

Dotz Advances DotzEarth's Direct Air Capture (DAC) Technology with Successful Lab-Scale Pilot Demonstration

Company's lab-scale results validate superior working capacity, durability and energy efficiency compared to commercial DAC sorbents

Key highlights

- **Superior CO₂ working capacity:** Our lab-scale pilot operations have demonstrated enhanced CO₂ working capacity with lower desorption temperature and significantly lower energy consumption compared to commercial DAC sorbents currently used across the industry.
- **Proven durability of sorbent:** The results show that our DAC sorbent performs exceptionally well, with continuous adsorption/desorption cycles executed with no evidence of sorbent degradation, demonstrating the thermal and oxidative stability of the sorbent and highlighting the long-term viability of the technology.
- **Advancement of DAC application readiness:** Dotz has successfully advanced DotzEarth's DAC innovation to Technology Readiness Level (TRL) 4, demonstrating substantial progress towards commercial deployment.
- **Field pilot:** Dotz commenced the design of an outdoor field pilot, which is expected to be operational in the second half of 2025. This field pilot will play a pivotal role in scaling up the DAC technology and demonstrating its commercial potential in real-world environments.

27 March 2025 - Dotz Nano Limited (ASX: DTZ, OTC: DTZZF/DTZNY, "Dotz" or "Company"), a leading developer of innovative climate and industrial nanotechnologies, is pleased to announce significant progress in the development of DotzEarth's Direct Air Capture (DAC) technology, following the successful completion of its lab-scale pilot demonstration, highlighting its superior performance compared to commercial DAC amine grafted sorbents currently in use across the industry¹.

This milestone is a valuable addition to Dotz's portfolio of carbon capture applications. This achievement marks a major step forward in the Company's efforts to scale and commercialise its groundbreaking CO₂ technology, for both point source and DAC applications.

Dotz CEO, Sharon Malka said: "We are excited by the successful outcomes of this lab-scale pilot demonstration of our breakthrough DAC sorbent material.

"This novel sorbent outperforms current commercial solutions, offering superior CO₂ working capacity at lower regeneration temperatures. It has been independently verified by multiple third-party industrial partners across various DAC systems, confirming its significant potential to enhance carbon capture efficiency, enabling low-cost carbon removal solutions.

¹ VPOC 1065 (amine-grafted resin)



“The superior performance and durability of our sorbent over the industry standard not only validates the significant potential of our solution, but also reinforces our commitment to addressing climate change through sustainable, scalable technologies.

“With dozens of DAC projects are underway, the demand for innovative solid sorbents is growing, presenting a significant market opportunity for our unique, high-performance solid sorbent technology.

“Looking forward our forthcoming field pilot, we are well-positioned to demonstrate the real-world viability of our innovative DAC technology, moving us closer to commercial deployment.”

Summary of results

The lab scale pilot was developed in collaboration with Dotz’s strategic partner, integrating Dotz’s high performing DAC sorbent with its proprietary Temperature Vacuum Swing Adsorption (TVSA) capture process design.

The process is currently in the lab at benchtop scale where a series of parametric experiments were conducted to understand varying humidity and ambient air conditions on the system’s energy efficiency, and the adsorbent’s working capacity and lifetime.

The innovative TVSA process accentuates the high CO₂ capture capacity of Dotz’s sorbent and efficiently regenerates the sorbent at low temperature enhanced by concentrated water vapor.

The results of the integrated solution² demonstrate impressive high working capacity of 1.57 mmol/g of CO₂ at relatively low desorption temperatures of <80°C, with a CO₂ purity > 99%, which is expected to promote a longer adsorbent lifetime and bring further savings to the levelized cost of capture.

The current experimental study will establish a foundation for the design of an outdoor field prototype – which will be designed for easy integration with renewable energy – to further enhance the offering as a distributed direct air capture solution.

Dotz’s proprietary DAC sorbent has been verified and endorsed by multiple industrial parties, highlighting its superior CO₂ working capacity and cyclability compared to other commercial sorbents currently in use across the industry. The DAC sorbent demonstrated the highest adsorption capacity for DAC and improved productivity while minimizing desorption energy requirements compared with commercial PEI sorbents. Moreover, the sorbent maintains high absolute uptake over extended use, supporting longevity and reliability, representing a transformative shift in carbon capture technology.

This announcement has been authorised for release by the Board of Directors of Dotz Nano.

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² Testing conditions: the feed ambient air was 22°C, 400ppm CO₂ and 30% relative humidity.



About Dotz Nano Limited

Dotz Nano Limited is a pioneering developer of innovative climate and industrial nanotechnologies dedicated to addressing pressing global environmental and industrial challenges.

Our focus lies in advancing carbon management technologies offering an efficient and sustainable approach, thereby supporting the shift towards a carbon-neutral future. At the heart of Dotz Nano's mission are groundbreaking carbon management solutions, which include direct air capture and point source capture. Our unique strategy integrates novel porous sorbents with advanced process designs, enabling low-cost carbon capture and removal applications.

With a commitment to innovation and sustainability, Dotz Nano Limited is at the forefront of carbon management technologies, offering innovative and cost-effective solutions that play a crucial role in addressing climate change and promoting a sustainable future.

To learn more about Dotz, please visit the website via the following link www.dotz.tech

Future Performance and Forward Looking Statements

This announcement contains certain statements that constitute forward-looking statements that may be identified by the use of terminology such as “may,” “will,” “expects,” “plans,” “anticipates,” “estimates,” “potential” or “continue” or the negative thereof or other comparable terminology. Examples of such statements include, but are not limited to, statements regarding the design, scope, initiation, conduct and results of our research and development programs; our plans and objectives for future operations; and the potential benefits of our products and research technologies. These statements involve a number of risks and uncertainties that could cause actual results and the timing of events to differ materially from those anticipated by these forward-looking statements. These risks and uncertainties include a variety of factors, some of which are beyond our control. Forward looking statements, opinions and estimates provided in this announcement are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward looking statements including projections, guidance on future earnings and estimates are provided as a general guide only and should not be relied upon as an indication or guarantee of future performance.