Is it the beginning of the end for household chemicals?

A Canadian invention uses ozone-treated water to kill bacteria and sanitize fruits and vegetables, MICHAEL RVVAL reports

When Steve Hengsperger first got involved in developing a water-treatment system based on ozone, he noticed something striking in his employees’ attitudes toward chemicals. They were no more allergic to the sight of whisk of chemicals at work — but had no qualms about using strong chemicals to clean equipment.

Mr. Hengsperger realized these attitudes were quite common. But he intended him to find a way to reduce chemicals and dangerous bacteria in the home.

"I was learning about ozone and water," recalled Mr. Hengsperger, a 30-year-old mechanical engineer who at the time was looking at buying the assets of a bankrupt company based in Welland, Ont., that had launched an ozone-based water-treatment system for consumers.

Instead, he opted to start from scratch and set up Tersano Inc., in nearby St. Catharines, to develop his own ozone-based water-treatment system for residential use.

"I thought, ‘I have a better application for this whole system than water purification. We can make this system that uses just straight water and eliminate chemicals from the home.’"

Mr. Hengsperger’s “better application” has evolved into the patented Lotus Sanitizing System for use in household cleaning chores as well as cleaning fruits and vegetables.

The product got a major boost this month when Time magazine ranked it as one of the best inventions in 2006. The encomium was timely, coming on the heels of the tainted spinach scare that swept the continent.

The Lotus system — which consists of a base, a multi-purpose plastic box and a spray bottle — uses an electrical charge to infuse ordinary tap water with superoxygen, otherwise known as O3 or ozone. The resulting ozonated effect kills bacteria, mold and mildew.

The system can be used to sanitize fruits and vegetables in the bowl, eliminating bacteria and pesticides in just a few minutes. With the spray bottle, you can clean kitchen counters and remove food-based stains in fabrics and materials.

The ozone-treated water is a more powerful and safer disinfectant than bleach or hydrogen peroxide, Mr. Hengsperger said. "We know that (with the system) you do not need a chemical cleaner in your home."

And it’s safe because the superoxynated effect wears off in about 15 minutes and the water reverts to normal form. In contrast, chlorine-based detergents have to be wiped off surfaces.

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Last spring, Tersano began shipping the Lotus to Shapero Image stores in the United States and Canadian Tire in Canada. It retails for $19.95 in both countries and, so far, about 20,000 units have been sold across North America.

Mr. Hengsperger acknowledged it could be a while before Tersano’s $5 million investment pays off, but added: "I’m in this for the long run."

He said the key to marketing a new invention is patience. "It took so long to develop because it is a new product category."

Mr. Hengsperger also says he’s been working on a variety of chemicals for Lotus and has been involved in the development of a vitamin engineering firm, a wireless-based company with 75 employees that designs plastic prototypes for the automotive industry.

The Lotus system was the result of a team effort at Tersano, which has 13 employees. The company hired Toronto-based UIM Industrial Design Ltd. to design the actual product.

Mr. Hengsperger marketed the product himself. He attended the International Housewares Show in Chicago, where he met a retailer from a major retailer.

He has also been active as both Canadian Fire and The Shapero Image have created marketing programs to build consumer awareness across the USA. Now that those programs are finished, he will pick up the advertising this fall with print and radio ads.

Before the Lotus could go to market, Tersano had to win approval from the U.S. Environmental Protection Agency, Underwriters Laboratories and the Canadian Standards Association. All sold, the

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company spent 4½ years dealing with regulatory bodies. "We also had to explain to people how the product works and how what they’re doing now may not be the best way," Mr. Hengsperger said.

It is marketed on large-scale commercial applications. For example, hospitals and nutraceuticals based on the same principles, to sterilize equipment.

Mr. Hengsperger noted that the U.S. Food and Drug Administration has recently launched an ozone-treated water project to preserve fruits and vegetables in 1997.

The Lotus has built-in sensors that create the appropriate amount of ozone in the water; the amount of ozone is measured and shown in a liquid crystal display with minutes. "You can always feel comfortable that the unit is working properly and creating a sanitizing agent for you," he said.

While he acknowledged that Canadian food supply is generally safe and rarely contaminated, Mr. Hengsperger said the Lotus offers other benefits. "We’re not trying to scare people into using our product. That incident about the salmon on spinach was a rare one. But there is a payback on our machine — it makes your fruit and vegetables taste better and last longer."

He said the science behind the Lotus system was tested by Dr. Gary Boderick, a microbiologist in the food science department at the University of Florida.

In this country, it got an endorsement from Dr. George Statzman, a microbiologist at the University of Montreal, who was retained by Canadian Tire to test the system.

"It will very nicely sanitize and get rid of any bacterial growth or micro-organisms in fruits and vegetables," Dr. Statzman said in an interview. "Ozone is a very powerful oxidizing agent and can also significantly reduce pesticide residues," he said.

Well, Dr. Statzman noted the Lotus system will keep food fresher. "By treating them with this type of ozone, it can certainly increase their shelf life."

Not surprisingly, Mr. Hengsperger would like to have the Lotus in as many homes as possible.

"Our goal is to get to 500,000 units a year — which we can reach in a couple of years as long as we keep our marketing in the right direction."

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