BASF to introduce new LNT+CS4F™ emissions system at 35th International Vienna Motor Symposium

BASF will introduce its innovative LNT+CS4F™ emissions control system for diesel engines at the International Vienna Motor Symposium, being held May 8 to 9, 2014, in Vienna, Austria. The new system combines the features of a Lean NOx Trap (LNT) and a multifunctional catalyzed soot filter (CS4F).

The LNT+CS4F can remove PM (Particulate Matter), as well as CO (Carbon Monoxide), HC (Hydrocarbons) and NOx (Nitrogen Oxides) from diesel-engine exhaust, helping automakers meet strict new emissions regulations including Euro 6c.

To meet NOx emission limits under these demanding conditions, LNT catalysts for Euro 6c must have fast NOx adsorption kinetics and high NOx adsorption capacity when compared with LNT technologies developed for Euro 6a applications. A multifunctional catalyzed soot filter (CS4F) is also required to remove PM plus convert secondary emissions like ammonia (NH₃), hydrogen sulfide (H₂S), CO, and HC resulting from soot filter and LNT regeneration, and to remove additional NOx, increasing the NOx reduction activity of the overall system.

The LNT+CS4F system will be showcased in a presentation led by Dr. Klaus Harth, BASF’s Vice President, Environmental Catalysis Research, which takes place at 2:45 pm on May 9 at the Congress Center Hofburg Vienna.

“The combination of newly developed NOx storage materials with tailored precious metal particles led to this improved LNT technology...”
for Euro 6c legislation,” said Dr. Harth. “In addition, the development of the new CS4F multifunctional catalyzed soot filter was required to further enhance the emissions reduction performance for diesel passenger car applications.”

Compared to the LNT+CSF+UF-SCR (Under Floor – Selective Catalytic Reduction) catalyst system already in the market, the LNT+CS4F system eliminates one catalytic component, resulting in lower system weight, space and complexity. However, a filter with high porosity is required to incorporate all these functions, and the component must be carefully designed so that it also meets the particle number regulation. In addition, the exhaust backpressure should not increase when changing from the LNT+CSF+UF-SCR system to the two-component LNT+CS4F system.

“The final application of such advanced LNT+CS4F catalyst systems can only be realized by working together within the supply chain: substrate and filter suppliers and OEM customers,” said Xavier Susterac, BASF’s Vice President, Mobile Emissions Catalysts Europe. “BASF will continue its development efforts to further increase the robustness and durability of catalyst technologies and to support the realization of cost-effective emission control solutions.”

Euro 6 legislation will be implemented in 2014. This legislation requires a significant decrease of NOx emissions to less than 80 mg/km when evaluated under the New European Driving Cycle (NEDC). With the implementation of Euro 6c in 2017, still tighter requirements will come into play. Real Driving Emission (RDE) requirements will be applied, and will be evaluated using PEMS (Portable Emission Measurement Systems). These new conditions will lead to new challenges for the aftertreatment systems.

Additional information on BASF’s full suite of emissions control catalysts can be found at: www.catalysts.basf.com/mobilesources.

Beyond emissions catalysts, BASF will also showcase its fuel additives, synthetic lubricants for axles and transmissions,
engineering plastics and battery materials at the 2014 Vienna Motor Symposium.

BASF’s Keropur® fuel additives help keep engines clean and protect the entire fuel system. The portfolio comprises gasoline and diesel performance packages for effective engine cleanliness, improved fuel economy, corresponding lower emissions and a better driving experience. Emgard® synthetic lubricants provide better fuel efficiency by significantly reducing friction and wear, and thus allow for extended maintenance intervals.

BASF’s engineering plastic Ultramid® Endure is a heat-resistant polyamide for automotive applications in the high-temperature range. It combines excellent heat-aging resistance with the good processing properties of PA 66. Ultramid® Endure is able to withstand continuous use over 3,000 hours at up to 220°C and brief temperature peaks of up to 240°C. The BASF polyamide is available both as injection-molding and as blow-molding grade. This makes the plastic the perfect replacement for metal for components used in all parts of the charge air duct - from the turbocharger and pipes through to the intercooler. Additional information on the product can be found at www.ultramid-endure.basf.com.

BASF’s battery materials support the production of advanced lithium-ion batteries that will propel current and next-generation hybrid and full electric vehicles, helping drive the future of electromobility. The company’s portfolio includes cathode materials as well as electrolytes.

About BASF

BASF is the world’s leading chemical company: The Chemical Company. Its portfolio ranges from chemicals, plastics, performance products and crop protection products to oil and gas. We combine economic success with environmental protection and social responsibility. Through science and innovation, we enable our customers in nearly every industry to meet the current and future needs of society. Our products and solutions contribute to conserving resources, ensuring nutrition and improving quality of life. We have summed up
this contribution in our corporate purpose: We create chemistry for a sustainable future. BASF had sales of about €74 billion in 2013 and over 112,000 employees as of the end of the year. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA) and Zurich (AN). Further information on BASF is available on the Internet at www.basf.com.

About BASF and the automotive industry

The automotive industry is one of BASF’s key customer industries. In 2013, BASF’s sales to the automotive industry totaled €9.3 billion – representing approximately 13% of BASF Group sales. BASF supplies and develops functional materials and solutions that enable vehicles to be built more efficiently and have a lower environmental impact, whatever powertrain technology they use. The product range from BASF includes for example engineering plastics, polyurethane and specialty foams, coatings, pigments, catalysts, fuel additives, coolants and brake fluids, as well as battery materials. With such an extensive range of products, BASF is the world’s leading chemical industry supplier to the automotive industry. BASF cooperates closely with customers all over the world through a network embracing Europe, Asia-Pacific, North and South America as well as Africa. Further information on BASF’s solutions for the automotive industry is available on the internet at www.automotive.basf.us.