News Release

State-of-the-art tire rubber helps save fuel

LANXESS India Private Ltd
Media Contact:
Rhituparna Mitra
Deputy Manager – Public Relations
Kolshet Road, Thane (w),
Maharashtra, India - 400607
Cell: +91 9619171456
Telephone: +91 22 2172 9748
Board: +91 22 2172 9200
Fax : +91 22 2545-5071
rhituparna.mitra@lanxess.com

Extra mileage

Mumbai, May 24, 2011 – At a time when natural resources are becoming ever scarcer, the efficiency with which our vehicles transfer the engine's propulsion energy to the road plays an increasingly important role. Tires, which serve as the link between the engine and the asphalt, naturally play a key part. On freeways, tires currently account for around a fifth of fuel consumption, and in urban traffic, this figure can be as high as 30 percent. Specialty chemicals company LANXESS, a pioneer in the field of synthetic rubber, already markets rubber raw materials that can substantially reduce these figures. Examples include new grades of **butyl rubber (IIR)**, modified **solution styrene-butadiene rubber (SSBR)** and advanced **neodymium-polybutadiene rubber (Nd-BR).**

"Developing new grades of tire rubber that help save energy but at the same time offer an equally high level of safety is a task for experienced chemists," says Christoph Kalla, head of Marketing & Research in the Performance Butadiene Rubbers business unit at LANXESS, "because some of the key properties of a tire are very difficult to optimize without impairing others. For example, it used to be a big problem to improve rolling resistance – a measure of the energy loss through the tire – without impairing abrasion resistance and wet grip. Thanks among other things to our many years of experience in this sector, rubber chemists have nevertheless made very good progress towards "squaring the circle". We anticipate that the rolling resistance of the next tire generation can be lowered by up to 10 percent merely by using currently available high-performance grades of tire rubber. Naturally without having to make any compromises on vehicle safety – quite the opposite in fact!"

News Release

LANXESS India Private Ltd
Rhituparna Mitra
Deputy Manager – Public Relations
Kolshet Road, Thane (w),
Maharashtra, India - 400607
Cell: +91 9619171456
Telephone: +91 22 2172 9748
Board: +91 22 2172 9200
Fax : +91 22 2545-5071
Rhituparna.Mitra@lanxess.com

The cause of high rolling resistance may be high internal friction of tire components. The "expander cord" effect can also play a part: If a rubber contains too many molecules with loose ends, it cannot make optimal use of the energy. These loose ends, much like torn expander cords, contribute virtually nothing to transmitting forces in the tire, yet they still have to be moved along.

It should be possible, for example, to reduce the internal friction of the silica gel filler particles that give the rubber its stability with the help of **modified SSBR rubber** from LANXESS. Expressed in layman's terms, the molecules of these rubber raw materials have a high density of "sticky" anchor points that stick particularly well to the hard filler particles and basically cover them with a thick, friction-reducing rubber skin. This "wrapping-up" of the silica gel particles optimizes the polymer/filler network, and this should have a positive effect on road grip and abrasion. Initial laboratory and practical tests indicate that tires made of these materials not only have good rolling resistance, they also give outstanding grip. On top of that, they have a very long service life.

The number of "loose ends" in the rubber matrix is, in turn, much lower in **Nd-BR rubber** from LANXESS than in other grades of tire rubber. What's more, because of complex physical relationships (more specifically, a narrow molecular weight distribution), producers can now manufacture tires with outstanding physical data using rubber raw materials that are also easier to process than before. At the same time, the latest grades of Nd-BR rubber from LANXESS result in more uniform, homogeneous products than many polybutadiene rubber types of former generations.

Finally, largely air-impermeable grades of LANXESS **butyl rubber** help keep tire pressure constant for a longer time. New IIR grades from LANXESS can, through their higher isoprene content, be

News Release

vulcanized better than present products in the manufacturer's portfolio.

"These are just three recent examples from the LANXESS range," says Kalla. "We never stop subjecting our products to further development. We have dedicated ourselves to rubber, and our business success is therefore closely linked to our acknowledged innovative strength in this field." Another topical focus of R&D is specifically varying the molecular microstructure of styrene-polybutadiene tire rubber. New catalysts and increasingly sophisticated process engineering will help to further lower the rolling resistance of new high-performance tires, and thus help to extend, for example, electric vehicles' range, at the same time making them safer.

"However," continues Kalla, "the term 'sustainability' should not be reduced solely to the question of fuel consumption. Avoiding waste, for instance, is another important aspect of sustainability." Here, too, modern, high-performance grades of Nd-BR rubber from LANXESS offer a number of advantages: For example, they cushion confrontations with curbs better than many other rubber materials, which means that not only do they enhance safety, they also avoid waste. On the subject of life expectancy and mileage, LANXESS also has special tire rubber masterbatches in its portfolio that make the retreading of tires easier. That also saves valuable raw materials. Finally, the use of particularly abrasion-resistant grades of rubber in the tread contributes to good environmental performance, because they not only extend the service life of the tire, they also help reduce the fine dust problems in our towns and cities.

About LANXESS

LANXESS is a leading specialty chemicals company with sales of EUR 7.1 billion in 2010 and currently around 15,500 employees in 30 countries. The company is at present represented at 46 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of plastics, rubber, intermediates and specialty chemicals.

Mumbai, May 24, 2011

LANXESS India Private Ltd
Rhituparna Mitra
Deputy Manager – Public Relations
Kolshet Road, Thane (w),
Maharashtra, India - 400607
Cell: +91 9619171456
Telephone: +91 22 2172 9748
Board: +91 22 2172 9200
Fax : +91 22 2545-5071
Rhituparna.Mitra@lanxess.com

News Release

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://corporate.lanxess.com/en/media/audio-video/.

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

LANXESS India Private Ltd
Rhituparna Mitra
Deputy Manager – Public Relations
Kolshet Road, Thane (w),
Maharashtra, India - 400607
Cell: +91 9619171456
Telephone: +91 22 2172 9748
Board: +91 22 2172 9200
Fax : +91 22 2545-5071
Rhituparna.Mitra@lanxess.com