

Ozone for the Masses

For water treatment companies like Novazone, being ubiquitous can be a bad thing.

Three years ago, Novazone didn't know what it was, where it was going, or how to make its research-intensive efforts pay off.

The company makes ozone-based disinfection systems, but it was starting from scratch almost every time it got a new customer. Novazone was going after *any application, no matter how obscure*. So although it developed a niche in markets like bottled water, canned drinks, medicines, and personal care products, Novazone also took on cooling towers, wastewater treatment plants, and commercial laundries.

"It ended up being an R&D effort on almost every project," says Novazone CEO Paul White. "The company was just spread in too many different markets, instead of choosing one that was the best in price and profitability and dominating that market."

Novazone's most profitable markets were for bottled water, canned drinks, medicines, and personal care products,

where it won customers like Coca-Cola, PepsiCo, Nestlé's Arrowhead Water, Colgate-Palmolive, Neutrogena, and Safeway. But even those markets weren't ideal. Ozone-based water was a mature, 20-year-old market that was dominated by two large competitors, Ozonia and Wedeco, now owned by ITT Industries. *As a result, the company was struggling just to keep sales up*. The idea of turning a profit seemed like a pipe dream.

Then Mr. White took over. In 2004, he led a three-stage acquisition, raising \$10.6 million in venture capital financing from Menlo Park, California-based Foundation Capital to help dig the company out of its slump. He fired 10 of the Livermore, California-based company's 14 employees and brought in 25 new people with experience in the food and technology industries. He analyzed the company's potential markets and cut out research-intensive projects such as wastewater treatment.

Now the company has a brand-new

focus: food. With food, Novazone can make more money from its research because instead of building each system from scratch, it can sell systems it has developed once and install them with only minor adjustments. For example, once Novazone has customized the technology for a cherry-disinfection system—finding the time and ozone level best suited for cherries—it can sell it to other cherry producers without going back to the lab.

And by zeroing in on the food industry, Novazone is going after a market 30 times larger than what it could reach with its water technology: \$3.3 billion, compared to the \$100-million market for ozone-based water disinfection. By allowing the company to concentrate on improving one technology, the shift in direction led to a quadrupling of Novazone's orders in the first two months. And the switch has allowed the company to get closer to mass production, a move that Mr. White says will make Novazone

profitable by the end of 2006, more than doubling revenue from less than \$10 million in 2005.

At Orchard View Farms, one of Novazone's first food industry customers, Vice President Bridget Bailey says the system she bought for disinfecting cherries will pay for itself within three years, as well as allow the company to expand into the organic food market.

Because ozone doesn't leave a residue, Ms. Bailey aims to get Orchard View, based in The Dalles, Oregon, certified to use the system for organic cherries. That capability, coupled with ozone's ability to kill more contaminants than the chlorine the company previously used, should help Orchard View snag more customers, she says. "Ozone water cleans the fruit better than water treated with chlorine," she says.

Installed in June 2005, just in time for the three-month-long cherry harvest, the company's refrigerator-sized Novazone system binds air with extra oxygen molecules to make ozone. That gas is injected into a tank, saturating water that then flows into a stream which has already moved fruit through a series of cleaning filters. Floating in the ozone water serves as the cherries' final sanitization step, as the extra—and unstable—oxygen atom attaches itself to bacteria and pathogens, killing them. The rest of the gas reverts back to oxygen.

"Normally we had to empty the water in the line a couple of times a week," a process that costs about \$5,000 a season in labor, says Ms. Bailey. Using ozone instead of chlorine cuts that expense, as well as the significant cost of buying, storing, applying, and disposing of the chlorine—a cost Novazone estimates as up to \$1,000 per day.

Food safety concerns are a big issue as fears about salmonella and e.coli grow. According to the World Health Organization, up to 30 percent of people in industrialized nations suffer from food-borne diseases each year. Food contamination-based illnesses from just the top five microorganisms cost the United States almost \$7 billion per year, according to the U.S. Department of Agriculture's Economic Research Service.

Novazone is "pursuing the problem in a unique way, and there is massive market demand for what they are doing," says Robert Brown, managing director of San Ramon, California-based Encore Consumer Capital, a private equity firm

focused on food and consumer products. "The industry could not be more focused on these issues right now."

That's one reason Warren Weiss, a general partner with Foundation Capital, decided to invest in the company. He liked Novazone's sharp focus on the food and water market, "really unique" patented technology, and strong management. Expanding into the food market, he says, "was an easy jump. They had already proven the technology in water."

Mr. Weiss' interest in Novazone was piqued by the company's use of automated sensors and a remote monitoring system to control the ozone, which he says gives it a strong competitive edge.

Still, Novazone could face challenges from other companies that provide ozone equipment. While companies like Ozonia, Aqua Technology, Ozone Pure Water, and GE Osmonics now focus on providing ozone equipment for bottled water and processed drinks, they could try to break into the food market.

And will consumers be willing to pay more for food disinfected with ozone instead of chemicals?

If it's labeled "chemical free" they will, says Michelle Barry, vice president of consumer insights and trends at The Hartman Group, a Bellevue, Washington-based health and wellness consulting and market research firm. "The benefit of no chemicals is certainly appealing to many," she says.

Others disagree. "It's a small subset of the economy that pays more for things like organic," says Encore's Mr. Brown. Plus, consumers know little about how

food is disinfected in the first place. "Ozonation is every bit as hard to market to a consumer as chlorination," he adds.

Cost and reliability will be key to Novazone's growth, he says. The firm will have to prove its systems—which start at \$100,000 and go up in price as they get more customized—save retailers and food suppliers money. "It's a low-margin industry, so they've got to be focused on pulling costs out," says Mr. Brown. "But if they can drive the right value, they should be successful."

While Novazone has plenty to do to keep up with the demand for disinfection systems, it is already "chomping at the bit" to expand into still more markets, says Mr. White. Later this quarter, Novazone will return to selling cold storage systems, which inspired the company's move into food disinfection in the first place.

While the shipping-container market is less than \$600 million, Mr. White says it is worth pursuing because the technology is already in place, and sales costs would be low—Novazone could sell cold storage to the same customers who buy its food disinfection systems.

About 1.3 million shipping containers take as many as six trips each across the ocean every year, and lose roughly 30 percent of the produce they carry to spoilage, says Novazone Chief Marketing Officer David Cope. With the price of treating a container at \$500 or less, distributors could extend the shelf life of their crops by up to two weeks, he says. For instance, cold storage could allow table grape producers from Southern Mexico to save \$7,000 per order by using slower shipping to Europe, and Chilean grape producers could reduce their spoilage from 20 percent to nearly zero, adding \$5,000 of value to a \$25,000 shipment, he says.

Ozone can also kill anthrax and other biohazards, which could make it even more competitive in the future—if the right amount can be effectively delivered in the containers.

Novazone has potential. Up from its sick bed, the company must manage its recovery carefully, being sure to avoid taking orders it can't fill, especially considering it must still set up each system separately. Novazone will probably never become a household name, but if it can save customers money and manage its growth, we may be eating "Novazonated" produce in the near future. **ENR**

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