

28 November 2022

SUCCESSFUL COMPLETION OF PILOT PROGRAM ACCELERATES TECHNOLOGY DEVELOPMENT

Emerging mineral processing technology company, Zeotech Limited (ASX: ZEO, "Zeotech" or "the Company") is pleased to advise it has successfully concluded the pilot plant ("Pilot") research program for its novel and proprietary mineral processing technology with The University of Queensland ("UQ") School of Chemical Engineering and UniQuest, UQ's commercialisation company.

The Pilot has been in operation at UQ since February 2021¹ and has achieved its principal objectives by demonstrating a continuous closed-loop circuit from lithium process by-product (leached spodumene) and kaolin feedstock options, providing important process validation of the patent-pending technology.

HIGHLIGHTS

- Pilot research program successfully completed for novel and proprietary mineral processing technology with UQ and UniQuest
- The Pilot has provided important validation for the Company's mineral processing innovation by demonstrating multiple continuous closed-loop circuits from dual feedstock options
- Recent performance runs and process optimisation has generated over 20kg of manufactured zeolite product
- Development will now be accelerated under two parallel work streams:
 - Technology associated with lithium process by-product to be advanced by the Resources Technology and Critical Minerals Processing Trailblazer Program² ("Trailblazer")
 - Development of the technology from kaolin feedstock will be undertaken at the Company's recently established lab facility at Brisbane Technology Park, following commissioning of a scaled-up in-house Pilot
- Preparation of product specification and safety data sheets for Zeotech's manufactured zeolite products are well advanced, and will support marketing activity when providing manufactured zeolite product samples to potential offtake or joint venture partners

The University of Queensland's School of Chemical Engineering, Associate Professor James Vaughan commented:

"We are extremely pleased with the outcomes of the dual-feed pilot program over the past 22-months. The successful continuous piloting, data collection and zeolite sample generation has placed the technology well to progress into the Trailblazer program where UQ's focus will be to deliver a circular solution for lithium process by-product."

¹ ASX release dated 16/02/2021 "Zeolite pilot plant program commences"

² ASX release dated 22/04/2022 "University Trailblazer Partnership for ZEO Lithium Cleantech"

Zeotech, Head of Projects, Dr. John Vogrin commented:

"We are pleased to complete the piloting phase of our commercialisation pathway with UQ and UniQuest and look forward to advancing our technology development under two parallel streams.

"The Trailblazer will focus on a circular solution for the lithium refinery industry through to a commercial demonstration plant, whilst the kaolin to zeolite process development will move to our in-house lab facility.

"This will accelerate development of the Company's process innovation, build internal capability and support product sample production necessary for our large-scale research together with marketing activities and engagement with potential offtake or JV partners.

"We would like to thank the UQ School of Chemical Engineering, UniQuest and the dedicated members of the pilot program team for their support as we commercialise an Australian mineral processing innovation which was invented in the very facilities where we have been piloting"



Pilot plant research project team members representing UQ and Zeotech
(back) Peter Legge (UQ), David Mann (UQ), Kieran Kelly (UQ), Dr. John Vogrin (ZEO)
(middle) Dr. Denis Audet (ZEO), James Gudgeon (UQ), Miguel De Sousa (UQ), Dr. Hong Peng (UQ)
(front) Kimiya Balouri (UQ), Clara Kim (UQ), Zhila Amir Zadeh (UQ), A.Prof James Vaughan (UQ), Jenni Cox (ZEO)

BACKGROUND

The Pilot program was launched in February 2021³ with the objective of undertaking an extensive test-work program to further optimise the flowsheet of the Company's novel mineral processing technology and de-risk future commercial investment.

This followed positive outcomes from comprehensive lab-scale work undertaken by researchers from UQ and lodging of a provisional patent application in June 2019.

³ ASX release dated 16/02/2021 "Zeolite pilot plant program commences"

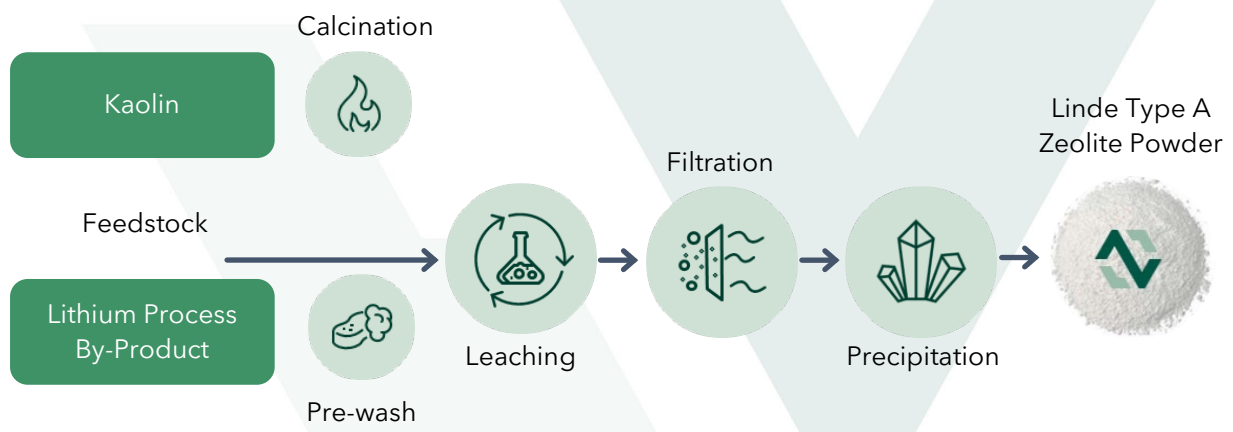
The objectives of the Pilot and associated data modelling were aimed at:

- Validating the patent-pending mineral processing technology;
- Verifying process efficiency, yields and target grades;
- Supporting the findings and data generated throughout UQ bench-scale research;
- Finalising mass and energy balances;
- Testing the variability of feedstocks;
- Further optimising system design and capacity;
- Assisting METSIM modelling to verify early baseline OpEx requirements;
- Establishing system limitations and optimise process design for continuous production;
- Develop basis for standard operating procedures;
- Producing manufactured zeolites for test applications and verification; and
- Support commencement of a conceptual feasibility study.

The Pilot initially focused on beneficiating kaolin feedstock obtained from the Company's Toondoon Kaolin Project ("Toondoon kaolin") and advanced by its novel mineral processing technology.

After early commercial interest in the potential for the Company's technology to be applied as a circular solution to the lithium refinery industry, the Pilot was expanded into a dual-feed program from May 2021⁴.

Research focused on hydrothermal synthesis utilising the Company's proprietary flowsheet to produce high-purity commercial grade Linde Type-A manufactured zeolite in a continuous closed-loop circuit.



Simplified flowsheet representation of Zeotech's novel and proprietary process.

⁴ ASX release dated 26/05/2021 "Lithium refinery cleantech forms part of ZEO pilot program"

In November 2021, Zeotech achieved a bench-scale continuous closed-loop circuit using Toondoon kaolin⁵. This represented a major milestone in developing the configuration and design required to scale-up the Pilot, and accelerated procurement and commissioning of the Pilot in early 2022.

Following the success from Toondoon kaolin feedstock from December 2021, research effort turned to further optimisation of process steps targeted at achieving a continuous closed-loop circuit utilising lithium process by-product.

Development and optimisation of the Company's proprietary flowsheet from lithium process by-product, together with achieving multiple closed-loop circuit runs contributed to the Company's inclusion as an industry partner in the Trailblazer, led by Curtin University, and in conjunction with project partners UQ and Covalent Lithium Pty Limited ("Covalent Lithium")⁶.

From July, performance runs have targeted process optimisation and de-risking and establishing the optimal conditions for leaching and precipitation from Toondoon kaolin and has resulted in more than twenty kilograms of high purity manufactured zeolite 4A being produced during the Pilot.

Focus has now turned to preparation of product specification and safety data sheets for the Company's products which will support further engagement with potential offtake partners and accompany product sample shipments.

LOOKING AHEAD

Development of the Company's proprietary mineral processing technology will continue to be accelerated by two parallel work streams.

The Trailblazer program will be the primary initiative to progress the Company's innovation associated with lithium process by-product feedstock, in conjunction with UQ and Covalent Lithium.

The objective of the Trailblazer is to advance the technology from Pilot through to commissioning and factory acceptance of a large-scale commercial demonstration plant, with technology readiness level milestones set at each contingent stage of development.

Whilst the demonstration plant will be principally developed under the Trailblazer stream, the Company's core flowsheet is unchanged, as such, it will be capable of functioning from both feedstock options.

Development of the proprietary process which utilises kaolin feedstock will shift in-house to the Company's recently refurbished lab facility at Brisbane Technology Park.

The lab will host a scaled-up Pilot and will be capable of generating manufactured zeolite product for the Company's large-scale research programs in agricultural nutrient management and landfill methane control, together with supporting marketing activity and enhancing engagement with potential offtake or joint venture partners.

⁵ ASX release dated 30/11/2021 "Pilot program update - first continuous closed-loop circuit"

⁶ ASX release dated 22/04/2022 "University Trailblazer Partnership for ZEO Lithium Cleantech"



Zeotech Lab Facility and Pilot Room located at Brisbane Technology Park

Preparation of product specification and safety data sheets which will accompany manufactured zeolite product samples is already well advanced.

The successful production of more than twenty kilograms of manufactured zeolite from the Pilot has triggered a further milestone under the Company's original Licence Agreement ("Agreement") with UniQuest⁷, the Company's third largest shareholder.

Under the terms of the Agreement, in the event that a patent is granted or upon production of three five-kilogram batches of type A zeolite, a success milestone of \$600,000 is payable by way of cash or the issue of ordinary fully paid shares in the capital of the Company, calculated on a 30-day VWAP (at the Company's election). The Company has elected to issue 16,176,820 fully paid ordinary shares.

The conclusion of the Pilot also triggers the satisfaction of Class C performance rights for Managing Director, Mr Peter Zardo. Under the terms of Mr. Zardo's employment agreement⁸, he will be issued 10,000,000 fully paid ordinary shares.

⁷ ASX release dated 07/04/2020 "Exclusive global Licence Agreement to produce Synthetic Zeolite"

⁸ ASX release dated 07/04/2020 "Board Restructure and Executive Appointment"

This announcement has been approved by the Board.

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About Zeotech

Zeotech Limited (ASX: ZEO) is a team of dedicated people, working together to build a future focused company, leveraging proprietary technology for the low-cost production of advanced materials 'manufactured zeolites' to deliver solutions aimed at addressing sustainability challenges.

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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

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