

## GaN Epitaxy Wafers to Fabricate Ultraviolet Light Devices to Sterilize Surfaces in the Corona Virus Era

GaN Epitaxy Wafers to fabricate UVC-LED devices. UniversityWafer, Inc. and our partners have in stock the affordable substrates researchers need to get started.

SOUTH BOSTON, MASSACHUSETTS, UNITED STATES, May 11, 2020 /EINPresswire.com/ -- <u>Gallium Nitride</u> wafers is the substrate needed to fabricate UVC LEDs for use in sterilization equipment. UVC is part of the electromagnetic spectrum. Unlike UV-A and UV-B both which hit the earth and can tan or burn your skin, UV-C never makes it past the protection of our atmosphere.

The history and future of Gallium Nitride UV-C Devices

The growth potential of UV-C LED devices is huge. Currently the UV-C LED industry generates around \$1 billion in annual sales. But since COVID-19, the growth of UV-C LED devices is expected to accelerate as the technology becomes more practical for everyday use on



gallium nitride on sapphire uv-c properties

surfaces and perhaps humans. Ultra-Violet (UV) light has been an effective disinfectant for over 100 years. UV light was discovered over 200 years ago. UV was used to disinfect surfaces in the late 1800s, water in the early 1900s, and the air in the 1930s. UV-C anti-microbial properties

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Christian Baker is the founder of UniversityWafer, Inc. We strive to provide our research clients with the tools needed to make the future happen." *Christian J. Baker*  helped mitigate the spread of tuberculosis, also referred to as consumption, ravaging communities across the world.

How does UV-C light sterilize surfaces?

UV-C light destroys the nucleic acids in the DNA and RNA of all microbes' chemical bonds by cracking its protective protein shell. Once broken the microbe ceases to replicate and thus dies.

The challenges of UV-C remain in its practicality. Several

problems are inherent including UV-C ability to penetrate through surface dirt and or objects. Thus, if you want to sterilize a hotel room and a book is on a desk, that surface under that book will not be disinfected. The book would have to be moved. If a railing has dirt on it, then that dirt will have to be cleaned before the surface can be disinfected with the UV-C LED for it to work 100%. And the biggest problem is UV-C's danger to humans. The World Health Organization warns that UV-C light should not be used to sterilize flesh. Currently research is being conducted to make UV-C safe for sterilizing people, but nothing has been approved for consumer use. So, bathing your hands under a UV-C light is not advised. Current research on naked mice has shown great promise with the mice showing no ill effects from daily UV-C use.

Problems aside, the benefits are huge. With a UV-C LED device you would not need toxic disinfectants to clean surfaces. Soapy water that is both safe, and inexpensive will work to clean surfaces. Then the UV-C LED device can go to work and finish cleaning in minutes. No toxic residue or ventilation required.

The future is bright for researchers developing UV-C LED devices that are not harmful to humans yet remain



gallium nitride on sapphire packaging



University Wafer Logo

deadly to microbes, bacterial, and viruses. MERS, SARS, and EBOLA have been recent victims of UV-C LEDs efficacy. Studies have found that hospitals that use UV-C LEDs to disinfect surfaces have reported eliminating up to 100% of infections that patients had suffered before UV-C use. UV-C LED devices could potentially also be used to disinfect disposable masks. This would prevent expensive incineration of the masks and would prevent microbes from entering back into the environment when discarded with the trash. Research into re-using N95 masks after UV-C disinfecting is ongoing. The results so far are very positive.

During this Covid-19 crisis, hospitals were found to be the culprits in passing along pathogens spreading across communities all over the world. Now not only are hospitals ramping up their UV-C use but transportation, banks, sporting arenas, gyms are implementing UV-C devices that can kill 99% of germs in only a few minutes.

The following industries have vocally expressed a need for a solution to COVID-19 and other microbes now and in the future.

- •Nursing Home
- •Schools
- Transportation
- Hotels
- •Restaurants
- Retail stores

Gallium Nitride Epitaxy Wafers is the tool required to made UVC-LED devices. UniversityWafer, Inc. and our partners have in stock the affordable substrates researchers need to get started.

UniversityWafer, Inc's Gallium Nitride substrates are the base substrate that researchers from academia to industry should use to fabricate UV-C prototypes and consumer devices.

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