

# carbonauten

## the minus CO2 factory

### Company profile

## Infrastructure and buildings as CO2 storage carbonauten - the minus CO2 factory

Giengen an der Brenz, Aug 2022



*Biomass residues are processed into CO2-reducing, technical biocarbon materials, which are ultimately used as building materials and in this way bind carbon in buildings, streets and green spaces in the long term.*

### Regenerative, better und cheap: The sustainable CO2 sink for the industry

- minus CO2 factories: „fuck CO2“ – According to this motto, carbonauten extracts CO2 from the atmosphere at decentralized locations and produce CO2-negative carbonauten NET materials®
- Excess heat generated in the process becomes baseload bioenergy for municipalities and industries
- Application areas: e.g. sustainable plastics, soil additives and plant stimulants as well as low-cost and CO2-reducing building materials

CO2 is becoming a growing issue for companies. They must meet strict climate targets, avoid rising costs for CO2 emissions, and reconcile this with value creation and growth.

However, CO2 can also be a solution. This is what the carbonauten GmbH believes, a company based in Giengen an der Brenz, Germany. In 2017, it was founded by Torsten Becker and Christoph Hiemer. Their vision is to bind CO2 in biochar over the long term and use it to create new materials. These NET Materials® shall not only cause no further damage to our social and ecological systems, but also actively contribute to their regeneration.

Sustainable solutions must become affordable for everyone: "Socially and ecologically valuable products must not remain a luxury. Everyone needs to have the opportunity to contribute to a sustainable future. With our technology, we ensure that food, materials and energy become regenerative, better and cheap." - Torsten Becker

### 1 ton of biocarbon = minus 3.3 tons of CO2

To implement this idea, carbonauten has developed a system for industry, companies and municipalities. It has attracted great attention from business, research, and politics. Additionally, it has won several awards and has caught interest of some well-known investors. In the companies minus CO2 factories, woody, lumpy, dry and biogenic residual and problem materials (such as damaged wood, sawmill residues, screen overflows or food and press residues) are carbonized into biocarbons. The biocarbons store the equivalent of up to 3.3 tons of CO2 per ton. They are then refined with various binders to form the carbonauten NET Materials®. "NET" stands for "Negative Emission Technology".

### Green materials and energy

The carbonauten NET Materials® are used to produce highly effective biostimulants, as well as high-performance plastic products and building materials that represent a regenerative alternative to their fossil counterparts. Examples include

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films, asphalt, concrete, plaster, insulation, and plastics of all kinds. Moreover, far more energy is generated during the high-tech carbonization than the process itself consumes. Thus, the excess, baseload energy can be fed into the heat or power grid or can be used to produce hydrogen.

### Decentralized, scalable, quick to implement – a solution for many industries

The minus CO2 factories can be built at decentralized locations around the world to enable a local circular economy. And because the costs of commissioning and maintaining the facilities are low, ecological benefits go hand in hand with great economic potential. After all, the more products are produced from carbonauten NET Materials®, the more harmful climate gases are sequestered.

### Industrial production starts in autumn

The first minus CO2 factory in Eberswalde, Brandenburg (Germany) has been established with ForestFinance Capital GmbH as the investor. It is scheduled to start industrial production of engineered biocarbons in the fourth quarter of 2022. There is already huge interest in the products from customers. Further locations in Germany, Spain, South America, the USA, Indonesia and China are already in planning.

### The founders



#### Christoph Hiemer (on the left)

Founder | Location, Technology and Project Development

The trained lawyer has been an expert in biomass flows and their utilization for 20 years. He gained first experience in his father's engineering company for biomass cogeneration plants. As managing partner, he realized a large pyrolysis facility for the first time in 2016. Together with Torsten Becker, he founded carbonauten GmbH in 2017. He uses his wide-ranging expertise to reach their common goal with the support of more carbonauten facilities: minus CO2 - at least one gigaton of CO2 per year by 2030.

#### Torsten Becker (on the right)

Founder and CEO | Innovation and Communication

His past: Graduate product designer, national field hockey player, company owner of agentur becker for 25 years. In 2017, he founded carbonauten GmbH together with Christoph Hiemer. The father of five children is passionate to develop new applications and materials to reduce climate gases in the atmosphere. After all, future generations should also have a basis for a healthy life in prosperity. His motto: "minus CO2 – when, if not now?"

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### Abstract:

carbonauten - the minus CO2 factory was founded in 2017 with headquarters in Giengen an der Brenz with the goal of removing gigatons of CO2 from the atmosphere. At global and decentralized locations, biomass residues are turned into CO2-reducing technical biocarbon materials. When these are combined with various binders, CO2-reduced, CO2-neutral or even CO2-negative building materials are created. In all cases, carbon is removed from the atmosphere and permanently fixed in buildings, streets and green spaces. Thanks to improved product properties and favorable prices, carbonauten NET Materials® (Negative Emission Technology) are a direct substitute for conventional building materials, enabling companies and municipalities to achieve their climate targets easily, quickly and cost-effectively. For everyone, it means that housing becomes more sustainable, better and cheaper.