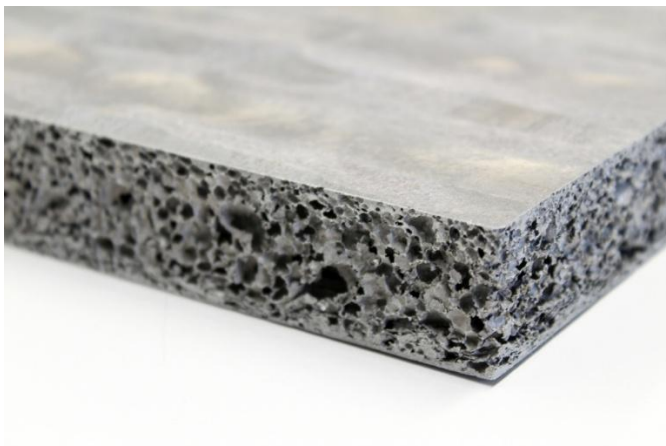


PRESS RELEASE

From Sylke Becker
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Photos relating to the press release

"Innovative materials increase sustainability in factories"



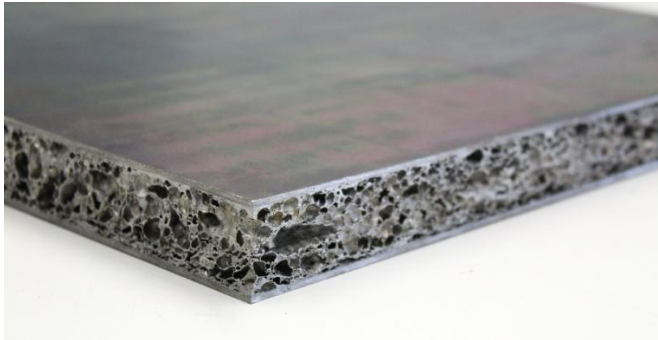
((1_Aluminiumschaumplatte.jpg))

Metal foam contains up to 90 per cent air and helps to make machines more efficient, lighter and more stable. Aluminum foam can be produced using a process which is basically similar to making bread. Powder, propellants and heat are necessary.

Photo: Fraunhofer IWU

Innovate Manufacturing.

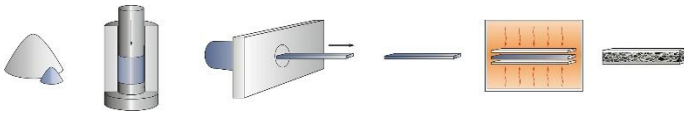
www.emo-hannover.de



((2_SAS_geschäumt.jpg))

Aluminum foam is produced in the shape of sandwiches. The bonding of the materials is made entirely of metal without any adhesive. Metal foams can therefore be easily recycled.

Photo: Fraunhofer IWU



((3_PM-Schäumverfahren.jpg))

In order to produce aluminum foams, an aluminum alloy powder and a propellant powder are mixed together and are mostly pre-compacted by axial presses. They are then compacted into foamable strands by extruders. In order to produce aluminum foam sandwiches, cut foamable aluminum strands are laid between two cover plates spaced out from each other. During the subsequent heat treatment the foamable aluminum expands many times over. The formed foam firmly bonds with the two cover plates to create a sandwich.

Photo: Fraunhofer IWU



((4_Carsten Lies.jpg))

The specific advantages of using metal foam in a machine are "greatly improved damping by the foam core and significant weight savings," said Carsten Lies, Head of the Department for Function-Integrated Lightweight Construction at the Fraunhofer Institute for Machine Tools and Forming Technology (IWU) in Chemnitz.

Photo: Fraunhofer IWU



((5_Thomas Hassel.jpg))

Components made of metal foam can also be produced using a 3D printer. "Additive manufacturing makes it possible to produce near-net-shape components," said Thomas Hassel from the Institute of Material Science at Leibniz University in Hanover (LUH).

Photo: Hanover University



((6_Frank Schönberger.jpg))

It is often difficult to use perfluoroalkylated and polyfluoroalkylated substances (PFAS) in production engineering. "Opportunities may arise in applications where the full potential of fluoropolymers is not required and in situations where, for example, a redesign is possible," said Frank Schönberger, Head of the Synthesis and Formulation Department at the Fraunhofer Institute for Structural Durability and System Reliability (LBF).

Photo: Fraunhofer LBF