-setting cleaner air engine technology. The EPA currently gives Volvo's PZEV engines top marks for outstanding emission control on its Green Vehicle Guide Website, rating Volvo a perfect 10 for emitting no more than one pound (453 grams) of smog-causing pollutants per 15,000 miles (24,135 km).

"Receiving the EPA's highest rating for our Volvo S60 PZEV underscores the success of our ongoing investment in delivering consumers cars that successfully marry safety, environmental care, quality and driving performance," commented Volvo Car Corporation spokesman Niklas Gustavsson, Environmental Manager Governmental Affairs Volvo Car Corporation.

The outstanding clean exhaust performance of Volvo's PZEV vehicles, which earned the Volvo development team the 2002 Henry Ford Technology Award, stems largely from computerized emissions control during startup, and a modified fuel system designed to reduce evaporative emissions. Some 90 per cent of all emissions from a car are produced within the first minute of starting. Emissions drop almost to zero once the catalytic converter is hot.

Volvo Car Corporation engineers solved the cold start problem by developing variable valve timing, VVT, which rapidly brings the catalytic converter to working temperature.

First, the opening of the intake valve is delayed, improving the air/fuel mixture and enhancing stability during combustion. Second, the combustion process is run very late, burning fuel on the cylinder wall and reducing HC and NOx emissions. Third, the exhaust valve opening is delayed, bringing the hydrocarbon-rich exhaust gas 'residual' back into the cylinder and further reducing HC emissions.

To cut evaporative emissions – gasoline vapors that escape the tank, fuel system and engine before the fuel reaches the inside of the cylinders – to near zero levels, Volvo's engineers developed a control system utilizing two different canisters. One canister, sitting close to the fuel tank, contains three chambers filled with activated carbon. Downstream from the first canister sits

another, called the Hydro Carbon Scrubber (HCS), which contains a honeycomb structure coated with activated carbon. The carbon in the canisters traps the evaporative hydrocarbon gases, preventing them from leaking into the atmosphere. Once the car is running, the trapped emissions are sucked out of the canister and burned up in the engine.

Says Niklas Gustavsson: "What's really compelling is that our PZEV technology does not adversely affect performance and fuel consumption. The Volvo S60 PZEV remains an elegant sedan with a coupe profile and sporting soul that does not compromise ride and passenger comfort."

Volvo Car Corporation, which warrants its PZEV's exhaust gas treatment system for 15 years or 150,000 miles (240,000 kilometers), currently sells the Volvo S60 PZEV in seven US states, including California and New York, and is looking into widening its availability.

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