

Flyer

# Life Cycle Assessment

Original HP LaserJet toner cartridges compared with remanufactured cartridges



Print responsibly—depend on Original HP LaserJet toner cartridges to help you reduce your environmental impact. Low-quality pages from remanufactured cartridges lead to wasted paper. The consistent reliability and superior print quality of Original HP toner cartridges mean fewer reprints and less waste.<sup>1</sup>



## Purpose of the study

In 2014, Hewlett-Packard (HP) commissioned Four Elements Consulting, LLC to perform an environmental Life Cycle Assessment (LCA) study which compared the environmental impacts of Original HP LaserJet toner cartridges with remanufactured cartridges sold as substitutes. The LCA adheres to the International Standards Organization (ISO) 14040 series and evaluates all phases of the life of the cartridges, from material sourcing, manufacturing, use, and end-of-life disposition.

## Products studied

HP selected the HP LaserJet CE505A (05A) and the CE285A (85A) toner cartridges which are replacement cartridges for the HP LaserJet P2035A and the LaserJet Pro P1102 printers. These models were chosen because they are popular in the North American market and have a wide selection of aftermarket cartridges available. The HP 05A and 85A cartridges were compared to remanufactured cartridges sold as substitutes. A remanufactured cartridge is defined as a once-used OEM cartridge that has been disassembled, inspected, cleaned, repaired, and has had some parts replaced. The cartridge is then refilled with non-OEM toner and reassembled. This analysis does not intend to mirror one specific brand of remanufactured cartridge.

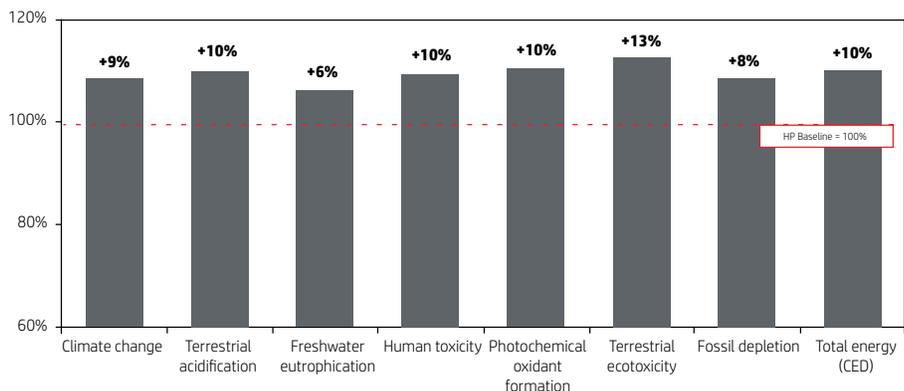
## What is a Life Cycle Assessment?

A Life Cycle Assessment (LCA) is a technique for examining the environmental impact of a product throughout all stages of the product life cycle – namely production, distribution, use, and end-of-life disposal or recycling. LCAs are widely used by governments, businesses and others to support environmental decision making. The LCA measures a range of environmental impact areas such as human and ecological health, air and water contamination, and global warming.

## Study results:

Remanufactured toner cartridges can use more than eight times the pages for reprinting due to poor quality pages.<sup>1</sup> Across all areas studied, remanufactured cartridges had an equal or higher environmental impact than Original HP toner cartridges—making HP a wise choice.<sup>1</sup>

## Remanufactured cartridge results as a percent of HP results



For the purposes of this comparison, a remanufactured cartridge result within 10% of HP's baseline in an impact category is considered to be on par with that of an Original HP LaserJet toner cartridge. A remanufactured cartridge result that is more than 10% above the baseline for an Original HP LaserJet toner cartridge is considered to reflect an environmental impact that exceeds HP's in a particular impact category.

## HP Planet Partners return and recycling program

Recycling reduces the environmental impact of a toner cartridge.<sup>1</sup> HP makes it easy and free to recycle cartridges through the HP Planet Partners program, available in more than 50 countries and territories worldwide.<sup>2</sup> Go to [hp.com/recycle](http://hp.com/recycle) for more information.



### Environmental impact doesn't end with production

- Paper use during printing—not cartridge manufacturing or production—is the greatest contributor to the environmental impact of toner cartridges.<sup>1</sup>
- Remanufacturing also impacts the environment through the disposal of worn and used parts, the discarding of unusable cartridges and cartridge disposal.<sup>3</sup>

### Life cycle stage contribution analysis for HP cartridges

This study concludes that paper use is the largest contributor to the environmental impact of a toner cartridge. These results clearly show that the “use” phase represents the majority of environmental impact for both HP and remanufactured cartridges.

U.S.	Production	Dist	Use	EOL
Climate change	20%	2%	<b>89%</b>	-11%
Human toxicity	19%	0%	<b>92%</b>	-11%
Photochemical oxidant formation	9%	3%	<b>93%</b>	-5%
Terrestrial acidification	12%	2%	<b>93%</b>	-7%
Freshwater eutrophication	31%	0%	<b>86%</b>	-18%
Terrestrial ecotoxicity	6%	0%	<b>95%</b>	-2%
Fossil depletion	22%	2%	<b>90%</b>	-13%
Total energy (based on Cumulative Energy Demand)	15%	1%	<b>92%</b>	-9%

### Study conclusion

Paper is the main source of printing's environmental impact, and print quality plays a significant role in paper consumption. When superior print quality counts, Original HP toner cartridges reliably deliver impressive results, which means less paper wasted on reprints and a lower environmental impact compared with remanufactured cartridges.<sup>1</sup>

Therefore, for customers who print documents for both internal and external purposes and who are concerned about the quality of their prints as well as the environmental impact of their cartridge choice, Original HP cartridges are a wise choice over remanufactured alternatives.

<sup>1</sup> 2014 Four Elements Consulting LCA study, commissioned by HP, compared Original HP 05A and 85A monochrome toner cartridges with a sample of remanufactured alternatives across eight environmental impact categories. For more, visit [hp.com/go/NA-LJLCA](http://hp.com/go/NA-LJLCA). The LCA leverages a SpencerLab 2013 Reliability study, commissioned by HP, where Original HP toner cartridges were compared to 9 remanufactured brands sold in North America. For details, see [spencerlab.com/reports/HP-Reliability-NA-RM-2013.pdf](http://spencerlab.com/reports/HP-Reliability-NA-RM-2013.pdf)

<sup>2</sup> Program availability varies. Original HP cartridge return and recycling is currently available in more than 50 countries, territories, and regions in Asia, Europe, and North and South America through the HP Planet Partners program. For more information, visit [hp.com/recycle](http://hp.com/recycle)

<sup>3</sup> InfoTrends, 2014 U.S. Supplies Recycling study. Study commissioned by HP. Results based on interviews with thirteen manufacturers and brokers. For details, see [hp.com/go/NA-2014InfoTrends](http://hp.com/go/NA-2014InfoTrends)

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