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

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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 nano-particles 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 PureTM 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.

Source

Closing remarks

ZEN is one of the most innovate 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.