

Canon imagePROGRAF 8100 versus Epson Stylus Pro 9880

Assessing ink consumption impact when switching from the most productive print mode to the highest-resolution print mode



Canon imagePROGRAF 8100



Epson Stylus Pro 9880

Test Objective

Buyers Laboratory International UK Ltd (BLI), situated in Wokingham, UK, was commissioned by Canon Europe to conduct an ink consumption analysis between the Canon imagePROGRAF 8100 and the Epson Stylus Pro 9880. The purpose of the test was to objectively compare the ink usage between the two devices in their most productive colour print mode and assess the impact of switching to the highest resolution print quality mode when printing a high coverage graphic intensive 42" x 37.3" image.



Epson Stylus Pro 9880 and Canon imagePROGRAF 8100 under test at BLI's European test facility in Wokingham, UK

Executive Summary

During the course of conducting its comparative ink consumption analysis, BLI ran 217.6 square feet of output (10 pages of 42" x 37.3" images in both print modes) on each device.

As BLI's test results illustrate, the Canon imagePROGRAF 8100 proved to be more efficient in its ink consumption in both the most productive print mode and in highest quality print mode. In the most productive print mode (standard 600 dpi for the Canon device, 720 dpi x 720 dpi speed mode for the Epson device) the Canon imagePROGRAF 8100 used only 54.7g of ink, which equates to only 1.3% of a complete set of 330ml ink cartridges, while the Epson Stylus Pro 9880 used 141.3g of ink, which equates to 17.6% of a complete set of 110ml ink cartridges. In highest resolution mode (maximum 600 dpi) the Canon imagePROGRAF 8100 used 172.7g of ink, which equates to 4.1% of a complete set of 330ml ink cartridges, while the Epson Stylus Pro 9880, in its highest resolution print mode (2800 dpi x 1400 dpi) used 291.8g of ink, which equates to 36.3% of a complete set of 110ml ink cartridges. Note: It was not within the scope of the BLI test to evaluate print quality differences between the devices when operated in the most productive and highest resolution print modes.

Summary of Ink Usage for 10 print run of BLI's 42" x 37.3" High Coverage Graphic Intensive test file in most productive print mode	
Canon imagePROGRAF 8100	54.7g
Epson Stylus Pro 9880	141.3g
Canon imagePROGRAF 8100 consumed 61.3% (86.6g) less ink	

Summary of Ink Usage for 10 print run of BLI's 42" x 37.3" High Coverage Graphic Intensive test file in highest-resolution print mode	
Canon imagePROGRAF 8100	172.7g
Epson Stylus Pro 9880	291.8g
Canon imagePROGRAF 8100 consumed 40.8% (119.1g) less ink	

Increase in ink usage when switching from the most productive print mode to the highest-resolution print mode	
Canon imagePROGRAF 8100	118.0g
Epson Stylus Pro 9880	150.5g
Canon imagePROGRAF 8100 required 21.6% (32.5g) less ink when switching to high-quality mode	

BLI Test Results

Table 1

Amount of ink in each Canon imagePROGRAF 8100 cartridge												
	Yellow	Cyan	Photo Cyan	Magenta	Photo Magenta	Black	Matte Black	Grey	Red	Green	Blue	Photo Grey
Weight of cartridge prior to installation	458.3g	458.4g	467.4g	458.8g	461.5g	463.7g	468.0g	460.7g	467.7g	463.6g	463.6g	458.9g
Weight of cartridge at end of life *	113.4g	113.4g	113.4g	113.4g	113.4g	113.4g	113.4g	113.4g	113.4g	113.4g	113.4g	113.4g
Net weight of ink	344.9g	345.0g	354.0g	345.4g	348.1g	350.3g	354.6g	347.3g	354.3g	350.2g	350.2g	345.5g

*Based on mean average weight across six different cartridges (Y, M, PM, C, PC, G)

Table 2

Amount of ink in each Epson Stylus Pro 9880 cartridge								
	Yellow	Cyan	Light Cyan	Vivid Magenta	Vivid Light Magenta	Light Black	Light Light Black	Photo Black
Weight of cartridge prior to installation	244.2g	244.1g	245.3g	246.8g	246.3g	244.5g	243.2g	242.6g
Weight of cartridge at end of life *	144.1g	144.1g	144.1g	144.1g	144.1g	144.1g	144.1g	144.1g
Net weight of ink	100.1g	100.0g	101.2g	102.7g	102.2g	100.4g	99.1g	98.5g

*Based on mean average weight across five different cartridges (Y, LC, VLM, LB and LLB)

Table 3

Amount of ink used in 10 print run of BLI's 42" x 37.3" High Coverage Graphic Intensive test file on Canon imagePROGRAF 8100 in standard 600dpi print mode												
	Yellow	Cyan	Photo Cyan	Magenta	Photo Magenta	Black	Matte Black	Grey	Red	Green	Blue	Photo Grey
Net weight of ink used in print run	2.5g	2.4g	2.3g	1.4g	1.8g	2.9g	1.2g	25.3g	1.6g	1.8g	1.6g	9.9g
Net weight of ink in cartridge	344.9g	345g	354.0g	345.4g	348.1g	350.3g	354.6g	347.3g	354.3g	350.2g	350.2g	345.5g
Percentage of ink used in test	0.7%	0.7%	0.6%	0.4%	0.5%	0.8%	0.3%	7.3%	0.5%	0.5%	0.5%	2.9%

Table 4

Amount of ink used in 10 print run of BLI's 42" x 37.3" High Coverage Graphic Intensive test file on Canon imagePROGRAF 8100 in maximum 600dpi print mode												
	Yellow	Cyan	Photo Cyan	Magenta	Photo Magenta	Black	Matte Black	Grey	Red	Green	Blue	Photo Grey
Net weight of ink used in print run	2.8g	2.5g	2.7g	3.0g	9.1g	2.5g	2.4g	113.6g	3.2g	2.9g	2.8g	25.2g
Net weight of ink in cartridge	344.9g	345g	354.0g	345.4g	348.1g	350.3g	354.6g	347.3g	354.3g	350.2g	350.2g	345.5g
Percentage of ink used in test	0.8%	0.7%	0.8%	0.9%	2.6%	0.7%	0.7%	32.7%	0.9%	0.8%	0.8%	7.3%

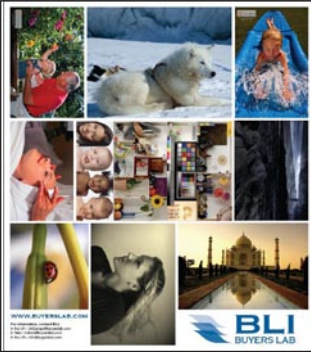
Table 5

Amount of ink used in 10 print run of BLI's 42" x 37.3" High Coverage Graphic Intensive test file on Epson Stylus Pro 9880 in speed (720 x 720dpi) print mode								
	Yellow	Cyan	Light Cyan	Vivid Magenta	Vivid Light Magenta	Light Black	Light Light Black	Photo Black
Net weight of ink used in print run	10.3g	3.8g	19.6g	5.4g	34.0g	25.8g	24.4g	18.0g
Net weight of ink in cartridge	100.1g	100.0g	101.2g	102.7g	102.2g	100.4g	99.1g	98.5g
Percentage of ink used in test	10.3%	3.8%	19.4%	5.3%	33.3%	25.7%	24.6%	18.3%

Table 6

Amount of ink used in 10 print run of BLI's 42" x 37.3" High Coverage Graphic Intensive test file on Epson Stylus Pro 9880 in highest-resolution (2880 x 1440dpi) print mode								
	Yellow	Cyan	Light Cyan	Vivid Magenta	Vivid Light Magenta	Light Black	Light Light Black	Photo Black
Net weight of ink used in print run	21.4g	8.7g	43.1g	10.3g	73.0g	52.5g	47.2g	35.6g
Net weight of ink in cartridge	100.1g	100.0g	101.2g	102.7g	102.2g	100.4g	99.1g	98.5g
Percentage of ink used in test	21.4%	8.7%	42.6%	10.0%	71.4%	52.3%	47.6%	36.1%

Test Methodology Overview



Test image used in BLI test comprised of a 42" x 37.3" document with a montage of high-resolution graphic images

Buyers Lab's ink consumption analysis was conducted using a 192 dpi 42" x 37.3" TIFF BLI wide-format test file, which is comprised of a montage of high-resolution images. The test file was submitted to print via Adobe Photoshop with embedded colour profiles retained.

The Canon imagePROGRAF 8100 was installed in BLI's lab with the latest level of firmware (as of February 1, 2008) and connected to a Windows XP workstation using a 1000BaseT TCP/IP connection. The device was left in default configuration throughout testing. The Windows driver was used for all testing and was left in default configuration with only the media selection changed to reflect the media used in testing. The media used throughout testing was 42" Ilford OmniJet Photo 250gsm instant dry PEARL. The 42" x 37.3" test file was first printed using the standard 600 dpi driver colour quality mode and then repeated (after weighing the cartridges for ink yield assessment) using maximum 600 dpi print mode. On each occasion, the image size was set to 42" x 37.3" and printing was set to fit to media size, with borderless printing and image rotation left disabled (see driver setting screenshots on next page).

The Epson Stylus Pro 9880 model was installed in BLI's lab with the latest level of firmware (as of February 1, 2008) and connected to a Windows XP workstation using a 1000BaseT TCP/IP connection. The device was left in default configuration throughout testing. The Windows driver was used for all testing and was left in default configuration with only the media selection changed to reflect the media used in testing. The media used throughout testing was 42" Ilford OmniJet Photo 250gsm instant dry PEARL. The 42" x 37.3" test file was printed using the standard driver print quality 'Speed' (720 dpi x 720 dpi) mode, and then repeated (after weighing the cartridges for ink yield assessment) using with the maximum quality print mode. On each occasion, the image size was set to 42" x 37.3" and printing was set to fit to media size, with borderless printing and image rotation left disabled (see driver setting screenshots on the next page).

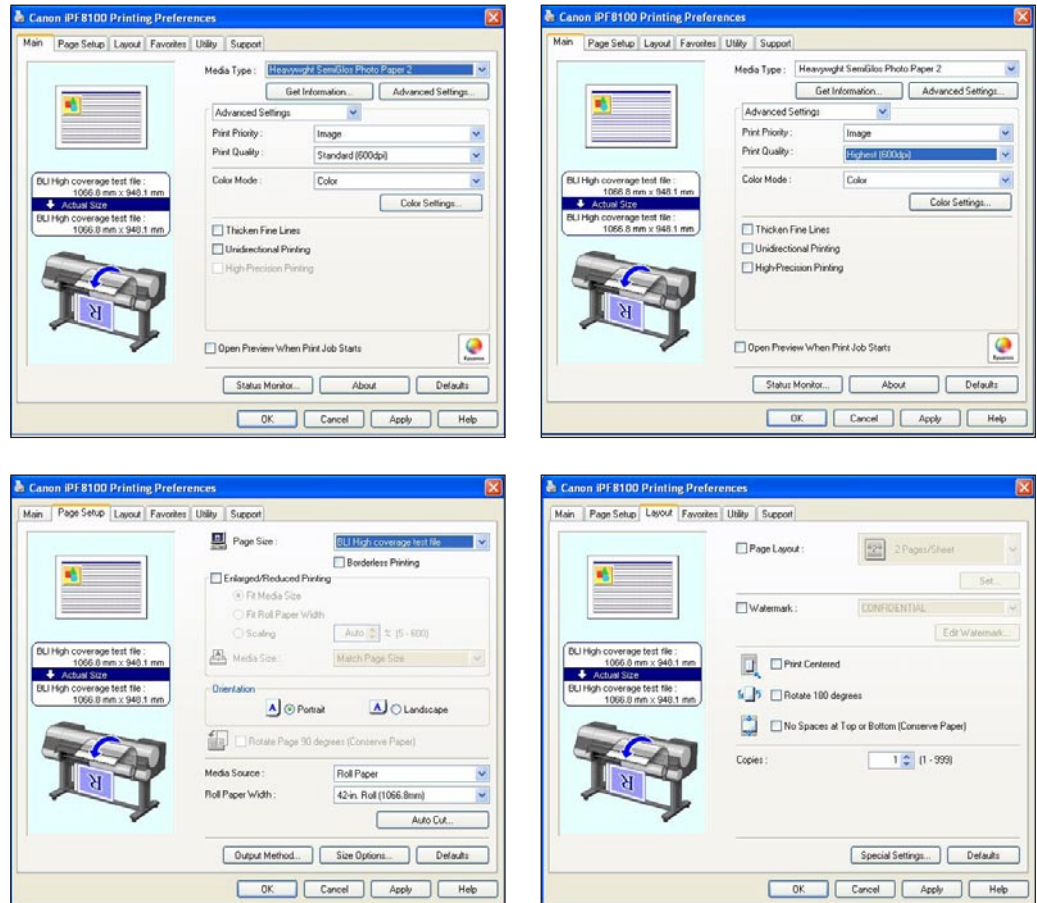
After device setup was completed, all of the ink cartridges for each device were weighed using precision digital scales prior to the commencement of the print test run. At the end of each 10-set test run, each printer's cartridges were weighed again, and the resulting weight of ink used for the test run was calculated for each colour.

Canon imagePROGRAF 8100: Six of the twelve cartridges (C, PC, M, PM, Y, Gy) were run to exhaustion and the weight of the empty cartridges was recorded. Due to the fact that the entire contents of the other cartridges could not be depleted within the time of the test, the mean weight of the other six cartridges was calculated and used as the assumed empty weight for all twelve colours. The mean weight was within a +/-1% margin of difference measured for all six colours run to complete depletion.

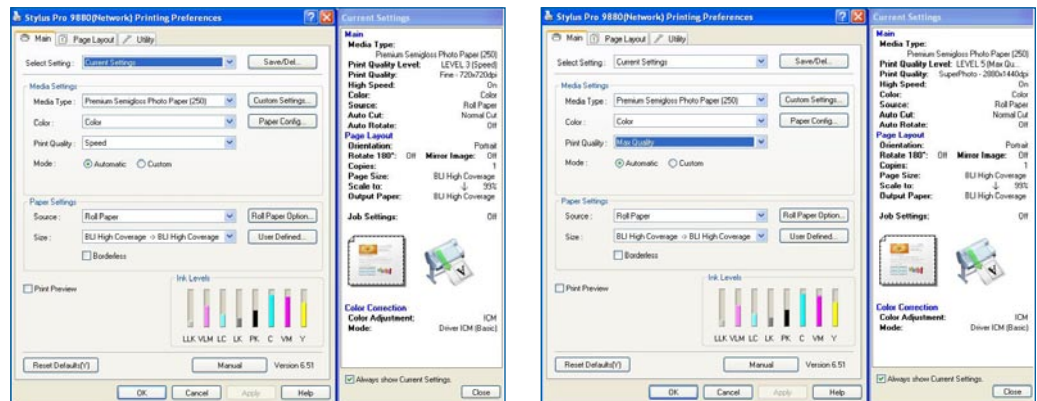
Epson Stylus Pro 9880: Five of the eight cartridges (Y, LC, VLM, LB and LLB) were run to exhaustion and the weight of the empty cartridges was recorded. Due to the fact that the entire contents of the other cartridges could not be depleted within the time of the test, the mean weight of the three cartridges was calculated and used as the assumed empty weight for all eight colours. The mean weight was within a +/- 1% margin of difference measured for all five colours run to complete depletion.

The percentage of ink used per cartridge was calculated by dividing the net weight of ink used in the print run by the overall weight of ink in each cartridge and multiplying by 100. The results are found in Tables 3, 4, 5 and 6. The percentage of total ink used per printer was calculated by adding the percentages used of each of the cartridges and dividing by the total number of cartridges used in the device.

Printer Driver setup during testing for the Canon imagePROGRAF 8100



Printer Driver setup during testing for the Epson Stylus PRO 9880



About Buyers Laboratory Inc.

For more than 45 years, Buyers Laboratory has been the leading independent equipment testing lab and business consumer advocate for the imaging industry. In addition to publishing the industry's most comprehensive and accurate test reports on document imaging devices, each representing months of exhaustive hands-on testing in BLI's UK (Wokingham, Berkshire) and US (Hackensack, NJ) laboratories, the company has been the leading source for extensive databases of specifications and pricing on copiers, printers, wide format devices, fax machines and multifunctional products. The company's databases cover more than 10,000 products and have a long-standing reputation for being the industry's most trustworthy and complete source for global competitive intelligence. They are available to BLI subscribers online via the company's bliQ competitive information service. This encyclopedic resource also provides quick and easy access to BLI's First Look Reports, Field Test Reports, Lab Test Reports, Solutions Reports, *Digital Imaging Review* and *Business Consumer's Advisor* newsletters and OEM library.

In addition to the testing of equipment for its subscribers, Buyers Laboratory provides a vast array of confidential for-hire private testing services that include document imaging device beta and pre-launch testing, performance certification testing, consumables testing (such as toner, ink and photoconductors), software and solutions assessments, and print media testing (including virgin and recycled papers).

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