

# News Release



On the occasion of the VDI conference "plastics in automotive engineering 2012"

## The Art of Reinforcement

- **First production part made from continuous fiber-reinforced thermoplastic composite with Ultramid from BASF**
- **Seat pan for the Opel Astra OPC 45 % lighter**

The new Opel Astra OPC, a sport coupe, which was introduced at the Geneva Auto Show at the beginning of March 2012, has a seat pan made from a thermoplastic laminate with continuous fiber reinforcement (organo sheet). This is the world's first auto seat pan based on this technology manufactured for a production vehicle. The plastics used are polyamide specialties from BASF's Ultramid® product range. The seat pan is 45% lighter than its predecessor.

Thermoplastic laminates with continuous fiber reinforcement, also called composites, are plastic-impregnated fabrics that are processed into laminates. They serve as the reinforcement in plastic parts that must be especially lightweight yet still exhibit exceptional performance. BASF developed two special Ultramid grades for the Opel Astra OPC seat pan: an unreinforced grade acts as the material in which the glass fiber fabric is embedded, an impact-modified, short glass fiber-reinforced Ultramid is used as overmolding material to achieve the necessary ribs and edges of the part by means of classical injection molding. Thanks to the high

March 21, 2012

P 187/12e

Sabine Philipp

Phone: +49 (0)621 60 43348

Fax: +49 (0)621 60 49497

Mail: [sabine.philipp@basf.com](mailto:sabine.philipp@basf.com)

BASF SE

D-67056 Ludwigshafen

Phone: +49 621 60-0

<http://www.basf.de>

Communication Performance Polymers

Phone: +49 621 60-22142

Fax: +49 621 60-49497

<http://www.plasticsportal.net>

strength of the laminate, the wall thicknesses can be reduced considerably, allowing the weight of the seat pan to be lowered distinctly.

### **Simulation for composite parts with continuous fiber reinforcement**

After the seat pan in the Opel Insignia OPC was made from Ultramid in 2008, albeit still without laminate reinforcement, technological cooperation between the two companies went a step further. To design and build the seat pan for the Astra OPC, BASF engineers further provided material descriptions for the virtual design of both the continuous fiber-reinforced laminate and the overmolded ribbed areas of the part. The knowledge gained from this experience will be incorporated into an extension of BASF's Ultrasim® universal simulation tool, making it possible to predict the behavior of thermoplastic composite parts with continuous fiber reinforcement.

The composite seat pan is produced by means of in-mold forming: this involves placing the heated and formable, thermoplastic laminate in the injection mold, turning it into the necessary shape, fixing it cleverly and immediately overmolding it. BASF was able to support its customer with its own expertise in this innovative manufacturing process.

The seat back, the transverse support and the handle on the back are also made from Ultramid. The seat has 18 adjustment options, allowing optimal adaptation to the body of the driver or passenger. Following numerous other vehicle seats at Opel, the seat for the new Astra OPC also received an award from Aktion Gesunder Rücken e.V. (AGR), the Campaign for Healthy Backs.

[www.ultramid.de](http://www.ultramid.de)

Information on Ultramid® (PA) plastics from BASF is available at: [ultraplaste.infopoint@basf.com](mailto:ultraplaste.infopoint@basf.com) or by calling the telephone number +49 (0) 621 60 78780.

Press photo: [www.basf.com/pressphoto-database](http://www.basf.com/pressphoto-database) under the heading "Plastics" or search term "Ultramid". Text and photo will also be available shortly in the Plastics press archive of BASF: [www.basf.de/plastics/pressreleases](http://www.basf.de/plastics/pressreleases).