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Ultra-Silent Tune: sustainable sound absorption for underbody shields

Increasingly stringent legal noise limits for vehicles and the rapidly advancing electrification of mobility are raising the demands on the acoustic performance of underbody systems. Thanks to the innovative use of chamber resonators, Autoneum's new lightweight technology Ultra-Silent Tune significantly reduces external tire rolling noise while ensuring a quiet and comfortable driving experience inside the vehicle. In addition to its sound-absorbing properties, Ultra-Silent Tune also meets the highest standards in terms of sustainability.

Silence and resource efficiency are the order of the day in the development and optimization of electric vehicles. On the one hand, ever stricter emissions regulations worldwide are increasing demand for components that reduce noise pollution while helping vehicle manufacturers meet their sustainability targets. On the other hand, the absence of noise from the combustion engine in e-cars amplifies the disruptive effects of other noise sources in the passenger compartment. With Ultra-Silent Tune, Autoneum now presents a new lightweight and particularly environmentally friendly technology for underbody shields that reduces tire rolling noise both outside and inside the vehicle, thus improving not only acoustic performance but also driver comfort in electric cars considerably.

Autoneum's innovative Ultra-Silent Tune technology owes its excellent sound-absorbing performance to acoustic chambers of different shapes and sizes. The chambers are created by applying an embossed polyester foil to the side of the Ultra-Silent underbody shield facing away from the noise source: they capture the sound waves emitted by the car tires, modulate them according to their respective geometry and reflect them back onto the porous carrier material. Compared to conventional single-layer underbody shields, whose acoustic performance is mainly determined by the noise-reducing properties of the product side facing the tires, Ultra-Silent Tune exploits both sides of the component, which significantly improves its acoustic absorption. Autoneum thus makes innovative use of the proven concept of traditional chamber absorbers, reducing exterior tire rolling noise by a remarkable 0.5 to 1.0 dBA*.

Moreover, Ultra-Silent Tune combines optimized acoustic performance with the sustainability benefits of Autoneum's particularly eco-friendly Pure technology Ultra-Silent. In addition to the high proportion of recycled PET fibers, underbody shields made from Ultra-Silent Tune can be manufactured from 100% polyester and thus be fully recycled at the end of vehicle life. Furthermore, the thickness of the multilayer construction can be flexibly adapted to the packaging spaces of different vehicle models. Underbody shields made from Autoneum's new Ultra-Silent Tune technology are already in pre-development at various vehicle manufacturers in Europe.

**Measured in a pass-by noise homologation test at a constant speed of 50 km/h.*

Photos:

Images can be downloaded at: www.autoneum.com/images/ultra-silent-tune.

For further information, please contact:

Investors and Financial Analysts

Bernhard Weber
Head Financial Services & IR
T +41 52 244 82 07
investor@autoneum.com

Media

Claudia Güntert
Head Corporate Communications
T +41 52 244 83 88
media.inquiry@autoneum.com

About Autoneum

Autoneum is globally leading in acoustic and thermal management for vehicles. The Company develops and produces multifunctional, lightweight components and systems for interior floor and engine bay as well as the underbody. Customers include almost all automobile manufacturers in Europe, North & South America, Asia and Africa. Autoneum operates 67 production facilities and employs around 16 100 people in 24 countries. The Company with its headquarters in Winterthur, Switzerland, is listed on the SIX Swiss Exchange (ticker symbol AUTN).

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