

Compact solution with great effect

Sound absorbers for optimal acoustics

Modern sound absorbers optimize the sound experience. They provide valuable services in recording studios and concert halls, but can also be used in everyday life wherever the background noise is disturbing. Until now, these absorbers have been bulky and not very suitable for small rooms. Together with Kaiser Möbelwerkstätten GmbH, the DITF have developed a sound absorber with an effective technology that fits into the smallest of spaces. It absorbs not only high and medium, but also low frequencies. The research project was funded by the German Federal Ministry of Economics and Energy.

A textile is responsible for the medium and high frequencies. The low frequencies are absorbed by a novel cavern structure. The cavities are arranged in such a way that they act like classic Helmholtz resonators despite their significantly smaller depth and volume. The scientists were able to demonstrate that these two principles not only complement, but also reinforce each other. The result is an optimal sound experience.

Since the compact component is available in various sizes and colors, it also fits well in open-plan offices or in living spaces located along busy roads. "It is the car traffic in particular that causes the deep tones that cannot be filtered out by many conventional sound absorbers", explains Karsten Neuwerk, research associate at the DITF.

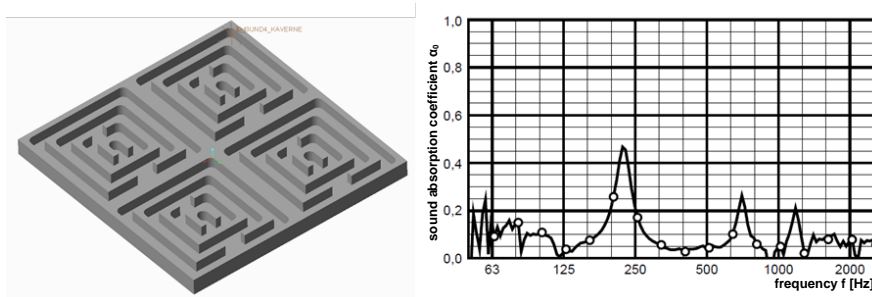
The sound absorbers developed in the research project are sustainable, and not only because they are manufactured in an environmentally-friendly way. In its Agenda 2030, the United Nations has set 17 sustainability goals, including health and well-being. Noise protection plays an important role in so-called "psychoacoustics". "With our research work, we not only set

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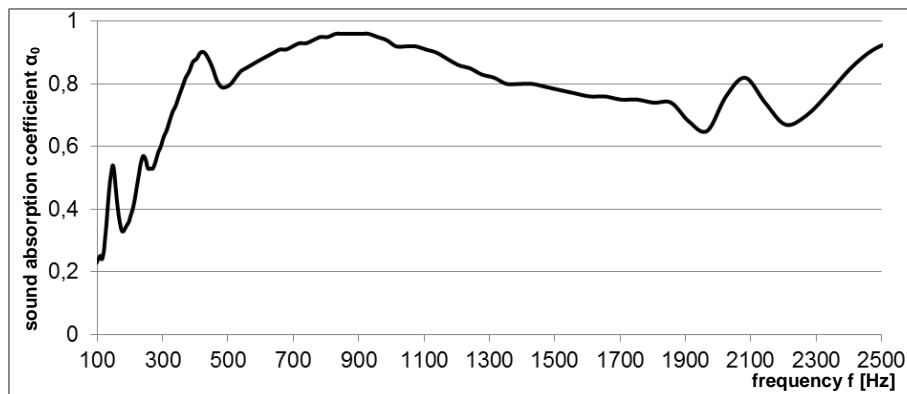
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technical standards, but also ensure a pleasant auditory experience that promotes well-being with optimal volume and sound modulation," summarizes Dr. Michael Haupt. He heads the e-textiles, automation and acoustics division at the DITF.

The results of the research project are several demonstrators of which effectiveness could be proved by measurement::



CAD representation of a milled slush cavern with the resulting absorption spectrum (right) (Figure: DITF)



Absorption curve measured in the impedance measuring tube of the DITF (Figure: DITF).

The absorbers will be available on the market before the end of this year for architects, sound engineers and private consumers.

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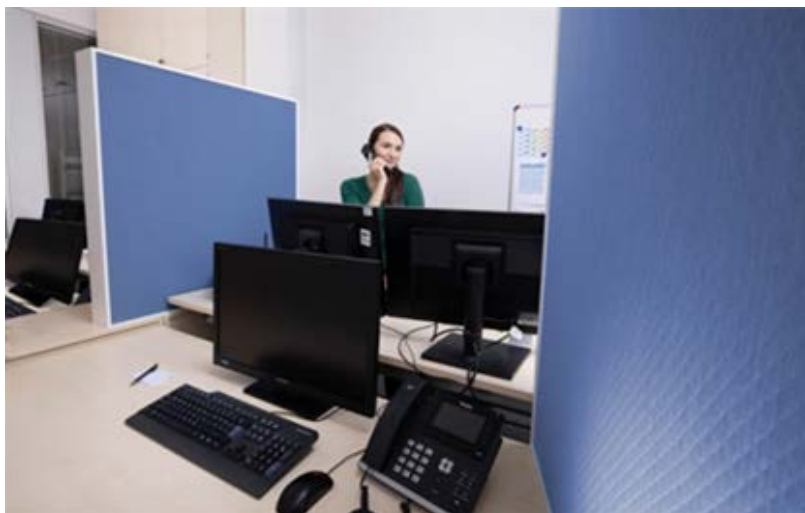
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Textile and cavity structure in the wooden body absorb disturbing frequencies (Photo: DITF)



Sound absorbers in the open-plan office (Photo: DITF)

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