

A detailed microscopic image of plant tissue, likely a cross-section of a leaf or stem, showing various cellular structures. The cells are stained in shades of blue and green, highlighting their intricate patterns and textures. The overall appearance is highly detailed and scientific.

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Des Moines, IA 50309

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IOWA'S DEFINITION OF INNOVATION

Innovation is described as a new idea, or more effective device or process. That's certainly happening across the entire state of Iowa. From emerging companies developing new ways to use carbon to legacy companies finding new uses for Iowa corn, there's a lot of ideas and activity in our own backyards.

With the lowest cost of doing business, companies operating in Iowa benefit from a business-friendly state government, a skilled and productive labor pool, a centralized geographical location, access to raw materials, and innovation and technology transfer between world-renowned research universities and colleges.

From advanced manufacturing to technology, Iowa-based companies and organizations are quickly gaining momentum and attention on a national level.



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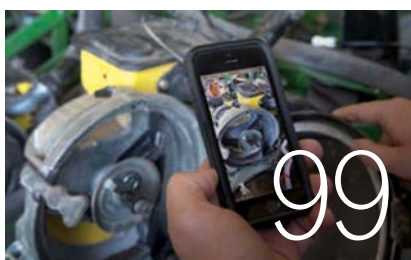
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IOWA CARBON USED TO REMOVE CONTAMINANTS IN ECO-FRIENDLY WAY

Clear Carbon, LLC



Working with power plants and local water companies, Clear Carbon LLC refines, manufactures, sells and delivers biomass-sourced activated carbon. Its innovative production process uses agricultural waste and burns it without oxygen to create a pure, porous carbon product that can serve the U.S. power and water industries by using renewable sources.

Whether it's agricultural runoff, industrial and municipal wastes, or brackish waters, water treatment plants can use this highly porous, charcoal-like substance as a general filtration media to purify and remove contaminants from polluted water sources, potentially replacing traditional activated carbon made from nonrenewable resources.

"Carbon is the sponge on the periodic table; it's proven technology," said Jason Berger, president of Clear Carbon.

Just about anything can be used as the source, Todd Kielkopf, business management director of Clear Carbon, said, but their company primarily uses wood chips. Clear Carbon works with landfills such as the Metro Waste Authority to acquire biomass such as corn stover and switchgrass.

"Billions of pounds a year of activated carbon is used to clean the air you breathe and the water you drink. The vast majority of that comes from coal mined in Wyoming and West Virginia. With our technology we can put the local agricultural waste in the back of a truck, convert it to activated carbon and use it within a central area of that site," Kielkopf said.



Activated carbon is a medium routinely used for removing contaminants in gas or liquids. For example, drinking water is often passed through activated carbon filters to remove odor, hazardous elements and impurities.

“But it goes way beyond that,” Kielkopf said. “Coal-fired power plants account for 49 percent of U.S. mercury omissions, and by spraying powdered activated carbon into the flue gas, you can capture the majority of it before it leaves the smokestack. It’s also used to filter your gas at the station, remove caffeine from coffee, refine wine, beer and sugar, and make cleaner cosmetics. It even filters our fish tanks.”

Kielkopf expects a great economic impact to Iowa due to this process.

“We can produce \$10 million in sales locally versus importing, and create 10 to 15 jobs. We’ve also added \$2.9 million in annual added value in waste versus in the landfill. We make a product that’s cheaper, greener and local.”

About Clear Carbon LLC

Clear Carbon LLC is a business venture of Jason Berger and Bernardo del Campo, principals at North American Minerals

Corp. and Advanced Renewable Technology International (ARTi), respectively.

Berger also heads North American Minerals Corp., an internationally recognized Iowa-based commodity import/export business in West Des Moines since 1994.

ARTi was formed in 2013 by a team of graduate-level and other students attending Iowa State University, and has subsequently refined its Prairie City manufacturing processes to make high-grade activated carbon.

Outreach

Clear Carbon joined the Technology Association of Iowa to help support the Iowa STEM community and tech-enabled local economy. Clear Carbon principles are actively engaged with Iowa State University research and development teams, the EMERGE@SimpsonCollege entrepreneurial program, the Drake University Lorentzen Student Hatchery and other Iowa technology initiatives.

“Clear Carbon’s and ARTi’s technologies are deeply based in STEM fields, so it makes sense to give back to local programs that support the next wave,” said Kielkopf. ■