

8 February 2021

EXECUTES RESEARCH AGREEMENT WITH UQ TO EVALUATE CARBON CAPTURE USING SYNTHETIC ZEOLITES

Zeotech Limited (ASX: ZEO, "Zeotech" or "the Company"), an emerging industrial kaolin and mineral processing technology company is pleased to announce it has executed a dedicated research agreement with The University of Queensland ("UQ") to evaluate the performance of synthetic zeolites in the field of carbon capture, a market that is projected to reach USD 6.15 billion by 2027.¹

Zeotech is assessing how to leverage its novel and proprietary mineral processing technology for the low-cost synthesis of synthetic zeolites to deliver economically feasible environmental management solutions for carbon capture.

The carbon capture research program will commence 1 March 2021 and will be carried out over a nine-month period. The program will consist of the following stages:

1. **Characterisation of synthetic zeolites and commercial adsorbents** – this will involve building a database of different types of the synthetic zeolites and commercial adsorbents, following their characterisation, and comparing properties;
2. **Carbon dioxide adsorption capacity and selectivity measurement** – this will involve measuring and comparing the carbon dioxide (CO₂) adsorption capacity of the synthetic zeolites and commercial adsorbents. The synthetic zeolites selectivity of CO₂ over other gases such as N₂ will also be investigated; and
3. **Granulation study of synthetic zeolite products** – this will involve an agglomeration study of synthetic zeolites will be carried out in this stage. The preparation process of the synthetic zeolite agglomerate will be explored, and the carbon capture performance of these bulk adsorbents will be evaluated.

Zeotech's carbon capture research program will also incorporate detailed economic analysis of:

- a) The use of different synthetic zeolites produced by Zeotech and the commercial adsorbents for carbon capture and selectivity; and
- b) Granulation of synthetic zeolite products and the commercial adsorbents for carbon capture and selectivity.

Carbon Capture and Synthetic Zeolites

Growing environmental concerns regarding global warming and climate change have motivated researchers to develop more efficient and improved processes for CO₂ capture from large point sources of CO₂.

¹ Verified Market Research "Carbon Capture and Storage Market Size & Forecast Report to 2027"

Adsorption processes using solid sorbents capable of capturing CO₂ from flue gas streams have shown many potential advantages, compared to other conventional CO₂ capture processes using aqueous amine solvents.

Microporous crystalline framework materials such as synthetic zeolites are widely used in the field of gas separation and purification, commercially. Synthetic zeolites have shown promising results for separation of CO₂ from gas streams and there is much published literature concerning CO₂ adsorption over different types of zeolites.

Zeotech's aim is to leverage the economic benefits of its synthetic zeolite mineral processing technology. For example, UQ's Chemical Engineering team has demonstrated up to 70% reduction in energy consumption in the thermal activation stage and up to 80% reduction in production time in the subsequent zeolite precipitation steps, in the synthesis of synthetic zeolites, coupled with the excellent structural properties of the synthetic zeolite to produce low-cost solid adsorbent for commercial CO₂ capture to reduce greenhouse gases.

Expanding in-house technical resources

Zeotech is also pleased to advise it continues to grow its in-house technical team, with the employment of Mr. John Vogrin on a full-time basis. Mr. Vogrin is a PhD candidate (awaiting examination) and Alumina Quality Workshop scholar in the School of Chemical Engineering at The University of Queensland.

He has recently submitted his thesis on the hydrothermal synthesis of zeolites in industrial processes such as the Bayer process and anion incorporation into their structure.

John's expertise includes XRD (quantitative/qualitative), ICP, XRF, FE-SEM, TGA, PSD and UV-Raman spectroscopy for materials characterisation. His latest publication is 'Influence of Chloride on Sodium Aluminosilicate Solubility in Bayer Liquor'. He holds a Bachelor of Engineering (B.E.) in Chemical and Metallurgical Engineering (Honours).

Advance Queensland Industry Research Fellow (Mid-career), The University of Queensland's School of Chemical Engineering, Dr. Hong (Marco) Peng, commented:

"Reducing greenhouse gas emissions is critical for the future of our planet and we are excited to have the opportunity to work on research aimed at leveraging Zeotech's technology to potentially develop cost-effective synthetic zeolite centric carbon capture solutions."

Zeotech, Managing Director, Peter Zardo added:

"This program is another example of our strong collaboration with UQ and continues Zeotech's proactive approach in assessing the diverse and important commercial applications of synthetic zeolites."

"Our objective is to combine the potential of our low energy and production time efficient, mineral processing technology with the unique and proven CO₂ adsorption capabilities of synthetic zeolites in order to determine the delivery of a commercially viable environmental management solution for the very large and lucrative carbon capture market."

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This announcement has been approved by the Board.

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About Zeotech

Zeotech is an emerging industrial kaolin and mineral processing technology Company.

We are working with The University of Queensland to commercialise novel and proprietary zeolite mineral processing technology, whilst continuing to explore the development of our Queensland based Abercorn Kaolin Project, acquired in August 2019.

Zeotech's novel and proprietary mineral processing technology provides potential access to the A\$2.6 billion global Type A zeolite market².

Zeotech aspires to improve environmental outcomes by building on the potential of its zeolite mineral processing technology to be applied as a commercial remediation solution by using suitable mine waste and process residue streams as zero-cost feed for low cost production of high value zeolites.

About Zeolites

Zeolites play an important role in a cleaner and safer environment.

- zeolites are an effective substitute for harmful phosphates in powder detergent, now banned in many parts of the world because of blue green algae toxicity in waterways;
- as catalysts, zeolites increase process efficiencies, thereby decreasing energy consumption;
- zeolites can act as solid acids and reduce the need for more corrosive liquid acids;
- zeolites' adsorbent capabilities see them widely used in water treatment i.e., heavy metal removal including those produced by nuclear fission; and
- as redox catalysts sorbents zeolites can help remove exhaust gases and CFC's.

Forward-looking Statements

This release may contain certain forward-looking statements with respect to matters including but not limited to the financial condition, results of operations and business of Zeotech and certainty of the plans and objectives of Zeotech with respect to these items.

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Such statements are subject to certain risks and uncertainties, particularly those risks or uncertainties inherent in the process of developing technology and in the endeavour of building a business around such products and services.

These statements are not guarantees of future performance and are subject to known and unknown risks, uncertainties, and other factors, some of which are beyond the control of Zeotech, are difficult to predict and could cause actual results to differ materially from those expressed or forecasted in the forward looking statements. Zeotech cautions shareholders and prospective shareholders not to place undue reliance on these forward-looking statements, which reflect the view of Zeotech only as of the date of this release.

The forward-looking statements made in this announcement relate only to events as of the date on which the statements are made. Zeotech will not undertake any obligation to release publicly any revisions or updates to these forward-looking statements to reflect events, circumstances or unanticipated events occurring after the date of this announcement except as required by law or by any appropriate regulatory authority.