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The Green Options Interview: David Cope, CEO of Novazone



By [Ryan Thibodaux](#)

Filed on Apr 24, 2007 at 4:36 AM PST

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[Novazone](#) is a Livermore, California-based company that provides clean technology solutions, most notably ozone disinfection and sanitization systems, for purification of food and water. They have about 300 customers, including Safeway, Arrowhead, CocaCola, and Proctor & Gamble, in 16 countries around the world.



Ozone is simply three oxygen molecules bonded together (O³). Because ozone is an unstable substance, Novazone's solutions create ozone on site from the oxygen in the air. When used as a food and water purifier, ozone can control and eliminate the spread of pathogens such as bacteria and mold without using chemicals or leaving any residue. Once the ozone has done it's job, it quickly reverts back to safe, breathable oxygen (O²).

In anticipation of [an announcement](#) that the company made yesterday, I spoke with Novazone's CEO David Cope in San Francisco on April 20th.

Green Options: I think a lot of people have probably heard of ozone being used to clean and purify food and water, but the EPA says that ozone is a pollutant at ground level. What makes it safe for your applications?

David Cope: Actually, that's sort of an urban myth. If you read carefully, ozone is a proxy indicator of pollution. It itself is not pollution. When sunlight reacts with pollutants, it will create ozone as a byproduct. That [created ozone] is something that is easier to measure than sulfur dioxide, for example. So they measure ozone as a proxy indicator.

It has a very short half-life. [It breaks down into O²] literally in seconds sometimes, out in the open and depending on the temperature. So it's actually very, very misunderstood. Ozone itself is not a pollutant. But, having said that, on average it's healthy not to breathe in a bunch of extra ozone. OSHA has come in and has well-defined safety levels. For example, at 100 parts per billion in the air, you can have up to eight hours of continuous exposure. In none of our applications is there any ambient ozone.

GO: So it's also safe for workers who are handling the ozone?

DC: Ozone, like all clean technologies, as a substance is not that interesting, but it's the unique application science, the unique application

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of how to apply it in the right dose at the right time in a safe way, that's interesting.

As we evolve, we come up with more clever ways to use nature to solve these problems. From the cavemen burning logs for fuel, to jet fuel and gasoline, to now, "Hey, we can use corn and we can use grass clippings to make ethanol!" Ozone is one of those things. It's a unique way to use oxygen to solve a problem.

GO: What is ozone replacing as far as what's typically used to purify produce? And why is ozone preferable?

DC: We can replace things like fungicides and oxidizers like chlorine that are used to disinfect produce and that get coated on produce to eliminate mold-induced decay. We can eliminate the need for those chemicals by using electrified oxygen from the air.

In the real world, most of our customers are using our products to either eliminate it or reduce chemicals. Many of them, because they've been using these chemicals for so long, are ratcheting down the use of their chemicals, and using less and disposing less by using our applications. Many of them, of course, are certified organic, so they use none of these chemicals.

GO: What do companies like Colgate and Proctor & Gamble use your products for?

DC: Oh it changes all the time, but literally all of their products from moist towelettes that you can't have growing bacteria and molding once they're wrapped up to water for Mr. Clean or Sunny Delight drinks.

GO: The term "suspended animation" has been used to describe the potential results of ozone purification. How much longer do fruits and vegetables last once they've been treated?

DC: I'll give you an example: pears in the Pacific Northwest in cold storage. We have pears typically stored for six months, and we can add two months to their storage time. But more importantly, they don't decay during that amount of time, and we actually naturally control the ripening process, so when you take the pears out of storage, they're natural. There's no chemical residue, no fungicides. They look beautiful. They're not decayed, they're nice and fresh with all the sugar content you'd expect.

GO: Do you only need to treat produce once with ozone right at the farm? Or does it get treated along the way at different places?

DC: We use what you call a low-dose, steady-state application, where the fruit will go in, and we supplement the atmosphere with parts per billion of ozone. We have specific concentrations by commodity that we've learned both the good and the hard way over the years to be right. We have a lot of scientists that work for our company, including ex-USDA plant pathologists, who help us figure that out.

And you've sort of tied in to [Novazone's announcement]. Most of who we've been selling to is the grower and the packer. They harvest the produce and put it in these huge cold storage rooms and pack them. But of course there's a whole supply chain to get little Johnny his apple. What we observed is that once these growers and packers, even if they used applications like ours, once they put it down the supply chain, they lost all control.

When you look at the food industry, what's interesting is that domestic consumption is pretty much flat growth. The big growth is exports. And what happens with exports is that you have longer routes to market with more people handling the product, more risk of decay and over-ripening, and food safety issues. And so what we're announcing is a new product called PurFresh that we've developed to move down the supply chain into the shipping segment. So now we can provide decay control, ripening control, and food safety enhancement for all produce shipped anywhere in the world.

Our PurFresh unit snaps right into an existing shipping container, and it

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Paper or plastic? Neither, say William McDonough and Michael Braungart. Why settle for the least harmful alternative when we could have something that is better--say, edible grocery bags! In Cradle to Cradle, the authors present a manifesto calling for a new industrial revolution.

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uses the latest in Silicon Valley technology to, by commodity, generate, maintain, and record, precise dosages of ozone to control decay, control ripening, and enhance food safety.

GO: So are PurFresh units affordable to everyone along that supply chain?

DC: Well, this is interesting: we don't actually sell the units, it's a service. So you would say, "I'd like a PurFresh shipment." What that would mean is that when your produce got from, say, Chile to Hong Kong 40 days later, you have no decay, you have nice, firm fruit that hasn't ripened in transit, and you'd pay anywhere from \$500 to \$1500 depending on the trip premium for a PurFresh shipment.

We've talked about the growth of exports, but there's another thing that's adding fuel to that fire which is the growth of organic food. Organic is growing at 30-35% a year, compared to 2% for conventional food, so it's the highest growing category around. You know about Wild Oats and Whole Foods and Wal-Mart trying to green themselves. What happens when you have more and more food with longer times to market, and a greater percentage of that food is organic, by definition without fungicides and pesticides, you have greater decay.

And so what happens when you have greater losses? Those losses are subsidized by price. So today consumers are paying about a 120% price premium for true, certified organic produce... With us, you could ship organic, eliminate those losses, and now get organic produce that's the quality of conventional food and the price of conventional food without the chemicals.

GO: Something the green community has been urging for a long time is to eat local food. To not eat food that's been shipped all the way around the world...

DC: And the people by the way against that the most is the Organic Trade Association. They hate that idea the most, which is interesting.

GO: Why do you think that is?

DC: Because I think they view that as sort of regulating the ultimate growth of organic. And by the way, this is not me expressing my opinion, this is reading what the OTA thinks: by not having the economies of scale that you get with the larger growers, you won't be able to ever make organic truly efficiently distributed in the marketplace. It's not my opinion, but I believe it's their perspective.

GO: Do you see a place for ozone applications in a more localized food economy?

DC: Sure, absolutely. We have many [customers] like that, like a little grower called Kuyama is the Santa Barbara mountains that's tiny, but probably has the premium organic Fuji and Pink Lady apples in the world. They use our product. For cold storage room applications, [our products] start very affordably for the small guy, and now they can store their organic apples for a long time pathogen free and chemical free. If they're big enough to ship, they get enhanced decay and ripening control in transit without the use of chemicals. So I actually see it as a leveling factor for them. They can start to compete on a price basis with some of the bigger guys.

GO: Ten years from now, how will ozone be used? Am I going to have an ozone generator and applicator next to my microwave?

DC: I think you will. I think you'll have very low levels of ozone in parts per billion in the crisper of your refrigerator. And there's technology called "ozone destruction" so that when the ozone comes out of the refrigerator, it's instantly destructured into pure oxygen, so there's no risk of it getting out into the atmosphere.

GO: In response to the spinach crisis last year, you were [quoted as saying](#), "If you use enough chlorine, you won't have E. coli in your spinach, but people want fresh, safe food. When you get really smart, you use natural processes." Is ozone effective enough that you believe future

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crises like the spinach scare can be eliminated completely?

DC: I do, I do. As a matter of fact, I won't say who, but about a month before this crisis we were talking to *the* company and their concern about exposure to E. coli. We showed them a way to implement a solution, and they thought it was expensive, and then literally a month later the rug was pulled out from underneath them. I'm sure our solution looks pretty cheap now.

There's this collision of forces taking place. On one hand, everybody wants safe food and water. In the past, the way you prevented eating E. coli was with what they call "the farmer's little helper": they just use a lot of chemicals. And truly, if you just use a lot of chlorine or chlorine oxide or whatever... you would not have an E. coli problem. But today, unlike ever before, we see consumers saying, "I want safe food and water, and by the way, give it to me without the use of chemicals."

We lie at that intersection. And clean technologies lie at that intersection. An efficacious, safe solution that gives you food safety and water safety without the chemicals. That's really what we do.

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Submitted by [Jimmy Hogan](#) on April 24, 2007 - 5:33am.

Excellent interview, Ryan. Very Interesting.

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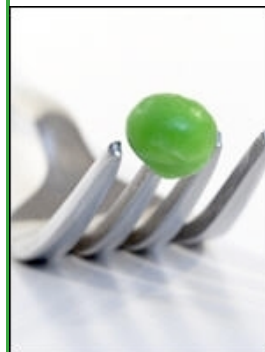
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