

Remanufacturing Is a Superior Choice

Save Money, Save the Environment With Remanufactured Cartridges

by Recharger Magazine staff

What is remanufacturing? It's reusing and refilling ink and toner printer cartridges so they can be used again. Used cartridges are collected from consumers and businesses and sorted by remanufacturers. The cartridges are disassembled and cleaned, and any neces-

sary replacement parts are added. New toner or ink is added, and the cartridges are tested and packaged for distribution.

Remanufactured cartridges contain high-quality components and give excellent printing results. One-third of businesses nationwide use remanufactured printer cartridges, reported Clean and Green for Business. Businesses today trust the quality and reliability of remanufactured cartridges for their day-to-day printing needs as well as for their most important projects.

Remanufacturing and the environment

Every year, more than 350 million plastic printer cartridges end up dumped in landfills in the United States and around the world. While we can never completely stop the cycle of cartridges entering the waste stream, we can at least stem the flow.

The printer consumables market is a billion-dollar industry. According to Lyra Research, worldwide revenue of printer cartridges totaled \$74 billion dollars in 2010. Of this, the aftermarket claimed 20 percent of the desktop inkjet revenue and 15 percent of the toner cartridge revenue.

Millions of cartridges are manufactured every year; this is why remanufacturing matters. Every cartridge remanufactured is one that does not go directly to the landfill. For every



remanufactured cartridge purchased, it's one less new cartridge that needs to be produced, saving it from entering the waste stream and from draining the planet's natural resources.

In fact, many printer cartridges end up dumped in places you'd never expect — like China, Nigeria and India. See "High Tech Trash Ends Up in Asia" on the next page.

Save money and get quality

Of course, many companies want to be environmentally sensitive, but the main reason companies use remanufactured cartridges is to save money. Most remanufactured cartridges cost considerably less than OEM cartridges and are of comparable quality and reliability. In fact, many remanufactured cartridges last longer, as they often have up to 20 percent more toner than OEM cartridges.

In short, printer cartridges don't need to be so expensive. In order to protect their profit margins, the OEMs often claim that non-OEM cartridges might damage your printer. No manufacturer (or remanufacturer) can guarantee that a cartridge will never fail, but there is little chance that a toner or ink cartridge could ever affect the functionality of a printer or fax machine. Plus, many remanufacturers offer guarantees, promising to repair any possible related damage; due to the excellent quality of remanufactured products, this is an offer they almost never have to make good on.

Customers deserve a choice

The way many OEMs design their cartridges discourages reuse and remanufacturing. It would benefit both the environment and consumers for the cartridges to be designed so that they can be reused more easily.

No car manufacturer would be allowed to require consumers to buy its own brand of gasoline. Consumers deserve a choice, and third-party suppliers and remanufacturers provide that option.

Plus, many remanufacturers are small businesses, employing workers from local communities. Today, there are more than 5,000 cartridge remanufacturing companies around the world that employ more than 100,000 people.

Environmentally friendly

The reason that many remanufacturers got into the business is to help the environment. Reducing the number of cartridges that take up limited landfill space is good, and remanufacturing saves natural resources as well. When cartridges are remanufactured, not only is pollution prevented from going into landfills, but fewer new materials must be pro-

duced. The plastic in each toner cartridge takes three and a half quarts of oil to produce, and each new inkjet cartridge requires two and a half ounces of oil. Half a gallon of oil is conserved for each laser cartridge that is returned for remanufacturing, industry sources say.

Save energy

Also, reusing cartridges saves energy. It requires significantly less energy to remanufacture a cartridge than to produce a new one, saving energy and the natural resources used to produce power. Remanufacturing also reduces the greenhouse gas emissions that contribute to climate change.

It even takes less energy to remanufacture products than it would to recycle them. Why? Recycling converts components back into raw material, which is used to manufacture an original product, while remanufacturing captures a large percentage of resources from the original product, including the added value of labor, energy and capital.

Reduce waste

The average toner cartridge weighs 3 to 4 pounds — mostly of plastic, which is the main material in many cartridges. Unfortunately, it's plastic that's not very recyclable and will take more than 100 years to biodegrade in a landfill. Many consumers are familiar with the number system used to indicate recyclability of plastics. These numbers range from one, the most recyclable, to seven, the most difficult to recycle. On many products, including shampoo and water bottles, the number is stamped into the plastic on the bottom of the container. PET plastic bottles, such as two-liter soda bottles, are fairly easy to recycle and are given a rating of one. Most laser cartridges are rated seven because they contain mixed resin plastics; estimates indicate that only 5 to 10 percent of the plastics in this category are recycled. In addition, the toner residue can seldom be completely separated from the cartridge's plastic, contaminating the plastic and making the cartridges even less likely to be recycled.

A better choice

That's where remanufacturing comes in. Remanufacturing is the best way to save products from landfills. However, remanufacturing can only take place if aftermarket companies have access to empty cartridges.

Many consumers are still throwing cartridges away. In Lyra's 2009 U.S. Home Printer User Survey and 2010 Western Europe Home Printer User Survey, a combined 64 percent of home printer users in these two regions said

they simply throw away their empty inkjet cartridges. Thirty-seven percent of laser users also throw away their empties.

Recouping these discarded empties presents a great opportunity to keep cartridges out of landfills and continue the remanufacturing business.

Many dealers have recycling collection programs that end users should be encouraged to take advantage of. This will not only ensure that cartridges are in the hands of remanufacturers and legitimate recyclers but will also help keep cartridges out of landfills.

"Although recycling of toner cartridges does have a number of benefits, remanufacturing is a superior choice, both environmentally and economically. In most cases, recycling of plastics has not proven to be economically viable," said a report facilitated by the

U.S. Department of Energy Office of Industrial Technologies.

"Toner cartridges are particularly difficult to recycle because they are composed of several different types of plastics and must be completely dismantled and sorted. In addition, the cartridges are dirty, dusted with toner and contain non-plastic parts, which require disposal," the report said. "Remanufacturing, on the other hand, calls for cartridges to be cleaned, inspected and refilled, reusing the majority of the original plastic parts. For every cartridge that is remanufactured, over a pound of plastics is withheld from the waste stream."

Choosing remanufactured products is one way to reduce the environmental impact of printer cartridges while getting a high-quality product and saving you and your business money. **R**

High-Tech Trash Ends Up in Asia

by Megan Hubble • for Recharger Magazine

Many toner cartridges, along with other high-tech waste, are being shipped to a rather unexpected place: rural Asia.

This information comes from a report based on environmental groups' investigations in China, Pakistan and India, and was sponsored by the Basel Action Network (BAN) and Silicon Valley Toxics Coalition, along with Toxics Link India, Greenpeace China and Pakistan's SCOPE.

Export of hazardous waste from developed to undeveloped countries is prohibited by the Basel Convention, a United Nations environmental treaty. According to BAN, the United States is the only developed country that hasn't ratified the treaty; China ratified it in 1991.

BAN Coordinator Jim Puckett said that despite the ban, significant amounts of hazardous electronic waste is being illegally imported into China, where migrant workers break apart and burn computer parts such as monitors, printers and other materials.

Men, women and children are working under primitive conditions, the environmental report said,



Photo copyright Basel Action Network, 2002.

Old toner cartridges and colorful cyan and magenta toners are dumped near the river. Rivers are convenient dumping areas for unrecyclable components of imported e-waste.

with no protection from the health and environmental hazards posed by burning plastics and wires, cracking lead-laden cathode ray tubes and using acid to extract precious metals from circuit boards.

Puckett, speaking with Recharger Magazine, said that in addition to the general computer waste, he saw thousands of toner cartridges dumped along roads and in rivers in the rural Guiyu area of China's Guangdong Province, four hours north of Hong Kong.

"We observed people trying to recover toner powder" from discarded toner cartridges, Puckett said. The workers appeared to be using paintbrushes to sweep out remaining black toner, but he was not sure what they planned to do with the recovered toner. "It might be used to make low-grade dyes. The toner is contaminated with dirt, so I seriously doubt that they put it back in the machines (printers), although it's possible," Puckett said.

The workers' skin and clothes were dusted with toner, their hands were black with it, and they were breathing in large amounts of the toner dust.

"I didn't witness them opening the color cartridges," he said, "but we saw cyan, magenta and yellow dumped on the ground and spilling out of cartridges. It was easy to spot the bright patches on the ground."

Beyond the workers' attempts to recover the black toner, it did not appear that the cartridges were being used for anything. "We saw massive amounts of cartridges dumped," Puckett said. "They were stacked — neatly and not so neatly — along the roads and dumped in the river."

"The whole riverside was a big, sludgy mess of computer parts. Even if it was dumped elsewhere, when those areas were full, truckloads were taken down to the river. Historically, the river was a common area, so trash was



Photo copyright Basel Action Network, 2002.

A laborer in Guiyu, China, stained arms black with toner, sweeps toner out of cartridges for possible reuse.

dumped in the river," he said. "The river is now extremely polluted; it's a large river, refreshed by rainfall on a regular basis, and yet it still has very high lead levels." In fact, the river is so polluted that drinking water must be trucked in from 30 kilometers (more than 18 miles) away.

"We recommend that manufacturers design for recycling and reuse," Puckett said. "Make products standardized so they can be used again and again." Reusing products helps extend their useful life, delaying their entry into the waste stream, and reducing the number of new products that need to be manufactured.

"The toner cartridges are a classic example of why we need to standardize the technology to make them usable over and over," he said.

The full report, "Exporting Harm: The High-Tech Trashing of Asia," as well as the follow-up piece, "The Digital Dump: Exporting Re-Use and Abuse to Africa" are available at the Basel Action Network's website, www.ban.org. All photos in this story are copyright Basel Action Network, 2002.