

First Graphene gets jump on blue sky opportunity

Listed company First Graphene is working with a diverse array of manufacturers to commercialise its innovative technology.

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WHAT'S the link between swimming pools, work boots and the anti-wear lining on the reclaimer buckets used by iron ore miners?

They are all products that could incorporate graphene to make them stronger, more flexible and wear resistant.

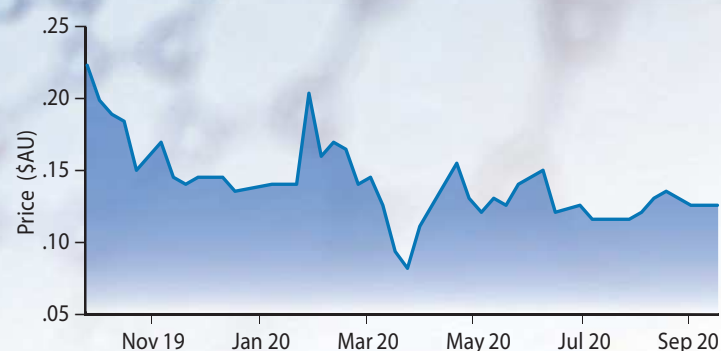
The company that has pinned its hopes on making graphene a widely used product is First Graphene, an ASX-listed company that has been on a fascinating journey over the past decade, from coal mining to tech development.

Graphene is a fine black powder developed at the University of Manchester in 2004.

While its not widely known in this part of the world, graphene is playing a big part in Manchester's economic development plan, similar to the way in which the Western Australian government has been promoting Kwinana as 'lithium valley'.

The University of Manchester recently opened the £60 million Masdar Building, which houses

First Graphene share price



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Craig McGuckin and Lynley Papineau. Photo supplied.

the Graphene Engineering Innovation Centre.

The centre is focused on industry-led applications and is designed to complement the nearby National Graphene Institute, which has a research focus.

Eighty companies have partnered with The University of Manchester, which has 300 people working on graphene and '2D' materials.

One of those companies is First Graphene, which has four full-time people in Manchester working on applications such as super capacitors, which are used to store electricity.

However, First Graphene's main focus is on applications that will generate bulk orders from its Henderson facility, which has a capacity of 100 tonnes per annum.

Director Peter Youd said First Graphene was a global leader in the manufacture of bulk graphene.

"We have de-risked this business by proving we can manufacture at scale, which no-one else in the world can," he told *Business News*.

Managing director Craig McGuckin said the company had achieved rapid progress since it commissioned the University of Adelaide to conduct trials on converting high-grade graphite from mines in Sri Lanka into graphene.

"We have taken the technology from R&D to full production within four years," Mr McGuckin said.

He explained that quality control was a key factor in First Graphene's production process.

"Other people make it at laboratory level, but they can't make it in tonnage, and consistently batch after batch," Mr McGuckin said.

"Our customers know that batch after batch after batch will be consistent, and the pricing is attractive."

Mr McGuckin is enthusiastic about the wide range of commercial applications for graphene,

which he says can improve everything from steel to concrete to rubber.

"Graphene can improve everything in life, but as a business we are concentrating on areas that can provide bulk tonnage orders for us," he said.

First Graphene has been working with dozens of businesses in pursuit of that goal.

It has earned very little income to date; for the year to June 2020, its revenue from graphene sales totalled \$290,000.

The businesses that are most advanced in pursuing commercial opportunities include Steel Blue, Aquatic Leisure Technologies (ALT), and newGen Group.

First Graphene and ALT have been working together for two years, testing the incorporation of PureGRAPH graphene products into the resin used in ALT's swimming pools.

Managing director Lynley Papineau said the tests had demonstrated multiple benefits, including greater strength and durability, and improved water and chemical resistance.

She said this breakthrough in material science would allow her family company to be a world leader.

ALT is planning to launch a new range of swimming pools incorporating PureGRAPH in the laminate.

Another business that recognises the potential is Henderson-based manufacturer newGen Group, which specialises in wear protectors for heavy mining equipment such as reclaimer buckets.

Like ALT, it has been working with First Graphene for two years, incorporating PureGRAPH into products being tested in the field.

"We have products in service with the four major iron ore producers, some for more than a year," managing director Ben Walker said.

Testing by newGen has found that its ArmourGRAPH product,



VERSATILE: Craig McGuckin says graphene can improve everything from steel to concrete to rubber.

which incorporates graphene, improves strength by more than 30 per cent and abrasion resistance by more than 100 per cent.

He said newGen was already a major supplier of bucket liners in WA and was disrupting its own market.

"Our aim is to change the benchmarks on minimum requirements for these materials," Mr Walker said.

He said there was a significant return on investment for the big miners, particularly by mitigating the risk of unplanned maintenance.

"There is no-one else in the market that is doing this," he added.

"We've got a jump on it and expect to significantly increase production over the next 24 months."

As well as bucket liners, Mr Walker said applications included pipe spools, chutes, conveyor components and screen media.

A third WA business working with First Graphene is work boot manufacturer Steel Blue.

Chief executive Garry Johnson said Steel Blue had always prided itself on being an innovator and was excited about the benefits of using PureGRAPH.

"Working with another WA pioneering manufacturer to make this happen makes it even more special," Mr Johnson said.

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CAPACITY AT FIRST GRAPHENE'S HENDERSON FACILITY

Steel Blue's initial focus was on the use of graphene in the rubber soles of its work boots.

Mr Johnson said the project had expanded to assess the use of graphene in other shoe components.

This required additional external testing, which was disrupted by COVID-19.

"However we have now taken delivery of our first commercial shipment of PureGRAPH and recommenced the testing process," Mr Johnson said.

He added that Steel Blue had used this time to conduct more in-field testing with tradespeople.

Mr Johnson said Steel Blue was still assessing how much graphene it would use.

"The quantity purchased will depend on the number of components incorporated into the final boot design and will be sufficient for us to release a range of products incorporating PureGRAPH," he said.

If demand for graphene takes off as First Graphene hopes, Messrs McGuckin and Youd will rank as two of the most nimble entrepreneurs in Perth.

With a background in mining, they joined the company in 2012 when it adopted the name Mongolian Resources after buying coal projects in Mongolia.

They switched focus one year later when they decided to invest in graphite mines in Sri Lanka.

Their focus was on converting high-grade vein graphite into premium priced spherical graphite for use in lithium batteries.

The strategy changed again in early 2015 when they started talking up the potential for graphene.

That was followed by another change of name – from First Graphite to First Graphene – in 2017, just ahead of the opening of the Henderson production facility.

The reinvention of the company took another step last year, when its ASX classification changed from Metals & Mining to Specialty Chemicals.

Rather than reflect on the past, Mr McGuckin prefers to talk up the blue sky potential.

"We're already thinking expansion," he told *Business News*.

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-Craig McGuckin