

Effective exhaust aftertreatment with biofuel

In addition to current nitrogen oxide (NO_x), particulate matter and hydrocarbon emission limits, future emissions legislation will also include carbon dioxide. Biofuels play an important part in the reduction of CO₂ emissions. The use of biofuels is supported by the German Biofuel Quota Act and these CO₂-neutral fuels substantially improve the CO₂ emissions balance.

Current EU Stage IIIb and future EU Stage IV emission limits for biofuels present a particular challenge to exhaust aftertreatment systems because biofuel emissions can differ substantially from emissions from mineral diesel fuel and may even contain substances that can damage the catalyst.

In a joint pilot project Emitec Gesellschaft für Emissionstechnologie mbH Lohmar, the specialist for exhaust aftertreatment and world market leader in metal catalyst substrates, and a leading manufacturer of agricultural and landscaping machinery fitted biofuel-powered tractors with compact SCRi[®] exhaust aftertreatment technology. The components were installed in the available silencer space without restricting the view or operations of the driver. The system meets current EU Stage IIIb and future EU Stage IV emission limits and produces extremely low CO₂ emission values.

In this case Emitec uses an integrated system combination to cut soot particle and nitrogen oxide emissions. The system relies on selective catalytic reduction (SCR) to reduce NO_x. The process involves accurately dosed amounts of the aqueous urea solution AdBlue that are injected into the exhaust flow and converted to ammonia as required. The nitrogen oxides and the ammonia form the natural components of air (nitrogen, water and carbon dioxide) in the catalyst. The effectiveness of the SCR system is largely attributable to an integrated, continuously operating, maintenance-free PM-METALIT particle filter. The filter not only reduces particulates but also thoroughly mixes the exhaust gas with the AdBlue and generates ammonia by completely evaporating the injected solution. The prepared exhaust gas ensures the optimum operation of the SCR catalyst.

All Emitec components are made from metal and have been designed for harsh everyday conditions and long operating times. The compact size of the SCR system is only possible because of Emitec's highly efficient structured metal catalysts.

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The SCRi[®] system is a perfect solution both for future series applications in new tractors and machines and for retrofitting.

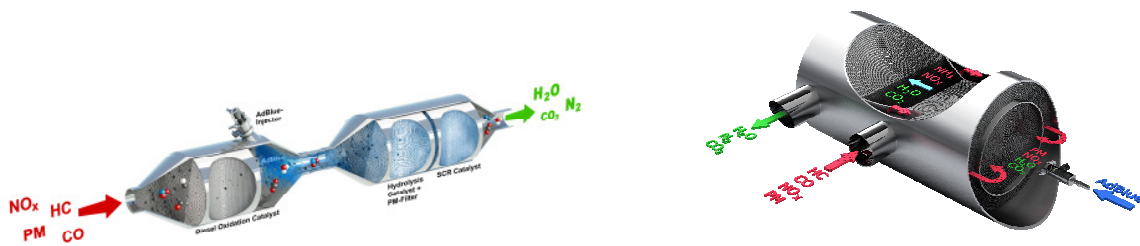
A complete solution for original equipment and retrofitting

Emitec supplies a complete AdBlue dosing system for SCR consisting of an AdBlue tank, a delivery pump, a control valve, an injection unit and an electronic control system with dedicated sensors and lines. The system is able to operate independently from the engine management system.

Emitec will be presenting a comprehensive overview of its complete range of innovative exhaust aftertreatment technology at stand **B-294**.



Operation with biofuel



SCRi

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