Catalysts positioned upstream of Turbo Charger in Diesel Engines

Turbulence and higher temperatures increase efficiency

The sales share of modern turbo-diesel cars has reached a level of almost 50 percent across the whole of Europe and this figure is still rising.

The low exhaust gas temperature in diesel engines, however, make it difficult to achieve an even more effective conversion of pollutants as required for EU V levels in 2010.

The solution to this technical challenge lies with the Pre Turbo METALIT™ from EMITEC.

Further information:
Internet: www.emitec.com
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Temperatures in the European Emission Test Cycle for a vehicle with diesel engine at the catalyst positions 'underfloor' (UF), 'close-coupled catalyst' (CCC) and 'pre-turbo-charger' (Pre Turbo METALIT™).

Because of the high efficiency of the pre-turbo catalyst upstream of the turbine, the precious metal loading of further catalysts downstream of the turbine can be reduced significantly. This lowers system and coating costs.

Optimum set-up of a catalyst system post turbo-charger
Since, to a large extent, HC and CO have already been oxidized upstream of the turbo-charger due to the addition of a Pre Turbo METALIT™, any subsequent catalysts can be design optimized to perform new functions. Very often the formation of NO₂ is a significant step, for example in the oxidation of soot particles or even in the reduction of nitrogen oxides using selective catalytic reduction (SCR technology). Here too, the use of the Pre Turbo METALIT™ leads to significant reductions in the overall catalyst volume.

Influence of turbulent stream in the Pre Turbo METALIT™ on mass transfer.

Impact of the Pre Turbo METALIT™ volume on efficiency.

Volume reduction
Temperatures in the European Emission Test Cycle for a vehicle with diesel engine at the catalyst positions 'underfloor' (UF), 'close-coupled catalyst' (CCC) and 'pre-turbo-charger' (Pre Turbo METALIT™).

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Pre-turbine position means higher temperatures and greater efficiency

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