



Brian Oesterling threads fiberglass strands that will be woven into fabric at Dielectric Solutions Plant in East Butler, Butler County.

## Dielectric fiberglass meets 'thin is in' electronics standard

Circuit board applications may be best opportunity for young company that is attracting investors

By **Michael Yeomans**  
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A former grain-processing barn in rural Butler County that now houses fabric-weaving looms doesn't seem like hotbed of technology.

A closer look reveals an advanced materials start-up company that has electronics manufacturers worldwide excited about a process that promises to cut their costs and produce higher-performing equipment.

Dielectric Solutions LLC -- the brainchild of three former PPG Industries Inc.



John Kuhn (left), vice president and chief technical officer; Kenneth Beer (center), vice president of marketing; Todd Kadar, president and CEO of Dielectric, are former employees of PPG who left to start their own company

employees -- a chemist, an engineer and a financial and strategy specialist -- is one of the few companies in the world capable of producing reliable, thin-filament fiberglass fabric for applications ranging from more-efficient printed circuit boards to harder body armor for military vehicles.

Together, the three -- Chief Executive Todd Kadar, Chief Technical Officer John Kuhn and Kenneth Beer, vice president of marketing -- devised a method for weaving ultra-thin strands of chemically treated fiberglass into a fabric that is thinner, lighter and stronger than any previously made.

The three left to build a new company around this technology. Their target is a worldwide market for lightweight fiberglass fabric estimated at \$1.5 billion.

So far, their company has doubled in revenue every year since its founding in 2000 and is on pace to be profitable for the first time this year.

Dielectric's potential has investors excited. It received a \$500,000 investment from Pittsburgh-based CL Fund upon its inception. Other investors added about another \$1.5 million. The potential for its product to be incorporated into the next-generation equipment of Internet switch and router companies such as Cisco Systems, Nortel Networks and Lucent Technologies opened the eyes of local investment firm Stonewood Capital Management Inc., which led a \$3 million investment last month.

"We've taken a technology that hadn't changed in 40 years and reduced the number of (manufacturing) steps by half," said CEO Kadar.

Dielectric's manufacturing process, developed by Kuhn, allows chemicals to be applied to fibers as they are formed from molten fiberglass and spun into yarn, instead of after the glass has been woven into fabric. That change eliminated a costly step.

Stonewood Capital Vice President Kenn Moritz said, "We saw a group of experienced managers that had created a way to solve a problem that had been discussed and attempted by others, but hadn't been put into a workable production framework. The real key is the flat, strong, dense fabrics they are able to weave based on their zero-twist manufacturing process." Kadar says their

biggest opportunity is in electronics, where he says today's circuit boards are becoming an impediment to performance.

Dielectric's fiberglass fabric, he says, is "faster," allowing for more rapid information movement across circuitry. This can allow companies assembling electronic components on the boards to space them closer together, reducing size.



Carol Guckert threads individual strands of fiberglass into reed.

The company's fabric will soon be put to the test by Compunetics Inc., a Monroeville-based maker of printed circuit boards and teleconferencing equipment. Compunetics Chairman Giorgio Coraluppi also has joined the Dielectric board.

Dielectric's progress is also of keen interest to members of the Pittsburgh Digital Greenhouse, the state-sponsored incubator program seeking to build a semiconductor industry in the region. Kadar credits the Pittsburgh Digital Greenhouse with providing the contacts that have helped Dielectric shape its product development.



Forming cakes, or rolls, of fiberglass yarn will be woven into fabric at Dielectric Solutions.

Greenhouse Chief Executive David Ruppersberger said industry connections the company has made through involvement with the Greenhouse may be more important than the \$212,000 grant it provided to aid in the development of its "high speed" fiber-

glass.

"If they can get potential customers involved early, there's a much better chance the end product will be something the market wants," he said.

Dielectric employs 44 people, including some that formerly worked at PPG's fiberglass research center in O'Hara, which was closed in 1999 as part of a consolidation into PPG's Downtown headquarters and a facility in North Carolina.

The company's founders say they decided to leave PPG to test their own ideas and try their hand as entrepreneurs. Large companies have different measuring sticks for when it's appropriate to enter a market, said cofounder Kenneth Beer, the vice president of marketing. "We had a more independent streak," said chief technical officer Kuhn.