

ZEN Graphene set to supply a virucidal coating for a minimum 100 million masks

This week ZEN Graphene Solutions Ltd. (TSXV: ZEN) (“ZEN”) and Trebor RX Corp. (“Trebor”) signed a Binding Letter of Intent (LOI) that includes the initial purchase of ZEN’s patent pending graphene based virucidal coating for **a minimum of 100 million masks/filters** with pricing of these mask/filters being variable based on a number of factors.

This news follows the highly successful testing of ZEN’s graphene based silver colloidal coating announced on September 22, 2020. Some of the announcement highlights are shown below:

- ZEN’s Virucidal ink is **99% effective against the COVID-19 virus.**
- ZEN’s Virucidal ink was still 99% effective a minimum of 35 days after application to N95 mask material.
- ZEN is now developing plans to expedite commercialization of this product, pending regulatory approval.
- ZEN has filed a provisional patent for this graphene-based virucidal product.....
- Very significant virucidal activity was recorded and reported, achieving 99% inactivation of the virus for both samples in 3 separate tests each and verified through a second round of testing...”

But back to the latest potentially game changing news for ZEN of the LOI for a minimum of 100 million masks/filters from Trebor. An order of this size for a relatively small company like ZEN is highly significant. Greg Fenton, ZEN’s Chief Strategy Officer, commented (Nov. 9, 2020):

“This is a historic day for ZEN. **The signing of this**

significant commercial agreement is a watershed moment for our organization. Moreover, it is an honour for ZEN to partner with a Canadian company like Trebor and develop a 100% Canadian solution in the fight against the COVID-19 pandemic. The innovation of the Trebor Pro+ Respirator Mask will set a new standard in the mask industry and, combined with our viricidal coating, will bring a new level of safety for our front-line workers....”

Trebor’s CEO George Irwin agreed stating: “This is truly a game changer in the PPE space....”



PRO+ Respirator Mask

It looks like the market also agrees with ZEN, up 358% over the past 1 year, and up 293% since I wrote “ZEN Graphene Solutions moves towards commercialization of virus-killing mask” back on September 8, 2020.

ZEN Graphene Solutions stock price is up 358% over the past 1 year, and up 293% since September 8, 2020



Source

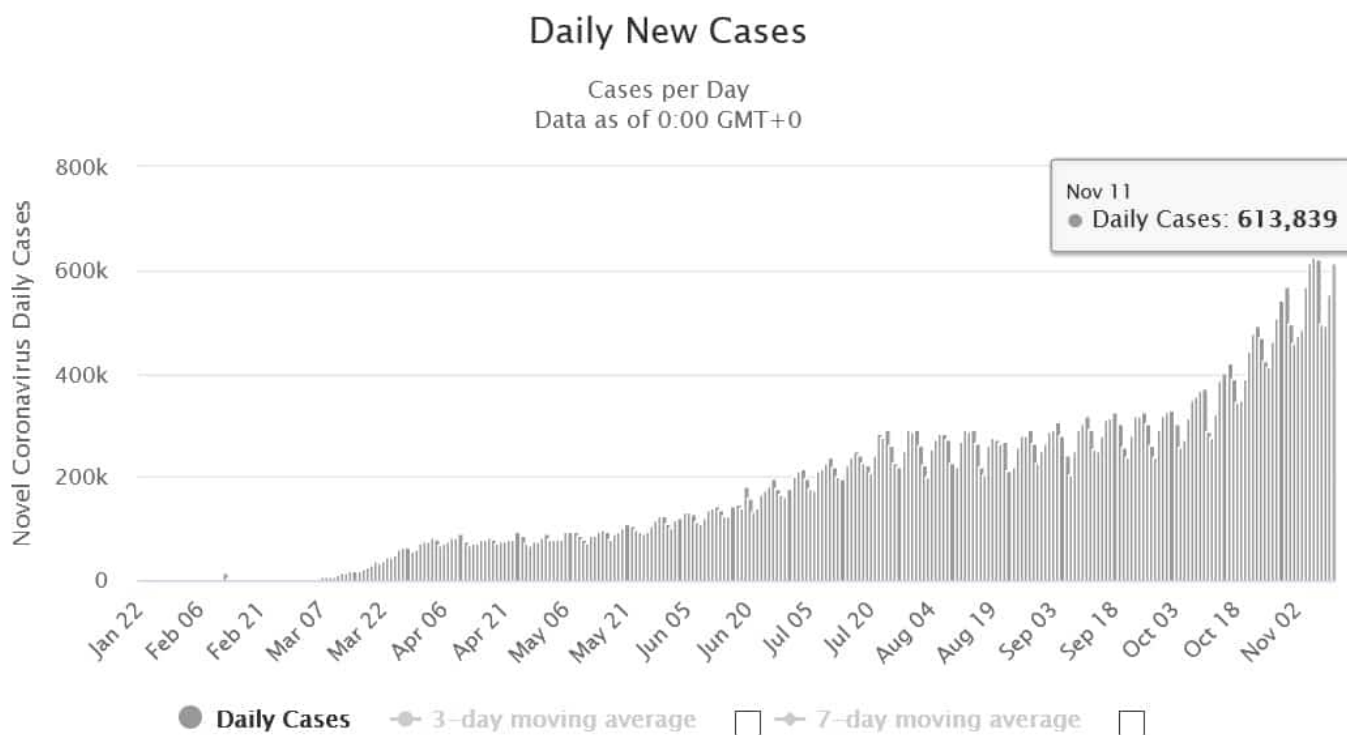
What we know so far is that ZEN and Trebor have signed a LOI and that Trebor is a Canadian personal protective equipment mask manufacturer with an initial production facility located in Collingwood, Ontario, Canada. The announcement on the binding LOI includes several key points:

1. Initial first year production is planned to use ZEN's patent pending graphene based viricidal coating for a **minimum of 100 million masks/filters.**
2. Pricing of these mask/filters being variable based on a number of factors.
3. This initial minimum order is for the first year and is **subject to Health Canada approvals.**
4. ZEN's viricidal coating will be used on Trebor's patent pending Pro+ Respirator Mask (Pro+) N95 mask and also on their 3-ply surgical mask.

For now, we can only speculate on what the commercial terms would be and what other agreements may follow. What we do know is that the global market demand for face masks is enormous, certainly in the billions. Some have even called the face mask

'the world's most valuable commodity'. It is estimated that production of the highly protective N95 face masks in the United States alone will increase to 180 million units per month by the end/winter months of 2020.

Demand for face masks is only increasing as global new COVID-19 cases continue to accelerate higher



Source

Under a Biden presidency it looks highly probable that face masks will be viewed more positively than what happened under Trump. Back in June 2020, CNN quoted: "Biden says he would make wearing face masks mandatory for Americans amid coronavirus pandemic." This week Biden has announced a new COVID-19 taskforce to begin work immediately and continue after he is sworn in as president on January 20.

Global daily new cases of COVID-19 have been accelerating and are now averaging a **staggering 600,000 new cases per day**, for a total of over 52 million cases now globally.

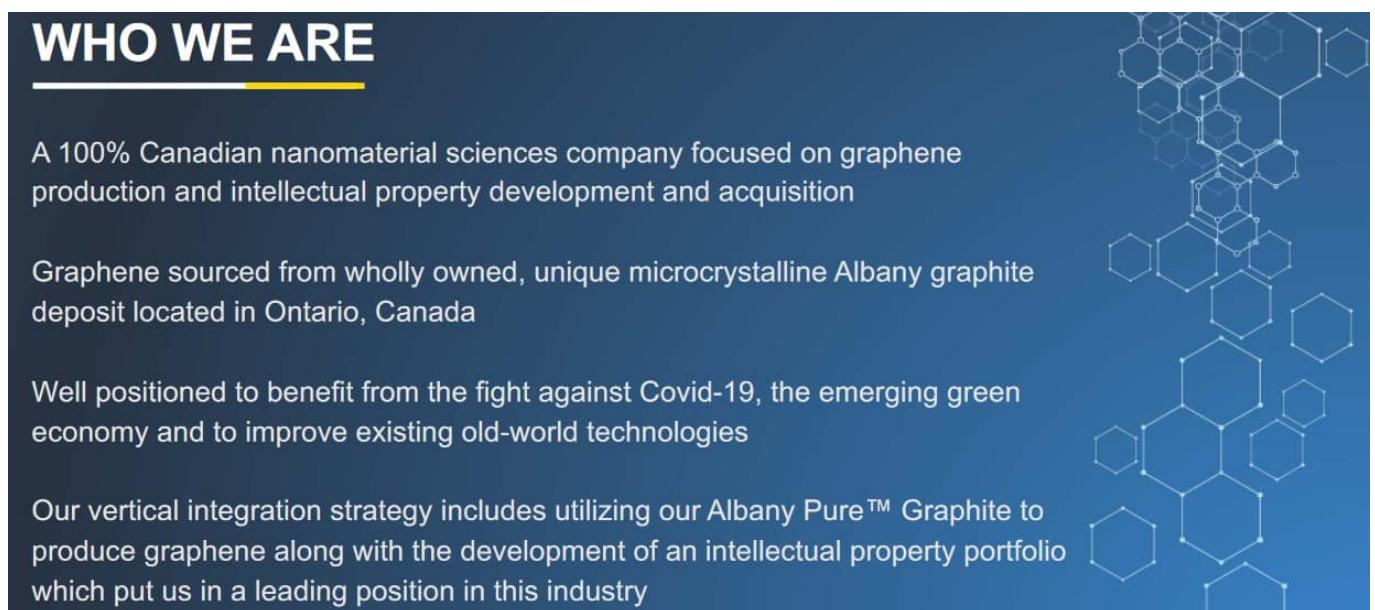
All of this should lead to very strong demand for face masks

in the year ahead.

Beyond COVID-19 ZEN has many other potential areas and deals to commercialize their graphene. Some recent deals include a collaboration agreement on Carbon Aerogels with German Aerospace Centre and a partnership with the Royal Canadian Navy and Evercloak to test Graphene Oxide Dehumidification Membrane Technology.

To meet all this new demand ZEN has had to double their lab space starting January 1, 2020 and announced this week that ZEN will lease a 25,680 square feet space in Guelph, Ontario to become ZEN's new manufacturing facility and corporate headquarters. ZEN stated: "The company expects to begin initial production in Q4 2020 for incorporation into masks, other PPE and for HVAC filters and prefilters."

A summary of ZEN Graphene Solutions



WHO WE ARE

A 100% Canadian nanomaterial sciences company focused on graphene production and intellectual property development and acquisition

Graphene sourced from wholly owned, unique microcrystalline Albany graphite deposit located in Ontario, Canada

Well positioned to benefit from the fight against Covid-19, the emerging green economy and to improve existing old-world technologies

Our vertical integration strategy includes utilizing our Albany Pure™ Graphite to produce graphene along with the development of an intellectual property portfolio which put us in a leading position in this industry

Source

Closing remarks

ZEN Graphene Solution's management is doing a tremendous job. Pivoting in 2020 to produce a viricidal graphene coating was a genius move. Of course COVID-19 will come and eventually go,

but demand for industry leading graphene products looks set to boom this decade as the world learns more about the wonders of graphene.

ZEN Graphene Solutions has a market cap of C\$139M and right now appears to have the world at their feet.

***Disclosure:** The author is long ZEN Graphene Solutions Ltd. (TSXV: ZEN).*

A graphene based virucidal ink face mask and line of clothing that does more than protect – it intends to kill COVID-19

The face mask sector is hot right now. Even China can't make enough face masks to meet their own demand. As countries begin to ease the COVID-19 (coronavirus) lockdowns literally billions of people will require face masks. Many airlines are already making face masks mandatory, and this could soon spread to other forms of mass transport.

Even better than standard face masks are new high tech face masks designed to kill the virus, using antiviral nanoparticles embedded inside the protective material.

Two companies are combining their expertise to produce new high tech face masks and other protective clothing that they hope will kill the virus. They are ZEN Graphene Solutions Ltd.

(TSXV: ZEN) and Graphene Composites Ltd. (GC). They have teamed up to develop a COVID-19 virucidal graphene-based composite ink for face masks and other protective clothing.

An agent that kills viruses, a virucidal ink that can be embedded into all types of personal protective equipment (PPE) could have immense benefits for the world right now. Imagine owning a mask that not only blocks the virus but can kill it. The medical world will love it, as it will give them the much needed protection they deserve, as they battle on the front lines of this severe pandemic that has now infected over 3.7 million people, killing ~258,360.

The plan

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. Testing will be conducted at Western University's ImPaKT Facility Biosafety Level 3 lab in Ontario, Canada.

Once testing is completed (and assuming successful), the virucidal graphene ink would then be incorporated into fabrics to be included into masks and filters designed by GC.

The CEO of ZEN, Francis Dubé, stated:

"We are pleased to be collaborating with GC and be on the forefront of a new innovative technology that could contribute to combating the deadly COVID-19 virus. The development of this potential COVID-19 virucidal graphene ink is coming at a crucial time to provide effective PPE supplies for the safety of frontline workers and hospital staff."

The CEO of GC, Sandy Chen, stated:

"Combining the deep nanomaterials expertise of GC and ZEN

with a truly collaborative approach has enabled us to do a year's worth of R&D in a matter of weeks. Quickly developing and deploying our virucidal/germicidal ink would make a significant difference in slowing the rate of infection – thus saving many lives.”

Competitors

Given the newness of the COVID-19 pandemic there is so far little competition when it comes to virucidal protective clothing using graphene. One Israeli company is reportedly using a virucidal embedded into masks that consists of zinc oxide and copper oxide nano-particles.

ZEN's graphene has a huge range of potential uses

ZEN is already making great progress in the production of graphene with a huge range of potential uses such as: Tyre strengthener, aluminum/rubber/plastics enhancer, a cement additive/enhancer, diesel and jet fuel additive, graphene batteries, graphene based clothing and so on.

ZEN has unique graphite from which they make graphene

ZEN Graphene Solutions also have their own unique source of graphite at their Albany Graphite Project, which is highly suitable for graphene production. The unique Albany Graphite Project provides the Company with a potential competitive advantage in the graphene market as independent labs in Japan, UK, Israel, USA and Canada have demonstrated that ZEN's Albany Pure™ Graphite is an ideal precursor material which easily converts to graphene, using a variety of mechanical, chemical and electrochemical methods.

ZEN's new graphene research and development facility at Guelph, Ontario, Canada

ZEN has recently opened their new graphene research and small scale production facility in Canada, with a goal of scaling up

graphene production to meet consumer demand. Graphene product sales were launched in early March 2020. The research and engineering team will also be developing and testing custom functionalized graphene formulations as requested by industrial collaborators for product performance enhancement.

New Guelph facility - next phase of development & scale up



- Grand Opening March 3, 2020
- Access to 2,000 Square Foot Lab Space
- Small-scale graphite purification & graphene production facilities
- E-commerce Store Launch February 27, 2020
- Graphene products available for R&D and commercial use

Source

Closing remarks

ZEN is one of the most innovative companies out there, with a focus on using graphene to disrupt and improve various industries. Their latest collaboration with Graphene Composites Ltd. is most exciting, as virucidal protective clothing can be a game changer right now in the fight against COVID-19.

Furthermore ZEN already has their own high quality Albany graphite source, and has started scaling up graphene production at their facility in Ontario Canada. This makes them a vertically integrated growing graphene producer, all for a market cap of just C\$32 million.