All aboard the graphite train

Australian graphite players appear convinced the current hype in the commodity is a genuine kick start for the sector.

Graphite and graphene are niche and developing markets, perhaps only best understood by those directly involved but that hasn’t stopped miners and investors speculating on future demand.

Graphene is becoming increasingly important in hi-tech applications however its use as an additive to strengthen the likes of cement and aluminium is a “here and now” proposition for graphene producers, while demand for graphene is largely driven by lithium ion batteries and the growing popularity of electric cars.

It is forecast that battery demand will drive the need for 2.5 mt/a production by 2020 from its current 1.5 mt/a.

While the graphite market is not new it has been tightly controlled (mainly by China) for many years, perhaps as long 100 years. Only recently has the market opened up.

Thrusting graphite into the spotlight of late has been activity surrounding Syrah Resources Ltd and a rumoured multi-billion takeover bid by Glencore plc.

Syrah has the world’s largest deposit of high-grade graphite with its Balama project, Mozambique, boasting 1.15bt graphite at 10.2% total graphic carbon (TGC) for 117mt contained graphite. Balama also has a vanadium resource of 2.7mt which, tied together with the graphite, has attracted interest from Chalieco, a member of the Chinalco Group.

The ramifications of Syrah’s prevalence in the graphite market, particularly for Australian companies, have been positive.

For instance, Triton Minerals Ltd (see page 36), which has the Ancuabe, Balama South and Balama North project where Cobra Plains announced a large resource, also in Mozambique, has enjoyed a good run in the stock market which has been pulled along by the market where it wanted it,” Anderson said.

Anderson’s Archer is focused on graphite in South Australia which has a number of budding players with potential to have a significant impact on the global graphite space.

In June, Technology Metals Research, an organisation that informs people of rarer commodities, released an index of advanced graphite projects around the world, with Archer’s Campoona ranking sixth most advanced in the world.

Campoona, 5.27t@ 7.6% TGC, came in behind Syrah and Triton’s Balama projects, while fellow SA graphite explorers Lincoln Minerals Ltd’s deposits – Kookaburra Guilty (2.2mt @ 15.1% TGC) and Koppi – also rated highly.

Both Archer and Lincoln are in the throes of competing mining lease proposals to lodge with the SA Government, with Archer aiming for approval in Q3 2014.

Lincoln managing director John Parker said there was a change occurring in the graphite market which gave companies like his an opportunity to impact the graphite space.

“There has been a lot of interest in the stock market which has been pulled along by Syrah, particularly when the [potential] takeover emerged. But at the same time Triton had done well to bring the graphite market to the fore.

However, he warned potential new upstarts to carefully consider their entry to market.

“Graphite is a complex business which has been dominated by a few large interests for 100 years who pushed the market where it wanted it,” Anderson said. “But the market is set for a shake-up with the likes of Syrah and Triton looking as though they are going to have massive projects.

“There is plenty of opportunity for new entrants but they shouldn’t underestimate the barriers to entry. The graphite market has effectively been closed to new entrants for quite a while so new entrants must be careful and be able to withstand the price shocks. Industrial minerals are worse than gold and copper, which are traded quite freely. You have to make sure that you have got your studies right and ensure consistent production: production has to be on spec seven days a week, and I think some people under play those types of barriers to entry in the graphite market,” Anderson said.

Australasian graphite players are certain the graphite market will be buoyant for a long time.

Bora Bora has some of highest grade graphite in Sri Lanka

Gerard Anderson said Triton and Syrah had done well to bring the graphite market to the fore.

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“There has been a lot of interest in the stock market which has been pulled along by Syrah, particularly when the [potential] takeover emerged. But at the same time Triton announced a large resource also in Mozambique, and there is no question those deposits are big and look good,” Parker said.

“You see the Chinese signing off-take agreements to import graphite, which is different to 12 months ago where they were exporting graphite and there was no chance of selling graphite into China.

“The electric car market is expanding and China wants more electric cars on the road
which drives the battery market. There is no reason to believe that this [graphite rally] is just an overnight sensation, graphite sales are as strong as they have ever been," Parker said.

While sales may be peaking, trying to get a handle on graphite prices is difficult as prices can be subject to negotiations between supplier and off-taker/customer and are dependent on grade, according to Bora Bora Resources Ltd executive director Chris Cowan.

"Prices are grade-dependent and you can’t just pluck one figure out [for the entire sector]," Cowan said.

"Graphite has many uses and it is not a homogenous product like gold. So as the new uses for graphene and graphite [emerge] it will be interesting to monitor given the China effect. They are the largest producers at this point in time. The guys that are first in the market will have the natural advantage because it is not a homogenous product and once you get your product to customers they gear their production processes around it," Cowan said.

Bora Bora listed on the ASX in 2012 and is exploring the Matale/Kurunegala graphite project, near Kandy, in Sri Lanka.

Bora Bora has acquired a 75% interest in Matale/Kurunegala which is near the historic Kahatagaha graphite mine.

Kahatagaha has operated since the 1870s and produced more than 300,000t high-grade graphite.

Cowan said Bora Bora would look to produce small tonnages of high-grade graphite from its project.

"Given that we are pulling the most pure source of graphite out of the ground, we don’t have to do as much processing, which means there is no damage to the product," Cowan said.

"It [the graphite market] is certainly beyond the embryonic [stage] and I think there is a long way to go. If you look at all the data that is coming out of the expected usages and demand for it from lithium ion batteries to super capacitors etc... there seems to be a lot of usages that will drive the demand."

Earlier this year, Bora Bora announced it had signed a binding MoU with Monash University in relation to the commercialisation of three patents invented and developed by Australian graphene expert Professor Dan Li.

The MoU gives Bora Bora an exclusive right to develop a commercialisation plan (including targeting end users and applications and consulting other industry players and potential investors) for the three patents in conjunction with Monash.

Universities have been active in researching uses for graphene and graphite and Taiga Resources Ltd managing director Mark Thompson said the general public would be surprised at how advanced the graphene market really was.

Talgia itself has partnered with the University of Adelaide in a research project testing ore from the company’s Nunasvarra project in northern Sweden.

Ph.D. candidate Giuseppe Gattuso and his team are working with a team from the University of Adelaide’s School of Chemical and Bio-engineering to look at the potential of the high-quality graphite found at the Nunasvarra deposit.

"The aim of the test was to assess the ability of the high-grade graphite deposit to produce graphene. Test results have shown Talgia can produce high quality graphene from its raw graphite ore, giving it a unique advantage in the market."

In July, Talgia made its first commercial sale of graphene to German-based technology group, Microdrop Technologies GmbH. Microdrop is a leading provider of nano-to-3D printing solutions.

"A lot of universities that have been behind the study of graphene are starting to sell," Thompson told Paydirt.

"This is a little bit of evidence that graphene is a lot closer to commercialisation than people think. It is the first step where a small amount of graphene during ramp up can be used as an additive [to strengthen cement, aluminium, etc] which is something that you can’t do with graphite. It is significant because other people are starting to look at graphene, with nano-to-3D printing being the new industrial revolution. Graphene has been researched and studied for 10 years and it is a lot more mature than the media and public know about and that is because a lot of work has been patented by private companies."

"This is real in the physical world here and now. The world has just been waiting for an abundant and cheap supply," Thompson said.

Studies into graphene and graphite usages are ongoing - Mark Andrews