

Graphene Help Respirators Fight Against Coronavirus



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Graphene-based facemasks could provide a renewable and effective weapon in the fight against the spread of COVID-19.

Wonder-material [graphene](#) has been drafted into the battle against COVID-19. London-based company [Directa Plus](#) is employing layers of atom-thin allotropes of carbon extracted from graphite in face masks aimed to slow the spread of the disease.

“Since the dangers of COVID-19 first started to become apparent, Directa Plus has been determined to help with the fight against the disease, and to use the unique properties of graphene and the strength of Directa Plus’s IP portfolio to enhance personal protective equipment.”

“The company redirected effort and resources in its Advanced Development Area, R&D facility, to achieve this.” says the company in a press release.

The graphene-enhanced facemasks are designed for use by commuters and in the workplace, as well as during a wide range of leisure activities.

The company says that the dermatologically tested and hypoallergenic G+ mask will confer a wide-range of benefits to consumers looking to protect themselves and others against COVID-19. This includes, but is not limited to; a naturally bacteriostatic quality which helps prevent bacteria growing and reproducing on the mask, a high filtration level, and improved respiratory performance allowing users to breathe easier, both literally and figuratively.

In the process of making this graphene-enhanced solution to the spread of coronavirus, Directa Plus hasn’t forgotten that consumers have other concerns that, whilst not currently being prioritized, are still important considerations. For example; the G+ mask is washable

meaning that it lends itself to reuse, making it a more environmentally friendly alternative to disposable masks.

Graphene and the Fight Against Bacteria and Viruses

This revolutionary material could be a major force in the fight against disease and infection in the coming decades. Currently used anti-bacterial agents present problems in themselves that must be combated, this includes growing resistance of bacteria to antibiotics, which have been overused and overprescribed and aren't effective against viruses.

Thus, researchers have turned to other materials for novel and effective solutions to help in the fight against bacteria and viruses. Graphene has been the subject of intense study due to its impressive antibacterial activity.

This anti-bacterial nature arises from several qualities of graphene, so much so that researchers aren't entirely sure whether it is graphene's sharp atom-thin edges ripping apart virus cells, the oxidative stress it places upon them, or the fact that it bombards said cells with accelerated electrons, that makes it such an effective weapon against infectious agents.

This means graphene-based materials provide advantages of easy preparation, renewable, unique catalytic properties, and, of course, exceptional physical properties such as a large specific surface area and mechanical strength. Thankfully graphene is also cheap to produce and abundant which gives it the edge over other materials like silver nanoparticles.

Building a Future on Graphene

It's no exaggeration to say that Direct Plus' operations are built on a backbone of pure graphene. "Directa's focus is always on taking existing products and adding the graphene enhancements that make the user experience better and safer, and doing so in an environmentally sustainable way," says the company's founder and CEO Giulio Cesareo.

"We hope that these graphene-enhanced masks will prove themselves as a useful addition to the fight against coronavirus." Giulio Cesareo, CEO, Directa Plus.

The G+ masks from Direct Plus will join a wide range of products including absorbent barriers

utilized to clear oil spills, tires and industrial products, all the way down to footwear and even golf balls.

But, for now, Direct Plus is devoting much of its resources to personal protective equipment (PPE) and the fight against COVID-19—not just with masks, but also gloves and gowns for medical workers.

“Medical equipment enhanced by graphene could mean a safer working environment for the health workers and all citizens,” says Cesario. “In the health-industry, graphene is well known for antibacterial and filtering properties and we will continue to develop protective devices using our non-toxic G+ graphene to benefit our fellow citizens during this emergency.”

Additionally, when this crisis winds down, the CEO points out that Direct Plus will continue to use its products to attempt to make the world a better place, “The next target will be the anti-pollution solutions, that could be the first step in the vertical of air purification.”

Read the [original article](#) on Azonano.