

---

**Publication: National Post****Date: Dec 16, 2007**

---

**Miniature fuel cell harnesses the power of bee venom****Kathryn Young , CanWest News Services**

Published: Sunday, December 16, 2007

Harnessing the power of ant bites and bee stings, a B.C. company has developed a micro fuel cell that will come on the market next year to recharge cellphones, digital cameras, iPods or any other electronic device anywhere, anytime. "It's like carrying your wall plug around with you," said Neil Huff, chief executive officer of Burnaby-based Tekion. "It'll charge your cellphone at the same rate the wall plug does." Tekion's recharger, which contains a miniature fuel cell that runs on formic acid - the same chemical emitted as venom by biting ants and bees - is about the size of a BlackBerry and should retail for under \$100. In fuel cells, formic acid gives more concentrated power than other fuels, allowing it to be integrated into small electronic devices such as the cellphone, which Huff described as the "Holy Grail" of devices to master. As cellphones add more and more functions such as cameras, video and MP3s, they require so much power that batteries are reaching their limits. "The heavy users of these devices can't even get through a full day without having to go find a wall plug," Huff said.

Tekion and another B.C. company - Angstrom Technology - are the two Canadian companies developing micro fuel cells, although they have competition in the U.S., Japan and Korea, said John Tak, president of Hydrogen & Fuel Cells Canada, an industry association.

"It's pretty exciting, when you see what's happening globally, that two of the leading companies are in Canada," said Tak, whose association has asked the federal government for a national hydrogen and fuel cell strategy that would help attract private sector investment, similar to wind and solar power. Fuel cells that run on hydrogen are best known for their use - still being developed - in hybrid vehicles, with manufacturers working to perfect them as a green alternative to gasoline-powered cars and trucks. Enbridge Gas Distribution is working on a demonstration plant in Toronto with a large stationary fuel cell using natural gas that will produce 2.2 megawatts of electricity - enough for 1,500 homes. The plant takes up 20 parking spaces in the back of the lot at Enbridge headquarters. Fuel cells can be huge, or as small as a thick credit card, possibly getting as small as a postage stamp. "It's totally scalable," Tak said.

Angstrom Technology has developed micro fuel cells using hydrogen as a fuel, and has field-tested them in bike lights, two-way radios, rechargers and flashlights. "We look at those devices as Stone Age, to be perfectly honest," said Angstrom spokesman Aron Levitz. "It's so far behind where we're at today." Angstrom does not want to talk now about its latest developments, but will have news to share in January, Levitz said. They're working on something that's based on a different technology. "Last month, New York-based Medis Technologies launched a recharger similar to Tekion's, but it uses sodium borohydride as a fuel, said Huff.

A fuel cell takes a chemical (usually hydrogen, methanol, or formic acid), oxidizes it and produces electricity, with byproducts of water vapour and heat. They can be used in place of batteries (providing two to three times the energy of lithium batteries), or alongside them for a hybrid source of power.

Tekion has developed a proprietary formula of formic acid that it calls Formira, based on the scientific name for red ant - *Formica rufa*. Formic acid is only mildly corrosive, non-flammable and biodegradable and is also used in leather tanning, to de-ice airport runways, and as a preservative in animal feed. "It's a very friendly fuel," Huff said. While Tekion's first product will be the recharging unit, it is also working with several manufacturers to integrate fuel cells inside their devices. The recharger should find its market with heavy users, campers and in countries with lots of cellphone users but erratic electricity, such as India, Huff said.

Fuel cells inside a device offer the advantage of instantaneous recharging. When the fuel cartridge is empty, you simply pop in a new one - somewhat like the cordless hair-curling irons that operated on butane. Cartridges will be recyclable.