SUSTAINABILITY INNOVATION

Top 5: Unusual building materials

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From mushrooms to popcorn - research is constantly testing new building materials. And while they are unlikely to replace steel and concrete any time soon, it is worth taking a look outside the box.

Stone, steel and concrete have proven effective for centuries. But with an eye towards a future worth living in, researchers around the world are constantly testing new materials. And these are the most unusual ones.

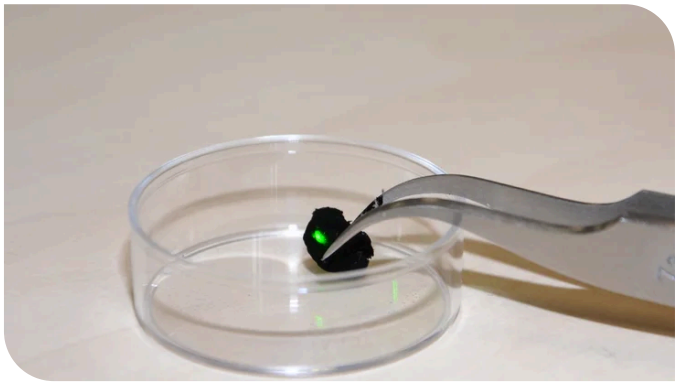
5. Myzel: Pilz ohne Bindungsangst

Fungi are like icebergs: what we see is only a small part. Below the ground, many fungi form huge, root-like networks of fine threads called mycelium. When mixed with other substances such as straw, olive pits or coffee grounds, it has a glue-like effect. It continues to grow, bonding with the substrate and thereby compacting it. The materials formed after a few days have many useful properties: they are fireproof, lightweight and fully biodegradable. They also possess excellent insulating properties. This makes them ideal for use as insulation material in walls and ceilings.

4. Woodoo: Holz mit magischen Kräften

Wood has always been a popular building material. But the French architect Timothée Boitouzet has made it even better. He used cheap wood, removed the macromolecule lignin and the air it contains and replaced both with a bio-based polymer. Thanks to the nanotechnological upgrade, he invented a completely new, bio-based wood pulp. The newly created Woodoo Augmented Wood is as strong as concrete, fireproof, translucent and weatherproof. Already today, it is considered an innovative building material for the city of tomorrow.

3. Aerographit: Leichtgewicht mit Effekt



75 times lighter than styrofoam. And therefore the lightest building material in the world. Aerographite is made up of a network of many tiny, porous carbon tubes. They are interconnected at nano and micro level. Not only does this make aerographite pitch black, it also weighs only around 0.2 milligrams per cubic centimetre. And it can withstand high compressive and tractive loads. It is also stable, formable, opaque and has high electrical and thermal conductivity. A true all-rounder.

2. Hanf: Pflanze mit Wirkung

Hemp is currently on everyone's lips. At least literally. The fibres of the plant can also be used as an excellent insulating material. They are good at absorbing and releasing moisture. They also require very little energy to produce and are therefore highly environmentally friendly. Hemp shives, the inner woody core of the plant, are mixed with lime to make hemp lime. It is then pressed into bricks using a cooling air process. These hemp bricks have a positive effect on the indoor climate, store heat and absorb noise. An additional major benefit of this innovative building material is that hemp plants grow around 50 times faster than wood.

1. Popcorn: Knabberei mit Potenzial

Perhaps the next pop star among building materials? The idea of using puffed corn on building sites is certainly innovative. A research team at the University of Göttingen came up with the idea of using the cinema snack to produce special building panels. Popcorn granules are pressed and then coated with plywood or aluminium. They can then be used like plasterboard, chipboard or polystyrene. What's more, the popcorn panels weigh considerably less and are therefore suitable as an ecological lightweight alternative. Another advantage is that they can be easily recycled and composted.

Material-Mix mit Zukunftschancen

New materials open up fresh possibilities in construction. And even if most of them are not, or at least not yet, mature enough to be used on a large scale, we still need to keep thinking outside the box. This is the only way to help shape a future worth living.