

LANXESS offers two new polyamides for 3D suction blow molding of air ducts for the engine compartment

Wide processing window, reliable process

- **Very smooth inside tube surfaces**
- **High resistance to typical engine compartment media**
- **Good weldability**

Cologne – LANXESS continues to expand its family of pseudoplastic polyamides for hollow components under the hood. The newest members are the polyamide 66 Durethan AKV 320 Z H2.0 and the polyamide 6 Durethan BKV 320 Z H2.0. These compounds are customized for 3D suction blow molding of air ducts. Blow molding has become established as a low-cost process for manufacturing hollow components for the engine compartment, such as air tubes. “This innovative product is our response to the growing trend toward turbocharged engines. These represent a growing share of the market because they reduce a motor vehicle’s fuel consumption and thus its CO₂ emissions,” explains Thomas Olschewski, blow molding applications expert at LANXESS. Designed for large-scale manufacturing, both materials display a wide processing window that supports a stable production process. They also yield very good surface quality.

Until now, the LANXESS product range for suction blow molding encompassed a polyamide 66 reinforced with 25 percent glass fibers, two non-reinforced polyamide 6 compounds, and two polyamide 6 grades with a glass fiber content of 15 and 25 percent. The two new materials each have a glass fiber content of 20 percent. “With these new products, we are closing a gap in the range to give our customers greater latitude in terms of stiffness and strength when designing blow-molded hollow parts,” says Philipp Otte, Product Developer for Durethan blow molding products at LANXESS.

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Page 1 of 3

High melt stiffness

The excellent processing behavior of both polyamides can be attributed in part to their high melt stiffness. This prevents an extruded preform from sagging under its own weight prior to inflation in the mold. The wide processing window ensures that the inside surfaces of charge-air tubes, for example, are extremely smooth so that the air achieves streamlined as opposed to turbulent flow.

Another advantage of these compounds is their high resistance to the media typically encountered in the engine compartment, such as oils, fuel and condensates of acidic blow-by gases. "In terms of chemical resistance, our two materials are superior to thermoplastic polyester elastomers, from which parts like clean air ducts are also sometimes fabricated," says Otte.

Effective heat stabilization

The new, heat-stabilized polyamides easily withstand the continuous service temperatures of 80 °C to 160 °C characteristic of turbocharged engines. They can be joined with themselves or other polyamides by means of infrared, heated tool or vibration welding and other methods. "This is especially important for the subsequent integration of guides or nests for sensors, adapters and ventilation bypasses," explains Olschewski.

Wide product range for hollow parts in the engine compartment

LANXESS has a wide range of pseudoplastic polyamide 6 and 66 products for blow-molded hollow parts in engine air management systems. The tensile modulus ranges from approximately 210 to over 5,000 MPa (conditioned state, ISO 1110). All compounds are impact-modified; the polyamide 66 grades are additionally hydrolysis-stabilized. The range further includes highly flexible material grades for fabricating flexible clean air tubes with integrated bellows in a single-material, suction blow-molding process.

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Page 2 of 3

News Release



Detailed information on properties, applications and processing technologies for Durethan and Pocan can be found in the HPM TechCenter under www.durethan.com and www.pocan.com.

LANXESS is a leading specialty chemicals company with sales of EUR 7.9 billion in 2015 and about 16,700 employees in 29 countries. The company is currently represented at 55 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of chemical intermediates, specialty chemicals and plastics. Through ARLANXEO, the joint venture with Saudi Aramco, LANXESS is also a leading supplier of synthetic rubber. LANXESS is listed in the leading sustainability indices Dow Jones Sustainability Index (DJSI World) and FTSE4Good.

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Page 3 of 3

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

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