

# Game Over for Bulk Graphene Producers as Talga Scale Up?

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My suspicion of nanomaterials companies is well documented for a very simple reason – they are engaged in a race to the bottom of the value chain. Most companies making nanotubes, graphene or nanoparticles are in an even more fragile position as their entire business is dependent on finding a market for an overpriced technology that no one else thinks they have any use for.

Graphene is following a similar trajectory with persistent but unsubstantiated reports of financial trouble at at least one of the big name producers as prices fall and demand remains weak. But there are bright spots and a couple of companies worth keeping an eye on.

The first is Thomas Swan, a family owned speciality chemicals company based in County Durham, UK. They were one of the early entrants into carbon nanotubes, but successfully resisted the temptation to waste money on huge plants that would never be needed, and scaled up gradually over a decade as the market developed. With the resurgence in popularity of carbon nanotubes this has put them in a good position. The approach is being repeated with 2D materials with graphene being cautiously upscaled while the production process (shear mixing) should also be applicable to other 2D materials such as boron nitride.

Of course the reason Thomas Swan can take this cautious approach is that they have a solid business producing a range of performance chemicals such as additives, resins & active pharmaceutical ingredients. Advanced materials such as nano carbon are just a small but growing part of the overall business, whereas a pure play graphene producer has to either get the product on the market or raise enough patient capital to wait for the market to develop.

A completely different approach comes from Talga Resources based in Perth, Western Australia, and listed in the Australian Stock Exchange (TLG). While the core business was initially mineral such as gold and graphite, the company has spent the past year developing a way to create huge quantities of low cost high quality graphene that has rattled a few of the traditional producers, and they seem to be making good progress. Talga's advantage is that their process starts with some very high grade graphite resources in northern Sweden which are relatively simple to mine. These are then shipped to the processing plant in Germany where a simple exfoliation process is used to produce graphene. An announcement today, Talga Commences Graphene Pilot Plant Processing in Germany, indicates that the project is moving quickly with high quality graphene being produced for commercial evaluation.

What is causing consternation among other graphene producers is the sheer potential scale of Talga's operations. We have seen announcements about large scale graphene production in the past from the likes of Perpetuus and Ningbo Morsh but little in terms of delivery. Additionally, all these processes need high quality graphite as a precursor anyway, so to some extent Talga can't lose as they have the opportunity to both supply high grade graphite and make graphene. High volumes are the key to unlocking some of the bulk applications of graphene, whether in composites of concrete. As one graphene producer told me,

“If Talga deliver on their promise then it's game over for anyone trying to address bulk applications.”

Perhaps the reason I like both companies is that both started by identifying a potential market and then developed the technology to address it. That's refreshing in a sector where "build it and hope the customers come before we run out of money" is still the orthodox model.