



# The Way We Design Our Products

Lexmark continuously strives to expand our industry-leading environmental practices while developing [award-winning printing solutions](#). From drawing board to delivery, we constantly strive to design better products. We invest millions of dollars every year into the design of quality printers and print cartridges. Our objectives include:

## Employing design for environment elements (DfE)

We are dedicated to developing innovative design solutions that maximize the function and value of our products while minimizing the impact on the environment. These efforts include careful selection of materials to ensure product quality while making it easier for consumers to recycle materials at the end of a product's functional life.

Lexmark is committed to meeting the requirements of the European Union Directive on the [Restriction of Hazardous Substances \(RoHS\)](#) in our products worldwide. The RoHS directive restricts the presence of certain substances including lead, hexavalent chromium, mercury, cadmium and two brominated flame retardants – polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE). Through design choice and substitution, we've continually avoided or eliminated the use of certain materials of concern in our products. For example, through Lexmark's DfE process, our design engineers and materials scientists collaborated to eliminate certain hazardous flame retardant materials – polybrominated biphenyls (PBBs) and polybrominated biphenyl

ethers (PBDEs) – well ahead of the RoHS requirements. Additionally, we employ no ozone-depleting substances in our products or manufacturing processes. Lexmark also works with our suppliers to communicate our material requirements using Lexmark's product environmental specification.

As a result of our efforts, many Lexmark products have earned prestigious eco-label designations from around the world, including the Blue Angel label from the German Federal Ministry of the Environment and Canada's Environmental Choice Program label. Information on Lexmark's product environmental attributes can be found on the [product environmental profiles](#) on Lexmark.com.

## Championing energy conservation

Lexmark is committed to designing energy-efficient products. Lexmark was a charter partner in the [ENERGY STAR program](#) and is committed to the continued worldwide success of this key partnership between government and industry. We have driven product energy consumption down, reducing the energy used in power-saving modes by up to 70 percent from 1995 to 2005. Today, we continue to reduce product energy consumption through meeting more restrictive German Blue Angel power limits, introducing instant-on fuser technology, increasing the efficiency of external power adapters and introducing innovative ways to eliminate standby power in inkjets. As we go forward, Lexmark will continue to be involved in the development of product energy standards and regulations around the world.

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## Defining the commitment

Lexmark designs high-performance printing solutions that better serve our customers and reduce any negative impact to the environment. Each Lexmark print cartridge is specially designed to optimize print quality, yield and printer life, so our customers get better prints — and fewer wasted prints — time after time.

All Lexmark cartridges are manufactured with toners and inks that are formulated to help ensure they don't harm the environment. [Material Safety Data Sheets \(MSDS\)](#) are available on [Lexmark.com](#) for our toner and inkjet supplies.

## Working to reduce product packaging

By continuously enhancing the durability of our products, we have eliminated the need for tons of packaging materials without sacrificing protection for our products. The packaging team works closely with the product development teams to ensure our products are optimized for shipping from a hardware design standpoint.

In addition, the outer cartons of all Lexmark printers, features and supplies contain 20 to 25 percent recycled materials and are fully recyclable. For cushioning materials, we use materials that can be recycled where facilities exist.

### Here's one example of a packaging improvement through better design:

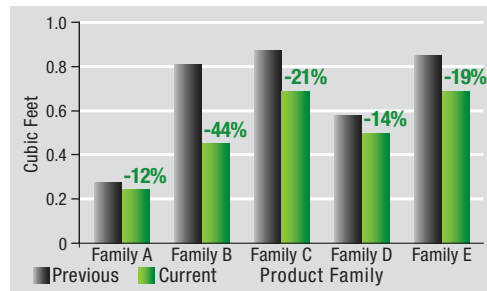
By considering environmental impacts in the early stages of the product development process, our packaging and product engineering teams established a goal to reduce the overall package size of the toner cartridges. Within our product design process, design changes enabled us to manufacture a more durable cartridge. The new design was implemented over several toner cartridge families and resulted in the need for less packaging and a smaller package to protect the product.

This project is just one example of product environmental design strategy that has yielded a measurable environmental benefit:

- Reduction of the number of components required
- Enhanced product durability
- Elimination of tons of packaging materials
- Increased shipping densities

- Reduction in the space required to ship and store the same quantity of products
- Reduction in the consumption of fossil fuels and natural resources

Lexmark's recently redesigned packaging for our laser supplies resulted in an average of 22 percent package size reduction across our product line.



### TONER CARTRIDGE PACKAGE REDUCTION

Average package size reduction = 22%

Reduced package size resulted in a 30% decrease of pallet usage

## Helping our customers conserve

Lexmark printers and all-in-ones help our customers reduce or eliminate the number of devices in their homes and offices. We offer duplexing, multi-up printing and other capabilities that significantly reduce paper consumption. To reduce the amount of toner and ink used to print a page, our printers have toner and ink-saving modes available. We even design our printers for optimum performance with recycled paper.

## Offering the best available technology

Semiconductor chips are commonly used in most of today's electronic products to enable essential features and functions. In Lexmark cartridges, chips enable many functions, including performance and diagnostics, to enhance the output, quality and reliability of our products.

Semiconductor technology is fundamental to inkjet cartridge function because it is the technology that places the ink on the paper, making printing possible.

The chip on the Lexmark Return Program cartridge facilitates efficient remanufacturing by helping to determine the wear on internal components so we can replace only the worn parts during the reconditioning process. An up-front discount is given to customers who purchase this cartridge to encourage them to return the cartridge to Lexmark for remanufacturing and recycling. This program has contributed to a 12-fold increase of returns over the past nine years.



[www.lexmark.com](http://www.lexmark.com)

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