

Helping Surgeons Keep Their COOL!

Wilmington-based Desikant Technologies' "smart garments" beat the heat.

It is a classic scene from a TV medical drama. As a surgeon stands over the operating table, a nurse reaches up to dab the doctor's damp brow. By the time the life-or-death procedure is over, the surgeon is soaked with sweat.

For many physicians, the depiction is all too real. For hours at a time, they wear scrubs, sterile gowns, masks, gloves, hats and other gear that trap warm, humid air against their bodies. Overheating can affect concentration and cause dehydration.

Wilmington-based Desikant Technologies has a solution. Founded in 2019, the startup creates thermoregulation "smart garments," including a cooling vest that prevents heat exhaustion. The innovation has received encouragement. In April, Desikant Technologies received the top \$75,000 prize in the Delaware Innovation Award Category at Startup 302, a funding competition organized by Delaware Prosperity Partnership. The Delaware Division of Small Business provided the funds for the award. In August, the company received an Encouraging Development, Growth and Expansion (EDGE) Grant from the division.

The company is the dream of Kwaku Temeng, a former DuPont Co. employee turned entrepreneur. "Since my days at DuPont, there was something in me that wanted to start a company to solve an important problem," he says. "I knew that one day I would start a venture."

Born in Ghana, Temeng came to the United States to attend the Massachusetts Institute of Technology. He also has a Ph.D. in chemical engineering and a master's in business administration from the Wharton School of the University of Pennsylvania. His career with the DuPont Co. brought him to Delaware in the early 1990s. "I haven't moved away from the state since," he says.

Indeed, Temeng remained a Delaware resident after becoming the director of innovation for Baltimore-based Under Armour. He continued living in Delaware after joining Dropel Fabrics in New York, an early-stage startup that develops and manufactures performance garments using sustainable natural fabrics, not synthetics.

Commuting by train gave Temeng time to think about how heat stress affects athletes. "Stamina drops quite a bit, and the ability to focus on the activity suffers," he explains. "When the body can't cool itself down, there's the risk of dehydration."

In mid-2020, Temeng founded Desikant Technologies' startup. He reached out to Alisa Esposito, an Under Armour colleague who built

high-performance garments for Olympic athletes and electronic-integrated apparel. She agreed to be the vice president of technical design. Joel Melnick, an electrical engineer who had built flight-control systems for Boeing and designed devices for surgeons, became the chief technical officer.

The first product is a vest for the surgical market. Worn over scrubs and under the gown, the vest has sensors that detect when the body overheats. Sophisticated electronics in the apparel actively replace the warm, humid air around the body with cool, dry air. The Army bought the initial prototype; the second will be tested in operating rooms. The team will then tackle applications for outdoor activities, such as hiking and running.

With the grants, Desikant is looking for office space. "Delaware's position along the East Coast is ideal," Temeng says. "It's near New York's fashion industry and Baltimore, where there is a community experienced in building high-performance products. There are a bunch of potential partners that make electronics." Consider the DuPont Co., which has an electronic materials business.

While at DuPont, Temeng once spent up to 80 hours a week on an internet-based project. He remembers the sense of satisfaction, a sentiment he hopes to experience next year when, hopefully, Desikant Technologies' vest will be available. "When you bring a solution to market and see people adapt it — it's a wonderful feeling," he says.



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