



Original HP Ink: Why It's Worth It

A whitepaper explaining the value of Original HP Ink
Thom Brown, HP Ink and Media Technologist

Introduction

HP knows that consumers have many choices when it comes to purchasing ink supplies and that some may be tempted to seek out alternative, lower-cost ink cartridge replacement solutions such as refilled cartridges, home refilling kits, generic or store-brand ink cartridges, because they believe that the cost of ink is often unjustified and not worth the investment. However, when quality and reliability are sacrificed in the name of lower sticker prices, consumers will ultimately pay the price for inferior prints.

According to AC Nielsen's US Household Homescan Report from December 2009, the average household spends less than \$76.25 a year on printer ink, which is about six dollars a month—less than what they might spend on a few cups of coffee during that time period. While six dollars may not seem like a lot of money, when every penny counts, don't consumers deserve as much value for their money as possible? HP believes customers should have the peace of mind that their printing system will continue to provide the same high level of performance, quality, reliability, ease of use and overall value over time that they've come to expect. Attempting to save a dollar or two upfront with lower-cost ink cartridge replacement solutions is a risky decision as it can compromise these expectations, ultimately resulting in added costs in the long run.

With Original HP ink, customers know they are getting exactly what they pay for—superior performance, quality, reliability and peace of mind for the life of their printing system—which is a *real* value.

What Matters to Consumers?

HP understands that when it comes to printing, value means more to consumers than just the lowest possible sticker price on an ink cartridge. Value is defined by the specific printing needs of the consumer.

For some consumers, the reliability of their printing system might matter most. When they hit "print," they want to know that their printer will operate problem-free and their document or photo will be printed correctly the first time, avoiding the need to reprint. Not only is this notion of "print—don't reprint" a consumer expectation, it also serves as a way for consumers to save on costs and print more responsibly with regard to the environment, preventing useless prints and eliminating wasted ink and paper.

Rob McMurtrie, HP
+1 206 770 7003
rob.mcmurtrie@porternovelli.com

HP Media Hotline
+1 866 266 7272
pr@hp.com
www.hp.com/go/newsroom

Hewlett-Packard Company
3000 Hanover Street
Palo Alto, CA 94304
www.hp.com



For other consumers, it might matter most that print output meets their quality standards. This can be as simple as legibility and correct color output of a company logo, or as important as a priceless wedding portrait that will resist fading and last for generations.

No matter what consumers value most, it is the unmatched science and innovation that goes into developing Original HP ink that ultimately results in superior quality and reliability. Each of HP's printing systems—printer, ink cartridges and paper—works as a total unit to lower the cost of printing while providing the best possible printing experience.

Original HP Ink: More Than Just Colored Water

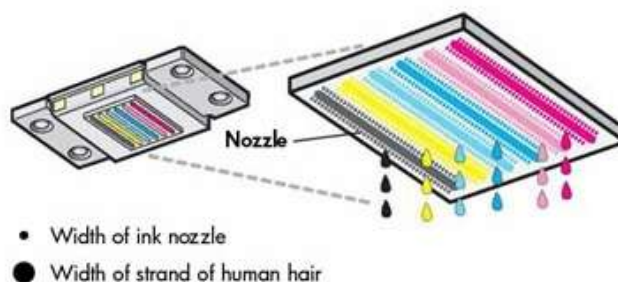
It's commonly assumed that all of the intelligence of the printing device is in the printer itself and that the ink cartridge is simply a container holding "colored water."

Not true.

While the printer is an important part of the equation, the cartridge, the ink and the printheads each play a significant role in producing brilliant prints or documents. Original HP ink is a complex fluid that must be chemically and physically compatible with every part of the printer, including the ink cartridge components, printhead, nozzles, printer parts and paper.

Every time a customer hits "print," he or she sets in motion a complex chain of events. An integrated circuit routes instructions to hundreds of ink nozzles, each about one-third the width of a human hair.

As a result, pulses of energy create a superheated vapor bubble that forces a microscopic ink droplet through the nozzle and onto the page at roughly 50 kilometers per hour (31 miles per hour). This can happen up to 36,000 times every second for each nozzle.



The speed and precision needed to accurately place such tiny ink drops on the page can be equated to standing at the top of a 30-story building and dropping a nickel into a bucket on the sidewalk below.

Unparalleled Science and Innovation

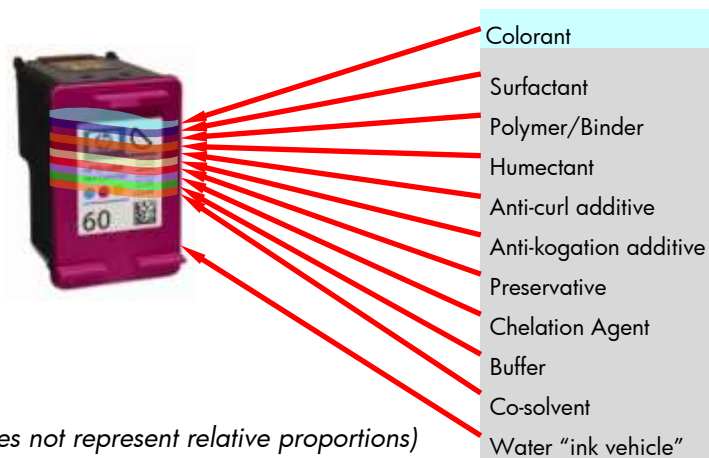
Up to 100 HP ink chemists and scientists, with a combined total of more than 500 years experience, are assigned to work on Original HP ink formulations, which often require many years of intensive research and development. HP specifically



designs and tests its printers, cartridges, inks and papers to work together as a printing system to provide the best quality, reliability and value for our customers. Here are some facts:

- HP has introduced more than 100 different inks in the past 20 years to meet the different needs of our customers.
- The ink chemistry is so advanced that the HP team devotes as many as 1,000 prototype formulations to perfect each new ink.
- HP invests up to three to five years to develop and manufacture just one new line of ink.
- HP engineers and scientists typically devote more than 50,000 hours to developing each final ink formulation.
- All HP inks are subjected to more than 20 different tests for purity and more than 50 different tests for quality attributes such as water resistance, fade resistance and color accuracy.

Why all of this testing? Impurities as small as 0.001 percent can reduce image quality and clog print heads, and the naked eye can identify errors in dot placement as small as 4/10,000 of an inch, which can produce inadequate print results.



HP scientists carefully select specific dye chemistry combinations to deliver the best image quality, image permanence and durability. Original HP inks also deliver up to 72.9 million possible color combinations for more realistic color transitions for life-like color prints.

Measuring Printing Costs

By better understanding the science and innovation behind the development of Original HP ink, it is easy to see why HP ink is worth what it costs. But what does cost really mean? How should one measure the true "cost" of a printing system?



There are several factors to consider when measuring the cost of printing. Consumers commonly measure it by only a single factor such as the point-of-purchase (POP), the up-front cost of the ink cartridge or printer, cost per page (CPP), or by the milliliters of ink in a given cartridge. Focusing on any single factor such as these is not an accurate way to measure the cost of printing over time and can lead consumers to pay more for printing in the long run. For example, consumers should know that the volume of ink in a cartridge—before or after use—does not directly correlate with the number of usable pages printed, therefore, volume, or milliliters of ink, is not as meaningful a measure of cost.

One way to think about this is to compare ink to the price of gas. One gallon of gas costs the same for two different cars such as a Toyota Prius™ or a GM Hummer™, but the performance will vary. In the end, that gallon of gas holds more value to the Toyota Prius™ owner, who will likely get more out of that gallon and drive further than the Hummer™ owner. The same is true for printers. Consumers who use a reliable printing system, such as one from HP, can rest assured that they are getting the best performance in terms of quality and reliability, thus saving money in the long run.

Rather than looking at the volume of ink in a cartridge, here are more meaningful ways to measure cost:

Page Yield

Consumers can take into account estimated yield from a given ink cartridge. HP is the only printer manufacturer that indicates yield on the ink packaging. This information also is published at www.hp.com/go/pageyield for all HP Deskjet, Photosmart and Officejet inkjet printers and All-in-Ones sold since July 2005.

HP's page yield data for text/graphics is based on ISO (International Organization for Standardization) testing methodology (ISO/IEC 24711), which is the standards body recognized by the majority of the printing industry. HP has developed a test methodology for photo yields. HP is transparent in providing customers with additional background in articles explaining the ISO testing methodology and HP's methodology for photo yield.

Other data indicates that refilled ink cartridges, on average, do not deliver the same expected page yields as HP inks. A [recent ink cartridge reliability study](#) conducted by QualityLogic (January 2009) in North America compared the page yield and reliability of Original HP inkjet cartridges to nine major brands of refilled inkjet cartridges, and found that Original HP ink cartridges printed significantly more pages than the refilled cartridges tested.⁽¹⁾

Total Cost of Ownership

There are a number of factors beyond the direct cost of purchasing equipment and supplies, such as quality, reliability, efficiency and productivity that a consumer should consider. This is referred to as total cost of ownership (TCO) and it is a more accurate way of determining how much it will cost for a consumer to print.

When deciding which printing system will be most cost-effective and best fit their printing needs, consumers should examine the TCO in terms of how long they will



own the printer; what they want to print, such as text, graphics, photos, web pages, etc.; how much they print, or in other words, their average monthly print volume; the desired output quality; what kind of paper will be used, and the importance of key usability choices such as speed and ease of use of the system.

Because HP recognizes that consumers place different priority on the various aspects of TCO, the company offers a broad range of printing systems with different capabilities and various combinations of purchase and running costs. Each printing system is designed to provide the best overall value to match a specific set of customer printing needs while delivering an unrivaled combination of quality, reliability, speed and ease of use at competitive prices.

What Makes Original HP Ink Superior?

One in three refilled ink cartridges leaks, streaks or fails, and refilled inks deliver significantly less pages than Original HP ink cartridges.⁽¹⁾ While HP does not prevent the use of third-party inks or toners in any of its printers, consumers deserve to know the risks they are taking with “bargain inks” when it comes to quality and reliability—and why they are not the value consumers perceive them to be, costing them more in the long run.

HP believes that customers will get the best value, as well as the best print quality and reliability, by using cartridges from HP and here’s why...

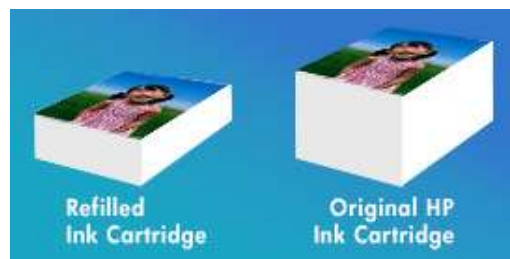
Proven Reliability

With Original HP ink, customers can hit “print” reliably knowing that HP inks are more reliable than bargain inks. In independently validated tests, HP has been proven to outperform refilled inkjet cartridges on reliability, as well as yield, time and time again.

The 2009 QualityLogic [ink cartridge reliability study](#) also showed that the HP inkjet print cartridges tested outperformed the refilled ink cartridges tested.

Results include:

- On average, Original HP ink cartridges printed significantly more pages than refilled cartridges tested.⁽¹⁾



- More than 33 percent of tested refilled ink cartridges (or one in three) failed during use or right out of the box.⁽¹⁾
- Only the tested Original HP ink cartridges worked every time, with zero cartridge failures.⁽¹⁾



Superior Quality

HP delivers unparalleled quality and peace of mind to customers who know that their favorite photo or document will be printed properly the first time when using HP printers, paper and ink as one whole system.

HP conducts extensive testing when it comes to measuring the quality of a print. HP relies on its Image Permanence Labs, as well as the independent organization, Wilhelm Imaging Research, Inc. (WIR), which researches the stability and preservation of traditional and digital color photographs and motion pictures, to test the factors that might degrade photos—so that customers can rely on HP photos to preserve special memories.

For example, after numerous WIR fade resistance tests, HP has proven that photos printed with HP pigment inks on HP Advanced Photo Paper last for up to 200 years.⁽²⁾ Original HP inks can also deliver up to 50 times the print permanence of non-HP supplies intended to work in an HP printer.⁽³⁾

Customers can see how their own photos printed with Original HP supplies fare against those printed from non-HP supplies over time by downloading the [HP Light Fade Simulator](#).

Original HP



After 80-years of simulated light exposure

Non-HP



After 80-years of simulated light exposure

When customers buy an Original HP ink print cartridge, they can rest assured that they are receiving a guaranteed new cartridge filled with pure HP ink designed to deliver consistent reliability with brilliant, durable and quality output that lasts, unlike refilled or second-hand print cartridges that have been used, refilled and repackaged.

Greater Choice

HP listens to its customers and understands their varied printing needs and habits.



Recognizing that one ink cartridge does not fit every printing need, HP has strategically created a portfolio of cartridge offerings at various price points for consumers to choose from.

Designed to address the varying needs of HP customers at different price points, HP offers two general inkjet print head designs—both offering the most innovative HP technologies. The first is an Integrated Print Head (IPH) design, meaning that the print head is part of the ink cartridge. The second design uses a separate long-life print head as part of the printer in which ink is fed through ink tanks or individual ink cartridges (IIC). The IIC cartridge design can be found in many of HP's newer photo printers and is designed for customers that want versatile home use and photo printing. IPH is designed for cost-conscious customers mostly interested in text printing with more limited color and photo needs. Both HP IIC and IPH cartridge families are built on the same dual-drop volume technology, which delivers an extremely small drop size, allowing customers to print finely detailed images and graphics with smooth transitions.

Over the years HP has continually provided low Point of Purchase (POP) cartridge options based on the needs of our customers. In 2005, HP launched the O2 individual color cartridges, and today also continues to offer Integrated Print Head (IPH) cartridges at low price points. The newest IIC (HP 564) and IPH (HP 60) cartridges, launched in 2008, continue to provide POP options as low as \$9.99.



HP offers a variety of choices to customers including Integrated Print Head (IPH) and Individual Ink Cartridges (IIC) at a variety of price points based on individual printing needs and usage.

To provide customers who print more frequently with even more choice and value, HP offers the following money-saving options:

- High yield cartridges: HP offers high-capacity value (XL) cartridges, which typically offer three times more prints for black inkjet cartridges and two times more prints for color inkjet cartridges compared with standard Original HP ink cartridges.⁽⁴⁾
- Multi and combo ink packs: Inkjet cartridge multi-packs offer savings of up to 10 percent over single ink packs.
- Individual ink cartridges: Individual ink cartridges allow a customer to replace



only the color that needs replacing.

- [Photo Value Packs](#): Combine ink cartridge and optimized high quality HP Photo Paper for one low price, as low as \$0.27 per photo.⁽⁵⁾

Environmental Benefits of HP Supplies

In addition to providing superior print quality and reliability, HP also offers peace of mind for customers who are committed to reducing their environmental impact.

Since 1991, the [HP Planet Partners](#) return and recycling program has enabled simple, convenient recycling of Original HP inkjet and LaserJet supplies. To date, more than 300 million cartridges worldwide have been recycled, ensuring no cartridge returned through the Planet Partners program goes to landfill.

Furthermore, HP developed an engineering breakthrough that enables the use of post-consumer recycled plastics—from cartridges returned through the Planet Partners program and sources like everyday water bottles—in the production of new Original HP inkjet print cartridges. In addition to closing the design loop, using recycled content saves energy and keeps plastic out of landfills. Since first piloting the process, HP has used 44 million pounds of recycled resin in the manufacture of more than 760 million inkjet print cartridges.⁽⁶⁾

Remanufacturers may claim to offer print cartridge buyers a more responsible environmental solution, but a survey of published material and studies by industry analysts on the environmental practices of cartridge remanufacturers and refillers proves otherwise.⁽⁷⁾ According to a 2007 study by industry analyst firm, Gartner Research, “While the use of remanufactured supplies can reduce initial acquisition costs and prevent cartridges [from] going to landfills, organizations must understand that many remanufacturers do not have proper disposal practices, and their efforts may not be environmentally sound.”⁽⁸⁾

Further, while the concept of reusing empty cartridges may seem “green,” industry analyst firm InfoTrends reported that remanufacturers eventually dump cartridges into the waste stream when they reach end-of-life, often after only one reuse.⁽⁹⁾ The print cartridge remanufacturing process is frequently outsourced to distant countries; overseas transportation adds a significant environmental burden. Further, many remanufacturers avoid—and some even refuse—to collect their own-brand cartridges for recycling.

In 2009, HP recovered [314 million pounds of hardware and supplies](#) for reuse and recycling and has already reached its 2010 goal to recycle two billion cumulative pounds of electronic products and supplies by the end of the year.

In addition to the company’s reuse and recycling efforts, HP offers a comprehensive portfolio of products, services and solutions to help customers reduce their environmental impact. These solutions include such features as automatic duplex printing, [Smart Web Printing](#)—for the selection, collection storing and combining of online content for predictable Web printing—and [HP Auto Sense](#) technology, which automatically determines the type of paper being used with a printer in order to optimize the customer’s driver settings. With these tools, customers can avoid wasting ink and paper knowing that their documents and photos will print correctly the first time, avoiding any guesswork.



Conclusion

As a worldwide leader in home and office printing for more than two decades, HP believes its inkjet printing systems offer customers the best overall value with an unrivaled combination of quality, reliability and ease of use. Multiple independently-validated tests have reinforced the superior quality, greater reliability and higher page yield of Original HP inks compared to other aftermarket offerings.

With Original HP ink, customers know they are getting exactly what they pay for—peace of mind knowing that their HP printer will consistently deliver the industry-leading results that they've come to expect from HP.

⁽¹⁾ A QualityLogic 2009 study compared Original HP inkjet print cartridges (92A, 93A, 98A, 95A, 21A and 22A) with refilled ink cartridges sold in North America. For details, see www.qualitylogic.com/2009HPinktest.pdf.

⁽²⁾ Based on Wilhelm Permanence Ratings, January 2008, http://www.wilhelm-research.com/hp/WIR_HP_B8850_2008_01_15.pdf

⁽³⁾ Based on Wilhelm Permanence Ratings, May 2006, http://www.wilhelm-research.com/hardcopy/WIR_AftermarketTests2006_05.pdf

⁽⁴⁾ Savings based on estimated street prices and yield comparisons of HP XX cartridges to HP XX XL cartridges (not included, sold separately); go to www.hp.com/go/pageyield for details.

⁽⁵⁾ Based on information for the HP 564 Photo Value Pack. Actual cost may vary based on the retail price, printer used, images printed and other factors.

⁽⁶⁾ At least 50 percent recycled plastic by weight, minimum 95 percent post-consumer.

⁽⁷⁾ Sources for competitive environmental information include remanufacturer trade publications, advertising and industry research. Some research commissioned by HP.

⁽⁸⁾ Gartner Research, "How to Manage the Environmental Impact of Printing," August 8, 2007, Federico de Silva Leon and Ken Weilerstein.

⁽⁹⁾ InfoTrends, "2007 Supplies Recycling: U.S. and Europe," May 9, 2007, Cathy Martin.

© 2010 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constructing an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.