media release

Media Release
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Open your mind... ...published at K 2013

Delivering superior surface aesthetics solutions for the automotive industry

Borealis and Borouge, leading providers of innovative, value-creating plastics solutions, have developed material concepts to address specific challenges facing the automotive industry as it enters a new era. Issues of global significance such as reducing energy consumption and manufacturing costs, adapting to increasing urbanisation and automobile density and accommodating the needs of emerging growth markets all call for innovative and sustainable solutions. At K 2013, Borealis will spotlight its newest product innovations in surface aesthetics for automotive interiors and exteriors. These material solutions will not only enable manufacturers to achieve defect-free surfaces, but also help them capitalise on the benefits of reduced costs, environmental impact and optimised production cycle times.

One major automotive megatrend involves manufacturing and ongoing efforts to improve productivity while reducing production costs. Thanks to recent product innovations in **primerless paintability** – where two new grades for exteriors are currently in the pipeline – and **tiger stripe-free surface aesthetics**, Borealis is helping manufacturers significantly improve processability, reduce system costs and enhance environmental compatibility and sustainability.

"These automotive megatrends have had, and will continue to have, a huge impact on the industry. They will require new ways of thinking and collaborating," states Jost Eric Laumeyer, Borealis Global Marketing Manager Engineering Applications. "Borealis and Borouge are committed to helping our global customers succeed in all their markets, and thanks to fruitful collaboration with partners around the world we can already report numerous success stories in the automotive industry, such as innovative product solutions in surface aesthetics, which are helping original equipment manufacturers meet tomorrow's challenges."

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Borealis to showcase new tiger stripe-free grades at K 2013

Tiger stripes are flow mark issues caused by converting processes which can lead to both exterior and interior surface defects. This phenomenon is a general problem affecting all thermoplastic materials, including polyolefins. Through extensive laboratory research and joint testing with partners, Borealis has developed a new polypropylene (PP) matrix used in compounds, which will help avoid tiger stripes within a very broad processing window. The **two new Daplen™ tiger stripe-free grades EE058AI and EG107HP** for automotive interiors and exteriors being launched in autumn of 2013 are based on the unique Borealis Borstar® process, thus ensuring global availability. Offering reduced density with an established material portfolio, the grades boast comparable or improved performance in processing behaviour, flexural modulus, tensile stress at yield, charpy impact strength[1] notched (at both +23° C and -20° C) and mould shrinkage according to the Borealis method.

To address tiger stripes in interior automotive surfaces, Borealis has upgraded two currently available solutions with the **tiger stripe-free** technology: **EE189HP**, a 15% mineral filled PP compound intended for injection moulding and commonly used for dashboards and door panels, and **EE288HP**, another thermoplastic olefin (TPO) used for instrument panels and other applications. Furthermore, **Daplen EE188AIB**, a grade specially developed in Brazil in cooperation with a leading original equipment manufacturer (OEM) and manufactured at Borealis Brazil's expanded Itatiba plant, is a PP compound intended for use in dashboards and consoles. It offers good impact and stiffness balance, good processability, high scratch resistance and no stickiness following exposure to the elements.

Another important Borealis grade launch for exteriors is **Daplen moulded in colour EF150HP**, successor to one of the first breakthrough moulded in colour solutions for body panels, ED230HP. Moulded in colour solutions make cost reductions possible by eliminating the number of painting cycles required. The new grade boasts more than double the previous flowability (from melt flow rate (MFR) 10 to 22) for improved processing, significant density reduction yet increased stiffness, significant potential wall thickness

[1] The Charpy impact test, also known as the Charpy V-notch test, is a standardized high strain-rate test which determines the amount of energy absorbed by a material during fracture.

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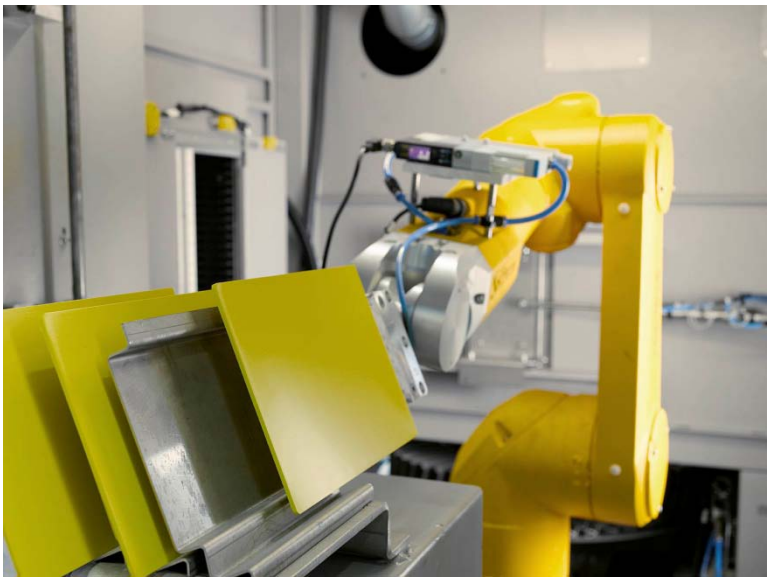
reductions of between 18%-25% for the average part, stable shrinkage and coefficient of linear thermal expansion (CLTE) to support narrow gap demands, excellent dimensional stability for design freedom and moulded in colour solutions with accompanying electrostatic painting processes. These advantages make it possible for OEMs to achieve superior aesthetic appeal while maintaining the highest material standards.

Borealis will highlight its cutting-edge tiger stripe-free grades and other surface aesthetics innovations at the K 2013 trade fair in Düsseldorf, Germany, Hall 6, Stand A43, from October 16-23, 2013.



This fully automated paint robot at the Borealis Innovation Headquarters in Linz, Austria, subjects the cutting edge polypropylene compounds to stringent paint adhesion tests to make sure they fulfill their potential of system cost reduction and sustainable appeal. Photo: © Borealis.

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About Borealis Engineering Applications
For over 50 years, Borealis has been a leading supplier of advanced polyolefin plastics for engineering applications in the automotive industry and for household appliances. Thanks to its unique and proprietary Borstar® technology, Borealis provides a large portfolio of innovative products and services which create real value for customers and partners around the world. Innovative automotive solutions include materials for exterior, interior and under the bonnet applications, such as bumpers, body panels, trims, dashboard, door cladding, climate control units, air intake manifolds as well as battery cases. The appliance product

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range includes materials for small appliances and white goods, from coffeemakers to refrigerators and beyond. Borealis offers advanced polypropylene solutions which make engineering applications lighter, more energy efficient, robust and visually appealing.

About Borealis and Borouge
Borealis is a leading provider of innovative solutions in the fields of polyolefins, base chemicals and fertilizers. With headquarters in Vienna, Austria, Borealis currently employs around 6,200 and operates in over 120 countries. It generated EUR 7.5 billion in sales revenue in 2012. The International Petroleum Investment Company (IPIC) of Abu Dhabi owns 64% of the company, with the remaining 36% owned by OMV, the leading energy group in the European growth belt. Borealis provides services and products to customers around the world in collaboration with Borouge, a joint venture with the Abu Dhabi National Oil Company (ADNOC).

Building on the unique Borstar® and Borlink™ technologies and 50 years of experience in polyolefins, Borealis and Borouge support key industries including infrastructure, automotive and advanced packaging. The Borouge plant expansion in Abu Dhabi will be fully operational by mid-2014 with a total annual capacity of 4.5 million tonnes. After this Borealis and Borouge will have approximately 8 million tonnes of polyolefin capacity.

Borealis offers a wide range of base chemicals, including melamine, phenol, acetone, ethylene and propylene servicing a wide range of industries. Together with Borouge the two companies will produce approximately 6 million tonnes of Base Chemicals in 2014.

Borealis also creates real value for the agricultural industry with a large portfolio of fertilizers. The company distributes approximately 2.1 million tonnes per year. This volume will increase to around 5 million tonnes by the end of 2014.

Borealis and Borouge aim to proactively benefit society by taking on real societal challenges and offering real solutions. Both companies are committed to the principles of Responsible Care®, an initiative to improve safety performance within the chemical industry, and contribute to solve the world's water and sanitation challenges through product innovation and their Water for the World™ programme.

For more information visit:
www.borealisgroup.com
www.borouge.com
www.k2013-openyourmind.com
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