

PRESS INFORMATION

Versatility Concept Car The Volvo Ambient Air Cleaner – a world first

- **Filters hydrocarbons and nitrogen oxides from the surrounding air**
- **Neutralises the equivalent of up to 3 cars' exhaust emissions in pollutant urban conditions**
- **Powered by solar cells when the car is parked**

Emissions from today's modern petrol engines are in many cases cleaner than the surrounding air, particularly in polluted city centres

In the Versatility Concept Car (VCC), Volvo Car Corporation presents entirely new technology that exploits this fact by filtering the surrounding air from the presence of two environmentally hazardous substances: hydrocarbons (HC) and nitrogen oxides (NO_x).

The technology is called VAAC, Volvo Ambient Air Cleaner.

Adsorbs nitrogen oxides and hydrocarbons

The basis of VAAC is a container installed in the engine compartment, into which two filters are placed. While driving, the car's ventilation-system fan sucks in air from the surroundings and directs it through the filters, which traps the nitrogen oxides and hydrocarbons. Thereby it also cleans the air for the passenger compartment.

When the filters are filled, they are heated to 150 degrees Celsius using the heat from the car's own exhaust system. The nitrogen oxides and hydrocarbons are now released from the filters and routed to the engine.

The hydrocarbons are combusted in the engine cylinders, while the nitrogen oxides are reduced in the car's catalytic converter.

In order to increase the VAAC system's efficiency, the Versatility Concept Car is equipped with a sensor that monitors when the ambient air has reached a given level of pollution. It then activates the fan in response.

This happens regardless if the car being used or not, since solar cells mounted on the roof powers the ventilation-system fan even when the car is parked. The system can thus adsorb hydrocarbons and nitrogen oxides even with the car's engine switched off.

Filled in two days

The VAAC system can operate continuously for two days during normal urban conditions before the filters are filled and despatches their contents to the engine. "VAAC requires a well-functioning, modern petrol engine for the system to work efficiently," explains Jan Karlsson, project leader for VAAC development at Volvo Cars.

"With an engine of SULEV standard (Super Ultra Low Emission Vehicle), the Versatility Concept Car neutralises the hydrocarbon emissions produced by up to three other cars, and thus helps clean up the surrounding air."

VAAC is a Volvo patent that has been developed in cooperation with Engelhard Corporation.

PremAir®

PremAir, is the name of Volvo's renowned "ozone eater" and it too is an important part of the overall pro-environmental profile of the Versatility Concept Car. Ground-level ozone is formed through a combination of air pollution and sunlight. It can cause headache and respiratory problems among humans and may also stunt plant growth.

Volvo was the first car manufacturer in the world to directly deal with the problem of ground-level ozone through the introduction of PremAir®, back in 1999. The car's radiator is coated with a catalytic layer that converts up to 75% of the surrounding ground-level ozone into oxygen as it passes through the radiator.

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