

Asahi Kasei Europe GmbH
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Asahi Kasei develops the world's first polyamide beads foam – Perfect for noise reduction and lightweight applications in the automotive industry

Düsseldorf, July 24, 2019 – With the ongoing disruptive megatrends in the automotive industry, the automotive OEMs and suppliers are facing a strong innovation pressure. New, innovative solutions are in high demand. Asahi Kasei's newly developed polyamide beads foam offers unique possibilities for lightweight and noise reducing applications.

The disruptive CASE (Connected – Autonomous – Shared – Electrified) megatrends are leveraging the innovation pressure on the automotive industry to new heights. In addition to changing consumer needs, the EU legislation regarding the reduction of CO₂ emissions has been significantly pushing the demand for new and innovative lightweight materials as a substitute for metal and aluminum parts. At the same time these materials have to live up to the high safety standards in the automotive industry, and to provide solutions to the changing and tightening regulations worldwide. Plastics and foams with their broad range of properties will become a key in this field, contributing to a reduction of CO₂ emissions of conventional passenger cars with a combustion engine, and a longer driving distance of electrified cars.

Another challenge for the automotive industry is the tightening of noise regulations. With Regulation No. 51-031 issued by the United Nations in 2016, the noise level emitted to the outside must be continuously reduced in newly manufactured vehicles.

Asahi Kasei is one of only four fully integrated polyamide manufacturers worldwide – and is able to produce PA 6.6 completely from monomer to compound. Based on this expertise, the company is currently developing the PA Foam, a foam bead material based on polyamide – the first of its kind worldwide. It is offering solutions to both aforementioned challenges in the automotive industry – stiffness, mechanical strength and heat resistance for use in structural lightweight applications of cars, and noise reducing characteristics.

The PA Foam features the typical heat, chemical and oil resistant properties of polyamide, mixed with an outstanding rigidity or noise reducing quality – depending on the shape of the beads. PA Foam consisting of round-shaped beads features a strong rigidity, making it a promising alternative material for aluminum and metal in structural applications, as well as for use for insulators, ducts, spacers, or other lightweight parts of the battery case of electrified vehicles.

Noise reducing properties through C- and macaroni-shaped beads

PA Foam with a C- or macaroni-shape provides noise insulation in addition to the typical polyamide properties. Possible applications can be found everywhere around the car, especially in the engine compartment, where the material can unfold its unique qualities. Used for engine covers, it does not only contribute to lightweight, but also significantly reduces the radiating engine noise, making the car quieter in total.

These noise reduction qualities of the foam also contribute to an enhanced comfort inside the car. With the rising popularity of car sharing and the expected introduction of autonomous driving, the automotive interior is becoming more and more important as a space of relaxation and comfort – a space of living. The PA Foam can significantly contribute to the quality of this new in-vehicle living space – for example to the insulation and reduction of noise radiating from the car itself, but also to reduce noise coming from the outside. Possible applications can be found in the roof and bonnet, but also in the seat and floor structure.

Foam beads made of polyamide can be processed in a steam molding process on standard polystyrene molding equipment. Furthermore, a significant reduction of resin for the production process can be achieved, contributing to an overall cost reduction.

“Asahi Kasei introduces new possibilities of foam materials by launching the PA Foam with unprecedented high heat resistance to the market. In Europe, where environmental awareness is strong, the need for lightweight applications is expected to further increase in the future, especially in the automotive industry. Our foam opens new doors for applications, which at the same time require lightweight and heat resistance. In addition, the noise reduction properties resulting from the special shape of the beads will meet the growing demand regarding applications that reduce noise, vibration and harshness (NVH)”, Takauji Namatame, Senior Manager of the Corporate R&D Division at Asahi Kasei Europe explains.

Asahi Kasei will present the PA Foam at the FOAM EXPO Europe, to be held from 10-12 September in Stuttgart, Germany.

¹ Regulation No 51 of the Economic Commission for Europe of the United Nations (UN/ECE) Third Revision - Uniform provisions concerning the approval of motor vehicles having at least four wheels with regard to their noise emissions

<https://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29regs/2016/R051r3e.pdf>

About the Asahi Kasei Corporation

Asahi Kasei Corporation is a globally active diversified technology company with operations in the Material, Homes, and Health Care business. The Material division encompasses fibers & textiles, petrochemicals, performance polymers, performance materials, consumables, battery separators, and electronic devices. The Homes division provides housing and construction materials to the Japanese market. The Health Care division includes pharmaceuticals, medical devices, and acute critical care devices and systems. With approximately 39,283 employees around the world, the Asahi Kasei Group serves customers in more than 100 countries and achieved sales of 17.6 billion euros (2,170.4 billion yen) in the fiscal year 2018 (April 1, 2018 – March 31, 2019).

Asahi Kasei is “Creating for Tomorrow” with all operations sharing a common mission of contributing to life and living for people around the world. For more information, visit www.asahi-kasei.co.jp/asahi/en/ and <https://automotive-asahi-kasei.eu/>.

Company Contact Europe:

Asahi Kasei Europe GmbH

Sebastian Schmidt

Am Seestern 4, 40547 Düsseldorf

Tel: +49 (0) 211-2806-8139

Mail: sebastian.schmidt@asahi-kasei.eu

Press Contact:

financial relations GmbH

Henning Küll

Louisenstraße 97, 61348 Bad Homburg

Tel: +49 (0) 6172/ 27159 – 12

Mail: h.kuell@financial-relations.de