

16 September 2021

## INVESTOR WEBINAR PRESENTATION

Emerging mineral processing technology company, Zeotech Limited (ASX: "ZEO", "Zeotech" or "the Company") is pleased to advise its participation in the ShareCafe Small Cap "Hidden Gems" Webinar, to be held Friday 17th of September 2021 from 12:30pm AEST / 10:30am AWST.

Managing Director Peter Zardo will provide an overview of the Company's proprietary mineral processing technology developed by the University of Queensland, for the low-cost production of advanced materials for a sustainable future.

**Presentation title:** 'Zeotech – An Emerging Mineral Processing Technology Company'

**Event:** ShareCafe Hidden Gems Webinar

**Presenting:** Managing Director Peter Zardo

**Time:** Friday 17 September 2021 from 12:30pm AEDT / 10:30am AWST.

This webinar is able to be viewed live via Zoom and shareholders and investors can register online to view the presentation (please copy and paste the following link into your internet browser):

[https://us02web.zoom.us/webinar/register/5416151767246/WN\\_Ps5oHVEwQfua5ugSKHPKNQ](https://us02web.zoom.us/webinar/register/5416151767246/WN_Ps5oHVEwQfua5ugSKHPKNQ)

A recorded copy of the webinar will be available following the event.

A copy of the investor presentation to be delivered during the webinar is attached.

- End -

For further information please contact:

Peter Zardo – Managing Director

[peter@zeotech.com.au](mailto:peter@zeotech.com.au)

Tel: (+61) 7 3181 5523

# zeotech

**AN EMERGING MINERAL PROCESSING TECHNOLOGY COMPANY**

ASX: ZEO

[www.zeotech.com.au](http://www.zeotech.com.au)

September 2021

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# Disclaimer

This presentation announcement has been approved in accordance with the Company's published continuous disclosure policy and has been approved by the Board.

## CAUTIONARY STATEMENT

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## COMPETENT PERSON'S STATEMENT

Information in this presentation relating to resource work for the Toondoon Kaolinite Project is based on information provided by Mr Graham Rolfe (BSc, MSc, FAIG, RPGeo), who has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". The exploration results such as drill logging and geochemical analyses used in the mineral resource estimate were compiled by Mr Rolfe. Mr Rolfe consents to the disclosure of information in the form and context in which it appears.

# Company overview



## **Strong growth prospects:**

An emerging mineral processing technology company



## **Proprietary process:**

Maximising green and sustainable practices: low energy, reduced production time, high reagent recycling, and non-toxic residue



## **Patent-pending technology:**

Delivers compelling competitive advantage low OpEx / CapEx, and high product margins



## **Exposure to diversified markets:**

Developing advanced materials, focusing on environmental solutions and sustainable food production



## **Global applicability:**

Production of low-cost high-grade absorbents with unique properties for a wide range of industry sectors



## **Near term cashflow potential:**

Approved Mining Lease exceptionally high-grade raw ore kaolin offering immediate DSO revenue opportunity

# Board and management team



**Sylvia Tulloch** BSc. MASC.  
Non-Executive Chairman

Sylvia is a materials scientist, with many years' experience in establishment and management of high technology businesses, with a focus on commercialisation and mineral processing. Founded and taken 2 companies to ASX listing. Currently the Chairman of the ACT Government Renewable Energy Innovation Fund (REIF) Business Advisory Board and Chairman of GRIFFIN Accelerator.



**Peter Zardo** MAICD  
Managing Director & CEO

Peter has 25+ years experience in corporate finance and financial markets. Prior to joining ZEO, Peter had been a high performing corporate banking director, with the Westpac Group for over 16 years. He has undertaken studies in Applied Science at Charles Sturt University and is a member of the Australian Institute of Company Directors.



**Robert Downey** LL.B (HONS)  
Non-Executive Director

Rob is a qualified solicitor who has practised mainly in the areas of international resource law, corporate law and initial public offerings, as well as mergers and acquisitions. He has extensive experience as an advisor, founder and director of various ASX, TSX and AIM companies.



**Dr. John Vogrin** B.E (HONS) PhD  
Head of Projects

John holds a Bachelor of Chemical and Metallurgical Engineering (Honours) and a PhD in Chemical Engineering from The University of Queensland. He is an Alumina Quality Workshop scholar and submitted his thesis on the hydrothermal synthesis of zeolites in industrial processes.



**Neville Bassett** AM B.BUS FCA  
Company Secretary & CFO

## Research Partners:



# Large market opportunities from core IP platform



## Sustainable low-cost production synthetic zeolites

- *Proprietary mineral processing technology originally developed for mine/process tailings remediation*
- *Low energy and production time*
- *Established \$2.4bn global market*



## Lithium refinery cleantech

- *Commercial downstream lithium residue tailings management solution*
- *Proprietary IP to convert Li process residue into high value molecular sieve zeolites*



## Agronomic applications

- *Fertiliser delivery platform*
- *Decrease soil acidification*
- *Pesticide destruction*
- *CO<sub>2</sub> sequestration, offering carbon market opportunity*



## CO<sub>2</sub> capture / utilisation

- *Objective is to improve efficiencies of proven CO<sub>2</sub> separation / capture processes*
- *Explore utilising zeolites as catalysts for CO<sub>2</sub> conversion*



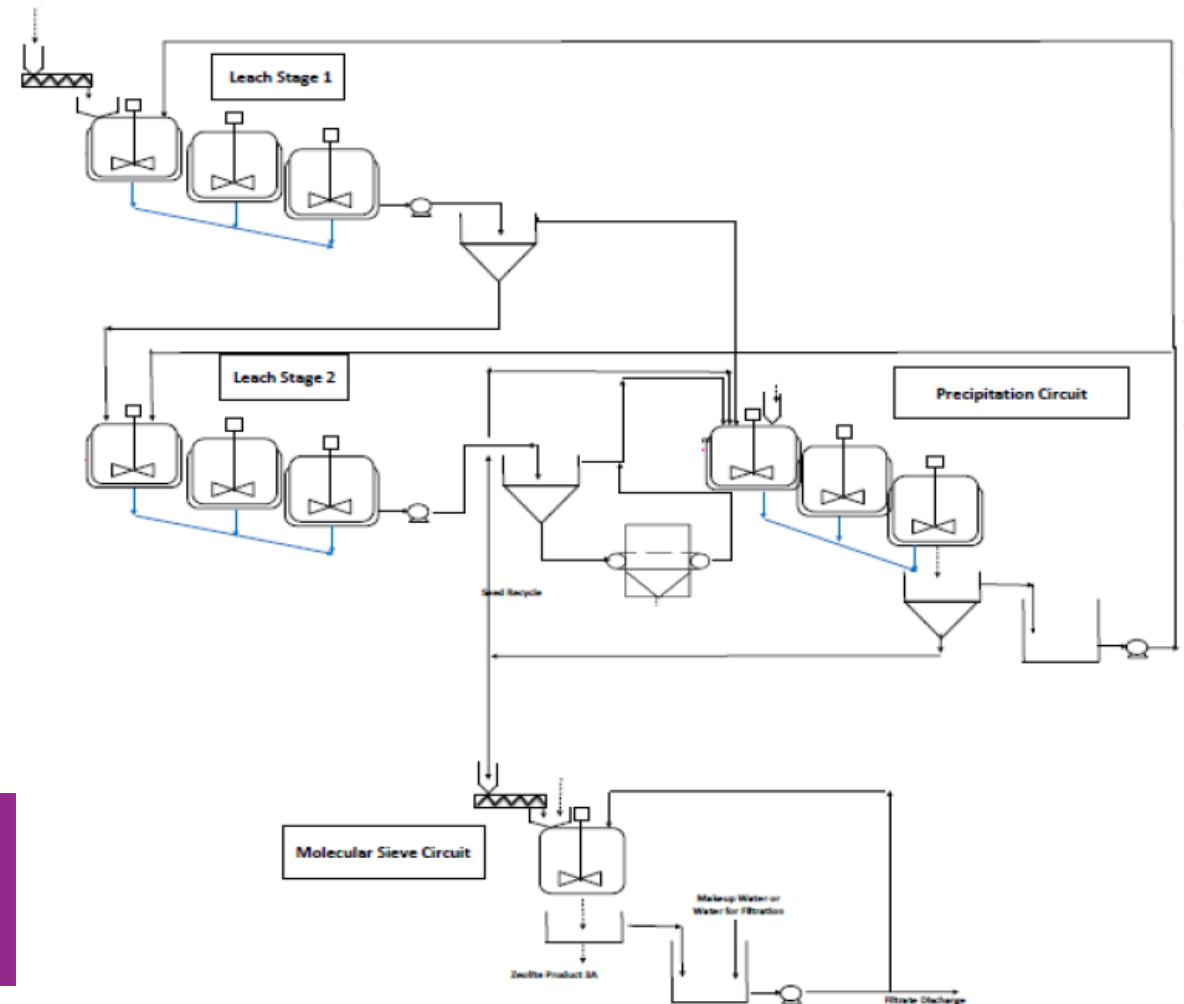
## Mycotoxin animal feed additives

- *Climate change increasing moulds that create mycotoxins*
- *Mycotoxins impacting global protein production*
- *Industry collaboration*
- *\$1bn+ global market*

common zeolite technology used across each vertical representing material market opportunities

# Sustainable, proprietary low-cost manufacturing

- **Low environmental footprint** offers economic advantages over conventional methods:
  - low energy consumption
  - reduced production time
  - high reagent recycling
  - non-toxic by-product residue
- Primary commercial plant P&E remains 'conventional' = low CapEx
- Patent Co-operation Treaty (PCT) entering National Phase
- Dual-feed pilot program progressing, continuous (bench) circuit underway

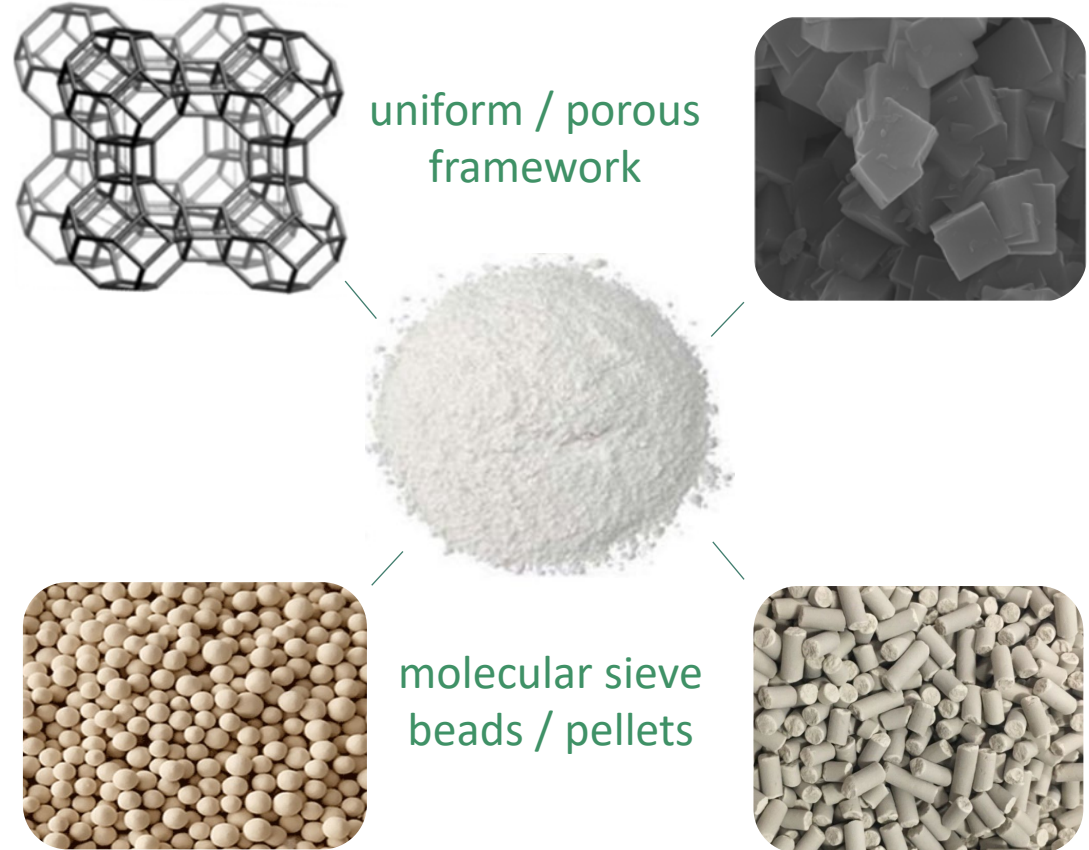


THE UNIVERSITY  
OF QUEENSLAND  
AUSTRALIA

# Synthetic zeolite overview

Zeolites are high-value adsorbents / catalysts with broad applicability

- Synthetic zeolites are manufactured aluminosilicate minerals with a sponge-like structure (frameworks)
- Zeolites are made up of tiny pores that make them useful as adsorbents, catalysts and ultrafine filters.
- Type A zeolites are commonly known as molecular sieves
- Can be designed to selectively adsorb molecules or ions dependent on their unique construction and can be regenerated repeatedly for re-use





# ZEO technology unlocks mature/growing global market

- Synthetic zeolites act like a magnet that can hold cations, including heavy metals, ammonia, low level radioactive elements, toxins, petrochemicals, many different types of gases and a multitude of various solutions, offering diverse applications
- **Type A mature established market >A\$2.6Bn**  
Detergent grade 4A manufactured for 30+ years
  - 4A detergent grade = A\$600/t
  - 4A PVC heat stabiliser grade = A\$750/t
- **Targeting higher value Type A Molecular Sieves**  
3A , 4A and 5A molecular sieve grade
  - A\$2,850-4,000/t
- **Type X and Lithium X**  
UQ program commencing 4<sup>th</sup> Quarter  
13X molecular sieve grade and Li-X
  - A\$3,000-4,500/t (13X)
  - up to A\$15,000/t (Li-X)



Cryogenic Air Separation



PVC Heat Stabiliser



Water Treatment



Molecular Sieve Beads



Insulating Glass Units



Molecular Sieve Pellets



Oil & Gas Industry



Detergent Builder

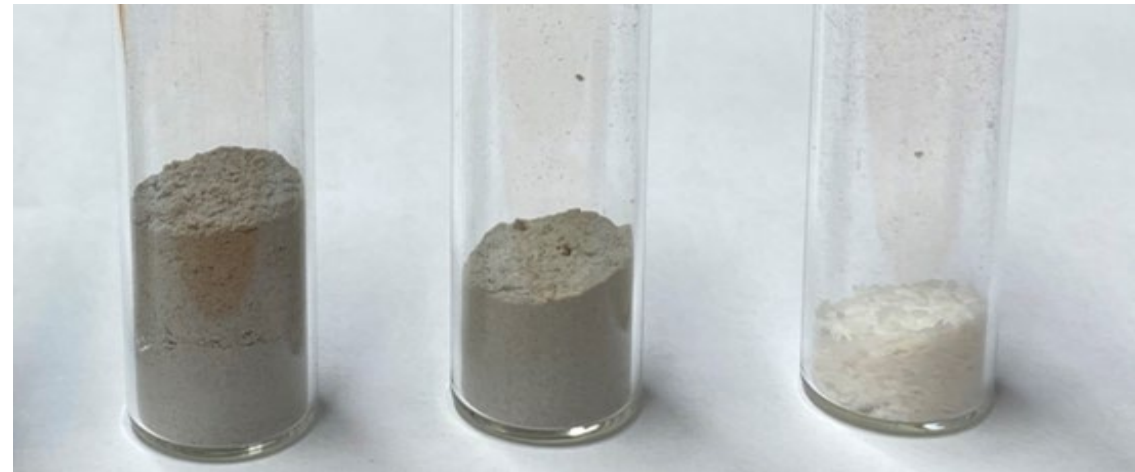


Paint Processing Industry

Aranca – Global Analysis 4A Detergent and 3A, 4A and 5A molecular sieves grade Nov 2020 (market data)

# Lithium refinery cleantech

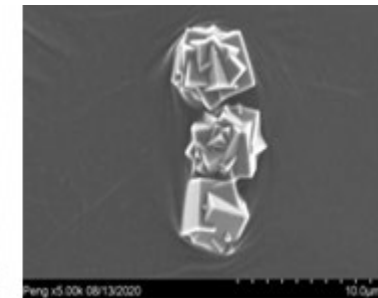
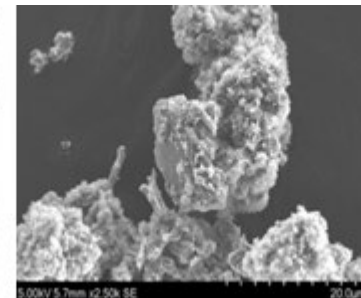
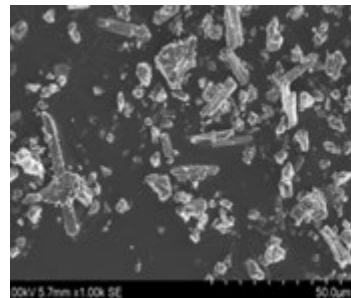
- ZEO holds patent-pending IP for the synthesis of synthetic zeolites from leached spodumene (Li process residue)
- As lithium battery demand grows its anticipated that the lithium refinery sector will produce significant amounts of lithium process residue
- The process of converting spodumene concentrates to lithium hydroxide requires about 7 tonnes of concentrate feed to produce 1 tonne of lithium hydroxide, with the balance tailings
- Dual-feed Pilot program underway leached spodumene residue from two (2) lithium hydroxide refineries undergoing bench-scale optimisation



Lithium  
process residue

Leached  
residue

Linde type A  
(4A) zeolite



# Agronomic applications

Pilot trials undertaken by Griffith University reveal potential to develop Zeotech products to offer solutions to large-scale agricultural challenges, driven by promising results:

- Decreased soil acidification
- Enhanced moisture retention
- Pesticide destruction
- High nutrient retention

Outcomes have driven planning on expanded pilots for (new) product development targeting:

- Fertilizer delivery/carbon markets and agricultural pollutants

**Dr. Chris Pratt (GU) commented on Type A zeolite results:**

*“Exceptional phosphate adsorption”*

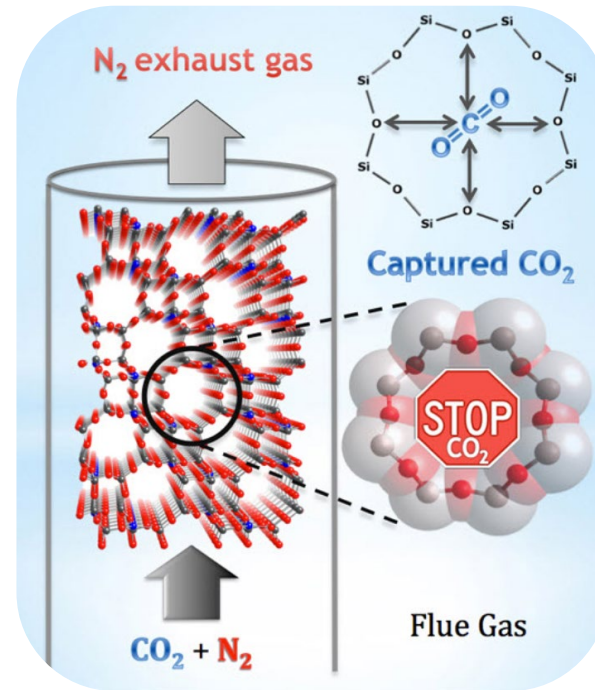
*“very encouraging pesticide removal not only pesticide removal observed but actual breakdown of the compound”*



# CO<sub>2</sub> capture and utilization technology

- UQ research program underway
- Zeolites can capture and “adsorb” CO<sub>2</sub> while allowing other substances through and then under certain conditions release “desorb” CO<sub>2</sub>
- Objective is to improve efficiencies of proven CO<sub>2</sub> separation/capture processes using synthetic zeolites as structured adsorbents to develop economically viable CO<sub>2</sub> capture & utilization technologies
- Potential to explore using zeolites as catalysts to produce value-added chemicals

image source: phy.org news  
<https://phys.org/news/2012-02-octagonal-window-opportunity-carbon-capture.html>



## Newly developed screening processes will accelerate carbon capture research

by Catherine Tays, University of Alberta



Workers at the Quest carbon cap

University of Alberta research that save a significant amount of efficient carbon capture technology to use the technology way to mitigate carbon dioxide.

## A sustainable new material for carbon dioxide capture

CHALMERS UNIVERSITY OF TECHNOLOGY



## Solid Acid Nano-Sponges Transform CO<sub>2</sub> Into Fuel and Plastic Waste Into Useful Chemicals

TOPICS: Environment Nanotechnology Plastic Pollution Tata Institute Of Fundamental Research  
By TATA INSTITUTE OF FUNDAMENTAL RESEARCH JULY 31, 2020

IMAGE: THE NI HYBRID FOAM, CO<sub>2</sub>-ADSORBING ALUMINOSILIC SHOWN TO HA



Nano solid acids that transform carbon dioxide directly to fuel(dimethyl ether) and plastic waste into chemicals (hydrocarbons). Credit: Ayan Maity,TIFR, Mumbai

<https://phys.org/news/2020-01-newly-screening-carbon-capture.html>

[https://www.eurekalert.org/pub\\_releases/2019-12/cuot-asn120619.php](https://www.eurekalert.org/pub_releases/2019-12/cuot-asn120619.php)

<https://scitechdaily.com/solid-acid-nano-sponges-transform-co2-into-fuel-and-plastic-waste-into-useful-chemicals/>

# Mycotoxin animal feed additives

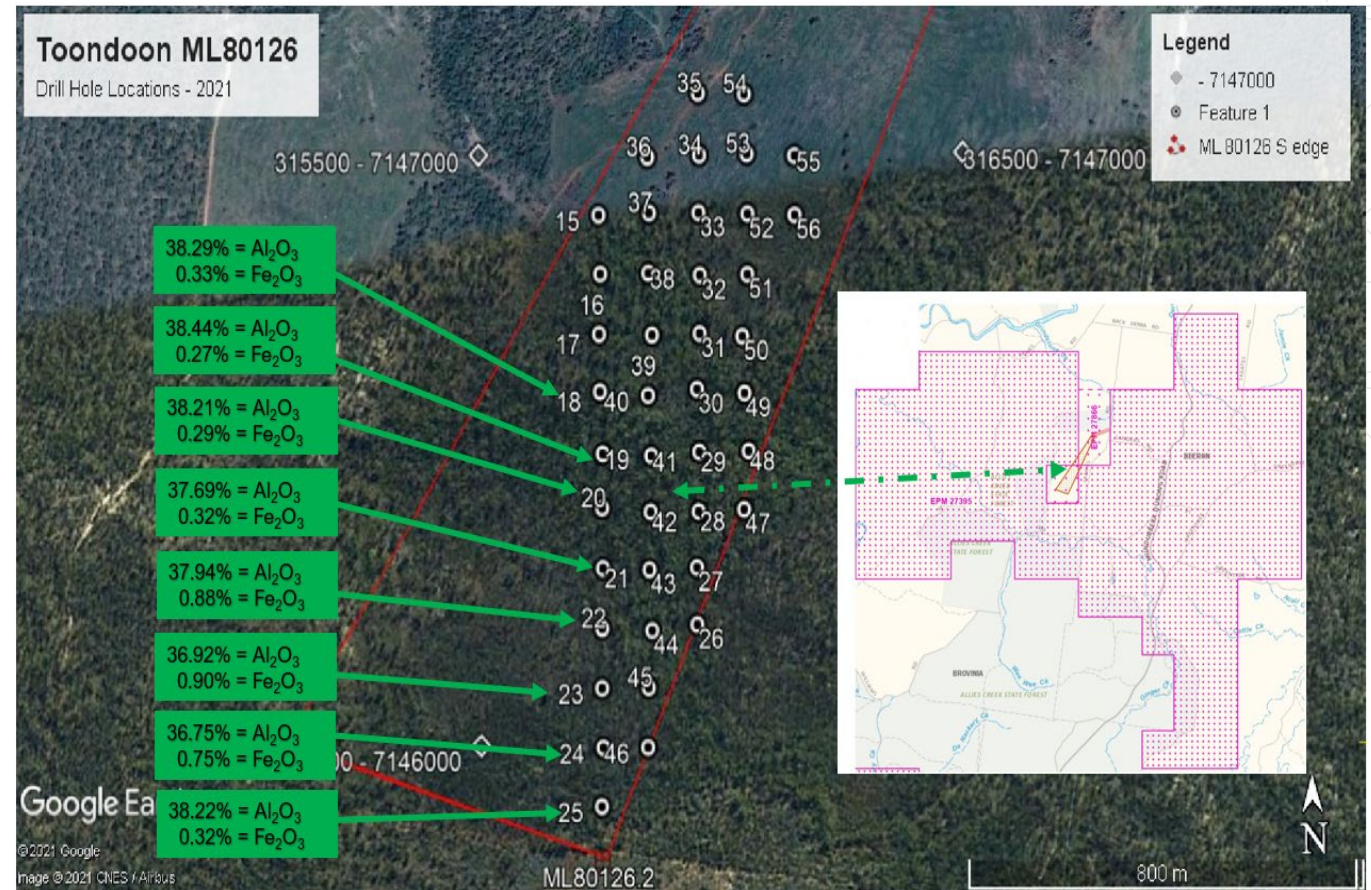
- Collaboration with Bioproton, a leading & innovative animal feed additives manufacturer (exporting to 45 countries – facilities in Aust / Europe)
- Climate change increasing moulds (fungus) that create mycotoxins, which affect animal health, in turn impacting global protein production
- Mycotoxins reduce weight gain and growth rate and increase mortality
- Mycotoxin additives are increasing being applied to animal feed as a preventative, placing upward pressure on demand
- Global Mycotoxin feed additives market >AUD \$1Bn comprises of:
  - Premium = A\$470m CAGR 7% pa
  - Advanced = A\$470m CAGR 4% pa
  - Simple = A\$160m CAGR 2% pa



[https://www.dsm.com/content/dam/dsm/corporate/en\\_US/documents/2020-06-12-presentation-to-investors-erber-group-acquisition.pdf](https://www.dsm.com/content/dam/dsm/corporate/en_US/documents/2020-06-12-presentation-to-investors-erber-group-acquisition.pdf)

# Approved ML accelerates time to revenue

- Toondoon Project approved Mining Lease ML 80126 + EPM's 27395/27866 over 280 km<sup>2</sup>
- Exceptionally high-grade raw ore kaolin high alumina, low iron and scale brightness
- Synthetic zeolite OpEx materially improved UQ has produced high purity molecular sieve grade zeolite from Toondoon raw ore kaolin
- Immediate DSO opportunity - samples are in mainland China, demand for high-grade DSO kaolin evident
- Advantageous logistics - highway access to major ports
- One of highest-grade raw ore kaolin resources held under approved Mining Lease in Australia
- Elutriated ISO Brightness results 82.5 to 84.5  
*"This is among the best, unbleached, kaolin's reported in Australia."*



# Near term value drivers



- Accelerate DSO marketing strategy
- commence mining plan application
- Set Asian markets representation
- Secure tangible buyer interest



- Share bench-scale optimisation results with 2 x lithium refinery participants
- Complete kaolin and lithium residue bench-scale circuit and commence construction of dual-feed pilot



- Commence new GU agronomic pilots, targeting:
  - a) fertilizer delivery;
  - b) treatment of agricultural pollutants; and
  - c) carbon markets



- Complete UQ CO<sub>2</sub> capture research program
- Explore CO<sub>2</sub> sequestration in expanded GU agronomic pilot



- Transition to next phase of mycotoxin binder animal feed assessment
- Progress to formalising Bioproton collaboration

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Zeotech Limited  
Peter Zardo  
Managing Director  
(+61) 7 3181 5523  
peter@zeotech.com.au

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