

Media release

7 April 2020

MSE secures exclusive global licence on UQ developed synthetic zeolite processing technology

Aspiring industrial mineral and compound producer, Metalsearch (MSE) has secured an exclusive worldwide licence for a unique newly developed synthetic zeolite processing technology that has the potential to significantly lower the cost of production for this widely applied input.

Used in a broad range of applications including-water treatment (purification and separation), detergent builders and cracking processes in the pharmaceutical and petroleum industries, the 2019 global synthetic zeolite market was estimated at USD \$5.64 billion ¹

The Licence Agreement, from UniQuest, the technology transfer company of The University of Queensland (UQ), will see UniQuest join the MSE share register.

UQ's School of Chemical Engineering Associate Professor James Vaughan and Dr Hong (Marco) Peng developed the unique approach to manufacture synthetic zeolites from kaolin feedstock.

UQ's processing technology is a synergistic fit to MSE's Abercorn Project, as the primary feedstock is kaolin. The Company's Abercorn kaolin mineralisation prospect in Queensland has the potential to extract marketable volumes of higher-grade Al₂O₃ feedstock.

Experienced former Westpac Group senior corporate banker, Peter Zardo, has been appointed Chief Operating Officer (COO) of MSE to drive commercialisation of the patent-pending technology and development of MSE's Abercorn Project.

The technology will potentially 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 MSE with opportunities to monetise broader application of the technology outside the company by offering a significantly lower cost method of manufacturing zeolites compared to current production processes.

Under lab conditions, UQ demonstrated up to 70% reduction in energy in the thermal activation stage and up to 80% reduction in production time in subsequent zeolite precipitation steps.

These results also underpin a process that could expand the application of synthetic zeolites, by reducing costs and making their unique frameworks more accessible to wider applications. The technology will allow MSE to pursue sub-licensing agreements to existing synthetic zeolite manufacturers and end users.

MSE believes a materially lower cost of production for synthetic zeolites could accelerate the transition away from phosphate use to environmentally friendly detergent builders.

Quotes attributable to Dr. Dean Moss, CEO, UniQuest:

"UniQuest is very pleased to have partnered with MSE for this promising UQ technology. The technology used to produce the synthetic zeolite has shown potential to reduce energy consumption and time, compared to traditional methods in lab experiments.

With the MSE licence in place and an associated research agreement to follow shortly, we are excited to support MSE to explore broader use across multiple industry applications and further commercialise the technology to create change."

¹ Verified Market Research "Global Synthetic Zeolite Market Size & Forecast to 2026"

Quotes attributable to Mr Peter Zardo, COO, Metalsearch:

“It’s an exciting time to join Metalsearch with the addition of innovative new technology that has the potential to disrupt the synthetic zeolite manufacturing market.

Our relationship with The University of Queensland continues to strengthen and we now have a significant opportunity to leverage our Abercorn deposit and combine it with world leading kaolin technology.

We are committed to extracting the significant benefits of this opportunity and commercialising it for MSE’s Abercorn Project and broader market application. We would like to thank UQ and UniQuest for introducing this technology to MSE and enabling the licence agreement.”

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About Metalsearch Limited (MSE)

MSE is an aspiring industrial mineral and compound producer listed on the ASX. The Company’s primary focus is on the development of its Queensland based Abercorn Project, a large-scale high quality kaolin prospect, and leveraging newly acquired kaolin centric technologies developed by the University of Queensland for potential commercial production of in demand compounds, including synthetic zeolites, high-purity alumina (HPA) and aluminium sulfate (ALUM). The Company also owns 100% of the Kraaipan Gold-Nickel-Copper-PGM Project in southern Botswana. There are no current activities at this site.

About synthetic zeolites

Synthetic zeolites are manufactured aluminosilicate minerals with a sponge-like structure (framework), made up of tiny pores that make them useful as frameworks for catalysts or ultrafine filters. They are commonly known as molecular sieves and can be designed to selectively adsorb smaller molecules or ions. The selectivity properties of different synthetic zeolites enable them to be effective in wastewater treatment applications, as detergent builders and water filters.

The rise in adoption of synthetic zeolite based adsorbents in major end use industries including water treatment, chemicals and petrochemicals particularly in the Asia Pacific, Middle East and Latin America has boosted the growth of the market and this is expected to continue over the next decade.

Rising environmental concerns regarding wastewater health hazards have triggered regulatory bodies across the globe to mandate the use of synthetic zeolite based adsorbents. The stringent regulatory norms specifically in the U.S. and Europe to disinfect both water and air have also been boosting the demand for adsorbents.

Synthetic zeolites also play an important role as ion exchangers in many everyday dishwashing and laundry detergents, assisting to remove calcium and magnesium and soften water so they work more effectively. Synthetic zeolites are sought after as a detergent builder as they present an environmentally friendly substitute for toxic phosphates (which are banned in the USA, Europe, Australia and some parts of Asia).

Synthetic zeolite is also used as a catalyst in the pharmaceutical and petroleum industries, in catalytic crackers to break large hydrocarbon molecules into gasoline, diesel, kerosene and waxes.

In agriculture, synthetic zeolites are used in soil conditioners.

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