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Lower CO₂ emissions through Theta-FiberCell

The operating temperature in the engine bay is an important parameter for reducing the CO₂ emissions of motor vehicles. Intelligent engine encapsulation helps to store heat for a relatively long period and reduces CO₂ emissions during cold start. Theta-FiberCell from Autoneum is a key technology for engine encapsulation which allows CO₂ emissions to be reduced. Autoneum, the leading expert for acoustic and thermal management, will also be presenting its trailblazing concepts at this year's Automotive Acoustics Conference to be held at the ETH in Zurich/Switzerland on June 26 and 27. As tradition will have it, this year's conference is again to be conducted under the scientific supervision of Autoneum.

In Theta-FiberCell technology, Autoneum combines the advantages of fiber and foam absorbers on the basis of long years of experience. The solution put onto the market in 2012 takes customer specifications as well as current legal requirements into account. The first series application by a European car manufacturer is underway. With Theta-FiberCell, Autoneum expands its worldwide range of lightweight multifunctional products and continues to focus strategically on the core competences of acoustic and thermal management. Autoneum discovered the growing significance and the extensive potential of thermal insulation in the automotive sector at an early date. In this way, future challenges are met today with the good acoustic properties, the integrated thermal insulation and the resulting high temperature stability of Theta-FiberCell up to 200°C. Other advantages of this insulation material are its low weight, its low flammability and its high resistance to engine vibrations. Depending on the application-specific composition, the product contains a varying proportion of recycled fibers.

Individual applications

Depending on the customer requirement, Autoneum uses Theta-FiberCell for body- or engine-mounted encapsulations. Besides the acoustic absorption of internal and external noise, the porous fiber-foam solution ensures thermal stability and can store heat for a relatively long time after the engine has been switched off. For example, in a test conducted according to the NEDC (New European Driving Cycle) standard, Autoneum was able to show using a middle class vehicle that the temperature after twelve hours of being stationary was about 6°C higher with Theta-FiberCell encapsulation than it would have been without the special insulation. This temperature difference has a positive effect on the viscosity of the engine oil: higher oil temperature results in lower internal friction within the engine and ensures more efficient driving. Each increase of 6°C in the oil temperature means 3 grams less CO₂ per kilometer driven.

Progress in all respects

Serial production of innovative materials is always preceded by extensive development work. For this purpose, Autoneum provides not only thermal protection and acoustic packages but also measurement systems for analyzing the acoustic absorption properties of materials and components. The Alpha Cabin developed by Autoneum supports the development of optimized acoustic packages for vehicles and is considered as the worldwide standard for measuring acoustic absorption properties. Equipped with five microphones for acoustic measurements instead of the single one used up to now, a more rapid software, new measuring electronics and other newly integrated features, the new generation of the Alpha Cabin allows the test time to be halved. Customers can have their Alpha Cabin of the first generation retrofitted according to the new standard.

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Pictures

Photographs of Theta-FiberCell and the Alpha Cabin are available at www.autoneum.com/media/press-kit/.

About Autoneum

Autoneum, with headquarters in Winterthur, Switzerland, is the globally leading producer of vehicle acoustics and thermal management systems. The company develops and manufactures components, modules and complete systems for interior and engine bay as well as heatshields and underbody shields. Customers include leading automobile producers in the key markets of Europe, North America, South America and Asia. Autoneum is represented at about 50 locations in over 20 countries and employs some 9'800 people worldwide, of whom about 6% are in Switzerland. The company is listed since 2011 on the SIX Swiss Exchange (ticker symbol AUTN).

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