by Guy Crittenden

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Deep Collection

Molok containers offer an efficient alternative

For years I've seen Molok's display at industry events such as the Canadian Waste & Recycling Expo and developed a sort of generalized grasp of the unique waste collection system. But it wasn't until May 2006 when I visited Finland and toured the company's Nokia plant and installations in places such as Helsinki and historic Turku that I fully appreciated Molok's advantages over conventional alternatives.

The Molok system (aptly named after an Old Testament deity with an insatiable appetite) is actually quite easy to understand. It's a long, wide waste collection container that's mostly buried underground. The so-called "deep collection" system has several benefits, including the small "footprint" of the collection area, overall tidiness, superior hygiene and reduced odors. Molok's vertical design means that only 40 per cent of the container is visible; the remaining 60 per cent is installed to a depth of 1.5 metres.

The vertical design allows gravity to compact the waste. While the

All photos by Guy Crittenden

Company founder and President Veikko Salli stands beside some typical Molok units newly produced at the company's ultra-modern plant in Nokia, Finland.

A new Molok is born. This multi-million-dollar German machine transforms molds containing flaked polyethylene into various shapes and sizes of Moloks using heat and rotation.

waste settles, the tough black plastic lids attract the suns heat to the upper area; the bottom portion is cooler and, being underground, tends toward a more constant temperature, rarely freezing even in winter. The net effect is that the Molok dries the waste, making it lighter to transport and easier to process.

System evolution

Molok is the brainchild of Finland's energetic and gregarious 70-year-old Veikko Salli (who hosted me in Finland); the company founder and current chairman shows the plant and installations to delegations from around the world. The entrepreneur was wiped out temporarily in Finland's severe economic recession in the 1980s, but bounced back to success with his deep collection system for waste, which has sold more than 50,000 units around the world.

"I was formerly in the sports recreation business and developed or owned facilities with gyms and squash courts and indoor tennis all over the country," Salli says, adding that he also owned a couple of small hotels. "I struck on the Molok container idea at that time because I was frustrated with the odor and untidy appearance of conventional waste carts and bins behind our buildings.

"Why can't these things be partially buried underground?" Salli wondered. He also figured out that a self-contained deep collection system wouldn't require the expensive fencing and gates that are often required for other types of containers.

A metal prototype Salli designed 15 years ago led to an evolution through several different models and eventually to today's version: a single uniform container made of thick polyethylene plastic (that keeps

A typical deep-collection installation. These Moloks serve all the waste and recycling containment needs of this apartment block, plus another just outside the photo frame. Many property managers surround their Moloks with a tasteful low hedge for aesthetic purposes.

waste inside and groundwater outside); the exposed upper section is covered by either pressure-treated wood slats or (increasingly) durable aluminum. The containers come in different sizes and models, but all operate on the same principal. A rugged two-ply bag fastened to the interior holds the waste. The containers can be used for mixed waste, recyclable fibre, organics and other materials. (For organics or heavy materials such as glass and metal, a rigid inner container is used.) The inner bag (or rigid liner) has a hook at the top, which allows a waste hauler to lift the contents into an open-top truck with a crane attached to the vehicle. The contents are released into the collection vehicle from the bottom via a patented closing device, then the bag back is lowered back into the deep collection system. (To counter concerns that this might be complicated, the company distributes a short video clip that shows a driver pulling up, emptying a Molok and putting everything back in place in just over three minutes.)

European experience

Europe's landfill directive is helping to drive business for Molok. A landfill ban comes into effect in 2008, and by 2016 only 25 per cent of biodegradable waste (measured against 1994 tonnages) may be landfilled. Molok containers assist in waste minimization and also yield a drier material for further processing or for use as a refuse-derived fuel in waste-to-energy plants.

"Finland is following the footsteps of most

other European countries and beginning to invest in modern incinerators," says Markku Salo, managing director of the Finnish Solid Waste Association.

In addition to storage efficiency, a key advantage of deep collection is that the containers need to be emptied far less frequently than smaller carts and bins. Salli is aware that collection is one of the main costs of any waste system.

"Where customers used to have weekly scheduled waste pickups, they now find they only need the containers emptied every two or three weeks, in many cases," he says. This leads to collection savings of 30 to 40 per cent, and an accelerated payback for the initial investment in the containers, which are built last for decades.

Property manager Mauri Kivilaakso says collection costs for the 5,000 dwellings he manages have dropped by about 40 per cent since the installation of the Moloks at each building.

I visited Varissuo (a suburb of Turku) and saw for myself that units installed 12 to 13 years ago are still in excellent condition. I also spoke to the area's property manager Mauri Kivilaakso who noted that the entire town (9,000 people in 5,000 homes, many of them multi-residential dwellings) is now serviced by about 300 Moloks. The units are aesthetically pleasing and fit where other congregations of carts and containers would not be accessible to large front-end loaders. The containers are always labeled with what's supposed to go inside, and residents seem to have got the hang of it. (I lifted the lid of dozens of containers and peered inside, and detected almost no cross-contamination of materials.)

"A recent independent survey revealed that more than 90 per cent of residents are satisfied with the system," says Kivilaakso.

Canadian market

Molok's Canadian division started its own collection business in 2003 in the Kitchener-Waterloo area because some haulers were resistant to the new technology. In that area, two shifts conduct about 150 pick-ups weekly, and the company recently purchased a new vehicle.

Starting its own collection and hauling business allowed Molok to break into the lucrative IC&I waste sector. Customers now include some McDonalds locations, A&W, Casey's, Tim Hortons, etc. Clients also include retirement-home type buildings, plazas, offices, multi-residential apartments, and so on. Some large Canadian municipal customers have started to show an interest, too, realizing the Molok system is ideal for park and recreation departments and various niche applications. (I noticed that Moloks were ubiquitous on the golf courses I visited in Finland.) Municipal staff and property managers of multi-residential buildings facing new waste diversion requirements will also be interested in Moloks because they're well suited to those situations, which function differently than single homes.

Anne Sironen (*left*), waste manager for the Kouvola region, and Markku Salo, managing director of the Finnish Solid Waste Association, at the organization's annual industry lunch in Helsinki. Both say that Finland is building new waste-to-energy plants, which they feel are compatible with aggressive waste diversion and the new EU landfill directive.

Guy Crittenden is editor of this magazine