

## SUCCESS STORY

# CARBICE CORPORATION

## Ever wonder why all those electronic devices you own don't constantly overheat?

It's because of nanotechnology, or more specifically, the thermal tape it's embedded in. Thermal tape products like those designed and made by Georgia-based Carbice Corporation efficiently remove heat from electronic devices, keeping them and their components cool to meet durability and safety requirements. Carbice's products can be found in all kinds of devices, from those used by consumers, like computer chips and coffee makers, to those deployed by global space and aerospace clients, like satellites miles above earth.

Carbice was created in 2011 as a result of Georgia Tech professor Baratunde Cola's research on emerging technologies. Cola saw a need for a cost-effective and high-performance solution to dissipate heat in electronics, and nanotechnology was the solution. In 2017, Carbice became a customer-facing business, but the company desired to take its manufacturing operations to the next level, from commercial startup mode to full-scale production. This seemingly daunting process was made easier with the help of the Georgia Center of Innovation and Dr. Billyde Brown at the Georgia Tech Manufacturing Institute (GTMI).

CARBICE WAS CREATED IN 2011 AS A RESULT OF GEORGIA TECH PROFESSOR BARATUNDE COLA'S RESEARCH ON EMERGING TECHNOLOGIES.

"We learned that Carbice needed to develop best manufacturing practices for their thermal tape products so they could increase their manufacturing capacity by a factor of 40," says John Morehouse,



*"We put some thoughts together to propose what would be best for us and the state of Georgia, and, from there, the Center of Innovation's support allowed GTMI and our team to get the work done."*

CRAIG GREEN, CARBICE'S CHIEF TECHNOLOGY OFFICER

### HOW THE CENTER OF INNOVATION ASSISTED



Developed best manufacturing practices, increasing manufacturing capacity by a factor of 40



Achieved compliance with government regulations



COI assistance directly contributed to an increase in the number of Carbice customers, order quantity, revenue, and overall support for the company, including financial

the Center of Innovation's director of manufacturing. "It was going to be challenging to do this while also achieving compliance with government regulations. Fortunately, COI was able to help."

*"...Carbice needed to develop best manufacturing practices to increase capacity by a factor of 40... all while achieving government compliance... and COI was able to help."*

JOHN MOREHOUSE,  
THE CENTER OF INNOVATION'S DIRECTOR OF MANUFACTURING

The Center of Innovation matched a grant from Georgia Tech that allowed Carbice, with help from Dr. Brown, to perform the necessary testing to comply with the Environmental Protection Agency's (EPA) pre-manufacture requirements. This enabled them to advance to full-scale production.

The whole process for Carbice was relatively simple, according to Craig Green, Carbice's chief technology officer. Step one was learning about the Center of Innovation, its mission, and what it could offer the startup. Then, it was a matter of determining how Carbice could really utilize COI's resources.



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Green notes that one of the reasons the experience was so fruitful was the open-ended nature of the partnership as well as the ease of engaging with the Center.



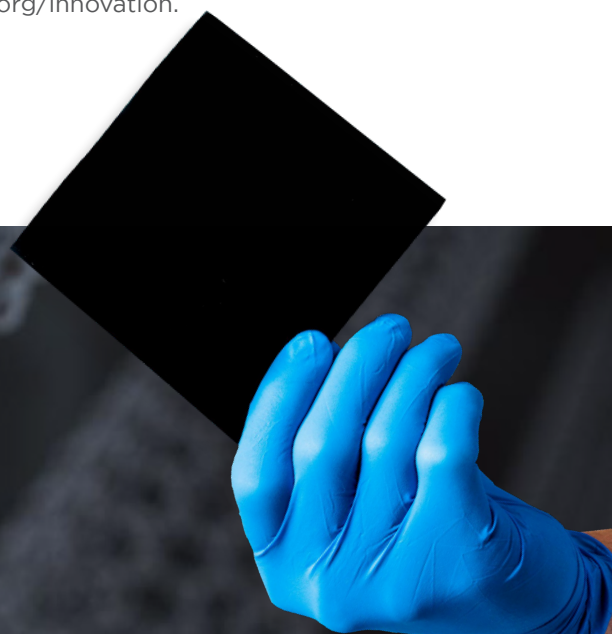
"At a high level, what we proposed and what we did, I don't know of anyone else who would've done that," he says. "It was also a huge relief to get ourselves cleared through the EPA and to have that off my plate. It was a nagging issue that we knew needed to get done to continue to grow."

The Center of Innovation's assistance directly contributed to an increase in the number of Carbice customers, order quantity, revenue, and overall support for the company, including financial. Building on a \$1.5 million seed round in 2017 to obtain initial outside investment to help grow the startup, Carbice held the first closing of a \$15 million Series A funding round in November of 2020, further advancing its mission to scale manufacturing and move into larger markets.

While Carbice's learnings from the testing process supported the company's own success, they have also played a part in paving the way for other nanotech startups to succeed. Georgia Tech hopes to use the lessons from Carbice's commercial transformation to help create a new center for nanomanufacturing. With Carbice as a model, Georgia Tech aims to develop a hub to provide other nanotech startups a more standardized path to move from research to the market.

"Dr. Brown and the Center saw an opportunity to use the wisdom gained from our work with Carbice to ultimately help other companies in the state tackle similar problems," says John Morehouse. "A center for nanomanufacturing could solidify Georgia Tech as a leader in nanotechnology and encourage more companies like Carbice to come to Georgia."

To connect with the Georgia Center of Innovation to identify ways it may help your Georgia business, visit [georgia.org/innovation](https://georgia.org/innovation).



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