

28<sup>th</sup> September 2020

## **EXPLORING AGRICULTURAL APPLICATIONS FOR SYNTHETIC ZEOLITES**

Metalsearch Limited (ASX: “MSE”, “Metalsearch” or “the Company”) an aspiring industrial kaolin and mineral processing technology Company is pleased to announce it is participating in agronomic trials to evaluate the performance of synthetic zeolites across a range of agricultural applications. The trials will be undertaken in collaboration with Griffith University and the University of Queensland.

MSE is exploring the application of synthetic zeolites in the agricultural industry after being introduced to Griffith University by the University of Queensland, in order to link into an agronomic zeolite trial program to be conducted over the next 6-9 months.

The program will consist of:

- Zeolite sorption and desorption experimentation;
- Agronomic performance testing via glasshouse pot trials, benchmarking against conventional soil amendment;
- Assessing plant growth performance under optimal water-availability and drought conditions; and
- Pesticide-destruction experiments – testing the photocatalytic oxidation potential of zeolites amended with commonly-encountered pesticides in Australian agriculture.

MSE considers one of the inhibitors to the wider commercial adoption of synthetic zeolites in the agricultural sector has been the cost of production. The ability to produce low-cost synthetic zeolites from kaolin or suitable zero-cost mine waste streams using the University of Queensland’s developed mineral processing technology enables MSE to tangibly investigate end-product strategies to exploit its patent-pending zeolite mineral processing technologies.

Zeolites have a range of agricultural applications, such as;

- soil amendment i.e. improve water-holding capacity and aid fertilizer uptake;
- fertilizer additives i.e. aid slow-release;
- animal feed additives i.e. dietary supplement and mycotoxin adsorption;
- animal waste treatment i.e. increasing nitrogen retentivity and controlling moisture; and
- aquaculture i.e. remove ammonium, oxygen generation and as a feed supplement.

Griffith University’s agronomic zeolite trials will incorporate detailed economic analysis, which may potentially translate into a more intensive collaboration between Griffith University, the University of Queensland and MSE – the objective being to set the foundation for specialised synthetic zeolite Agri-product development studies.

**Mr. Peter Zardo, Managing Director, Metalsearch commented:**

*“MSE continues to proactively explore opportunities to expand and develop end-product applications in key growth sectors underpinned by the ability of our proprietary technology to produce low-cost synthetic zeolites.*

*Being involved in a zeolite program targeting the agricultural sector aligns to our objectives and we are pleased to be working with leading Queensland Universities to achieve our goals”*

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

*“It’s pleasing to be involved in facilitating collaboration amongst fellow Queenslanders to investigate the role zeolites might play in sustainable food production.*

*The scope to leverage MSE’s patent-pending zeolite mineral process into diverse agricultural applications presents a viable opportunity to further develop our technology.”*

**Dr. Chris Pratt, Geosciences School of Environment & Science / Australian Rivers Institute, Griffith University commented:**

*“It’s encouraging to see Metalsearch’s proactive approach to investigating the potential of synthetic zeolites to help embrace emerging agricultural opportunities.*

*We look forward to undertaking the agronomic studies and sharing the results with Metalsearch and the University of Queensland, with an aim to expand our working relationship in the future.”*

This Announcement has been approved by the Board.

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## **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 = decrease in energy consumption;
- zeolites can significantly improve the energy efficiency of “carbon capture” technology;
- zeolites can act as solid acids and reduced 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

The 2019 global synthetic zeolite market was estimated at USD \$5.58 billion<sup>1</sup>.

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<sup>1</sup> Verified Market Research Report “Global Synthetic Zeolite Market Size & Forecast to 2026”



## About Metalsearch

Metalsearch aspires to improving environmental outcomes by building on the potential of our zeolite mineral processing technology to be applied as a commercial remediation solution for suitable mine tailings and process residues, by using mine waste streams as zero-cost feed for low cost production of high value zeolites.

Our objective is to become an Australian industrial kaolin and mineral processing technology Company.

We are working with the University of Queensland to develop and commercialise novel and proprietary zeolite mineral processing technology that consumes kaolin or suitable mine tailings / residues to produce high value zeolites.

The technology has the potential to fast track development of the Abercorn Project, with a low capital cost to reach commercial production, utilising the company's existing kaolin feedstock.

It also provides potential opportunities to monetise broader application of the technology outside the company by offering a significantly lower cost method of manufacturing zeolites compared to conventional processes.

The Company remains committed to the development of our Queensland based Abercorn Project, acquired in August 2019. Abercorn Project is a large-scale kaolin prospect, which has the potential to underpin the production of kaolin mineral product for global markets and industrial compounds manufactured by using our novel and proprietary mineral processing technologies.

The Abercorn Project has demonstrated it contains a resource of significant scale and a very consistent, high quality grade of kaolinite mineralisation.

## 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 Metalsearch and certain of the plans and objectives of Metalsearch with respect to these items.

These forward-looking statements are not historical facts but rather are based on Metalsearch current expectations, estimates and projections about the industry in which Metalsearch operates, and its beliefs and assumptions. Words such as "anticipates," "expects," "intends," "plans," "believes," "seeks," "estimates", "guidance" and similar expressions are intended to identify forward looking statements and should be considered an at-risk statement. 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 Metalsearch, are difficult to predict and could cause actual results to differ materially from those expressed or forecasted in the forward looking statements.



Metalsearch cautions shareholders and prospective shareholders not to place undue reliance on these forward-looking statements, which reflect the view of Metalsearch 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. Metalsearch 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.