With technology for the real world, Zentek's graphene nanotech masks are now on store shelves

written by InvestorNews | May 17, 2022

At the start of the year, I was asked to pick a name that I thought could be the "stock to watch in 2022". Naturally the tendency is to step a little further out the risk curve because where's the fun in picking something like Enbridge, Inc. (TSX: ENB | NYSE: ENB) and being up 15% year-to-date plus dividend when you could be up 130% over that same time period with a stock like Ensign Energy Services, Inc. (TSX: ESI). In reality, I would have been a hero if I had picked either of those in light of what the majority of the market has done since the start of 2022. However, I went down the technology route (or should I say rout) and the name I picked has been swept lower in a market beating up anything resembling tech. On top of that, the company I selected was also the focus of a short report, although that appears to have been addressed in March and seems to be a non-issue. But technology stocks are still seeing some pretty unpleasant days here and there, and the pain may not be over yet.

Nevertheless, until the year is over, I still have time to be vindicated with my 2022 pick – Zentek Ltd. (NASDAQ: ZTEK | TSXV: ZEN), which is certainly doing better than Shopify, Inc. (TSX: SHOP | NYSE: SHOP) but sadly that's not setting the bar too high. Reader's will recall that Zentek is an IP development and commercialization company focused on next-gen healthcare solutions in the areas of prevention, detection, and treatment.

Zentek is currently focused on commercializing ZenGUARD™, a patent-pending coating shown to have 99% antimicrobial activity, including against COVID-19, and the potential to use similar compounds as products against infectious diseases.

The focus on ZenGUARD™ is paying off with an announcement last week of the sales and distribution of ZenGUARD™ Masks through Mark's, a member of the Canadian Tire Family of Companies. Mark's, which operates over 380 stores across Canada, has placed an initial order for ZenGUARD™ coated masks to be sold at select stores and online. Mark's VP Iain Summers is quoted as saying "We are relentlessly focused on innovative new technologies and products that help keep Canadians safe and comfortable. Zentek, and their ZenGUARD™ masks are a great made-in-Canada innovation using a technology that, when applied to essential masks, provides ultimate protection, while maintaining comfort and breathability. It's the right fit for our customers." This news helped Zentek stock rally 14% on the day.

It was the progress the Company was making with ZenGUARD™ and their other unique IP opportunities that led to Zentek being my stock to watch. Other technologies under development include an icephobic coating that can potentially be used to improve aircraft and drone safety and sustainability. The Company anticipates applications for aircraft, wind turbines, ocean vessels, and building structures to increase safety and efficiency outcomes in ice-forming weather conditions. The Company recently reported excellent results in three rounds of testing of its icephobic coating, including laboratory tests, real-world flights and applications related to drone operations in adverse weather. Next steps include testing its coating for sand and rain erosion, and other tests are being planned that will evaluate the coating as part of a hybrid ice protection system, where the icephobic properties are combined with a heated de-icing system with the aim to improve efficiency of

current ice protection methods used in general and commercial aviation.

In April, Zentek provided an update on a previously awarded R&D test contract through the Innovation Solutions Canada (ISC) Testing Stream to test ZENGuard™ coated HVAC filters with interest from 3 different units within the National Research Council of Canada. After completion of Phase 1 testing where its ZenGUARD™ coating was successful in reducing airborne organisms from passing through coated filter material while not inhibiting air flow, it will now proceed to Phase 2 testing within its ISC Testing Stream contract. Phase 2 testing in a real-world classroom environment is aimed to generate additional safety and efficacy data. The importance of indoor air quality and improving health is a top priority for numerous organizations globally, including the Canadian and U.S. governments, and could be an important commercialization milestone for Zentek in this critical area.

Sure all these initiatives were already on the go at the start of the year, but in my opinion, the Company is making great strides in pushing these projects to the revenue generation stage. In fact, ZenGAURD™ actually started generating revenue in the final quarter of 2021. Additionally, Zentek raised C$33 million in January and have a quarterly cash burn rate of roughly C$2-C$2.5 million per quarter (and no debt), so they should be fine for available capital. With a market cap of roughly C$247 million there are plenty of creative and unique opportunities being developed to propel this Company into the future and vindicate my selection.

ZEN Graphene Solutions moves towards commercialization of virus-killing mask

written by InvestorNews | May 17, 2022

ZEN is collaborating with partners to develop virucidal face masks and PPE

Back in May 2020 InvestorIntel wrote about the very exciting development of masks and other personal protective equipment (PPE) that not only protect the wearer, **but actually kill viruses on contact**. to help . Since then the development of a "graphene virucidal ink face mask" and PPE has been progressing nicely in the fight against COVID-19.

In late July 2020 ZEN Graphene Solutions Ltd. (TSXV: ZEN) ("ZEN") reported that research teams at a number of personal protective equipment (PPE) manufacturers are collaborating with ZEN to incorporate ZEN's virus-killing graphene ink into commercial products, including masks, gloves, gowns and other clothing. This follows ZEN's promising testing results from the University of Western Ontario's ImPaKT Facility, biosafety Level 3 lab.

ZEN has synthesized a 'silver nanoparticles functionalized graphene oxide ink' that has been documented by previous researchers to kill earlier versions of coronavirus. Silver is well known to be a potential virucidal agent.

Photo: iStock

In July ZEN reported in a news release that the company

“continues to optimize its proprietary formulation for dosage and delivery mechanism for highest antiviral impact. **The next phase of testing is currently underway** at the ImPaKT Facility and includes a preferred mask fabric, from one of our collaborators, coated in ZEN’s virucidal ink exposed to and tested against the COVID-19 virus.”

Dr. Francis Dubé, CEO of ZEN, commented that “Based on results so far and our discussions with the team at Western, we are quickly moving to integrate our material into commercial products with partners who wish to increase the level of COVID-19 protection their products currently offer.”

Given the world needs at least 3.5b N95 face masks to fight COVID-19, the potential demand for ZEN’s graphene based virucidal ink face mask could be enormous. If the new virucidal mask captured just 10% market share of the 3.5 billion masks needed that would mean manufacturing and selling ~350 million masks. Or even if just made mandatory for health care workers globally, the market would be very large, as there is an estimated 59 million health care workers worldwide. Each health care worker would need a number of masks per year. The revenue opportunities could be enormous if ZEN’s graphene based virucidal ink is licensed on a per unit basis. Added to this would be the potential for use in other PPE. For a small company such as ZEN the potential revenue upside could be highly significant.

Tests are still underway to improve and prove the effectiveness of the virucidal masks, but CEO Dubé’s public comments about integrating ZEN’s material into commercial products with partners indicates a positive outcome is looking increasingly possible.

Last week ZEN announced that it will “report shortly on

significant progress being made in multiple programs, one of which has resulted in the preparation of a patent filing that is central to ZEN's business plan." Zen also announced receiving **significant funding grants**: "two NSERC Alliance COVID-19 project grants, a Mitacs Elevate Postdoctoral Fellowship grant, and two Mitacs Accelerate grants for a total of $355,000 to its university collaborators," which increased ZEN's total research and development budget for the next 12 months to over $1.4M.

Graphene's potential

Graphene is a new wonder material with incredible potential to be commercialized in a huge number of products. These are as diverse as graphene coatings that can greatly improve corrosion resistance, increase strength, reduce friction and can be hydrophobic reducing ice formation (aerospace and aircraft industries). As a diesel/jet fuel additive it can improve fuel economy and reduces greenhouse emissions. It is also useful in electromagnetic shielding and electrostatic dissipation, desalinization membranes and low-energy dehumidification, heavy metal scavenging and removing industrial contamination, photovoltaics, displays & biomedical applications using graphene quantum dots, virucidal inks, as a material enhancement (clothes, tire strengthener, concrete additive), hydrogen storage and production, and advanced batteries. Samsung is developing an advanced graphene phone battery. Graphene is super lightweight and also strengthens aluminum, rubber, plastics and other materials, making its list of applications almost endless.

The graphene market is forecast to grow at a 39-45% CAGR this decade

Source: Company presentation

Closing remarks

In addition to its advanced application projects, **ZEN owns a graphite mine** and has commenced small scale graphene production from their facility in Canada, and has numerous other potential uses to commercialize their graphene product. At the current market cap of just C$31m the stock is not yet pricing in any chance of significant success in the virucidal mask and PPE market, or in the larger graphene market. This is good news for investors looking for underappreciated and early stage stocks. If ZEN is able to successfully commercialize its viricudal mask/PPE or other graphene products, it would be a game-changer.