

Audi and Krajetec Filter CO₂ Out of the Air

- **Filter more CO₂ in less time thanks to the new direct air capturing method**
- **Innovative plant in Linz with 1,000 tons of separation capacity per year**
- **Hagen Seifert, Head of Sustainable Product Concepts: “Thanks to its modular design, the system can be expanded in various ways – an important step towards scaling”**

Ingolstadt, October 20, 2022 – AUDI AG and the Linz-based green tech company Krajetec GmbH are jointly developing new technologies for filtering emissions from ambient air. In addition to robust adsorber materials, these so-called direct air capturing technologies (DAC) are based, above all, on innovative processes. They make far-reaching energy and cost reductions possible.

The latest example of the two partners' development work is a new plant in Austria, where we are using an inorganic filter material that can hold a very high load of molecules and is also very insensitive to the effects of moisture. As a result, it is not necessary, or only necessary in particular cases, to pre-dry the ambient air to be filtered. This increases efficiency and reduces costs. The temperature and pressure conditions for absorbing CO₂ molecules and subsequently removing them from the adsorption surface are very similar. This significantly shortens the adsorber's loading and discharge cycles. In other words, more CO₂ can be removed from the ambient air in a short period of time. The filtered air is released back into the environment after the adsorption step. The recovered CO₂ is then available in a highly concentrated form as a raw material for permanent storage or for a wide range of industrial applications. The large-scale plant near Linz, which is currently in the process of going into operation, can filter 500 tons of CO₂ per year. By the end of the year, another module will increase the plant's capacity to 1,000 tons. The electricity required to operate the plant comes from a photovoltaic system on the company's premises.

Alexander Krajetec, CEO of the technology development company that bears his name, says that “we started from the premise that, for reasons of efficiency, we would let the process run at ambient pressure. Then we modified the adsorber materials and the physical conditions in the plant until we found the optimal flow rate, meaning we filtered the maximum amount of CO₂ per unit of time.” This made it possible to significantly reduce the cost of sequestration, which is already down to the low three-digits range in euros per ton of CO₂. The long-term goal is to make carbon dioxide usable for industrial purposes. In doing so, Krajetec GmbH and AUDI AG want to facilitate breakthroughs in the necessary applications.

“The technology makes it possible to remove CO₂ directly from the atmosphere, regardless of location, and is therefore an important decarbonizing measure,” says Hagen Seifert, Head of Sustainable Product Concepts at AUDI AG. “In addition, the system technology can be expanded in a variety of ways thanks to its modular design.”

As a next step to the existing large-scale plant in Linz, AUDI AG is currently looking into the possibility of using sources with higher concentrations of CO₂ and filtering additional emissions such as nitrogen oxides. In addition, DAC technology could be implemented on a much larger scale at Audi’s site in Győr, Hungary. A plant with a capacity of 25,000 tons per year is conceivable.

Two-degree target: Why Audi is involved in developing direct air capturing technologies

AUDI AG wants to play its part in limiting the global average temperature increase to less than 2 degrees Celsius. The company therefore takes sustainability into account in all its business decisions and has set ambitious targets for itself. By 2025, the Volkswagen Group aims to reduce the ecological footprint of passenger cars and light commercial vehicles by 40% over their entire life cycles as compared to 2018. Each particular measure is contributing to achieving carbon-neutrality throughout the company by 2050 at the latest.

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The Audi Group is one of the most successful manufacturers of automobiles and motorcycles in the premium and luxury segments. The brands Audi, Ducati, Lamborghini and Bentley produce at 21 locations in 13 countries. Audi and its partners are present in more than 100 markets worldwide.

In 2021, the Audi Group delivered around 1.681 million cars from the Audi brand, 8,405 sports cars from the Lamborghini brand and 59,447 motorcycles from the Ducati brand to customers. In the 2021 fiscal year, AUDI AG achieved a total revenue of €53.1 billion and an operating profit before special items of €5.5 billion. More than 89,000 people all over the world work for the Audi Group, around 58,000 of them in Germany. With its attractive brands, new models, innovative mobility offerings and groundbreaking services, the group is systematically pursuing its path toward becoming a provider of sustainable, individual, premium mobility.
