



The environmental costs of poor quality

Overview

The impact of poor quality printing supplies impacts more than your bottom line, it can have a significant impact on the environment. Choosing high quality supplies can be less expensive in the long run and a better choice for the planet.

The costs of poor quality

Businesses need to make each dollar count and to make sure they are getting the most for what they spend. Attracted by lower “sticker” prices, some businesses choose brands of remanufactured toner cartridges for their laser printing supplies. However, in the end they could be short-changing their budget and the environment. Although the purchase price of remanufactured brand cartridges may be lower than that of Original HP LaserJet print cartridges, there’s more to the cost of a cartridge than its sticker price.

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A recent study commissioned by HP and performed by QualityLogic¹ found that one in three of the remanufactured brands of toner cartridges tested in North America had some kind of problem and that *more than one-third of the pages inspected from the remanufactured cartridges tested by QualityLogic were of limited or no use.*² When you factor in the costs associated with poor reliability and quality, and wasted pages, the remanufactured cartridges may actually be more expensive than Original HP cartridges.

The costs of wasted pages

The QualityLogic study showed that, often, remanufactured cartridge print quality degrades, resulting in pages that are *not* good enough for distribution to customers and others outside the company—or even for circulation *within* the company.

While over 96% of the pages printed from Original HP LaserJet print cartridges in the QualityLogic study were acceptable for all uses, more than one-third of the pages inspected from the remanufactured cartridges tested by QualityLogic were of limited or no use. In order to get the same number of pages suitable for all uses as an HP cartridge, a person using one of the remanufactured cartridges tested might have to print significantly more pages to get the same usable output.

For example, in order to print 10,000 pages suitable for all uses based on the average results seen in the QualityLogic study, an office worker using the remanufactured cartridges tested would have to print over 15,000 pages, wasting over 10 reams of paper . Besides the additional cartridge costs, that could easily be \$50 in additional

paper costs.³

A study by Lawrence Berkeley National Laboratory⁴ showed that the typical office worker uses about 10,000 sheets of paper per year. That means for each worker planning to print 10,000 useable pages and using remanufactured cartridges, they may need to reprint over 5,000 pages each. For a company with 500 employees, that could mean an additional 2.5 million pages printed and \$25,000 per year spent on paper to get the same number of useable pages!

The costs to the environment

Besides taking a toll on a business's budget, those additional pages can take a toll on the environment. Paper requires a significant amount of energy to produce. Based on the CO₂ emissions created over the life cycle of each ream of new cut-sheet paper, reprinting 5000 pages would contribute the same amount of greenhouse gas emissions as burning over 13 quarts of oil.⁵

The impact is even greater for larger size companies. For an enterprise with 10,000 employees printing with remanufactured cartridges at the same rates outlined above, the greenhouse gas emissions from having to reprint pages with limited or unusable quality would be equivalent to the CO₂ emissions from the consumption of over 37,000 gallons of gasoline or 800 barrels of oil.

Some cartridge remanufacturers and industry analysts claim that reusing a cartridge is better for the environment based on the energy and resources required to create a new OEM cartridges.⁶ However, the results of the QualityLogic study offer a different perspective. Based on the average quality of the output from the remanufactured cartridges tested in the QualityLogic study, the impact from reprinting may outweigh the claimed benefit of using a remanufactured cartridge in the first place.

HP not only delivers quality you can count on, when you buy an Original HP print cartridge you can be confident in HP's environmental commitment. HP's Planet Partners program recycles collected HP print cartridges to recover raw materials or energy. HP never refills, resells or sends print cartridges to a landfill.

By using remanufactured cartridges, you may not only be wasting your money, you may be wasting paper and our precious resources. By using Original HP print cartridges, you can count on getting the best value for your budget and the environment.

¹ A 2007 independent study, performed by QualityLogic Inc. and commissioned by HP, compared Original HP LaserJet print cartridges with nine brands of remanufactured toner cartridges sold in North America for the HP LaserJet 2300 (Q2473A) and HP LaserJet 4350 (Q5407A) printers. 24 cartridges were tested for each brand in the study. See the QualityLogic report for details (www.qualitylogic.com).

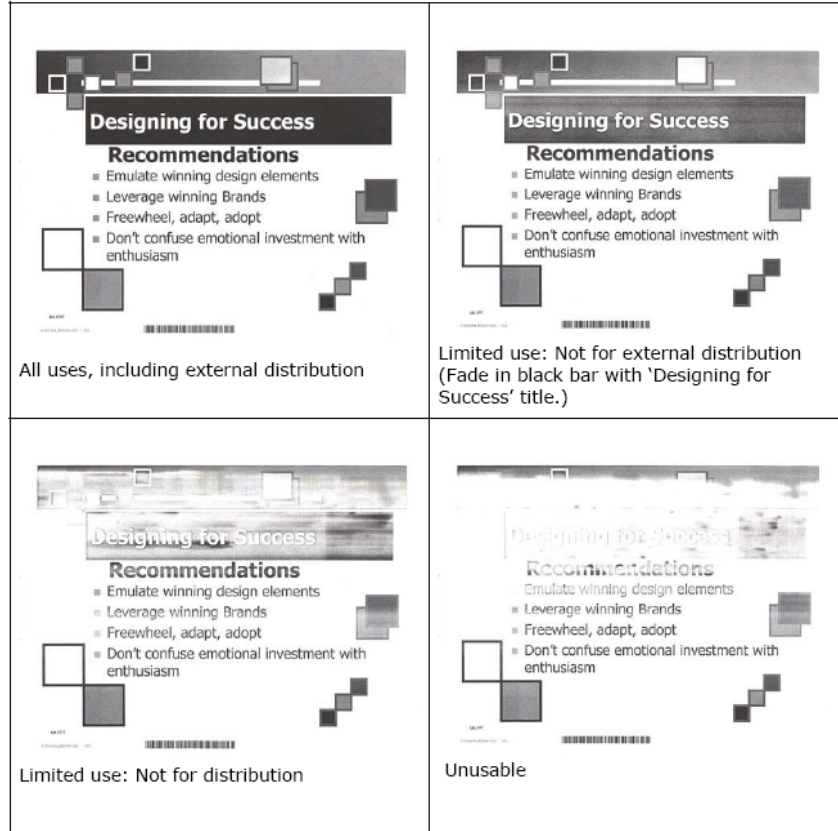
² Cartridge problems, as defined by the QualityLogic study, include:

- Dead on Arrival (DOA)—cartridges that have substantial toner leakage (1 cc or more) before or during the installation process, print 10 or fewer pages before print quality degrades to Unusable and/or fail to print when first installed.
- Premature Failure (PF), meaning that they have a page yield of less than 75% of the Average Page Yield for that cartridge brand/model and/or they leak substantial toner (1 cc or more) anytime during printing.
- Low Quality Cartridges, 50% or more of the sampled pages are categorized as Limited Use or Unusable (but are

neither DOA nor PF).

Limited-use pages – evaluated relative to a scale created from the responses of business printing customers in psychometric research - include those that are *not* acceptable for external distribution to customers, vendors and suppliers. Some of these might be acceptable for internal distribution to colleagues or others within the company. Others might only be acceptable for individual use, such as for a draft to review. Pages defined as “no use” are those that cannot be used even as a draft copy for review.

The following page scans illustrate page typical of each of the print quality categories in the QualityLogic study.



³ Estimates based on online survey of laser printer paper and multi-use printer paper, 8-1/2"x11", all brands. Estimate excludes taxes and shipping or delivery costs

⁴ Nordman, Dr. Bruce (1997). Lawrence Berkeley National Laboratories, Rethink Paper.

⁵ Greenhouse Gas Equivalencies Calculator, US Environmental Protection Agency, <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

⁶ Jones, Sue, "Why Buy Remanufactured?" *Recharger Magazine*, December 2000, "Approximately three quarts of oil are burned in the production of a single new toner cartridge. A used cartridge can be remanufactured up to four times, depending on type and condition, saving up to three quarts of fuel each time," and www.cartridgeworldusa.com/thinkgreen, "It takes about a gallon of oil to make a new laser cartridge."