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**Green Inc.**

Energy, the Environment and the Bottom Line



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August 28, 2009, 9:37 am

## Clean Pools, Less Chlorine ... With Moss?

By [Todd Woody](#)



[Creative Water Solutions](#) If it

keeps Minnesota lake water crystal clear, why not your pool?

As its license plates proclaim, Minnesota is the Land of 10,000 Lakes.

Now a Minneapolis-area company says it has figured out the secret to the state's famously crystalline watering holes: moss.

Specifically, species of [sphagnum moss](#) that the start-up, [Creative Water Solutions](#), envisions will keep tens of thousands of swimming pools clean while drastically reducing the use of chlorine and other

harsh chemicals.

The [patented](#) treatment system, which the company has sold for backyard swimming pools since 2007, underwent its first large-scale commercial test this summer at a public aquatic complex in St. Paul.

“I think this is going to have a dramatic effect and change the whole aquatic industry,” said Thomas Schaffer, a 35-year pool industry veteran hired by St. Paul to monitor the moss treatment of an Olympic-size pool and a smaller children’s pool. “We saw a one-third decline in chlorine demand for the water immediately. We’re now using two-thirds less chlorine.”

According to [Dr. David Knighton](#), a founder of Creative Water Solutions and its chief executive, moss treatment inhibits the formation of bacterial colonies called [biofilms](#). Chlorine kills free-floating bacteria but biofilms absorb the chemical, requiring ever-greater doses to keep a pool clean.

“If you stop its ability to proliferate, the biofilm wears itself out,” Dr. Knighton said.

With the moss keeping a pool’s biofilms under control, much less chlorine is needed – just enough to kill free-floating bacteria. The moss also eliminates the need for cyanuric acid, which is traditionally added to outdoor pools to stabilize the chlorine.

Dr. Knighton, a physician who holds several patents for medical devices and systems with a business partner, Vance Fiegel, said the idea for moss water treatment germinated from a magazine article he read about how moss was used to sterilize wounds in the age before antibiotics.

“We just rediscovered what’s been used for centuries,” he said. “Northern Minnesota is known for its clean clear lakes, and that’s one of the reasons.” Dr. Knighton realized he was on to something, he added, when he dropped some moss into his home spa and within a few days the water was crystal clear.

Although sphagnum moss is found in large quantities throughout northern Minnesota and southern Canada, Creative Water Solutions imports the moss from New Zealand, where it is harvested commercially for use in germinating orchids. The challenge for the company now is to scale up its backyard pool conditioning system to treat as much as a million gallons of water.

“There’s about \$3 billion spent a year on chemicals for pools and spas,” Dr. Knighton said. “The commercial side is probably double that. There’s a lot of money at stake here.”

The cost of a moss treatment system for an Olympic-size pool remains to be determined but St. Paul’s supervisor of aquatics, Lynn Waldorf, said the two-month trial had already cut the city’s chemical and pool maintenance bills. “We weren’t using as many chemicals, we weren’t having to clean the pool as much, and the water quality was gorgeous,” she said.

Last month, the city began using moss to treat a large indoor pool. “We saw the same thing with water quality but also saw the air quality improve within a couple of days with the reduction of chlorine use,” Ms. Waldorf said. “It completely took the smell out of the whole building. We have had two people with asthma come forward who said they were using inhalers less.”

Dr. Knighton said Creative Water Solutions had also has successfully tested moss as a herbicide

replacement on a Georgia golf course afflicted with fungus.

But is the world ready for moss diapers?

“I’ve made a diaper with moss in it,” Dr. Knighton said. “It’s very absorbent. In fact, Native Americans used it as a diaper in papooses. It will absorb all the urine, and we think it will prevent diaper rash.”

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## 7 Comments

1. August 28, 2009 9:47 am [Link](#)

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If life gives you sphagnum, make scotch.

— *MinneScotch* - from clear Minnesota waters.

2. August 28, 2009 9:53 am [Link](#)

Oh golly gee.

Does the widespread introduction of foreign species sometimes go awry?

And destroy domestic forms?

— *A Rye also.*

3. August 28, 2009 2:30 pm [Link](#)

Re #2: Err... I know Minnesotans are popularly supposed to be a little strange, but I didn't think the place was actually foreign :-)

Suppose we carry the process a few steps further, and put some fish & so on in the pools, too?

— *James*

4. August 28, 2009 3:56 pm [Link](#)

#3 -

“Creative Water Solutions imports the moss from New Zealand,” - from the post above.

— *That's Kiwi moss.*

5. August 28, 2009 5:56 pm [Link](#)

Strange? You're thinking of our Governor. (Pawlenty, not Ventura. Jesse was just an amateur.) Oh, and that wacky Representative, Michelle Bachmann. And that other Bush toady, former Senator Coleman.

What is it with Republicans in Minnesota, anyway?

— *Proud MinneSnowtan*

6. 6. August 28, 2009 7:09 pm [Link](#)

My daughter has asthma and worked in the pool where the moss was used-huge difference. Go a head and make fun of us from Minnesota-we will have the last laugh.

— *Dana*

7. 7. August 28, 2009 7:57 pm [Link](#)

Cool innovation. I think we can find a lot of natural resources such moss as an agent in reducing chlorine in our <http://www.enviroswim.com/>" rel="nofollow">pools. I hope further efforts in developing this product will be a success. :)

— *montiner*

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#### Green Inc. Staff

##### Tom Zeller Jr.

Editor



After a year as an editor at large for National Geographic magazine, Tom returned to The New York Times in July 2008 to help expand the paper's coverage of sustainable energy development and green business. He has spent much of the last decade as a reporter and editor covering a variety of topics for The Times – from technology and cyberfraud to culture and politics.

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##### Kate Galbraith

Reporter



Ms. Galbraith joined The New York Times in June 2008 to write about renewable energy. She spent the previous year as a Nieman Fellow at Harvard University, and before that she was the Southwest correspondent for The Economist based in Austin, Tex. She is an avid runner and hiker, having grown up camping most summers in the Sierra Nevada.

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### **James Kanter**

Reporter



Mr. Kanter has been a staff correspondent for The International Herald Tribune in Paris and Brussels since 2005, covering European business affairs and the business of green. His previous experience includes four years in Southeast Asia, where he was the editor in chief of The Cambodia Daily in Phnom Penh. Mr. Kanter was the recipient of the Reporting Europe 2009 prize for his investigative feature on the European Emissions Trading System.

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