

## PRESS RELEASE

Proven efficiency, flexibility and sustainability: EnviTec Biogas  
**A decade of market success for EnviThan gas upgrading**

**Lohne/Saerbeck, 27 October 2022** Looking back over the last ten years, the innovative EnviThan gas upgrading technology from EnviTec Biogas AG has chalked up no less than 86 biogas upgrading projects. The runaway success story got underway on 24 October 2012 as a partnership with Evonik Industries, initially featuring SEPURAN® Green membranes in EnviTec's own demonstration plant in Sachsendorf, Saxony-Anhalt. Since then, there's been no stopping this environmentally friendly technology.

"Today, we have completed 65 plants in seven countries, including China and the USA, with another 21 gas upgrading plants currently being built," says Olaf von Lehmden, CEO of the biogas all-rounder. Most of the demand is to be found in France, Europe's largest agrarian economy. "Here, we've recently seen growth amounting to 35 new biogas plants with gas upgrading within just two years," von Lehmden continues.

With many gas upgrading plants prior to 2012 constructed as high-pressure water scrubbing systems or using a membrane process with a relatively high level of methane slip, the innovative membrane solution was already winning awards just one year after its market launch in Germany. Jürgen Tenbrink, CTO of EnviTec Biogas AG: "Receiving the Biogas Innovation Prize from the German Farmers' Association in 2012 really gave us a head start." The mechanism of action for this award-winning process is based on Evonik's advanced hollow-fibre membranes, which purify the raw biogas generated in biogas plants very efficiently and without the need for other process materials. "Carbon dioxide molecules are smaller than methane molecules, so they can pass through the microscopic pores in the membrane significantly faster," Tenbrink explains. Methane is therefore collected on the high-pressure side of the membrane, while unwanted biogas components pass through. In smaller gas grids, this high-purity biomethane can be fed directly into the grid, since these typically operate at lower pressure and therefore require no additional pressure boost.

The original EnviThan process has of course seen plenty of improvements over the last decade. "While the separation capacity was more than doubled in 2018, mainly due to optimisations in

the manufacturing process, we set a new milestone in 2020 with the development of a high-performance polymer with a more than fourfold separation capacity compared to the first generation” explains Volker Wehber, Director SEPURAN® Green | High Performance Polymers. Since then, this greater separation capacity has made fewer membranes necessary, leading to a higher upgrading capacity per container and less space being needed for the membranes.

Consistent progress has been made in developing smaller, more compact plants: up to 850 Nm<sup>3</sup>/h biomethane can now be housed in a single container. Container design has also been continuously improved and optimised. This standardised approach has dramatically reduced the company’s turnaround time for containers and so significantly increased the number of plants. The decision to utilise feed-in compressors from EnviTec’s business partner BAUER was another significant innovation. “This compressor boosts the pressure of the biomethane produced from around 12 bar to the network pressure required by the various destination gas grids,” explains Stefan Laumann, Head of EnviTec’s Gas Upgrading Department. The booster compressor is supplied to customers as a fully-equipped, ready-to-go unit.

Strong demand for gas upgrading ‘Made in Germany’, especially from Denmark, France and the USA, not only helped the company fill its order books but also resulted in expansions to the production unit in Saerbeck. The original 6 production lines have recently doubled to 12 lines dedicated to the simultaneous production of EnviThan gas upgrading plants.

In 2017, the ‘Drive Biogas’ model then opened up another potential market for the award-winning EnviThan gas upgrading technology. This business model establishes the use of biogas as fuel for the transport sector in the form of bio-CNG (compressed natural gas from biomethane). This gives EnviTec as a plant engineering firm as well as operators of biogas and gas upgrading plants the option of further compressing the biomethane they produce and utilising this as a fuel. EnviTec is transitioning more and more of its company fleet to this climate-friendly and inexpensive drive system, now offered by many vehicle manufacturers. “In terms of current petrol prices, we’re getting double the mileage for the same money,” Laumann explains. Thanks to its ongoing partnership with BAUER, EnviTec can now supply and operate all of the processes and components required from a single source – from organic waste to the pump. “Today, our gas upgrading and the future market of advanced fuels is helping to drive the transition to sustainable transport,” concludes Olaf von Lehmden. “Our purchase and conversion of Güstrow, Germany’s largest biomass energy park, into a bio-LNG liquefaction plant is the logical next step in a business development story that we started with our EnviThan technology

in 2012. Use of this green bio-LNG fuel can make a significant contribution to decarbonising the ever-increasing numbers of heavy goods vehicles throughout Europe.”



Since the development of the joint demonstration plant in 2012, EnviTec Biogas AG has been a certified technology partner of Evonik Industries.



Continuous further development since 2012 of the EnviThan gas upgrading plants with patented Evonik membrane technology.

**About EnviTec Biogas AG**

EnviTec Biogas AG covers the entire value chain for the production of biogas, including the planning and turnkey construction of biogas plants and biogas upgrading plants as well as their commissioning. The company takes charge of biological and technical services on demand, and also offers operational management services. EnviTec operates 89 of its own plants, making it one of the largest biogas producers in Germany. EnviTec's business interests also include the direct marketing of upgraded biomethane as well as the marketing of electricity and balancing energy. The company is represented in 16 countries worldwide by its own companies, sales offices, strategic partners and joint ventures. In 2021, the EnviTec Group generated revenue of EUR 262.4 million and EBT of EUR 23.3 million. The Group currently employs 531 people worldwide. EnviTec Biogas AG has been listed on the Frankfurt Stock Exchange since July 2007.

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