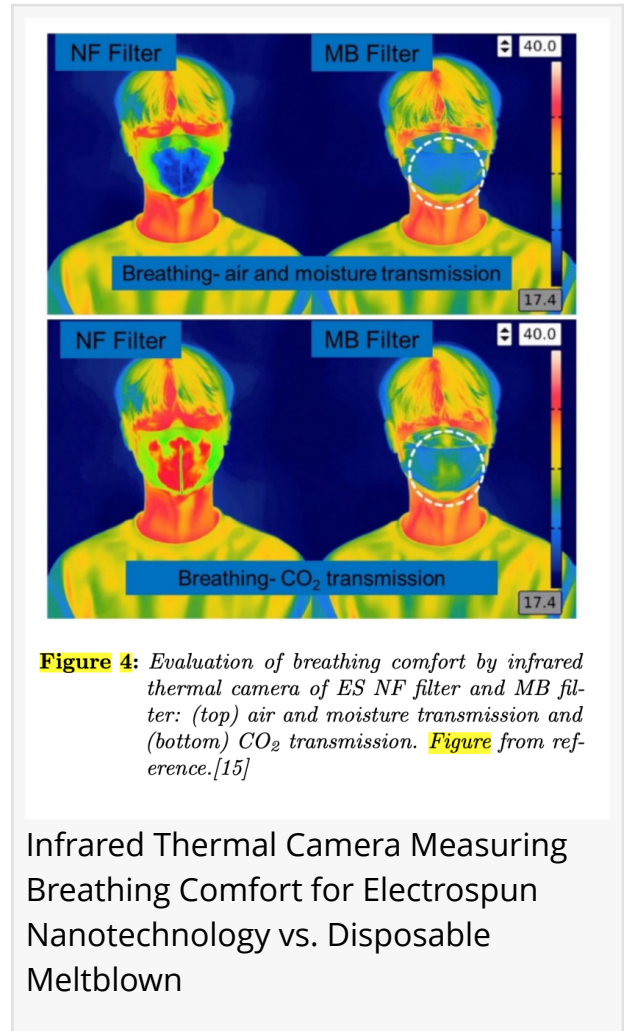


# Potentially Dangerous Chemical Pollutants Discovered in Common Disposable Face Masks Cause Concern

*Discover Why Mask Wearers Are Making the Switch to Reusable Masks*

LOS ANGELES, CALIFORNIA, UNITED STATES, December 8, 2022 /EINPresswire.com/ -- As the holidays bring cold winter weather and indoor gatherings, many are reconsidering their mask options. Loose-fitting medical disposable masks are meant to protect the wearer from contact with larger droplets and sprays and can filter large particles suspended in the air upon inhalation. However as ACS Nano reported in a peer-reviewed journal at the start of the Covid-19 pandemic, "It is well recognized that "fit" is a critical aspect of a high-performance mask. The presence of gaps between the mask and facial contours will result in "leakage" reducing the effectiveness of the masks. Gaps can result in over a 60% decrease in filtration efficiency." As more public awareness surfaced around face mask fit/leakage, many turned to N95 or KN95s as recommended by public health professionals. However as more data is being accumulated regarding the long-term impacts of disposable mask-wearing, concerns over risks of environmental pollution and human health are now top of mind. Research conducted in May 2021 by the United Kingdom's Swansea University as supported by the Institute for Innovative Materials Processing and Numerical Technologies (IMPACT) and the SPECIFIC Innovation and Knowledge Center, have uncovered high levels of heavy metal pollutants, including lead, antimony, and copper, within the silicon-based and plastic fibers of common disposable face masks.

The rise in single-use masks due to the Covid-19 pandemic, and the associated waste, has been documented as a new cause of alarming levels of environmental pollution. The study aimed to explore the direct link of concerning mask pollution, with the level of toxic substances uncovered



in disposable masks. Outlined in their extensive peer-reviewed study, Swansea University scientists wrote: The findings reveal significant levels of pollutants in all the variety of available disposable masks tested -- with micro/nanoparticles and heavy metals released into the water during all tests. This will have a substantial environmental impact and, in addition, raise the question of the potential damage to public health, with a warning that repeated exposure could be hazardous as the substances found have known links to cell death, genotoxicity and cancer formation.

The research team included Professor Trystan Watson, Dr. Javier Delgado Gallardo and Dr. Geraint Sullivan. Project lead Dr. Sarper Sarp of Swansea University College of Engineering said after completing the study in May 2021: "There is a need to understand the impact of such particle leaching on public health. One of the main concerns with these particles is that they were easily detached from face masks and leached into the water with no agitation, which suggests that these particles are mechanically unstable and readily available to be detached. Therefore, a full investigation is necessary to

determine the quantities and potential impacts of these particles leaching into the environment, and the levels being inhaled by users during normal breathing. This is a significant concern, especially for health care professionals, key workers, and children required to wear masks for large proportions of the working or school day."

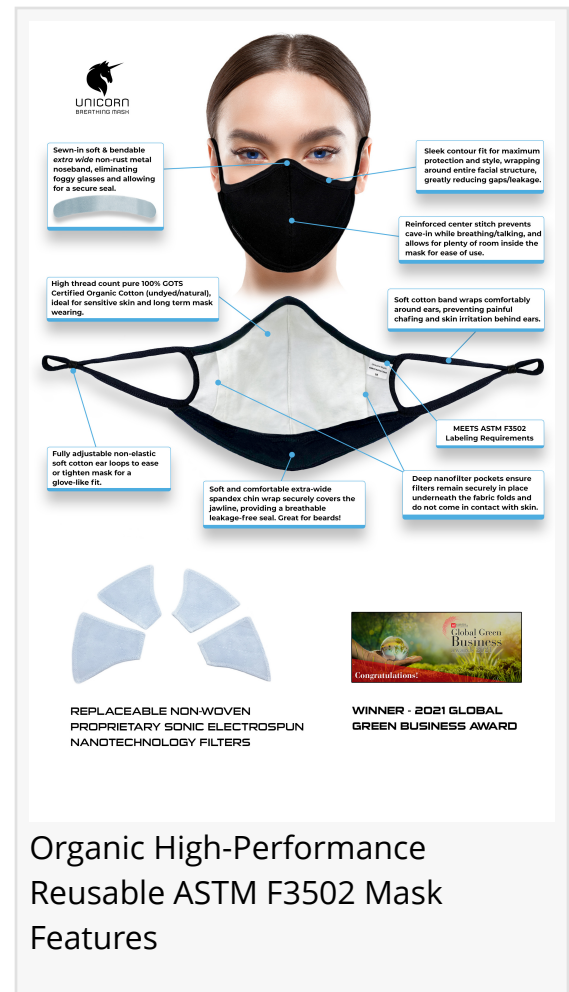
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*Dr. Sarper Sarp, Swansea University College of Engineering, UK*

In light of these and other ongoing studies around the globe, California-based women-owned and run [Unicorn Breathing Mask](#) has implemented new technology into their CDC-approved, sustainable ASTM F3502 face barrier covering that doesn't involve the use of toxic heavy metals, rather utilizes a safe and non-toxic 15+ mile continuous sonic electrospun nanofiber matrix thousands of times thinner than a human hair, capable of capturing particles as small as 0.1 microns with 99% efficiency. Unicorn Breathing Mask Founder [Kimberly Sky](#) states, "Our filters are manufactured by a leading global [nanotechnology](#)

company out of New Zealand that is committed to public health and safety. Electrospun Nanotechnology filters test down to a much smaller particle size with greater efficiency ratings than nanotextiles, and feature dramatically higher breathability, greater thermal comfort (far less



moisture buildup), and are much more lightweight (less than 1mm thick). We encourage you to do your research with all filtered mask companies and note the differences in verified USA lab-tested results. The proof is in the pudding as they say!"

ASTM medical masks that are tested to the F2100 standard can often be confused with ASTM F3502 face masks. The ASTM F2100 standard tests the filter material only as opposed to the whole mask, and therefore doesn't account for how well the mask filters when actually worn on your face, using different-sized particles to measure filtration efficiency than the F3502 test.

The velocity, distance, speed and polarity of the particles are all different, resulting in a less rigorous challenge. The ASTM F2100 specification offers up this caveat clearly, saying it "only evaluates the materials used in the construction of the medical face mask, and not the seal." In one case, a popular Level 3 mask that surpassed 90% on a materials-only basis, filtered only 11% of particulate matter when worn by an actual human being. N95s that must be properly fitted to the individual wearer and discarded daily in order to maintain stated efficiency levels have also undergone several peer-reviewed studies demonstrating concern for their rigidity. Even the smallest of gaps have been shown to cause them to lose a disproportionate amount of filtration compared to more flexible reusable filter masks. There is also a concern for N95s lack of breathability (airflow resistance limit for inhalation is 35mm, more than double the maximum breathability resistance allowed under the F3502 standard), particularly among young people and seniors, or those with breathing difficulties or chemical sensitivities.

Sky continues, "There are safe, reusable long-term solutions for face-mask wearing as climate change continues to worsen, causing ongoing respiratory illness. In 2020 alone marine conservation organization OceansAsia discovered an estimated 1.56 billion disposables face masks in our oceans that will take as long as 450 years to break down, slowly turning into toxic micro-plastics that our wildlife and thereby humans will consume, having a negative impact on the environment and our health. China alone produces 200 million+ disposables/day. It is time to listen to the research and shift to a safer, more sustainable, reusable solution."

For more information on the Award-winning Electrospun Nanotechnology featured in Unicorn Masks, visit <https://unicornbreathingmask.com>

Todd Bollinger



"For when we rise, we bring everyone with us." - Kimberly Sky, Founder Unicorn Breathing Mask

Unicorn Breathing Mask

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