

Tire Technology Expo in Cologne, February 10 – 12, 2015,
Hall 11.1, Stand 5120

LANXESS presents its comprehensive range of rubber technologies

- **New SSBR rubber products for enhanced performance**
- **Broad portfolio of processing aids and additives**
- **Technical presentations on rubber technology**

Cologne – Specialty chemicals company LANXESS is appearing at Tire Technology Expo in Cologne to present its comprehensive range of solutions for the tire industry, from new rubber products and additives to processing aids for use in production.

The newly formed LANXESS Tire & Specialty Rubbers business unit is introducing two innovative SSBR product developments: Buna FX 3234A-2HM and Buna VSL 3038-2HM. These high-performance rubber products offer tire manufacturers even better options for producing energy-efficient tires with low rolling resistance. Also new is the LANXESS Rhein Chemie Additives business unit, which will be exhibiting products from its extensive portfolio, such as eco-friendly Rhenodiv release agents, Rhenomark tire marking paints, the well-known anti-reversion agent Perkalink 900 and the crosslinking additive Vulcuren.

LANXESS experts from both business units are contributing a number of high-level papers and presentations to the conference. Interested visitors can drop by Stand 5120 to get comprehensive information, or to ask questions about the LANXESS technical papers and presentations.

Tire & Specialty Rubbers business unit: New SSBR rubber products for continued performance enhancement

LANXESS has developed two new rubber products as alternatives to Buna VSL 2438-2HM, used so widely at present in the tire industry.

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Buna FX 3234A-2HM is the first rubber product in the newly established Buna FX family, and is to be followed by others. The functionalized SSBR grade displays improved polymer/filler interaction in the tread mix, which reduces hysteresis and therefore the rolling resistance of the tires. Grip also has been improved. The product's glass transition temperature T_g is $-30\text{ }^{\circ}\text{C}$. LANXESS simultaneously is investigating other technologies for functionalizing rubber to further enhance the properties of these mixes.

The second new rubber grade, Buna VSL 3038-2HM, expands the existing Buna VSL family. It is an oil-extended SSBR with a 38 percent styrene content and 30 percent vinyl content. Its glass transition temperature T_g is $6\text{ }^{\circ}\text{C}$ higher at $-26\text{ }^{\circ}\text{C}$, meaning it can, as expected, provide better grip properties without compromising on rolling resistance. Better grip can be exploited to reduce tread wear, while at the same time achieving outstanding friction coefficients. The higher glass transition temperature of Buna VSL 3038-2HM makes it possible, for example, to add more NdBR to the compound, such as Buna CB 24, and thus raise the friction coefficients to a level comparable to that of Buna VSL 2438-2HM or Buna VSL 5025-2HM. The wear resistance of the tread increases significantly as a result.

After the addition of 37.5 phr TDAE oil, Buna FX 3234A-2HM as well as Buna VSL 3038-2HM display a Mooney viscosity of 80 MU – a high value that additionally ensures excellent abrasion resistance. The high styrene content of 34 or 38 percent promotes high dynamic stiffness, making these rubber products ideal for high-performance summer tires.

“Tire Technology Expo is an excellent opportunity to introduce our products and expand our network of contacts in the tire industry,” says David Hardy, Technical Marketing Manager in the LANXESS Tire & Specialty Rubbers business unit. “The effect will be to further accelerate the development of even more energy-saving 'green' tires. We believe our synthetic rubber grades can significantly lower the rolling resistance of the current generation of tires even more.”

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Rhein Chemie Additives business unit: processing promoters and additives

Selected types of Rhenoshape tire curing bladders are equipped with a permanent coating of Rhenodiv BC, which enables tires to be produced without the use of an additional release agent. These permanently coated bladders provide tire manufacturers with more options for optimizing efficiency, quality and safety in production. This is particularly advantageous in the production of highly complex products, such as tires with self-sealing, run-on-flat tires and tires with reduced-noise properties.

Rhenodiv release agents are under constant development to meet the demands of tire manufacturers. Batch-off release agents, for example, are supplied in either powder or emulsion form. Because handling of powders is associated with extensive fly loss and clean-up, the LANXESS Rhein Chemie Additives business unit developed Rhenodiv BO-3300 Pearls, a batch-off release agent in pellet form. This new release agent, with its innovative form of supply, is easily dispersed in water and just as effective as the powder version.

Rhenomark tire marking inks are an eco-friendly solution for color-coding tires. They are known for their brilliance both before and after vulcanization.

Perkalink 900, the proven anti-reversion agent, and Vulcuren, a curing agent for producing reversion-resistant vulcanizates, are prominent examples of specialty tire products from the LANXESS portfolio.

Manufacturing “green” tire compounds is a challenge for the compounding process, which can best be met with special processing promoters, such as Aflux 37 and Vulkanol P. These products help to homogeneously distribute the silica in the compound and to improve filler/polymer interaction.

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Rhenowave – a new in-line quality control for black rubber compounds

Rhenowave is a new in-line quality control for black rubber compounds presented by Rhein Chemie Additives business unit. Here, ultrasound waves are transmitted through the rubber compounds, for example during an extrusion process. The ultrasound attenuation coefficient determined in this way is characteristic for the composition of the rubber compound, with it being possible in particular to precisely determine the proportion and thus the distribution of fillers. In addition, large foreign bodies such as wood splitters and also large filler agglomerations (macrodispersions) are clearly identified. The distribution of crosslinking additives can also be determined when these are added in the form of Rhenogran AP with marker (zinc oxide as heavy filler). Quality testing with Rhenowave is quick and representative and enables rubber compounding processes to be optimized in terms of low reject rates and, at the same time, high throughput.

Technical presentations on rubber technology

“The extremely broad range of topics we cover in these papers demonstrates the many fronts on which LANXESS employees are working to advance the development of modern, high-performance tires,” summarizes Hardy. “Tires are highly complex products that must fulfill an increasingly broad range of requirements. LANXESS is active in every aspect of tire technology, from additives and high-performance rubber grades, to analytical rubber chemistry and tire testing. That makes us one of the most experienced partners in the industry.”

Day 1 (February 10, 2015):

Dr. Hermann-Josef Weidenhaupt, Rhein Chemie Additives, introduces Vulkanol P, a new plasticizer that significantly improves the processing of silica compounds. It can be used as a substitute for plasticizers made with mineral oil, or in addition to them.

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Dr. Saeid Kheirandish, a leading processing expert in the LANXESS Tire & Specialty Rubbers business unit, discusses the advantages of the polybutadiene rubber products Buna Nd 22 EZ and Buna Nd 24 EZ for achieving a balanced compromise between performance properties and good processing characteristics in tire manufacturing.

Dr. Andreas Schröder, responsible for Innovation and Product Development in the Rhein Chemie Additives business unit, explains how improved process safety can be achieved by monitoring compound quality with Rhenowave in continuous compounding processes using Rhenogran AP with a marker. Rhenogran AP products with a marker are special polymer-bound mixtures of crosslinking additives put together individually for each customer and equipped with the marker zinc oxide. With the aid of the marker the distribution of the crosslinking additives can be examined using the Rhenowave in-line quality control method during extrusion.

Day 2 (February 11, 2015):

One of the most common causes for the premature failure of tires on off-road vehicles are deep cuts in the treads or sidewalls that lead to a flat tire. Jon Nienaber, Technical Service Manager at Rhein Chemie Additives, presents the results of tests on tire compounds containing pre-dispersed short fibers, which can improve the mechanical properties. As recent tests have shown, pre-dispersed fibers of this kind can significantly improve the cut and chip resistance of off-road and other tires that operate in harsh environments.

Day 3 (February 12, 2015):

Dr. Thomas Rünzi, Product Developer in the LANXESS Tire & Specialty Rubbers business unit, presents the first results with new neodymium polybutadienes functionalized by components that interact with the filler. This development also aims at improving tire performance characteristics, such as rolling resistance and mileage.

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News Release

LANXESS is a leading specialty chemicals company with sales of EUR 8.3 billion in 2013 and about 16,700 employees in 29 countries. The company is currently represented at 52 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of plastics, rubber, intermediates and specialty chemicals. LANXESS is a member of the leading sustainability indices Dow Jones Sustainability Index (DJSI World and DJSI Europe) and FTSE4Good.

Cologne, February 5, 2015
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Forward-Looking Statements.

This news release may contain forward-looking statements based on current assumptions and forecasts made by LANXESS AG management. Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.

Information for editors:

All LANXESS news releases and their accompanying photos can be found at <http://press.lanxess.com>. Recent photos of the Board of Management and other LANXESS image material are available at <http://photos.lanxess.com>. The latest TV footage, audiofiles and podcasts can be found at <http://multimedia.lanxess.com>.

You can find further information concerning LANXESS chemistry in our WebMagazine at <http://webmagazine.lanxess.com>.

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