EPSON

Printing at Home – EU5

Approach

- 2Europe, an independent market research agency, were commissioned to undertake a quantitative survey across EU5 to obtain this consumer insight.

- A survey was devised by Epson and 2Europe which lasted ~15 minutes and consisted of a range of quantitative questions, including single choice, multiple choice, rankings, ratings and open ends.

- The survey was blind and Epson was not revealed as the sponsor.

- Participants were invited from a range of high-quality, reliable European panels.

- Participants were screened to ensure they were printing at home, aged 18+ and responsible for maintaining their printer. We achieved feedback from a range of ages, gender, income levels and household types/sizes.

- The data was quality checked and processed into formatted data tables before further segmentation analysis was conducted to identify and profile a range of segments across the European consumer profile.

Types of document printed at home (at this time)

Types of document printed at home (mean proportion of each)

- Printing for children (e.g. printing learning materials, printing sheets for colouring in, printing images for display)

- Learning at home – adults (e.g. printing lecture notes and test papers, reviewing text and data, completing assignments)

- Photos and hobbies (e.g. printing photos or graphic design, printing instructions such as recipes)

- Working from home (e.g. printing, signing and scanning documents, reviewing text and data, printing creative outputs for work)

- General / personal printing (e.g. travel documents, bank statements, household bills)

- Overall, the breakdown of documents printed varies by individual.

- The graph to the left shows the overall average across Europe.

- 37% of printing is general personal printing for the household.

- 27% is for working from home –related matters.

- 36% is for photos, learning and children printing (12% for each)

Base: All survey respondents (3,750)

Ink Consumption Efficiency Evaluation:
Epson Individual Ink Cartridges vs. Competitive Tri-Colour Ink Cartridges

Objective

Keypoint Intelligence was commissioned by Seiko Epson Corporation to conduct confidential testing of Epson single-colour standard- and high-yield ink cartridges to evaluate the efficiency of their total ink consumption compared with that of competitive HP and Canon tri-colour ink cartridges.

Executive Summary

Epson's single-colour standard and high-yield cartridges outperformed HP's and Canon's tri-colour standard- and high-yield cartridges in the colour text-and-graphics-based document workflow test. Epson's high-yield cartridge ink efficiency was higher than that of HP's and Canon's high-yield cartridges for text-and-graphics-based document workflow test. Epson's and Canon's black cartridges didn't perform as well as the black HP cartridges in the standard-yield document workflow test, as with the photography workflow test where Canon out-performed both Epson and HP respectively.

Epson delivered a fault-free performance throughout testing, with all cartridges running to exhaustion and without image quality defects or any sign of ink leakage or discolouration inside the devices. When a cartridge was deemed to be empty by an Epson device, printing would stop—in most instances, the Epson device would stop after printing an image in full. No ink leakage was detected after use of the HP tri-colour cartridges, although they did continue to print jobs after running out of a particular colour ink, which produced inferior quality output and wasted paper.

Note: In this evaluation, "ink consumption efficiency" is the percentage of available ink in the cartridge that is used before the cartridge is deemed empty by the device.

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Overall Performance

In the graphics-based document workflow, the average CMY ink consumption efficiency of the Epson cartridges was significantly higher than those of the HP and Canon cartridges. The Epson cartridges delivered an overall ink consumption efficiency average of 60.06% (standard) and 82.36% (high yield) compared to, respectively, 30.10% and 37.74% for the HP cartridges and 37.07% and 40.76% for the Canon cartridges.

The Epson standard-yield black cartridges performed slightly less in the graphics-based document workflow compared to those from HP and Canon, with an average ink consumption efficiency of 72.57% for Epson devices, compared to 93.11% for HP and 74.78% for Canon. Both the Epson and HP high-yield black cartridges also performed at about the same level, with an ink efficiency of 90.38% for Epson and 91.75% for HP, respectively. The Canon high-yield black cartridges performed below that of Epson and HP, at 58.87%.

In the colour photographic workflow test (19 images printed full bleed on A4 media), the average ink consumption efficiency for Epson's standard-yield cartridges was slightly less than HP, at 67.37%. Canon performed better overall, with an average efficiency of 81.56%. Meanwhile, in the same test with the high-yield cartridges, Epson had the higher ink efficiency (83.84%), with HP behind at 79.76%, while HP standard-yield cartridges had an average ink efficiency of 69.41%. Black cartridges were not evaluated as part of the photo workflow test due to the Epson models printing black as a composite of CMY, leaving black ink largely unused.

For the devices in this test Epson offers individual colour ink cartridges, which means ink colours can be replaced as and when required. Conversely, the HP cartridges incorporate cyan, magenta, and yellow ink in a single cartridge. This means that once any of the colours runs out the whole cartridge must be replaced, resulting in wasted, unused ink for the other two colours. During the text-and- graphics document print test, high levels of ink waste were being incurred with the HP cartridges due to the disparity in the rates at which certain colours of ink were being used.

For example, based on the results from the standard-yield colour cartridges in the text-and-graphics-based document workflow, the average ink consumption efficiency of HP's tri-colour cartridges was 30.10%, with an average yield of 22 impressions. The Canon cartridges had an average ink consumption of 37.07%, with an average yield of 32. In comparison, Epson's single-colour cartridge efficiency was almost twice that, at 60.06%, and delivered average totals of 38 pages (cyan), 89 pages (magenta), and 174 pages (yellow). When the Epson cyan cartridge ran out, for example, it could be replaced on its own without having to replace any of the other colours.

In the event of streaking or other image quality faults during the test, a cleaning cycle was performed in accordance with manufacturer instructions.

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Ink Consumption Efficiency

	Epson	HP	Canon
STANDARD COLOUR			
Text and Graphics	60.06%	30.10%	37.07%
Photo	67.37%	69.41%	81.56%
STANDARD BLACK			
Text and Graphics	72.57%	93.11%	74.78%
HIGH-YIELD COLOUR			
Text and Graphics	82.36%	37.74%	40.76%
Photo	83.84%	79.76%	84.85%
HIGH-YIELD BLACK			
Text and Graphics	90.38%	91.75%	58.87%

Results are based on the average of all standard- and high-yield cartridges used.

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Workflow Test Materials

A generic text-and graphic-based file intended to be typical of documents printed in small or home office environments was used in the workflow test run. This type of printing can usually show a bias towards corporate brand colours. The text-and graphic-based files were printed on Mondi IQ Premium 80 gsm A4 media, with print conditions in line with ISO 24734 test procedures.

Business Document Test File

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In the photo printing workflow test, Keypoint Intelligence technicians printed a set of 19 photos that show a broad range of settings and themes as would be found in an average customer's photo album. Print quality mode was set to Borderless Photo, and Staples A4 180 gsm glossy photo paper was used for testing.

Photo Test File

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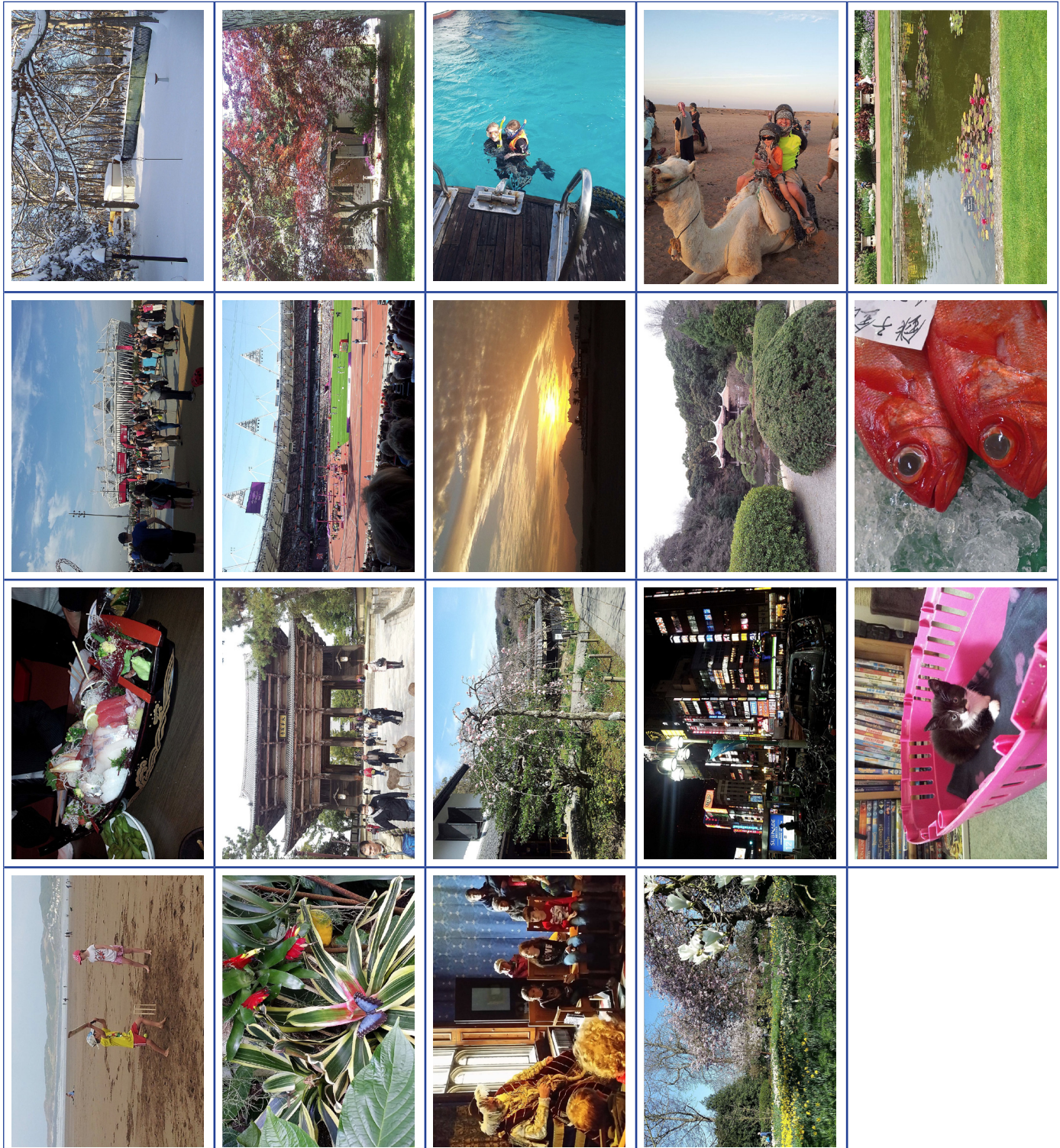
Test Devices and Ink Cartridges

Device	Cartridge Type (Standard/High Yield)
Epson XP-3200	604/604XL
Epson XP-2200	604/604XL
Epson XP-5200	503/503XL
Epson XP-4200	604/604XL
Epson WF-2930	604/604XL
Epson WF-2910	604/604XL
Epson WF-2950	604/604XL
Canon TS3450	545 and 546/545XL and 546XL
Canon TS5350	560 and 561/560XL and 561XL
Canon PIXMA MG3650	540 and 541/540XL and 541XL
Canon PIXMA TS5150	540 and 541/540XL and 541XL
Canon PIXMA TR4550	545 and 546/545XL and 546XL
HP ENVY 6020e	305/305XL/307XL
HP ENVY Pro 6430	305/305XL/307XL
HP DeskJet 2710	303/303XL
HP DeskJet Plus 4130e	305/305XL
HP ENVY 6230	303/303XL

Test Methodology

The tests were conducted with two different printing workflows: photo printing and text and graphics-based document printing. Files were output in a continuous mode in a controlled environment using print conditions in line with ISO 24734 test methodology, but with a custom document suite. Cartridges were run to end of life.

In Keypoint Intelligence's evaluation, the ink consumption efficiency of the Epson, Canon and HP cartridges was determined using two workflows: one of documents incorporating text and graphics and the other of photo images. Keypoint Intelligence used standard and high-yield cartridges and 17 printers (seven Epsons, five Canons and five HPs) during the test.

With the test printers set in default mode, Keypoint Intelligence operated the printers in continuous simplex print mode for up to eight hours per day. Prior to testing each ink cartridge, the devices were charged with starter cartridges, but these cartridges were not used for yield analysis.

Cartridges were tested to exhaustion to evaluate ink consumption efficiency. Both test suites were used (photo printing and text, and graphics-based document printing) with at least two cartridges being fully exhausted per device per colour per test suite, except for black, where only one cartridge was exhausted on the graphic-based document printing.

Each cartridge was weighed prior to testing (full weight) and again upon exhaustion (used weight). Cartridge exhaustion was based on when an "ink out"/"empty" notification was displayed on the interface. Average weights based on test results were calculated for full and used weights. A cleaning routine was carried out in accordance with manufacturer instructions when streaking or other quality defects were exhibited during the test.

One exhausted cartridge of each product type and of each colour were then disassembled and flushed of all unused ink and allowed to dry thoroughly before being weighed to establish the Empty weight. The wasted ink ratio of one cartridge was calculated using the following formula (wasted ink ratio of the colour cartridges is the average wasted ink ratio of cyan, magenta, and yellow):
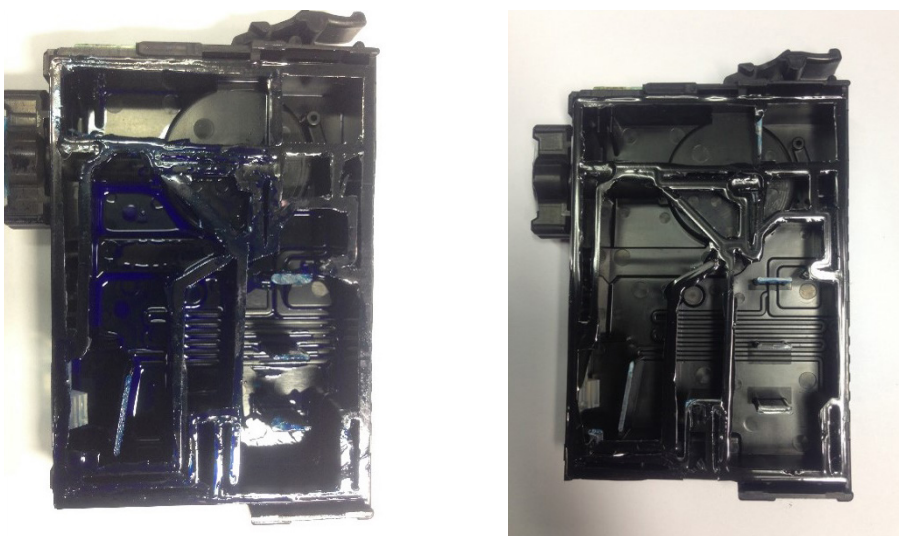
Wasted Ink Ratio =

$$\frac{\text{Weight of Used Ink Cartridge - Weight of Empty (flushed) Ink Cartridge}}{\text{Weight of New (full) Ink Cartridge - Weight of Empty (flushed) Ink Cartridge}}$$

The overall percentage of ink consumption efficiency was calculated using the formula:

Ink Consumption Efficiency (%) - (1 - Wasted Ink Ratio) x 100
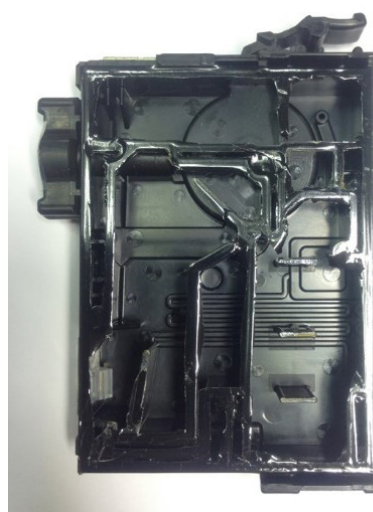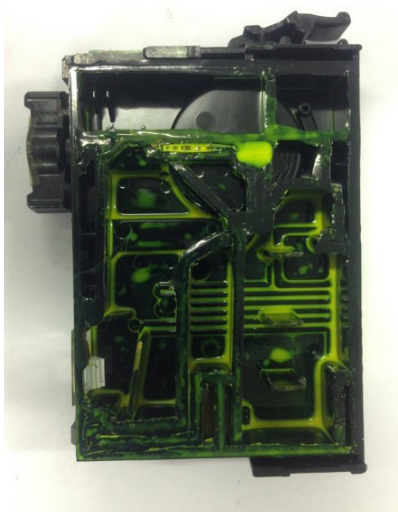
Examples of Pre-Flushed and Flushed Ink Cartridges

Epson cyan pre-flushed (left) and flushed

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Epson magenta pre-flushed (left) and flushed

Epson yellow pre-flushed (left) and flushed

Epson black flushed

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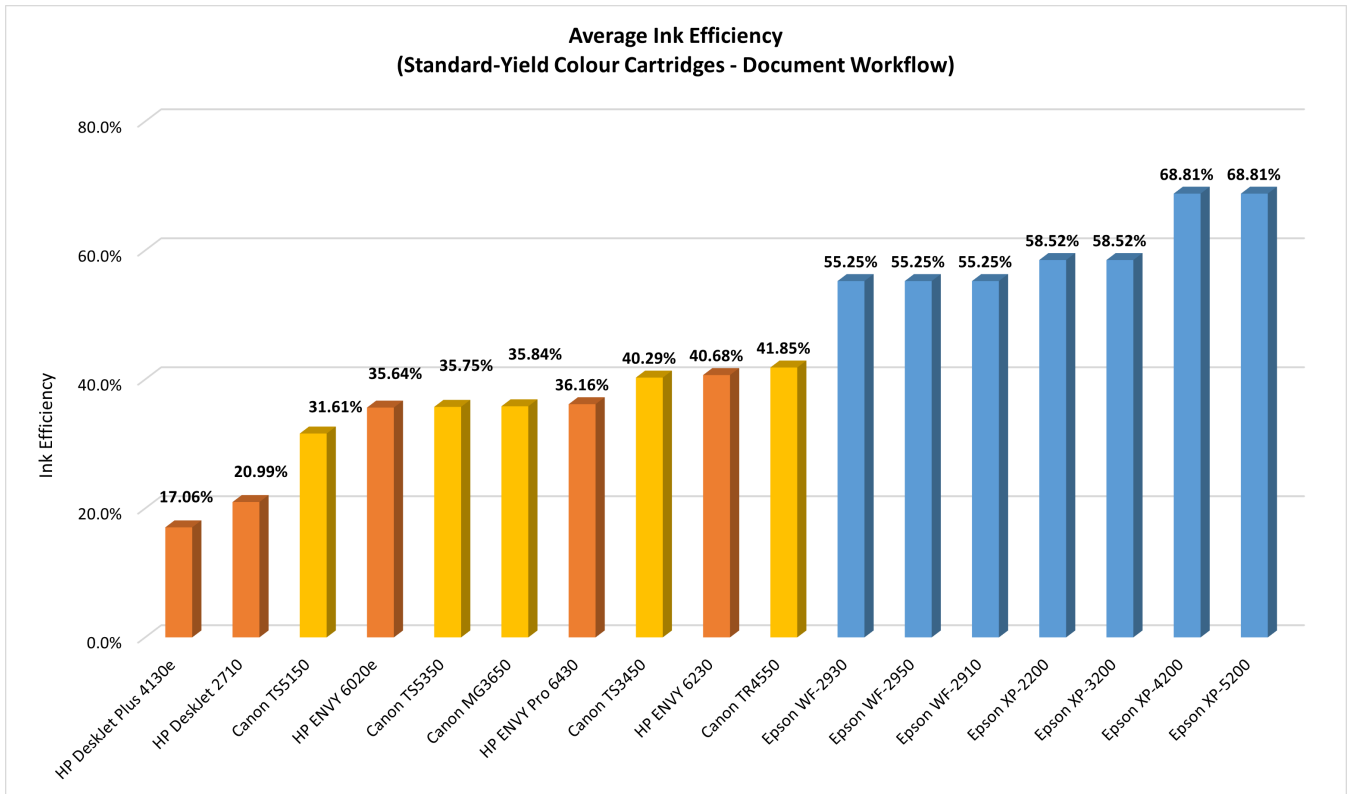HP 302 standard-yield pre-flushed (left) and flushed

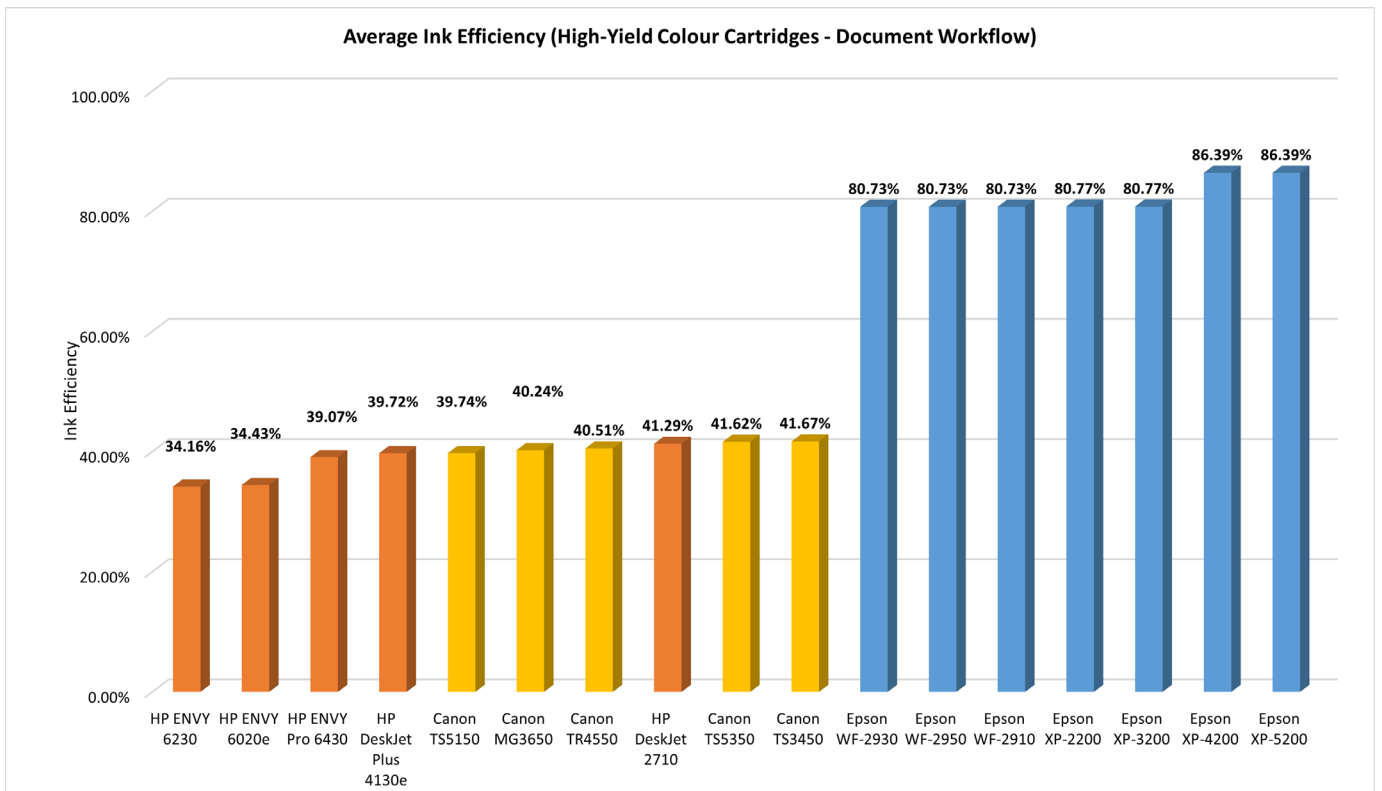Top: Canon 540 standard-yield black pre-flushed (left) and flushed
Bottom: Canon 541XL high-yield colours pre-flushed (left) and flushed

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Ink Efficiency Performance Summary

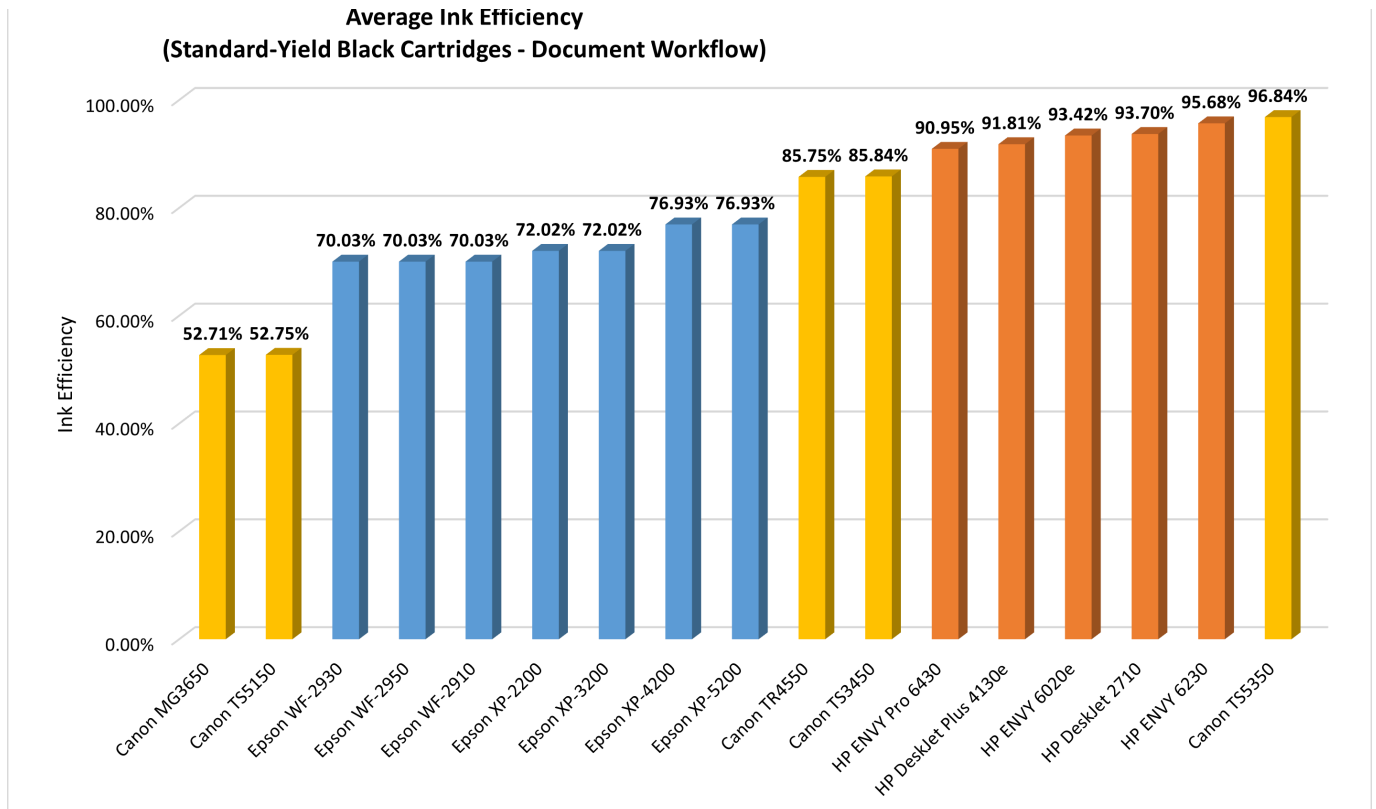## Average Ink Consumption Efficiency of Standard-Yield Colour Cartridges by Device (Document Workflow)

**Average Ink Efficiency
(Standard-Yield Colour Cartridges - Document Workflow)**

Ink Efficiency

Device	Efficiency
HP DeskJet Plus 4130e	17.06%
HP DeskJet 2710	20.99%
Canon TS5150	31.61%
HP ENVY 6020e	35.64%
Canon TS5350	35.75%
Canon MG3650	35.84%
HP ENVY Pro 6430	36.16%
Canon TS3450	40.29%
HP ENVY 6230	40.68%
Canon TR4550	41.85%
Epson WF-2930	55.25%
Epson WF-2950	55.25%
Epson WF-2910	55.25%
Epson XP-2200	58.52%
Epson XP-3200	58.52%
Epson XP-4200	68.81%
Epson XP-5200	68.81%

Average Ink Consumption Efficiency of High-Yield Colour Cartridges by Device (Document Workflow)

Average Ink Efficiency (High-Yield Colour Cartridges - Document Workflow)

Ink Efficiency

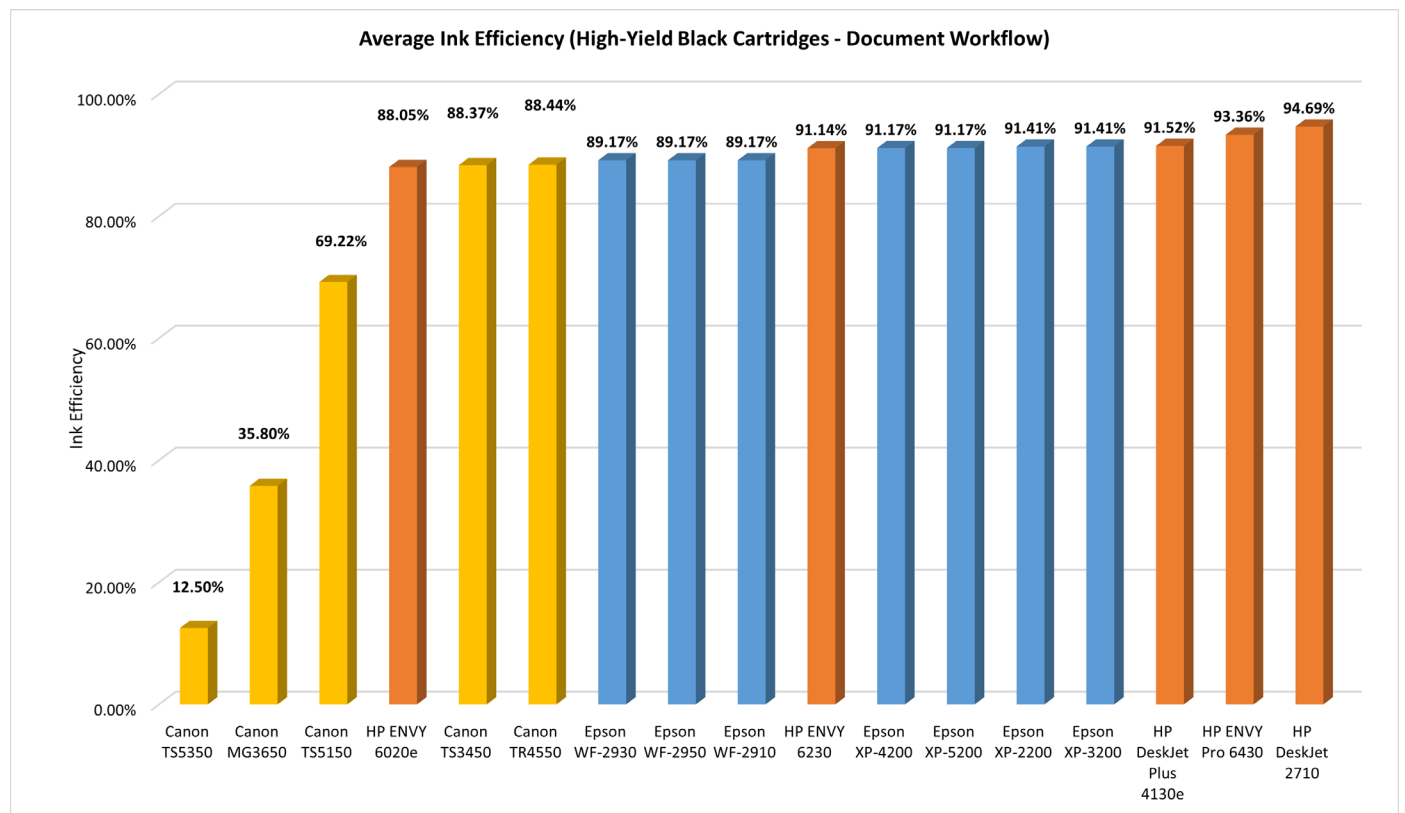| Device	Efficiency
HP ENVY 6230	34.16%
HP ENVY 6020e	34.43%
HP ENVY Pro 6430	39.07%
HP DeskJet Plus 4130e	39.72%
Canon TS5150	39.74%
Canon MG3650	40.24%
Canon TR4550	40.51%
HP DeskJet 2710	41.29%
Canon TS5350	41.62%
Canon TS3450	41.67%
Epson WF-2930	80.73%
Epson WF-2950	80.73%
Epson WF-2910	80.73%
Epson XP-2200	80.77%
Epson XP-3200	80.77%
Epson XP-4200	86.39%
Epson XP-5200	86.39%

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Average Ink Consumption Efficiency of Standard-Yield Black Cartridges by Device (Document Workflow)

**Average Ink Efficiency
(Standard-Yield Black Cartridges - Document Workflow)**

## Average Ink Consumption Efficiency of High-Yield Black Cartridges by Device (Document Workflow)

Average Ink Efficiency (High-Yield Black Cartridges - Document Workflow)

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Ink Consumption Efficiency Evaluation:
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Average Ink Consumption Efficiency of Standard-Yield Colour Cartridges by Device (Photographic Workflow)

**Average Ink Efficiency
(Standard-Yield Colour Cartridges - Document Workflow)**

Ink Consumption Efficiency of High-Yield Colour Cartridges by Device (Photographic Workflow)
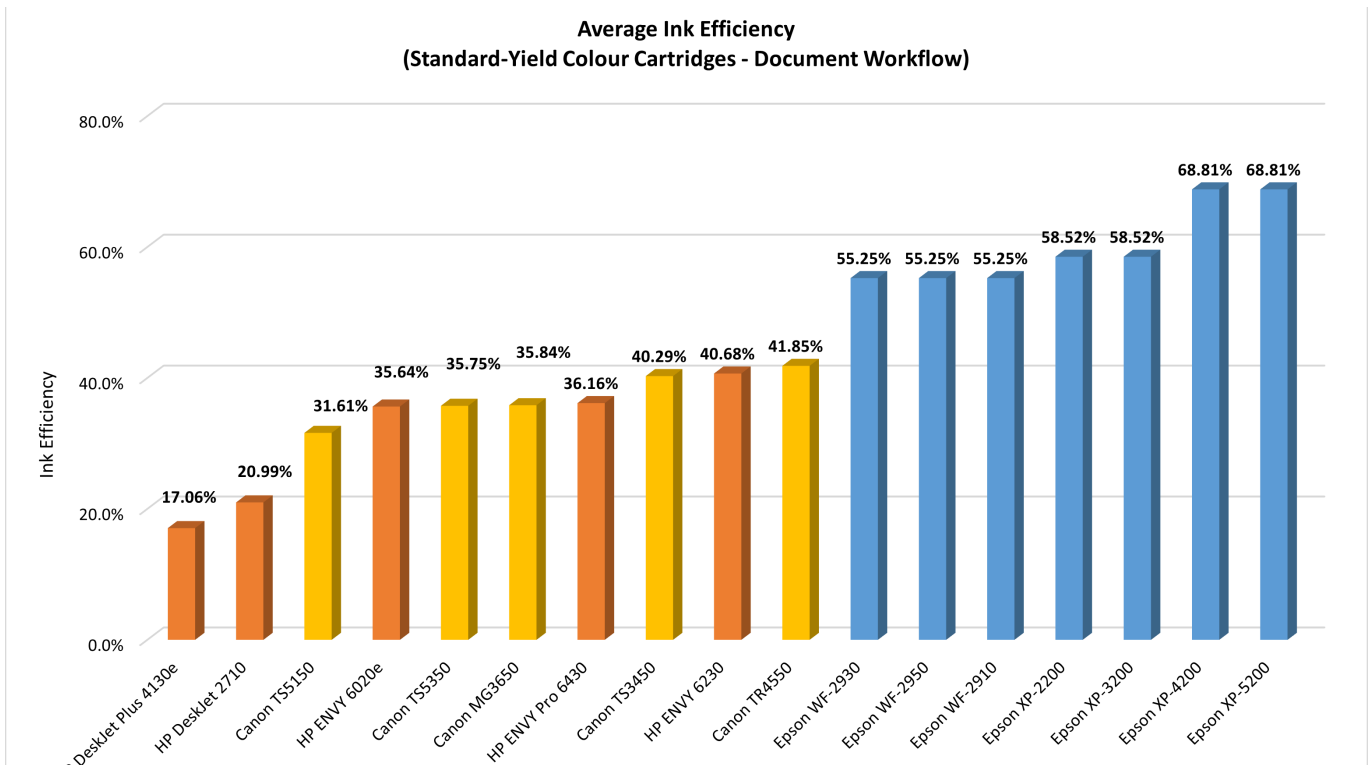
**Average Ink Efficiency
(Standard-Yield Colour Cartridges - Photographic Workflow)**
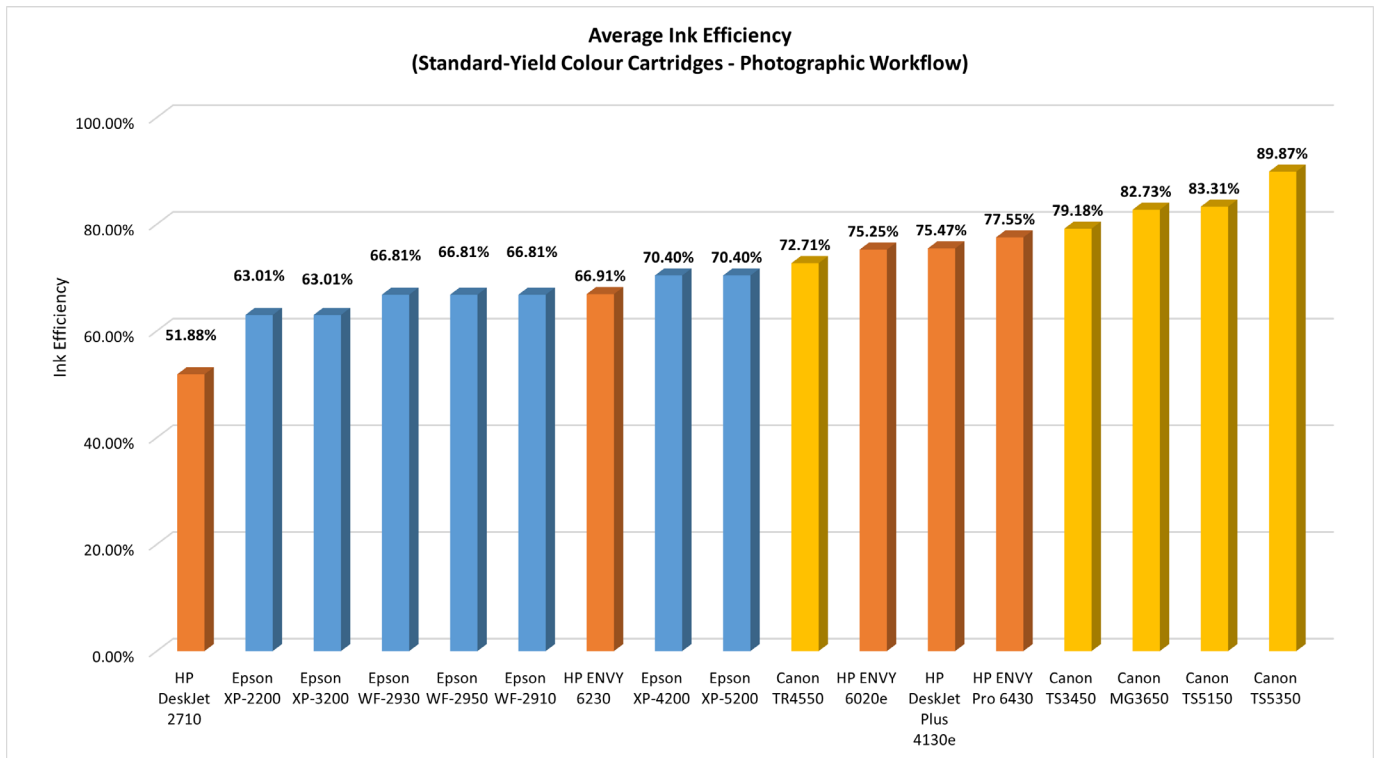
SUPPORTING DATA

Average Results (Document Workflow – Standard-Yield Cartridges)

Device	Cartridge Type	Colour	Impres-sions	Full Weight	Used Weight	Flushed (Empty) Weight	Wasted Ink Ratio
Epson XP-3200	#603	Black	132	19.65	16.78	15.67	0.28
		Cyan	33	18.41	16.65	15.67	0.36
		Magenta	88	18.38	16.89	15.67	0.45
		Yellow	135	18.32	16.82	15.67	0.43
Epson XP-2200	#603	Black	132	19.65	16.78	15.67	0.28
		Cyan	33	18.41	16.65	15.67	0.36
		Magenta	88	18.38	16.89	15.67	0.45
		Yellow	135	18.32	16.82	15.67	0.43
Epson XP-5200	#603	Black	242	20.94	16.88	15.67	0.23
		Cyan	49	19.59	16.89	15.67	0.31
		Magenta	87	19.61	16.88	15.67	0.31
		Yellow	190	19.61	16.92	15.67	0.32
Epson XP-4200	#603	Black	242	20.94	16.88	15.67	0.23
		Cyan	49	19.59	16.89	15.67	0.31
		Magenta	87	19.61	16.88	15.67	0.31
		Yellow	190	19.61	16.92	15.67	0.32
Epson WF-2930	#603	Black	142	19.70	16.88	15.67	0.30
		Cyan	31	18.39	16.87	15.67	0.44
		Magenta	91	18.36	16.90	15.67	0.46
		Yellow	197	18.31	16.84	15.67	0.44
Epson WF-2950	#603	Black	142	19.70	16.88	15.67	0.30
		Cyan	31	18.39	16.87	15.67	0.44
		Magenta	91	18.36	16.90	15.67	0.46
		Yellow	197	18.31	16.84	15.67	0.44
Epson WF-2910	#603	Black	142	19.70	16.88	15.67	0.30
		Cyan	31	18.39	16.87	15.67	0.44
		Magenta	91	18.36	16.90	15.67	0.46
		Yellow	197	18.31	16.84	15.67	0.44
Canon TS3450	#545/546	Black	295	38.79	31.43	30.22	0.14
		Colour	43	38.15	34.38	28.80	0.60
Canon TS5350	#545/546	Black	315	39.17	31.30	31.04	0.03
		Colour	39	43.72	40.55	34.87	0.64
Canon MG3650	#540/541	Black	129	39.63	35.25	31.32	0.47
		Colour	32	44.21	40.80	34.69	0.64
Canon TS5150	#540/541	Black	139	39.51	35.19	31.32	0.47
		Colour	32	44.36	41.30	34.69	0.68

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Canon TR4550	#545/546	Black	262	38.50	31.40	30.22	0.14
		Colour	45	38.00	34.15	28.80	0.58
HP ENVY 6020e	#302	Black	124	26.93	23.86	23.64	0.07
		Colour	22	31.02	29.46	26.64	0.64
HP ENVY Pro 6430	#305	Black	110	26.96	23.94	23.64	0.09
		Colour	22	31.06	29.46	26.64	0.64
HP DeskJet 2710	#305	Black	87	27.20	23.76	23.53	0.06
		Colour	23	30.54	29.07	23.53	0.79
HP DeskJet Plus 4130e	#305	Black	116	26.97	23.92	23.64	0.08
		Colour	22	30.21	29.44	26.64	0.83
HP ENVY 6230	#303	Black	222	29.36	24.71	24.50	0.04
		Colour	32	33.57	31.24	27.84	0.59

Document Workflow – High-Yield Cartridges

Device	Cartridge Type	Colour	Impres-sions	Full Weight	Used Weight	Flushed (Empty) Weight	Wasted ink ratio
Epson XP-3200	#603XL	Black	497	25.75	16.86	16.02	0.09
		Cyan	66	20.43	16.81	16.02	0.18
		Magenta	226	20.41	16.90	16.02	0.20
		Yellow	336	20.41	16.89	16.02	0.20
Epson XP-2200	#603XL	Black	497	25.75	16.86	16.02	0.09
		Cyan	66	20.43	16.81	16.02	0.18
		Magenta	226	20.41	16.90	16.02	0.20
		Yellow	336	20.41	16.89	16.02	0.20
Epson XP-5200	#603XL	Black	608	26.04	16.91	16.02	0.09
		Cyan	120	22.87	16.97	16.02	0.14
		Magenta	369	22.90	16.94	16.02	0.13
		Yellow	481	22.95	16.97	16.02	0.14
Epson XP-4200	#603XL	Black	608	26.04	16.91	16.02	0.09
		Cyan	120	22.87	16.97	16.02	0.14
		Magenta	369	22.90	16.94	16.02	0.13
		Yellow	481	22.95	16.97	16.02	0.14
Epson WF-2930	#603XL	Black	551	25.73	16.88	15.80	0.11
		Cyan	72	20.43	16.96	16.02	0.21
		Magenta	241	20.37	16.83	16.02	0.19
		Yellow	361	20.39	16.81	16.02	0.18

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Ink Consumption Efficiency Evaluation:
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Epson WF-2950	#603XL	Black	551	25.73	16.88	15.80	0.11
		Cyan	72	20.43	16.96	16.02	0.21
		Magenta	241	20.37	16.83	16.02	0.19
		Yellow	361	20.39	16.81	16.02	0.18
Epson WF-2910	#603XL	Black	551	25.73	16.88	15.80	0.11
		Cyan	72	20.43	16.96	16.02	0.21
		Magenta	241	20.37	16.83	16.02	0.19
		Yellow	361	20.39	16.81	16.02	0.18
Canon TS3450	#545/546XL	Black	520	40.92	26.83	24.97	0.12
		Colour	66	41.48	35.92	28.14	0.58
Canon TS5350	#545/546XL	Black	611	43.75	41.84	28.45	0.87
		Colour	68	46.82	41.19	33.28	0.58
Canon MG3650	#540/541XL	Black	150	39.54	39.54	28.20	0.64
		Colour	75	49.63	43.11	33.43	0.60
Canon TS5150	#540/541XL	Black	308	39.70	31.74	28.20	0.31
		Colour	70	49.71	43.24	33.43	0.60
Canon TR4550	#545/546XL	Black	464	40.80	26.80	24.97	0.12
		Colour	60	41.60	36.15	28.14	0.59
HP ENVY 6020e	#302XL	Black	237	31.40	25.49	24.69	0.12
		Colour	37	34.17	31.52	26.48	0.66
HP ENVY Pro 6430	#305XL	Black	240	31.38	25.13	24.69	0.07
		Colour	45	34.32	31.25	26.48	0.61
HP DeskJet 2710	#305XL	Black	221	30.56	24.70	24.37	0.05
		Colour	46	34.19	31.18	26.90	0.59
HP DeskJet 4130e	#305XL	Black	220	31.39	25.26	24.69	0.08
		Colour	44	34.27	31.18	26.49	0.60
HP ENVY 6230	#303XL	Black	661	37.92	24.24	22.91	0.09
		Colour	54	39.23	35.25	27.58	0.66

Photographic Workflow – Standard-Yield Cartridges

Device	Cartridge Type	Colour	Impres-sions	Full Weight	Used Weight	Flushed (Empty) Weight	Wasted Ink Ratio
Epson XP-3200	#603	Cyan	7	18.40	16.69	15.67	0.37
		Magenta	6	18.42	16.67	15.67	0.36
		Yellow	10	18.42	16.70	15.67	0.37
Epson XP-2200	#603	Cyan	7	18.40	16.69	15.67	0.37
		Magenta	6	18.40	16.67	15.67	0.36
		Yellow	10	18.42	16.70	15.67	0.37

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Device	Cartridge Type	Colour	Impressions	Full Weight	Used Weight	Flushed (Empty) Weight	Wasted Ink Ratio
Epson XP-5200	#603	Cyan	11	19.57	16.81	15.67	0.29
		Magenta	11	19.63	16.81	15.67	0.29
		Yellow	12	19.61	16.88	15.67	0.31
Epson XP-4200	#603	Cyan	11	19.57	16.81	15.67	0.29
		Magenta	11	19.63	16.81	15.67	0.29
		Yellow	12	19.61	16.88	15.67	0.31
Epson WF-2930	#603	Cyan	8	18.41	16.59	15.67	0.33
		Magenta	7	18.36	16.54	15.67	0.32
		Yellow	11	18.34	16.57	15.67	0.34
Epson WF-2910	#603	Cyan	8	18.41	16.59	15.67	0.33
		Magenta	7	18.36	16.54	15.67	0.32
		Yellow	11	18.34	16.57	15.67	0.34
Canon TS3450	#545/546	Colour	60	38.09	30.73	28.80	0.21
Canon TS5350	#545/546	Colour	17	43.64	35.76	34.87	0.10
Canon MG3650	#540/541	Colour	40	44.25	36.34	34.69	0.17
Canon TS5150	#540/541	Colour	42	44.09	36.26	34.69	0.17
Canon TR4550	#545/546	Colour	14	37.95	31.30	28.80	0.27
HP ENVY 6020e	#302	Colour	5	31.01	27.73	26.64	0.25
HP ENVY Pro 6430	#305	Colour	5	31.01	27.62	26.64	0.22
HP DeskJet 2710	#305	Colour	8	30.73	27.00	23.53	0.48
HP DeskJet Plus 4130e	#305	Colour	8	31.05	27.72	26.64	0.25
HP ENVY 6230	#303	Colour	21	33.58	29.74	27.84	0.33

Photographic Workflow – High-Yield Cartridges

Device	Cartridge Type	Colour	Impressions	Full Weight	Used Weight	Flushed (Empty) Weight	Wasted Ink Ratio
Epson XP-3200	#603XL	Cyan	16	20.40	16.72	16.02	0.16
		Magenta	15	20.40	16.83	16.02	0.18
		Yellow	21	20.40	16.86	16.02	0.19
Epson XP-2200	#603XL	Cyan	16	20.40	16.72	16.02	0.16
		Magenta	15	20.40	16.83	16.02	0.18
		Yellow	21	20.40	16.86	16.02	0.19
Epson XP-5200	#603XL	Cyan	27	22.89	16.81	16.02	0.12
		Magenta	24	22.95	16.79	16.02	0.11
		Yellow	31	22.93	16.81	16.02	0.11
Epson XP-4200	#603XL	Cyan	27	22.89	16.81	16.02	0.12
		Magenta	24	22.95	16.79	16.02	0.11
		Yellow	31	22.93	16.81	16.02	0.11

CUSTOM TEST REPORT

Ink Consumption Efficiency Evaluation:
Epson Individual Ink Cartridges vs. Competitive Tri-Colour Ink Cartridges

Epson WF-2930	#603XL	Cyan	16	20.43	17.04	16.02	0.23
		Magenta	15	20.40	16.56	16.02	0.12
		Yellow	22	20.38	16.86	16.02	0.19
Epson WF-2950	#603XL	Cyan	16	20.43	17.04	16.02	0.23
		Magenta	15	20.40	16.56	16.02	0.12
		Yellow	22	20.38	16.86	16.02	0.19
Epson WF-2910	#603XL	Cyan	16	20.43	17.04	16.02	0.23
		Magenta	15	20.40	16.56	16.02	0.12
		Yellow	22	20.38	16.86	16.02	0.19
Canon TS3450	#545/546XL	Colour	101	39.78	29.70	28.14	0.14
Canon TS5350	#545/546XL	Colour	25	46.63	35.46	33.28	0.16
Canon MG3650	#540/541XL	Colour	72	49.66	35.54	33.43	0.13
Canon TS5150	#540/541XL	Colour	70	49.69	35.90	33.43	0.15
Canon TR4550	#545/546XL	Colour	27	41.80	30.50	28.14	0.17
HP ENVY 6020e	#302XL	Colour	11	34.31	28.24	26.48	0.22
HP ENVY Pro 6430	#305XL	Colour	12	34.18	28.09	26.48	0.21
HP DeskJet 2710	#305XL	Colour	14	34.10	27.71	26.90	0.11
HP DeskJet Plus 4130e	#305XL	Colour	13	34.29	28.10	26.48	0.21
HP ENVY 6230	#303XL	Colour	47	39.26	30.6	27.58	0.26

Test Environment/Conditioning

Testing was conducted in Keypoint Intelligence's UK test facility (Unit 11, The Business Centre, Molly Millars Lane, Wokingham, RG41 2QZ) under ambient conditions of 22.0ºC (+/-2.7ºC) and 45% relative humidity (+/- 10%), monitored daily by an Extech RH 520 Humidity and Temperature Digital Recorder.

Printers, paper, and cartridges were acclimatized to the above conditions for a minimum of eight hours prior to testing. Prior to acclimatization, packaging and shipping materials were opened in a manner that prevented damage from occurring to the cartridges during conditioning. Paper was acclimatized in ream wrappers. Printers, printer components, paper, and cartridges were handled in a manner that prevented exposure to condensation. Test equipment included Windows 10 workstations, 10/100/1000BaseTX network switches, and CAT5e/6 cabling.

About Keypoint Intelligence

For over 60 years, clients in the digital imaging industry have relied on Keypoint Intelligence for independent hands-on testing, lab data, and extensive market research to drive their product and sales success. Keypoint Intelligence has been recognized as the industry's most trusted resource for unbiased information, analysis, and awards due to decades of analyst experience. Customers have harnessed this mission-critical knowledge for strategic decision-making, daily sales enablement, and operational excellence to improve business goals and increase bottom lines. With a central focus on clients, Keypoint Intelligence continues to evolve as the industry changes by expanding offerings and updating methods, while intimately understanding and serving manufacturers', channels', and their customers' transformation in the digital printing and imaging sector.

For more information on Keypoint Intelligence, please call (973) 797-2100, visit keypointintelligence.com, or email info@keypointintelligence.com.