

Borealis and Borouge showcase lightweight solutions with the 2016 European Car of the Year at K Fair

Weight reduction in the new Opel/Vauxhall Astra supported by Borealis and Borouge low density polypropylene compounds.

Borealis and Borouge, leading providers of innovative, value-creating plastics solutions, continue to supply the automotive industry with new and customised material solutions that help facilitate lightweight construction and thus improve energy efficiency. A prime example of vehicular weight savings enabled by Borealis and Borouge's tailor-made lightweight polypropylene (PP) compounds solutions is the new Opel/Vauxhall Astra, the 2016 European Car of the Year. Containing around 35 kg of low density Borealis PP, Opel Astra variants now weigh up to 200 kg less than the predecessor models. The successful new model will be on display at the Borealis, Borouge and NOVA Chemicals stand at the 2016 K Fair in Düsseldorf.

Celebrating a global success story with General Motors and Opel/Vauxhall

General Motors and Opel/Vauxhall selected Borealis and Borouge in 2012 as lead suppliers for both the Opel/Vauxhall Astra models in Europe and the Chevy Cruze models in Asia and the Americas. Borealis and Borouge supply lightweight PP compounds for all specified interior and exterior Opel/Vauxhall Astra applications. They were selected for this project thanks to the high level of product quality, excellent technical support, but also due to the global availability of product supplied from manufacturing facilities in Europe, Brazil, China, and North America as well as via tolling partners.

"Because General Motors and Opel/Vauxhall are a benchmark for performance in PP compounds, we are particularly proud to have delivered outstanding material solutions for this exciting new model," says Nicholas Kolesch, Head of Marketing Borealis Automotive, "We will continue to invest in our global presence to meet industry demand for product quality and consistency – virtually anywhere in the world."

Top performance and aesthetics, yet lighter all around

In the developmental stage, the crucial challenge was to fulfil stringent technical specifications such as achieving superior surface aesthetics, including high scratch resistance, the elimination of tiger stripes and flow/pressure lines, and uniform and well-balanced matte interior surfaces. Borealis technical teams leveraged in-house modelling and simulation expertise and also worked closely with Opel/Vauxhall and its Tier One suppliers to deliver new and customised material solutions based on proprietary Borealis Borstar® technology.

Another area of focus was supporting Opel/Vauxhall with a smooth start-of-production across multiple plants. Here, Borealis worked with Opel/Vauxhall and Tier One moulders to produce high quality results for door panels, pillars, and other interior trims, particularly in terms of surface quality, processability and reduced volatile organic compound (VOC) emissions. Other applications included front and rear bumpers, bumper brackets, and a range of large and small parts for the dashboard, door panels, and trunk claddings. Launched in 2015, the lightweight PP grades used in the Opel/Vauxhall Astra are now available globally:

- **Interior Compounds:** EF261AI, EF266AI, EF267AI, EF268AI, EG265HP, EG266HP
- **Exterior Compounds:** EF119AE, EF120AE, EH119AEB, EE342AE, EF209AE, EF210AE

Lighter weight fulfilling stringent emission regulations

Overall, each Astra model contains approximately 35 kg of low density PP supplied by Borealis. This is one of the enablers to achieve a weight savings of up to 200kg versus the previous Astra, depending on the model variant. The substitution of lighter weight polyolefins for conventional materials such as metal and higher density engineering plastics is essential in order to fulfil increasingly stringent CO₂ emission regulations. With EU legislation stipulating a fleet average of 95 g/km by 2021 (phased in from 2020), light-weighting can help automotive manufacturers hit this target and improve the overall environmental performance of their fleets, including reduced fuel consumption.

In the selection process for the 2016 European Car of the Year, the jury of 58 automotive journalists at the Geneva Auto Show was clearly impressed by the new Opel/Vauxhall Astra, which claimed victory over seven other finalists and a total of 40 new models. The model will now make an appearance at the K Fair, where it will be on display at the Borealis, Borouge and NOVA Chemicals stand.

“We are pleased to celebrate this global success story with our valuable customers General Motors and Opel/Vauxhall,” says Alfred Stern, Borealis Executive Vice President Polyolefins and Innovation & Technology. “We are proud to have the Opel Astra on our stand and congratulate Opel/Vauxhall on their success with this new vehicle.”



The Opel Astra has been named as the 2016 European Car of the Year.

Photo: © Adam Opel AG.

**K Fair 2016 takes place from 19 to 26 October in Düsseldorf, Germany.
“Join Our Journey” and visit Borealis, Borouge and NOVA Chemicals
at Hall 6, Stand 6A43 to learn more.**

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About Borealis and Borouge Automotive

For over 50 years, Borealis has been a leading supplier of innovative polyolefin plastic materials for engineering applications in the automotive industry. Using its unique and proprietary Borstar® technology and its Fibremod™ post-reactor technology for fibre reinforced polypropylene (PP) compounds, Borealis delivers ideal replacement solutions for conventional materials such as metal, rubber and engineering polymers. Borealis continues to discover new material solutions which help facilitate lightweight construction and thus play an important role in enhancing energy efficiency. In automotive vehicles, Borealis' leading-edge polyolefin plastic materials are used in a wide range of exterior, interior, and under-the-bonnet applications, including bumpers, body panels, trims, dashboards, door claddings, climate control and cooling systems, air intake manifolds and battery cases.

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, the company currently has around 6,500 employees and operates in over 120 countries. Borealis generated EUR 7.7 billion in sales revenue and a net profit of EUR 988 million in 2015. The International Petroleum Investment Company (IPIC) of Abu Dhabi owns 64% of the company, the remaining 36% belonging to OMV, an international, integrated oil and gas company based in Vienna. 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 its proprietary Borstar® and Borlink™ technologies and more than 50 years of experience in polyolefins, Borealis and Borouge support key industries with a wide range of applications in the areas of energy, automotive, pipes, consumer products, healthcare, and advanced packaging.

The Borouge 3 plant expansion will make Borouge the world's largest integrated polyolefins complex. Once fully ramped up in 2016, the additional 2.5 million tonnes of polyolefins capacity will yield a total Borouge capacity of 4.5 million tonnes, and a combined Borealis and Borouge capacity of 8 million tonnes.

Borealis offers a wide range of base chemicals, including melamine, phenol, acetone, ethylene, propylene, butadiene and pygas, servicing a wide range of industries. Borealis also creates real value for the agricultural industry, selling approximately 5 million tonnes of fertilizers. Technical nitrogen and melamine products complement the portfolio with applications ranging from mono-nitrogen oxide (NOx) abatement to glues and laminates in the wood working industry.

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 work 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.waterfortheworld.net

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