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Toner and Ink Cartridge Considerations:

- Recyclability
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Toner and ink cartridges can be purchased using one of three statewide contracts:

[AJ Stationers](#)

[#001B4400358](#)

[Rudolph's](#)

[#001B4400217](#)

[Staples](#)

[#001B3400217](#)



Online catalogs for Rudolph's and Staples can be accessed through

[eMaryland Marketplace](#)

Criteria for Environmentally Preferable Toner and Ink Cartridges:

- Remanufactured
- High Yield, Extra High Yield or Large Capacity
- Made with Recycled Content

Spring 2014 Product Focus: Toner and Ink Cartridges

The Environmental Impact of Toner and Ink

For many years, millions of empty toner and ink cartridges used in printers and copiers have been thrown away, destined for landfills and incinerators. The cartridges, made primarily of plastic and metal, can take centuries to decompose and, with the paperless office yet to materialize, present the potential for considerable waste.

Because they are nearly 100% recyclable and easily remanufactured, toner and ink cartridges have had a secondary market value for more than a decade (a 1998 market analysis in Recharger Magazine estimated there were 6,000 remanufacturers in the US). More recently, many large manufacturers, office supply companies and managed print service providers have made it even easier for consumers to recycle their empty cartridges, by providing collection containers, postage-paid return packaging and rebate programs.

Remanufacturing toner and ink cartridges saves money and natural resources and purchasing remanufactured cartridges can cost from 15% - 50% less than new cartridges. Because remanufactured cartridges are filled to capacity (new cartridges often are not), they can save even more on a cost per copy basis.

Cartridge Types

Toner, used with laser devices, is a dry carbon powder transferred from the cartridge to the paper by an electrostatically charged drum unit and fused to the paper by heated rollers.

Ink, used with inkjet devices, is either dye-based or pigment-based. Dye-based ink is absorbed by the paper's fibers. Pigment-based ink is made of small-particle resins that sit on top of the paper instead of being absorbed.

The cartridges holding ink or toner are replaceable (or consumable) in print devices. How long they last depends on the type of print device and the cartridge's page yield, which varies depending on the manufacturer and such factors as page coverage, image type and job size.

Printer manufacturers use a similar business model for both low- and mid-cost laser and inkjet printers: selling the printers at or below production cost, while dramatically marking up the price of 'proprietary' replacement parts - toner cartridges and drum units - so that they sometimes exceed the cost of the printer. This effectively makes the printer a consumable as well, since people often dispose of the printer when it is out of ink or toner and replace the entire machine - an incredible waste of resources, given that new machines generally come with toners that are only half full.

In addition, some printer manufacturers use microchips to monitor usage and impose "expiration dates", declaring cartridges to be empty (or out of date) and disabling the printer, even if the ink or toner is not depleted. A [2007 study of inkjet printers](#) found that as much as 60% of the ink contained in a typical inkjet cartridge is wasted when printers declare partially-full cartridges empty and that on average, inkjet printers provide an ink efficiency of just 47% when used for printing documents. This problem is further compounded in the case of multi-ink cartridges, which store three to five colors in a single cartridge and can be rendered "empty" when only one color runs low. This 'empty' status can be overridden or reset in some models, but sometimes only with a service code.

Original Equipment Manufacturer (OEM)

Also known as 'genuine', these are manufactured by printer manufacturers, who offer certain guarantees when you use genuine brand toner in your printer and may make threats if you don't (see Magnuson-Moss Warranty Act next page). Genuine cartridges are more expensive than refills, compatibles or remanufactured cartridges.



According to the [National Waste & Recycling Association](#) it takes a gallon of oil to manufacture one ink cartridge and every year, more than 300 million used, empty printer cartridges enter the waste stream. Most cartridges can be recycled multiple times and remanufactured cartridges give excellent printing results, while costing less than those sold by original equipment manufacturers (OEMs).



[Maryland Correctional Enterprises \(MCE\)](#)

offers remanufactured premium black laser toner cartridges for HP, Lexmark and Brother printers.

MCE Remanufactured Toner Cartridges cost significantly less than OEM and other remanufactured cartridges.

There are three easy ways to order:

Fax: 410-540-5569

Email: MCECustomerService@dpsc.state.md.us

Phone: 410-540-5454



MCE can also provide toner collection bins to your facility for recycling your empty cartridges.

For more information or to have a bin placed at your facility, contact the MCE Recycling Plant at 301-791-9016.

Compatible

Also known as "generic" or "alternative brand", these cartridges are produced by third party companies and sold under different brand names from their genuine counterparts. They may vary slightly in design and page yield due to patent restrictions - and printer manufacturers often maintain that generic cartridges are less reliable - but they are less costly, typically meet or exceed OEM quality and may contain more ink or toner than OEM versions.

Remanufactured

Remanufactured toner cartridges offer equivalent quality and performance when compared to original equipment manufacturer (OEM) standards and nearly all suppliers will guarantee the quality of their remanufactured cartridges. Remanufacturing is the process of disassembling a cartridge after first use. After the inspection of key parts (such as the drum, wire assembly and roller), worn or defective parts are replaced and the cartridge is cleaned, refilled, reassembled, tested and packaged for redistribution. Because the remanufacturing process, and the quality of the resulting remanufactured products, can vary, it is critical that purchasers establish minimum standards of quality.

The use of remanufactured toner cartridges cannot be the basis for voiding manufacturer equipment warranties on printers and copiers. The Magnuson-Moss Warranty Act ([15 U.S. Code § 2301](#)), passed by the US Congress in 1975, requires manufacturers and sellers of consumer products to provide consumers with detailed information about warranty coverage and affects both the rights of consumers and the obligations of warrantors under written warranties. The Act makes it illegal for companies to void a warranty or deny coverage under the warranty simply because a consumer used an aftermarket or recycled part.

High-Yield

Also known as "large capacity", high yield and extra high yield cartridges contain two to three times more toner or ink than their regular yield counterparts. Though their first cost may be higher, their extended life makes them less expensive in the long term.

Product Performance

Remanufactured toner cartridges should equal or exceed the OEM's standards for quality and performance, as well as the latest remanufactured toner cartridge standards or the guidelines adopted by the Standardized Test Methods Committee (STMC), the American Society for Testing and Materials (ASTM), and the International Safe Transit Association (ISTA).

Recommendations

Wherever possible, eliminate the use of personal "convenience" desktop printers and connect users to central multi-function devices which have lower per print costs and reduce the amount of resources tied up in supplies and parts for different hardware. When procuring print services or leasing multi-function devices, require vendors to include toner, ink and other replacement parts in their base service provision. This makes it most likely that the vendor will use the most efficient parts (such as toner and ink). Require the vendor to recycle consumables at the end-of-life and to use remanufactured toner cartridges.

Recycled Content

The [EPA's Comprehensive Procurement Guidelines](#) recommend giving priority to remanufacturing expended toner cartridges and to obtain remanufactured toner cartridges or new toner cartridges made with recovered materials.

Steps of the Remanufacturing Process

Cleaning



Refilling



Sealing



Assembly



Testing

