



by Paul van der Werf

*"We can add (to beer and chocolate) another good thing that the German and Dutch have in common."*



## Mit Liebe Aus Deutschland

From Germany with Love

It's rare that I'm asked to write an article on a specific topic, so when I was asked to contribute to this European themed edition I asked myself if I can say nice things about my home country's soccer rival and (I suppose) composting technology rival. I suppose we have the best beer and chocolate in common, so maybe we can say the same about composting technologies.

In Canada a wave of new technologies (much of it Dutch and some of it German) is flooding the marketplace. Essentially gone are the enclosed channel facilities; they're being replaced by large in-vessel composting facilities: big concrete boxes with aeration and off-gas removal.

The GORE™ Cover system is one technology that everybody's talking about. It takes everything that makes a GORE-TEX® jacket so comfortable for us humans and adds a lot of air to make microorganisms happy.

The technology defies a definition in conventional terms; it's not in-vessel, it's light years ahead of windrow composting and may be light years ahead of everything else.

### The technology

As a pizza pitchman once said, "It was a cold and rainy day..." The GORE Cover system got its start on those types of days. Someone working on a soil remediation project couldn't get their system to work properly in large part because the bacteria they were using were sensitive to wet (and is turned out dry) conditions. A call was placed and an idea was born. In order to solve this problem Gore developed a special laminate that, when used as a cover, prevents wind and rain from penetrating but lets air through.

That was 14 years ago.

With some creativity it was soon discovered that this cover could be used as part of the composting process. In combination with an aeration system it resulted in the development of a flexible composting system. In addition to the aforementioned benefits it was found that the cover works as a physical barrier against odours, other gaseous substances and bioaerosols leaving the composting pile.

The technology shares some features with a number of different



The GORE material helps insulate the piles from rain and snow, but the material breathes enough to help prevent the material from going anaerobic.



Laying the semi-porous fabric over the compost windrows.

composting technologies. Incoming feedstocks, which include food wastes, biosolids and leaf-and-yard wastes, are mixed in much the same way they would be for any system.

The mixed feedstocks are formed into a windrow on a concrete/asphalt pad underlain by an aeration system that doubles as a leachate collection system. The cover is drawn over the windrow using a reel system or mobile machine. The cover is secured and the fans are turned on.

### Phases

The process goes through three distinct phases.

The first phase lasts about four weeks during which the pile is vigorously aerated. A feedback loop is created with oxygen content

in the pile to determine aeration requirements. At the 100,000 plus tonne per year facility that I recently visited in Cedar Grove, Washington, the aeration fans were on approximately 25 per cent of the time during this phase.

After Phase 1 is completed the cover is lifted and the composted material is moved and formed into a second pile and covered. The second phase lasts about two weeks. Thereafter the compost pile is removed and taken to an uncovered aerated curing area where it's cured for a further two weeks. Thereafter, depending on market requirements, the compost is further cured in a more conventional fashion (i.e., in windrows) or screened and prepared for market.

Composting is all about getting air through the composting mass and this technology lets

the composting pile have about eight weeks of aeration. No other composting technology on the market comes close to this.

"In general the system was developed to be flexible and with a strong focus on avoiding odours," says Bernhard Kiehl the Global Product Specialist of W.L. Gore and Associates in Munich, Germany.

"While open windrow composting is the cheapest route it only works for difficult feedstocks if you are remote." He continues, "If you have neighbours and you want to compost you will be looking into applying a technology."

"Our cover system was developed to properly seal the composting pile and provide it with lots of oxygen."

The process is monitored using a combination oxygen/temperature probe.

COMPOSTING MATTERS

The use of the technology has grown with about 150 plants in operation that compost over two million tonnes per year

**In Canada**

“Canada and specifically Ontario is Gore’s hottest market right now,” says Brian Fuchs, Gore’s North American sales representative.

They have three operating facilities including: one in the City of Edmonton which composts 40,000 tonnes of biosolids and wood-chips; one at All Treat Farms (Ontario) which composts 40,000 source-separated organics and is being expanded to handle 80,000 tonnes per year; and, the Greater Moncton Sewerage Commission which composts 20,000 tonnes per year of biosolids and wood chips. They have a number of other facilities in various stages of development.

It may be the hottest market but it is in one of the coldest places.

Certainly the temperature can have an impact not so much on the compost process but the removal of the covers which have the potential to stick to the surface of the pad when it’s very cold.

Says Kiehl, “We are trying out different ideas to deal with very cold climates.”

For instance, at the Moncton facility they installed a glycol heat system to help prevent the cover from freezing to the pad. “We’re also trying out different rim (i.e., edge of cover) materials. We are never at the end of developing our system.”

This system has developed a niche in Canada. For George White, owner of All Treat Farms in Arthur, Ontario, it offered a way forward to tap into the SSO market.



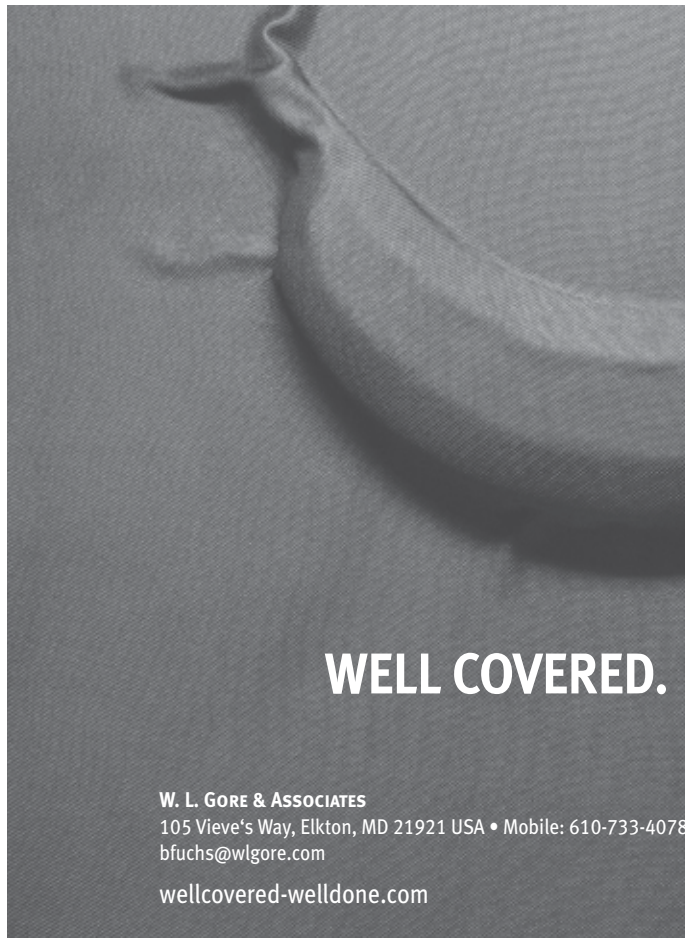
“This technology offered us a solution free of a building and its associated taxes and upkeep requirements. It also has low energy requirements which helps maintain operating costs.

“The system works well,” he continues. “The private sector needs to be competitive and this system helps us with that.”

So, in the slowly evolving market of compost technologies the GORE™ Cover system seems to have established itself in Canada and we can add (to beer and chocolate) another good thing that the German and Dutch have in common. ♻️

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