

Zentek is well positioned to commercialize several revolutionary nanotech graphene health products in 2022

Zentek Ltd. (TSXV: ZEN) (formerly ZEN Graphene Solutions Ltd.) is a trail blazing company in the world of nanotechnology and graphene, particularly in the healthcare sector. That is because not only does it make its own graphene but Zen has also partnered with other companies to expand the uses of graphene in areas such as (graphene coated) masks clothing, and other PPE, as well as COVID-19 rapid saliva tests, graphene colloidal antiviral/bacterial/fungal detection, and, hopefully, improved air purifiers, and air conditioning systems using graphene filtration.

Zentek summarizes this by saying that “Nanotechnology and graphene have the potential to protect against pathogens, detect and treat disease, clean our water, make building materials stronger and produce cleaner energy. With almost limitless potential to improve people’s lives, we are uniquely positioned to create significant value through our next-generation healthcare solutions and beyond.”

Zentek is currently focusing on commercializing into health care prevention, detection, and treatment

Development pipeline is robust with opportunities in three primary verticals:



PREVENTION

ZENGuard™ for PPE & indoor
air quality markets



DETECTION

Aptamer-based rapid detection for
numerous pathogens



TREATMENT

Antimicrobial compound as a
therapeutic and healthcare product

Source: Zentek Company presentation

Zentek's vision is for a healthier and safer world through nanotechnology, and its mission is to develop innovative nanotechnologies, with their partners, that improve people's lives. What a great basis to grow a company from.

Zentek's stock price has risen 281% over the past year after more than quadrupling the year before. From the March 1, 2020 low of C\$0.30 the stock **has risen a whopping 20.7x**, now sitting at C\$6.20. Tesla and some junior lithium stocks are the only stocks I know that have achieved a 20x return in the past 2 years. This puts Zentek up there with the most elite performers on the stock market in recent times.

What's next for Zentek

- **A Nasdaq listing** – On October 13, 2021, Zentek (then ZEN Graphene Solutions) announced that it has submitted an application to list its common stock on The Nasdaq Capital Market® (“Nasdaq”) and that it has retained Donohoe Advisory Associates, LLC, to assist with the listing process. That process is ongoing with no listing date yet announced.
- **ZENGuard™ international patent application to complete**

soon. ZENGuard™ is a graphene-silver ‘coating’ with 99% antimicrobial activity, including against COVID-19. Zentek is commercializing ZENGuard™ with mask manufacturer, Trebor Rx, to produce masks, filters and gloves. ZENGuard™ is Health Canada approved. Zentek’s coating can also be used on all types of personal protective equipment including masks, gloves, clothes, and shields to reduce the spread of pathogens including COVID-19. Similar products can be used in air purification systems. There is also the potential (if approved) to use similar compounds as pharmaceutical products against infectious diseases.

- **Zentek’s Pathogen Detection Technology (aptamer-enabled) initially for COVID-19 to be launched by Q1, 2022.** Zentek has the worldwide exclusive rights to commercialize a rapid, saliva-based COVID-19 antigen testing technology. The key differentiating factor here is that the test can detect much lower quantities of virus compared to other tests, thereby being able to potentially detect low viral loads at the early stages of infection when the patient may be asymptomatic. The test is exceptionally accurate (similar to current PCR tests), saliva-based, affordable, scalable and provides results in under 10 minutes. The test still requires final Health Canada and FDA approval. Zentek recently announced the development of an improved aptamer with a higher binding affinity for the COVID-19 Delta variant as well as reduced result production time of the aptamer-based sensor from 18 hours to 30 minutes with more consistent results. Zentek also announced this month that it “has been selected as one of three technologies for phase 1 of the Innovation Solutions Canada (ISC) challenge to develop a portable detection device for SARS-CoV-2 in wastewater. ZEN has received a \$148,000 award from ISC to develop its first prototype.”

Zentek CEO, Greg Fenton, recently stated: “In collaboration with our partners, including Dr. Li and his entire McMaster team, **we have made tremendous progress advancing our aptamer-based rapid detection platform toward commercialization.** A key aspect of the technology is its adaptability through the production of new aptamers to detect different pathogens leveraging the existing platform – and the process of building out this aptamer and disease-detection library is well underway with our colleagues at McMaster.”

ZENGuard™ has enormous potential to scale up from current capacity of coatings for 32 million masks per month to a potential ~800 million masks per month by Q1, 2022

ZENGuard™ Technology

zentek

Typical ASTM Level 3, 3-ply Surgical Mask

ZENGuard™ Antimicrobial Coating

Seasonal Flu

Tuberculosis

SARS-CoV-2

vs

- Patent pending, non-toxic, antimicrobial coating that is **99+%** effective deactivating numerous pathogens, including SARS-CoV-2
- BFE/VFE > **99.99%**, which we believe is a first for surgical masks, and **98.9%** more bacteria and **97.8%** more virus particles compared to a typical ASTM Level 3, 3-ply uncoated mask

Note: Season flu and tuberculosis visuals for illustration purposes only and have not yet been tested

7

Source: Zentek Company presentation

Closing remarks

Zentek has come a long way in the past 2 years with enormous technological progress in its graphene based nanotechnology products with a renewed health focus to prevent, detect, and, hopefully, soon treat pathogens, including COVID-19. This has been achieved via a number of collaborations, partnerships,

patents, and approval by regulatory bodies.

The result of all these efforts should now start to show in 2022 as Zentek's commercial rollout of its innovative nanotech graphene products gains speed, led by its revolutionary ZENGuard™ coating and the company's rapidly advancing Pathogen Detection Technology collaboration.

Zentek trades on a market cap of C\$551 million and continues to outperform the market.

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

Greg Fenton on the significant medical market interest in Zentek's ZENGuard™ nanotech coatings, plus its new carbon-based icephobic coating

In a recent InvestorIntel interview, Tracy Weslosky spoke with Greg Fenton, CEO and Director of Zentek Ltd. (TSXV: ZEN) about Zentek's new icephobic coating to reduce ice accretion on surfaces, and about the significant market interest in their ZENGuard™ coating following its Health Canada approval.

In this InvestorIntel interview, which may also be viewed on YouTube (click here to subscribe to the InvestorIntel Channel), Greg Fenton said that the company's recent change of

name from ZEN Graphene Solutions Ltd. to Zentek Ltd. reflects its evolution from a mining company to a technology company, developing intellectual properties. Having recently applied for an up listing to the Nasdaq, Greg said that Zentek is primarily focused on nanotechnology-enabled healthcare solutions, and continues to develop intellectual properties for other industries as well.

To watch the full interview, [click here](#).

About Zentek Ltd.

Zentek is a nanotechnology company developing and commercializing next-gen healthcare solutions in the areas of prevention, detection and treatment. Zentek is currently focused on commercializing **ZENGuard™**, a patent-pending coating with 99% antimicrobial activity, including against COVID-19, and the potential to use similar coatings as pharmaceutical products against infectious diseases. The company also has an exclusive agreement to be the global commercializing partner for a newly developed, highly scalable, aptamer-based, rapid pathogen detection technology.

To learn more about Zentek Ltd., [click here](#).

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ZEN Graphene's Greg Fenton discusses Health Canada's approval of the 'gold standard' for face masks

In a recent InvestorIntel interview, Tracy Weslosky spoke with Greg Fenton, CEO and Director of ZEN Graphene Solutions Ltd. (TSXV: ZEN) about Health Canada's approval this week of the ZENGuard™ disposable face mask with the company's biocidal

coating.

In this InvestorIntel interview, which may also be viewed on YouTube (click here to subscribe to the InvestorIntel Channel), Greg said that the graphene based **ZENGuard™** coating on a mask kills airborne pathogens like bacteria, fungi and viruses. Explaining why it is the 'gold standard' for face masks, Greg discusses how as a result of the review, Health Canada has validated that **ZENGuard™**-enhanced surgical masks are safe for use by Canadians.

Responding to the questions on the technology associated with the **ZENGuard™** masks, Greg provides insight into the impact of this approval and what this means for ZEN Graphene. This includes the application of their biocidal coating in other spaces such as the HVAC market.

To watch the full interview, click here.

About ZEN Graphene Solutions Ltd.

ZEN is a nanotechnology company developing and commercializing next-gen healthcare solutions in the areas of disease prevention, detection and treatment. ZEN is currently focused on commercializing **ZENGuard™**, a patent-pending coating with 99% effective antimicrobial activity against COVID-19, and the potential to use similar compounds as pharmaceutical products against many other infectious diseases. The company also has an exclusive agreement to be the global commercializing partner for a newly developed, highly scalable, aptamer-based rapid pathogen detection technology.

To learn more about ZEN Graphene Solutions Ltd., click here

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ZEN Graphene is changing the world one nanomaterial at a time

Scientists have not unanimously settled on a precise definition of nanomaterials, but agree that they are partially characterized by their tiny size, measured in nanometers. A nanometer is one millionth of a millimeter – approximately 100,000 times smaller than the diameter of a human hair. For a while, nanomaterials were going to save the world by making everything faster, stronger and maybe even higher. But Olympic motto aside, there was a lot of hype about nanomaterials and a decade(s) later not much to show for all that optimism. Or maybe there is if you look in the right places.

Nano-sized particles exist in nature and can be created from a variety of products, such as carbon or minerals like silver, but nanomaterials by definition must have at least one dimension that is less than approximately 100 nanometers. One such company that is making progress in the world of nanomaterials is ZEN Graphene Solutions Ltd. (TSXV: ZEN), despite starting life as a mining company. In fact, the Company still maintains its unique Albany Graphite Project, which provides the company with a potential long-term competitive advantage in the graphene market. The unique genesis of the Albany deposit, resulting in very fine-grained graphite crystallites, yields an ideal graphite precursor material for conversion to high-value graphene, graphene oxide and graphene quantum dots that can be used in a wide variety of applications.

However, don't kid yourself into thinking this is a mining story. It is very much a technology story that has evolved out of the special characteristics of the graphite available at the Albany deposit. ZEN has a broad reach as far as solutions

being derived from nanomaterials. Front and center is the ZENGuard™ antimicrobial coating which can be utilized on PPE, filtration media (HVAC filters) and other materials such as paper, cardboard etc. as a preventative 'catch-and-kill' mechanism. The Company has developed a non-toxic, antimicrobial coating that is 99+% effective against numerous pathogens, including COVID-19, with initial testing showing a further 98% effectiveness after 108 days. ZENGuard™ on masks, gloves and other PPE to protect front-line workers, the public and reduce the spread of pathogens (including and beyond COVID-19) has an estimated global market of US\$52 billion. While the potential market for ZENGuard™ on air filters to kill airborne pathogens in homes, schools, hospitals and commercial and industrial spaces is estimated at US\$66 billion. Not a bad starting point.

As a spin-out from the focus on everything COVID-19, ZEN recently announced exclusive worldwide rights to commercialize rapid, saliva-based COVID-19 antigen testing technology in partnership with McMaster University. This technology is exceptionally accurate (similar to current PCR tests), saliva-based, affordable, scalable and provides results in under 10 minutes. It appears we aren't going to rid ourselves of this pesky virus anytime soon. So perhaps the best solution to getting on with some semblance of normal is accurate, rapid testing.

Being an optimist and looking beyond COVID-19 and hopefully no other mutation or pathogens running amok in public, we find that ZEN has developed a stable diesel fuel additive, which increased the performance of diesel fuel by up to 10% in initial testing. Greg Fenton, ZEN CEO commented: "With global market estimates for diesel fuel alone near \$1 trillion, the size of the challenge to reduce emissions from this level of demand is massive, but so is the opportunity for novel solutions to help us be more efficient in our usage." Regardless of whether you want zero emissions tomorrow, as

long as everyone continues to order stuff off Amazon and you want fresh fruit in your grocery store, diesel demand is going to be with us for a while. So rather than be an environmental zealot, why not embrace solutions that help reduce emissions in the interim until we can finally achieve our ultimate goal. Which is a good segue into research ZEN is doing into lower-cost, reduced weight, higher performance and capacity energy storage applications by developing graphene-wrapped silicon anodes for Li-ion batteries.

Then there's the classic stereotype of nanomaterials making everything better. ZEN has its fingers in corrosion protective coating for reduced corrosion and enhanced longevity for steel. Polymers that enhance strength, longevity, and conductivity that can be used as versatile replacements for metallic electromagnetic shields. There's also enhanced strength and electrical conductivity aluminum for the automotive industry and enhanced strength and longevity cement based composites for the construction industry. I'm probably missing something but you get the picture.

On a final note, on June 16th ZEN and Trebor Rx Corp. provided an update on the Health Canada review process for the ZENGuardTM-enhanced, ASTM level 3 surgical mask. Clearly, the sooner they can get approvals and get mask production underway, the sooner they can start to realize the revenue from the Trebor agreement signed in November 2020 or a minimum of 100 million masks/filters. As a prospective investor, this is the news I'm eagerly awaiting.

ZEN Graphene's Dr Francis Dube on the ZENGuard™ enhanced surgical masks and the development of a new fuel additive

In a recent InvestorIntel interview, Tracy Weslosky speaks with Dr. Francis Dube, Executive Chairman of ZEN Graphene Solutions Ltd. (TSXV: ZEN) about ZEN's recent milestones including the successful inhalation safety testing of the ZENGuard™ enhanced surgical masks and the development of a new fuel additive.

In this InvestorIntel interview, which may also be viewed on YouTube (click here to subscribe to the InvestorIntel Channel), Dr. Dube starts by explaining the impact of the ZENGuard™ enhanced surgical masks and submission to Health Canada news release. He discusses how their market is with the medical industry and how this demand will only grow.

Equally as interesting to host Tracy was the potential to attract ESG funds with the new fuel additive announcement. Francis explains that ZEN has developed a stable diesel fuel additive, which increased the performance of diesel fuel by up to 10% in initial testing. He states that "If we can make diesel fuel 10-20% better we are going to have a significant impact on the amount of emissions...we think we can make a difference from an environmental standpoint."

To watch the full interview, click here

About ZEN Graphene Solutions Ltd.

ZEN is a next-gen nanomaterials technology company developing and commercializing technologies that help protect people and the environment. ZEN is currently focused on commercializing ZEN Guard™, a patent pending graphene-based coating with 99% antimicrobial activity, including against COVID-19, and the potential to use similar graphene compounds as pharmaceutical products against infectious diseases. The company has a significant R&D pipeline with an interest in monomers, polymers, metal alloys, corrosion coatings, biosensors along with the production of graphene oxide and graphene quantum dots. Additionally, the company owns the unique Albany Graphite Project which provides the company with a potential competitive advantage in the graphene market. Labs in Japan, UK, Israel, USA, and Canada have independently demonstrated that ZEN's Albany Pure™ Graphite is an ideal precursor material that easily converts (exfoliates) to graphene, using a variety of mechanical, chemical, and electrochemical methods.

To learn more about ZEN Graphene Solutions Ltd., [click here](#)

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Share price rises 369% in the last year, ZEN Graphene announces a diesel fuel additive that improves the performance of diesel fuel

The wonder material graphene has a rapidly growing array of end uses ranging from strengthening composite materials to the graphene battery. It is even used in face masks and protective clothing with additives to help protect against COVID-19. But

did you know that graphene can be used as a fuel additive to enhance the performance of diesel fuel.

ZEN Graphene Solutions Ltd. (TSXV: ZEN) (“ZEN”) recently announced that “it has developed a stable diesel fuel additive which **increased the performance of diesel fuel by up to 10%** in initial testing.”

The implications for this are enormous. Diesel car sales in Europe last year made up 28% of new car sales. If ZEN’s graphene-based additive can improve fuel performance/economy then it means less diesel is used, which is better for reducing diesel emissions.

ZEN is still in the early stages with testing and additional research is currently underway with university partners. This means investors will need some patience on this opportunity. On the plus side the graphene-based additive can be easily added to diesel, biodiesel, and syndiesel. ZEN also sees significant potential opportunity in gasoline and aviation fuels. Now that would also be another huge potential market given there is around 1.42 billion cars on the planet, forecast to rise to 2 billion by 2035.

ZEN CEO, Greg Fenton, stated:

“Energy and fuel are crucial to global economic prosperity, but also represent our biggest challenge from an environmental standpoint. With global market estimates for diesel fuel alone near \$1 trillion, the size of the challenge to reduce emissions from this level of demand is massive, but so is the opportunity for novel solutions to help us be more efficient in our usage.”

More about ZEN Graphene Solutions (“ZEN”)

ZEN is currently focused on three primary areas of commercialization with a significant R&D pipeline and substantial upside potential:

1. Health – ZENGuard™ and ZEN's antimicrobial compound as a therapeutic and healthcare product.
2. Advanced Materials
3. Clean Technology

Graphene commercialization opportunities being pursued by ZEN Graphene Solutions

Developing partnerships and securing new IP in high-growth areas

Growth Market	Graphene Enhancement Opportunity	Potential Benefits & Applications
Healthcare & PPE	<ul style="list-style-type: none"> • ZENGuard™ • Aptamer virus detection 	<ul style="list-style-type: none"> • External protection from viruses, bacteria and fungi (PPE, air filtration, surfaces) • Rapid, ultra-sensitive, low-cost biosensor to detect antigens/antibodies
	<ul style="list-style-type: none"> • Antimicrobial compound 	<ul style="list-style-type: none"> • ZENGuard™ is a precursor for developing our potential medical breakthrough: a proprietary graphene-based compound with antibiotic, antiviral, and antifungal properties for therapeutic use in humans (topical, ingestion, intranasal)
Advanced Materials	<ul style="list-style-type: none"> • Graphene synthesis & quantum dots 	<ul style="list-style-type: none"> • Graphene production at scale to help de-risk supply chain
	<ul style="list-style-type: none"> • Aluminum 	<ul style="list-style-type: none"> • Enhanced strength and electrical conductivity for automotive industry
	<ul style="list-style-type: none"> • Cement-based composites 	<ul style="list-style-type: none"> • Enhanced strength and longevity for construction industry
	<ul style="list-style-type: none"> • Polymers 	<ul style="list-style-type: none"> • Enhanced strength, longevity and conductivity; versatile replacements for metallic electromagnetic shields
Clean Technology	<ul style="list-style-type: none"> • Corrosion protective coating 	<ul style="list-style-type: none"> • Reduce corrosion and enhanced longevity for steel
	<ul style="list-style-type: none"> • Aerogel and Li-ion batteries; graphene-wrapped silicon anode • Dehumidification membranes 	<ul style="list-style-type: none"> • Lower-cost, reduced weight, higher performance and capacity energy storage applications • Remove humidity with significant reduction in energy (air conditioning)

Source: ZEN company presentation

ZEN is commercializing their graphene technology in several ways including:

- A graphene biocidal coating ('ZENGuard™') used in face masks, surgical gloves, personal protective equipment (PPE), and air filtration systems. ZEN is already partnering with Trebor on a 100M mask agreement. ZEN has previously discussed plans to be producing their biocidal coating for 800 million masks a month by November 2021. This may be delayed due to Health Canada (HC) requiring further information into the safety of graphene. ZEN says it will "work collaboratively with HC to further reinforce and validate its safety profile. We expect the current review to be concluded in an expedited manner." It should also be noted that the final results received from Nucro-Technics on skin irritation and sensitivity confirmed ZENGuard™ did not

lead to any irritation or sensitivity.

- A graphene compound used to fight against viruses (98% effective against COVID-19), bacteria, and fungal infections. Also used against antimicrobial-resistant bacteria.
- ZEN's graphene can reduce air conditioning energy requirement by 75% by removing moisture from the air, the air conditioning unit uses less energy and requires less maintenance.

Regarding the latest news on ZENGuard™, ZEN CEO, Greg Fenton, stated:

“ZEN and Trebor have submitted the additional information requested by Health Canada and are fully committed to working diligently and collaboratively to ensure ZENGuard™ enhanced personal protective equipment (PPE) can make its way to those who need it most as quickly as possible.”

And regarding production of ZENGuard™ the Company stated: “ZEN remains committed to previously disclosed timeline and capacity estimates; Senior Chemical Engineer hired as Plant Manager overseeing capacity ramp-up and ongoing ZENGuard™ production.”

Closing remarks

ZEN has so many opportunities going for it that it can be hard to keep up. The recently completed non-brokered private placement means ZEN's current liquidity is approximately C\$5.3 million, which will be needed to ramp up production of graphene to meet just some of these exciting applications.

ZEN Graphene Solutions trades on a market cap of C\$234 million and is having a banner year with the stock price up 369% over the past 12 months. Given this track record and the huge markets ZEN is targeting I would not bet against ZEN in 2021.

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