

The novel SCR and PNA exhaust gas after treatment systems for diesel passenger cars

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ABSTRACT

The future emissions legislation for diesel passenger cars is likely to include more dynamic test cycles than we have today, such as the WLTP and RDE cycles in the EU and challenging SULEV legislations in the USA. In order to meet these emissions legislation more complex exhaust gas after treatment systems are needed.

The aim of this paper is to describe a novel exhaust gas after treatment system that consists of a passive NO_x adsorber (PNA) combined with the uf-SCR (Underfloor Selective Catalytic Reduction) or SCRonDPF (Selective Catalytic Reduction on Diesel Particulate Filter). The novel PNA stores NO_x at low temperatures and self-releases it at high temperatures without the need for a rich engine operation purge.

The experimental results from a D segment vehicle using different PNA and SCR configurations are presented and the potentials and limitations of each configuration are discussed. Furthermore the trade-off between fuel consumption and NO_x emissions are presented.