The Science Backing HP's Authentic Toner Cartridges

As demand accelerates for high-quality and affordable prints, designing and optimizing toner cartridges for peak printing performance is HP's continuing mission.

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First things first: whether at home or at the office, printers should just work – and they usually do. Decades of innovations and improvements have made printing faster, more reliable, and more efficient than ever.

But surprisingly, consumers, business owners and print services providers (PSPs) alike are tempted to undermine their own success by swapping out authentic printing supplies, such as toner cartridges, for less expensive new-build compatible (NBC) cartridges, or knock-offs.

HP has gone to great lengths to study the implications of using knock-off cartridges in printers, and we've learned a lot about the hidden costs of these toner cartridges which one might not see at the onset.

A toner cartridge might not look like much from the outside, but inside it is packed with amazing technology, including photoconductive drum, anti-fraud technology, and a print gauge system that intelligently predicts cartridge life. HP invested, on average, five years, to engineer a new toner cartridge because we know there are no shortcuts to quality. In fact, up to 70 percent of the printing technology in an HP laser printer comes from within the Original HP toner cartridge system itself.[i] So, when you replace a toner cartridge, it is like replacing 70 percent of the printer. If your laser printer was a car engine, that's quite an overhaul.

That's one of the compelling reasons why Original HP toner cartridges are the right choice to minimize printing costs while maximizing quality and reliability. Go the other route, and you are in for some unhappy surprises down the line.

Short-Sighted Savings

Two years ago, HP asked an independent lab to test a range of knock-off cartridges. Its most shocking finding: 73 percent of knock-off cartridges failed either right out-of-the-box or during use, while HP cartridges worked every time.[ii] If you're a PSP, imagine the blowback if more than

70 percent of cartridges in the printers you service fail. If you're a retailer, how do you cope with a 70 percent return rate? In fact, that same study found any savings you gain with non-HP toner cartridges today can cost 10 percent more in the long-run when you take problem cartridges and reprinting into account.[iii]

Digging deeper, we surveyed more than 1,000 HP LaserJet users last year and discovered:

- Nearly 40 percent of non-HP toner cartridge users have a problem with print quality
- Using non-HP toner cartridges increases your chance of damaging the printer by 30 percent
- Using non-HP toner cartridges increases your chance of printer downtime by 20 percent.

When we asked nearly 200 HP ServiceOne Partners about their experiences, almost 90 percent reported that HP LaserJet printers using non-HP toner cartridges required more cleaning, repairs, and replacements than those using Original HP cartridges. Almost half the service calls on HP LaserJet printers were due to problems caused using non-HP cartridges.[iv] It's easy to see how supposed savings can quickly turn into costs.

In fact, more than 90 percent of the technicians said they recommended Original HP toner cartridges over non-HP toner cartridges because they have the best print quality, are the most reliable and require less service.[v]

Sustainable Solutions

Printing has long been thought of a medium considered hard on the environment. However, printing is an evolving industry growing more sustainable by the minute, that is, if authentic cartridges are used. knock-off cartridges can have harsh environmental implications. We know most of the environmental effect of a toner cartridge occurs during the actual printing phase of its life. The consistent reliability and outstanding print quality of Original HP toner cartridges mean fewer reprints and less waste.[vi]

It's also clear that across their lifespans, knock-off cartridges have a larger environmental impact than Original HP toner cartridges, using 40 percent more energy, consuming 54 percent more fossil fuels, creating a 55 percent larger carbon footprint.[vii]

Even worse, nearly 90 percent of knock-off toner cartridges will go to landfills because most manufacturers fail to collect their own products.[viii] On the other hand, HP cartridges, which contain up to 33 percent recycled materials, are easy to recycle. It's free through the HP Planet Partners program, available in 74 countries and territories worldwide.[ix] And, since 2000, more than 199 million pounds of recycled plastic have been used to manufacture new original HP ink and toner cartridges.

Unlike knock-off manufacturers, HP also voluntarily designs and tests its printing systems to prevent emissions that exceed eco-label standards and guidelines. Original HP toner cartridges—when tested together with HP printers and paper—help meet or surpass

substances and particles emissions criteria including EPEAT in the U.S. and Canada.[x] You could say that using HP cartridges lets you breathe easier.

Productive Printing Ahead

In the end, the proof is in the printing. One HP customer, Genesis Technologies, a full-service managed print provider, saw a 37 percent reduction in service calls after it switched to Original HP toner. Another customer, imaging and printing solutions provider Allied Document Solutions and Services, found toner cartridge returns due to defects dropped 71 percent and service costs dropped 59 percent when it moved to Original HP supplies, increasing its profitability.

The lesson: innovation leads to reliability, which leads to cost effectiveness over time. Because only Original HP Cartridges are precisely tuned with HP printers for reliable quality, they're the obvious choice for economical printing that won't leave you in a jam.

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[i] Based on Original HP monochrome two-part cartridges and the electrophotographic process steps required to print a page. See http://h20195.www2.hp.com/v2/GetPDF.aspx/4aa6-9296enw.pdf

[ii] 2016 SpencerLab Monochrome Reliability study, commissioned by HP, compared Original HP mono cartridges with three brands of NBC cartridges sold in North America for the HP Pro M127 and Pro 400 printers, HP 83A and 80A cartridges. For details, see spencerlab.com/reports/HPReliability-NA-NBC2016NB.pdf.

[iii] HP calculations based on results from a SpencerLab 2016 Monochrome and 2018 Color Reliability study for North America, both commissioned by HP. The monochrome study compared cartridges for the HP Pro M127 and Pro 400 printers, HP 83A and 80A cartridges. The color study compared cartridges for the HP LaserJet Pro 400 M451dn printer, CE410A, CE411/12/13A cartridges. For more details, see and www.spencerlab.com/reports/HPReliability-NA-2016.pdf and www.spencerlab.com/reports/HP-CLR-Reliability-NA-2018.pdf. Calculations include paper, cartridge replacement and labor for reprints. Page use for monochrome assumes 27% external, 49% internal, and 24% individual use and color assumes 31% external, 34% internal, and 35% individual use, and. Labor rate from a 2016 Mercer Global Pay Study. Purchase price for monochrome cartridge is $179 and a 50% lower price for non-HP. HP color cartridges are $136 for K (CE400A) and $202 for CYM (CE401A/02A/03A) and non-HP price is 35% lower. Actual prices, costs, and savings may vary.

[iv] A 2017 NA Market Strategies International study commissioned by HP. Results based on 199 surveys from HP ServiceOne Partners who have at least 6 months of experience servicing HP monochrome and Color LaserJet printers with HP and non-HP toner cartridges installed, and have done so within the previous 12 months of the study. For details, see www.marketstrategies.com/hp/NA-Technician2017.pdf

[v] Ibid.

[vi] 2018 Four Elements Consulting LCA study, commissioned by HP, compared Original HP 80A and 83A monochrome toner cartridges with a sample of NBC alternatives across eight environmental impact categories. For more, visit http://www.hp.com/go/NA-LJLCA-NBC-2018. The LCA leverages a SpencerLab 2016 study, commissioned by HP, comparing Original HP LaserJet toner cartridges with three brands of NBC toner cartridges sold in NA. For details, see http://www.spencerlab.com/reports/HPReliability-NA-NBC2016NB.pdf (Branded Report)

[vii] 2018 Four Elements Consulting LCA study, commissioned by HP, compared Original HP 80A and 83A monochrome toner cartridges with a sample of NBC alternatives across eight environmental impact categories. For more information, visit hp.com/go/NA-LJLCA-NBC-2018. The LCA leverages a SpencerLab 2016 study, commissioned by HP, comparing Original HP LaserJet toner cartridges with three brands of NBC toner cartridges sold in NA. For details, see http://www.spencerlab.com/reports/HPReliability-NA-NBC2016NB.pdf.

[viii] InfoTrends, 2018 North America Supplies Recycling study, commissioned by HP. Findings are based on average results of interviews with 7 remanufacturers, 2 NBC manufacturers, 3 empty collectors and 3 distributors. For details, see hp.com/go/NA-2018InfoTrends.

[ix] Program availability varies. For details, see http://www8.hp.com/us/en/hp-information/environment/product-recycling.html

[x] Electronic Product Environmental Assessment Tool (EPEAT), managed by the Green Electronics Council of the International Sustainability Development Foundation (ISDF). For printing systems, the IEEE Standard for Environmental Assessment of Imaging Equipment (IEEE Std 1680.2-2012) is applied.