

# Testing Survey Reflects Increase in STMC Certification, Shows Importance of Quality in the Aftermarket

By Amy Weiss

Recharger Magazine | June 2012

With quality at the forefront of so many news stories and reports about aftermarket cartridges, one would hope that this year's testing methods survey would show an increase in testing — and for the most part, it does.

In particular for the companies doing in-house remanufacturing — a smaller number than it used to be — testing is critical, and the adoption of the Standardized Test Methods Committee (STMC) certification has become increasingly important. STMC certification increased 27 percent from September 2010 to September 2011, and we may be seeing evidence of that in the percentage of respondents now using ASTM testing — the STMC-approved method — to test for page yield, which has more than doubled since the last survey.

This year's testing survey was offered online starting throughout the first quarter of 2012, so we will refer to the results as "this year's." It was previously offered in mid-2010, and throughout this survey we will refer to those results as "2010" or "last time." Prior to that, it was offered in 2008, and we will compare the results of this year's survey to that year's as well.

This year's respondents are old-timers, having been in business almost as long as the industry has been around — an average of 22 years. This is a relatively greater increase in longevity from previous years' respondents, who averaged 14 years in business in 2010 and 12 years in 2008.

Another significant change that is likely also not surprising is that fewer respondents report producing toner or inkjet cartridges in-house; slightly more than 50 percent said they produce at least some finished cartridges in-house, while 63 percent said they sell outsourced aftermarket cartridges. This breakdown skews heavily toward toner remanufacturing, as only 12 percent of those who produce finished cartridges indicated they do inkjet refilling.

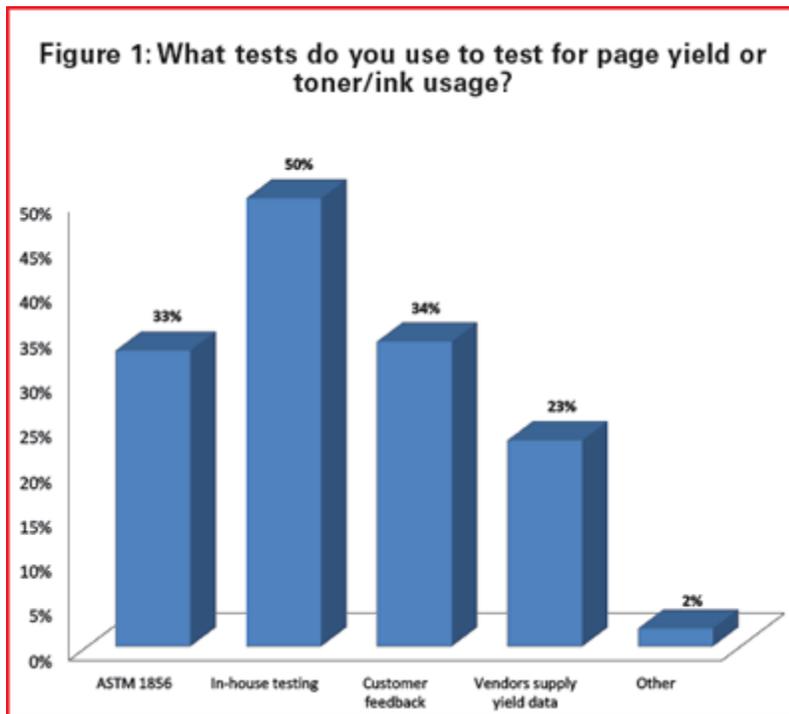
Another big difference between this year's survey and the one in 2010 is that it skews much more heavily toward U.S.-based companies, with just 17 percent of respondents indicating they are based outside of the U.S., compared to 56 percent last time. This obviously creates a different demographic, so that should be taken into consideration when comparing responses.

Other factors to keep in mind when reading this report: Respondents could choose more than one answer in most categories, so percentages will not add up to 100 percent and instead reflect the variety of methods that can be used for testing. Within each category, the percentages reflect just the number of respondents who answered

each question rather than the overall respondent base, and some questions were answered by more people than others. Finally, as always, the testing survey is a complicated one, and the overall response rate is generally a bit lower than with other Recharger surveys.

### 1) Do you test for page yield or toner/ink usage? If so, what tests do you use?

The majority of respondents (at 87 percent) test cartridges for page yield or toner/ink usage, which is pretty much in line with the 90 percent from 2010 and 83 percent in 2008. The methods of testing have changed a bit, however. ASTM testing has more than doubled, with 33 percent of respondents saying they use this method, up from 19 percent in 2010 and 15 percent in 2008. As noted previously, ASTM F 1856 is the method employed by the STMC to measure yield, so it would seem that this reflects a rise in STMC certifications; 285 companies carry the certification as of this writing. Other methods have decreased a bit; in-house testing, which is still the most popular method, was down to 50 percent from 2010's 63 percent and 64 percent in 2008. See Figure 1.



Feedback from customers and vendors has decreased in popularity, with 34 percent choosing “customer feedback” and 23 percent choosing “vendors supply yield data.” While not insignificant, these percentages have both dropped considerably. Forty-two percent of respondents relied on customer feedback in 2010, although that number was back up from 34 percent in 2008. Nearly 40 percent relied on vendors to supply yield data in 2010, up from 32 percent in 2008.

Only 2 percent of respondents chose “other,” which is the same percentage as 2010. Overall it seems more people are performing their own tests, whether in addition to

input from customers and vendors or as a sole method of testing. Either way it is a good thing because it's yet another sign that an increased focus on quality has become prevalent in the aftermarket.

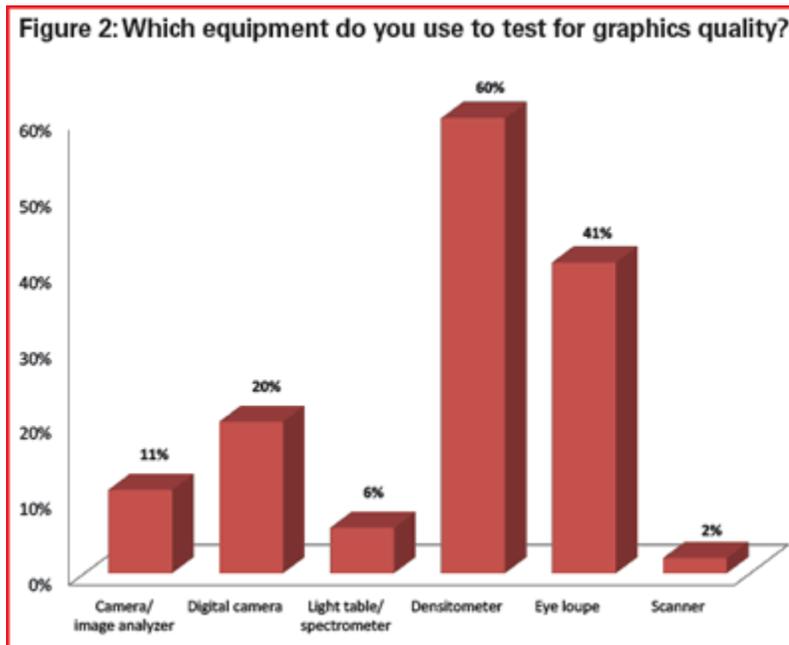
## 2) Do you use an outside testing service?

Using an outside testing service continues to increase but is still a small percentage. This year 17 percent of respondents reported using an outside service to test cartridges, up from 11 percent in 2010 and 5 percent in 2008.

## 3) Do you test for graphics quality? If so, what test equipment do you use?

Testing for graphics quality reached an all-time high this year, with 80 percent of respondents saying they do so. In 2010, just 58 percent said they did so, down from 63 percent in 2008. Densitometers were the most popular device for testing graphic quality, with 60 percent of respondents reporting that they use this method. In 2010, densitometers dropped to second place (at 30 percent) behind eye loupes but in previous years had been the No. 1 choice, with more than half of respondents in 2008 choosing it.

Eye loupes were back to second place this year at 41 percent — still higher than 2010's 33 percent and 2008's 26 percent. Digital cameras came in third at 20 percent, the same percentage as last time and up from 13 percent in 2008. Rounding out the votes were “camera/image analyzer” at 11 percent (15 percent last time and 9 percent in 2008), “light table/spectrometer” at 6 percent (10 percent last time) and “scanner” at just 2 percent (which was a significant drop from 20 percent in 2010 and 13 percent in 2008). See Figure 2.



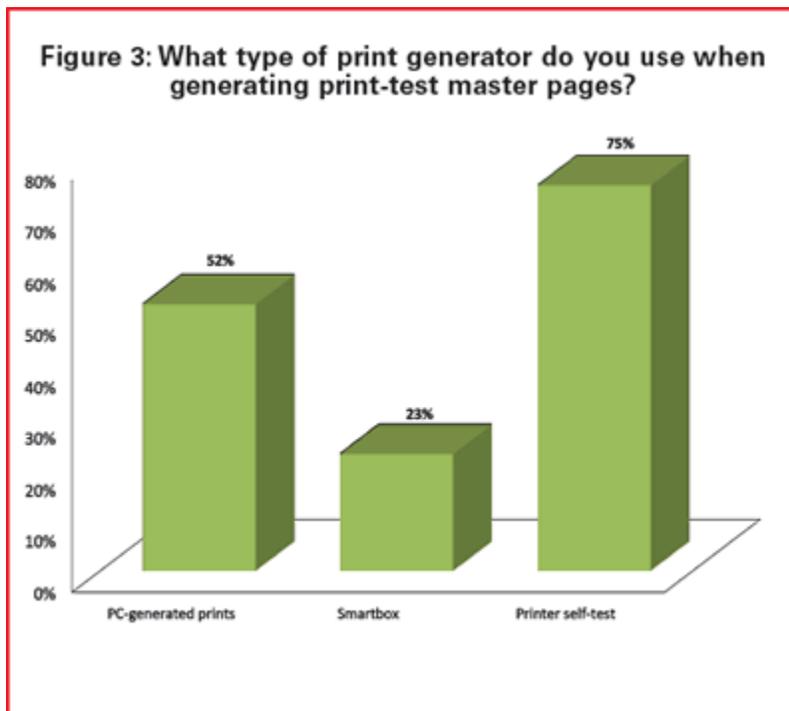
In the 2010 survey, we speculated that testing for graphics saw a drop in popularity due to an increase in dedicated photo printers. Clearly, technology's a game-changer

when it comes to both the machines that are used to print graphics and the machines used to test them.

#### **4) Do you generate your own print-test master pages? If so, what type of print generator do you use?**

Interestingly, this question had a 100 percent affirmative response rate; not one respondent said that they did not print test pages. Again, hopefully this is an excellent indicator of the industry's reach toward quality. This question has always had a high positive percentage, at 91 percent in 2010 and 88 percent in 2008.

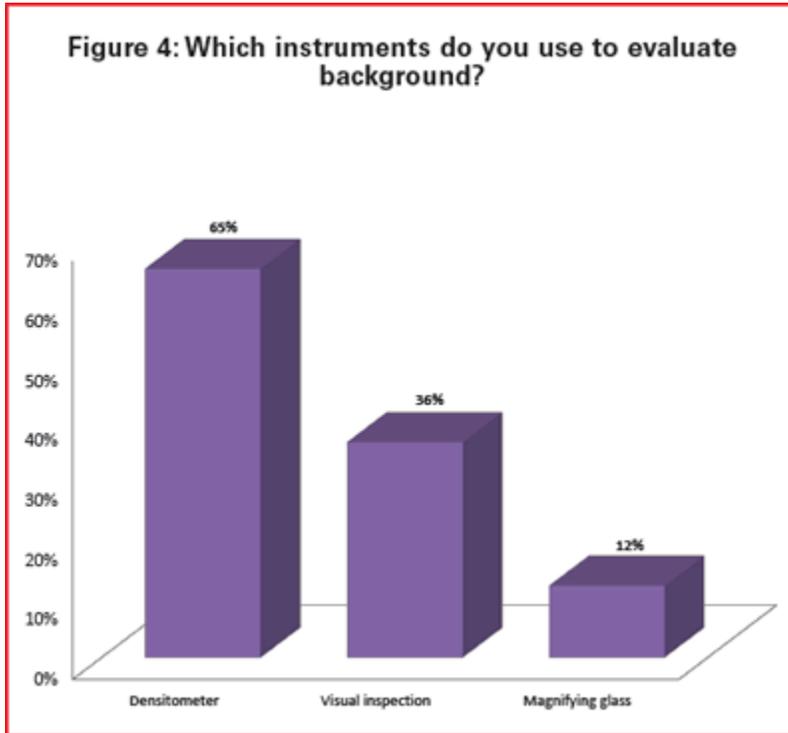
"Printer self-test" remained the most popular choice for generating master pages, with 75 percent selecting this option, up just slightly from 72 percent last time but significantly from 56 percent in 2008. "PC-generated prints," at 52 percent this year, dropped from 56 percent in 2010 and 71 percent in 2008. "Smartbox" got 23 percent of responses, up slightly from 18 percent in 2010 and down a little from 26 percent in 2008. Another interesting aspect of the responses to this question was the fact that no one chose "other." See Figure 3.



#### **5) Do you evaluate backgrounds on prints? If yes, what instruments do you use?**

Background evaluation was a slightly less popular choice this year, with just 67 percent of respondents reporting that they do so, down from the all-time high of 81 percent in 2010 and 79 percent in 2008. Sixty-five percent reported using a densitometer to do this, making it the top choice for the first time in the survey's history, ahead of visual inspection (36 percent) and magnifying glass (12 percent). In previous years, densitometers were chosen by only 21 percent (2010) and 25 percent

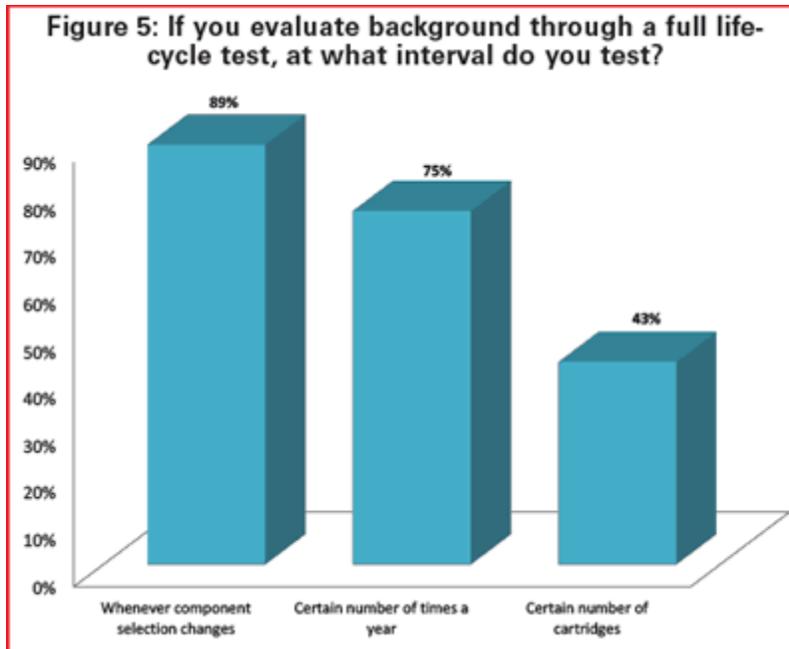
(2008). Density and background must be measured by densitometer per ASTM, however, which is another indication of STMC adoption. Visual inspection had previously been the most popular method of evaluating background, at 79 percent in 2010 and 83 percent in 2008, and “magnifying glass” was formerly the second-place choice, at 31 percent in 2010 and 37 percent in 2008. See Figure 4.



**6) Do you evaluate background through a full life-cycle test? If yes, how often do you do this?**

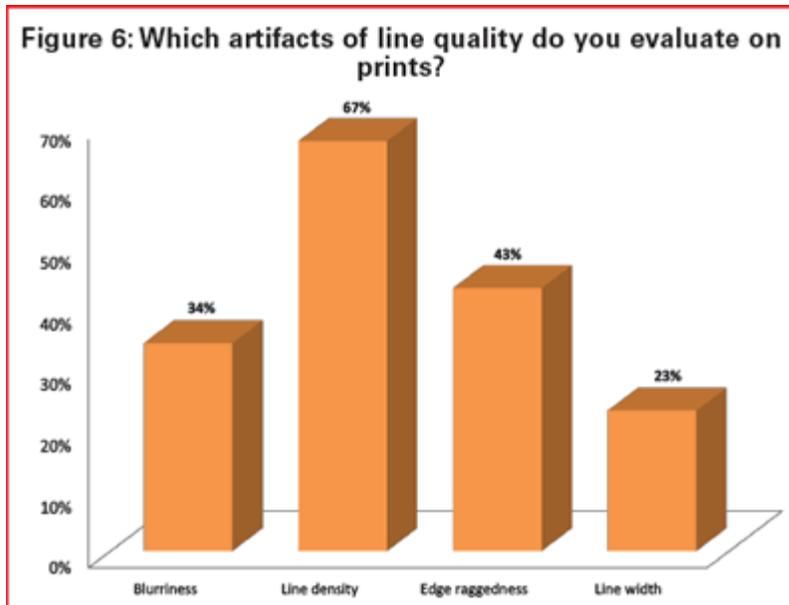
As usual, life-cycle testing is not terribly popular. Only 34 percent of respondents reported doing it, although this is a higher percentage than 2010, when only 22 percent reported doing so. In 2008, 56 percent answered “yes” to this question.

“Whenever component selection changes” is still the most common interval for those who do perform this type of testing, with 89 percent selecting it. In 2010, 72 percent of respondents chose this, up from just 48 percent in 2008. Testing a certain number of times a year was again the second-place choice (at 75 percent), with an average testing interval of 18 times per year; in 2010, it was chosen by 55 percent of respondents who tested an average of 22 times per year. Forty-three percent said they tested a certain number of cartridges; 14 percent of cartridges was the average response. In 2010, 36 percent of respondents reported testing 16 percent of cartridges. See Figure 5.



**7) Do you evaluate line quality on laser or inkjet prints? If yes, which artifacts do you evaluate? If yes, which instruments do you use?**

Seventy-four percent of respondents reported evaluating line quality, the same percentage as in 2010 and nearly the same as 2008's 76 percent. Line density remains the most popular method, with 67 percent choosing that response, down a bit from 76 percent in 2010 and 77 percent in 2008. Edge raggedness is a more distant second place this year, chosen by 43 percent of respondents, down from 67 percent in 2010 and 69 percent in 2008. Blurriness is evaluated by 34 percent of respondents, down significantly from 67 percent in 2010 and 69 percent in 2008. And finally, line width remains in last place, with 23 percent choosing it compared to 43 percent last time and 49 percent in 2008. See Figure 6.



Also similar to previous years, visual inspection remains the most popular method for evaluating these artifacts, with 68 percent choosing this method (80 percent last time and 77 percent in 2008). “Magnifying glass” came in as a much closer second choice at 52 percent (34 percent in 2010 and 33 percent in 2008). The rest of the responses remained less popular: “scanner” at 21 percent (14 percent last time and 12 percent in 2008) and “eye loupe” at 20 percent (21 percent last time and 33 percent in 2008).

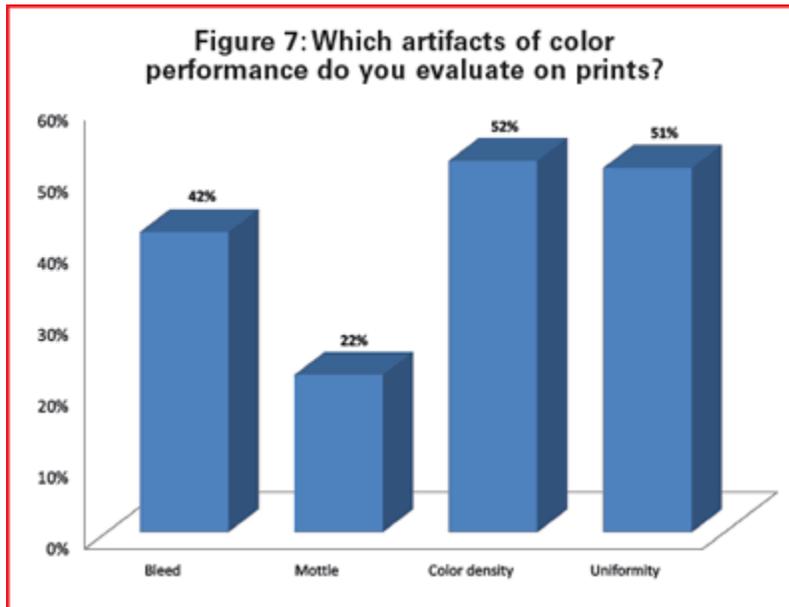
**8) Do you evaluate area fill on laser or inkjet prints? If yes, which artifacts do you evaluate?**

Most respondents continue to evaluate area fill, with 98 percent saying “yes” to this question — higher than 2010’s 82 percent and 2008’s 76 percent. “Fill density” also remains by far the most common choice at 85 percent (86 percent last time and 87 percent in 2008). The remaining choices are all far behind: “contrast” at 47 percent (50 percent last time and 54 percent in 2008), “bleed” at 38 percent (41 percent last time and 48 percent in 2008), “reflectance density” at 22 percent (33 percent last time and 28 percent in 2008) and “mottle” at 12 percent (10 percent last time and 30 percent in 2008).

**9) Do you evaluate color performance on laser or inkjet prints? If yes, which artifacts do you evaluate?**

Color is where we’d expect to see a big jump in responses, and we did. Almost all respondents (92 percent) reported that they evaluate color performance compared to just 68 percent last time and 67 percent in 2008. This likely reflects that not only are more companies testing color but also selling and/or remanufacturing color cartridges (we didn’t ask respondents to specify whether they sell or produce color as opposed to monochrome only).

“Color density” and “uniformity” were the two most popular choices at 52 percent and 51 percent, respectively. In 2010, 77 percent of respondents said they looked at color density, up from 66 percent in 2008. “Uniformity” was chosen by 59 percent in 2010 and 79 percent in 2008, when it held the first-place spot. “Bleed” and “mottle” came in at 42 percent (53 percent last time and 54 percent in 2008) and 22 percent (15 percent in 2010 and 23 percent in 2008) respectively. See Figure 7.



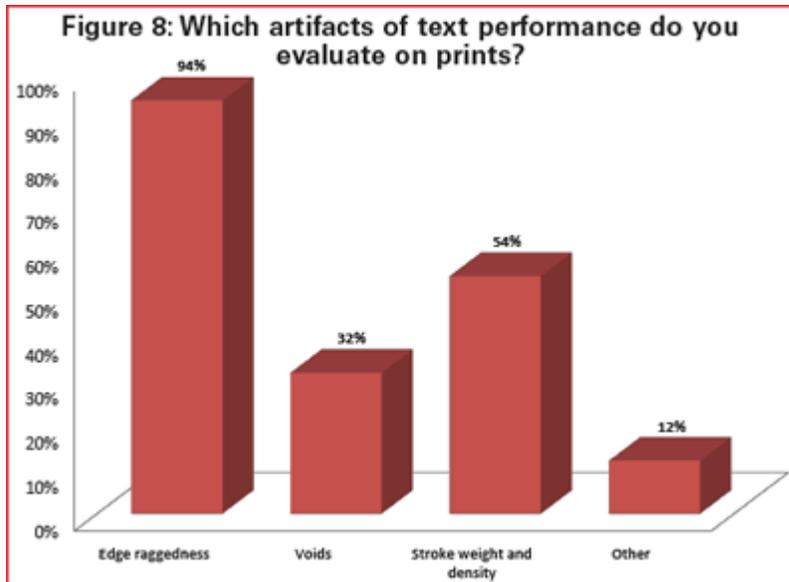
#### **10) Do you evaluate voids and satellites on laser or inkjet prints?**

Similar to previous years, the responses to this question were 50/50: Half of respondents replied “yes” to this question this year and in 2010; in 2008, the “yes” percentage was 53 percent.

#### **11) Do you evaluate text performance on laser or inkjet prints? If yes, which artifacts do you evaluate?**

Text performance evaluation also increased this year, with 87 percent of respondents reporting that they do this, up from 83 percent last time and 78 percent in 2008.

Edge raggedness, which was the most common artifact in 2008 at 70 percent before dropping to a third-place 60 percent last time was back on top this year, with 94 percent of respondents saying they evaluate this artifact. “Stroke weight and density,” which was the top choice last year at 83 percent, was in second place at just 54 percent this year — similar to 2008’s 60 percent. “Voids” was the third most popular choice at 32 percent, dropping significantly from 68 percent last time and 58 percent in 2008. “Other” methods received 12 percent of the vote, but there were no specific responses as to what those methods might be. See Figure 8.

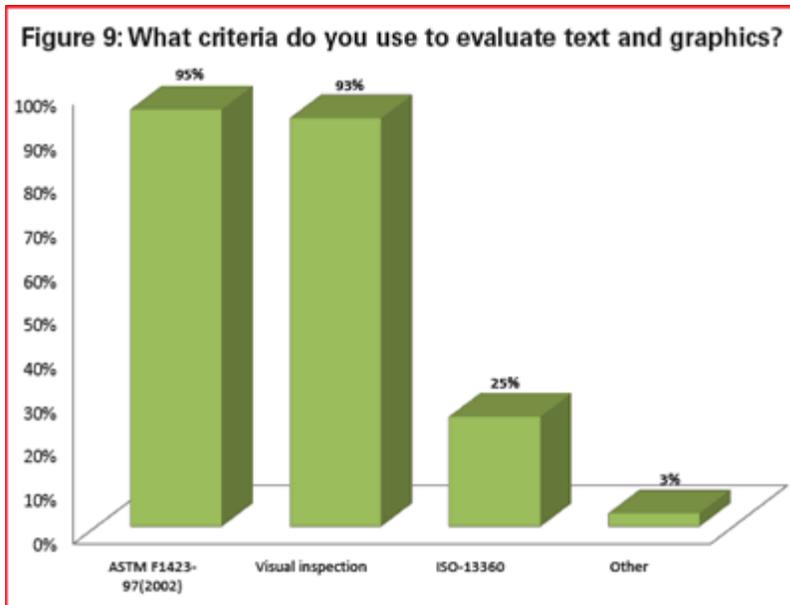


**12) Do you evaluate text and graphics through the full life cycle of a cartridges? If so, what is your established testing frequency? What test criteria do you use?**

About a third of respondents report full life-cycle testing, a number that has always been relatively low throughout the history of this survey but has dropped considerably over the last couple of years. Last time, 29 percent of respondents reported doing full life-cycle testing; this year the number was 32 percent. In 2008, 51 percent reported doing so.

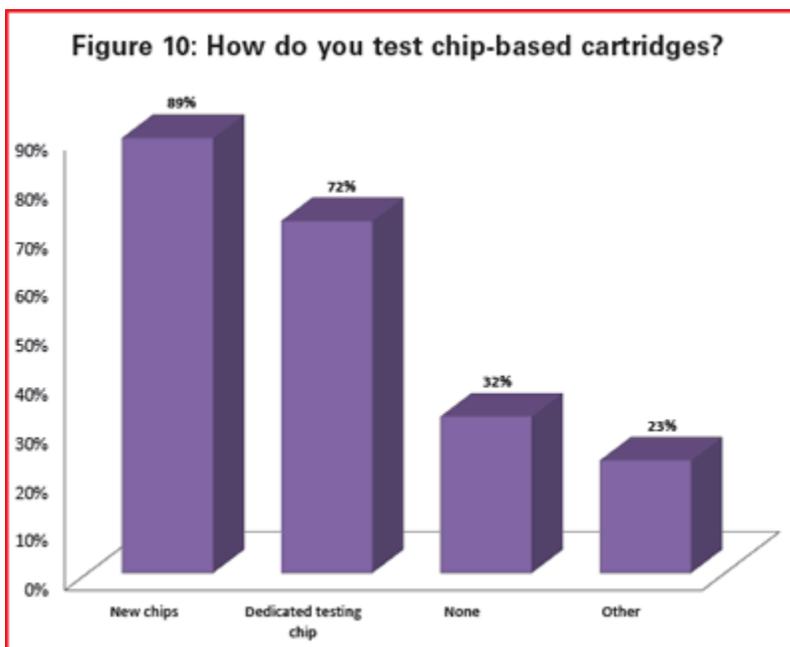
Typically, testing a certain number of times per year has been the most popular method for those who do full life-cycle testing, and that at least hasn't changed. More than half (53 percent) of those who do test say they test an average of 10 times per year, the same interval as last year. Just 22 percent report testing after a certain number of cartridges, and 20 percent say they use "other" criteria, including "when changing components," "developing new models" and "based on customer feedback."

ASTM F1423-97 was the most popular testing criteria for evaluating text and graphics at 95 percent, up from 21 percent last time and 26 percent in 2008. Visual inspection dropped to second place this year, although just barely, at 93 percent (70 percent in 2010 and 79 percent in 2008). One-quarter of respondents said they use ISO 13360, up from 10 percent last time and 15 percent in 2008. Just 3 percent chose "other." See Figure 9.



### 13) How do you test chip-based cartridges?

New chips were the most commonly used method this year, with 89 percent of respondents saying they test chip-based cartridges using new chips. Last time, just 38 percent reported using new chips, and 49 percent did so in 2008. Using a dedicated testing chip is still a common method, with 72 percent saying they do this, also up from 38 percent in 2010 and 34 percent in 2008. A third of respondents either don't use a chip or don't test chip-based cartridges. "Other" received 23 percent of responses — which, as usual, were varied and included "old chip," "universal chip" and "depends on cartridge." See Figure 10.

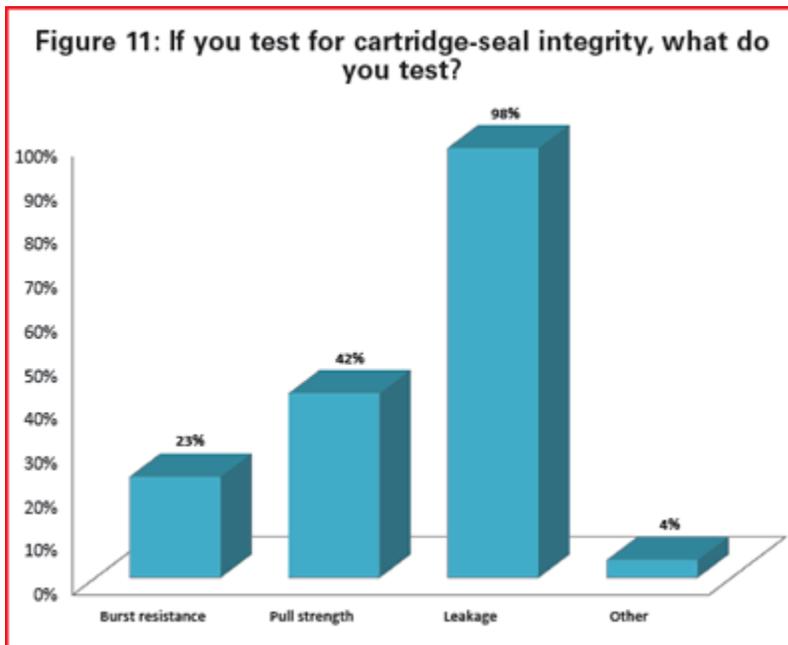


### 14) Do you test outsourced cartridges for resale?

Once again it was roughly a 50/50 split between those who do test outsourced cartridges and those who rely on manufacturer testing. The ones who do their own testing (42 percent) are most likely to do so after a certain number of cartridges (483 being the average), up from 32 percent last year. Thirty-six percent report testing a certain number of times per year (32 times on average, almost half as frequently as 2010's 65 times per year). This was the top choice in 2010, with 59 percent reporting that they tested this way. "Other" again received a small percentage — 12 percent — and included such responses as "depend on customer feedback" and "rely on vendor."

**15) Do you test for cartridge-seal integrity? If yes, what do you test?**

A good majority (76 percent) of respondents test for cartridge-seal integrity, up a bit from 68 percent in 2010. See Figure 11.

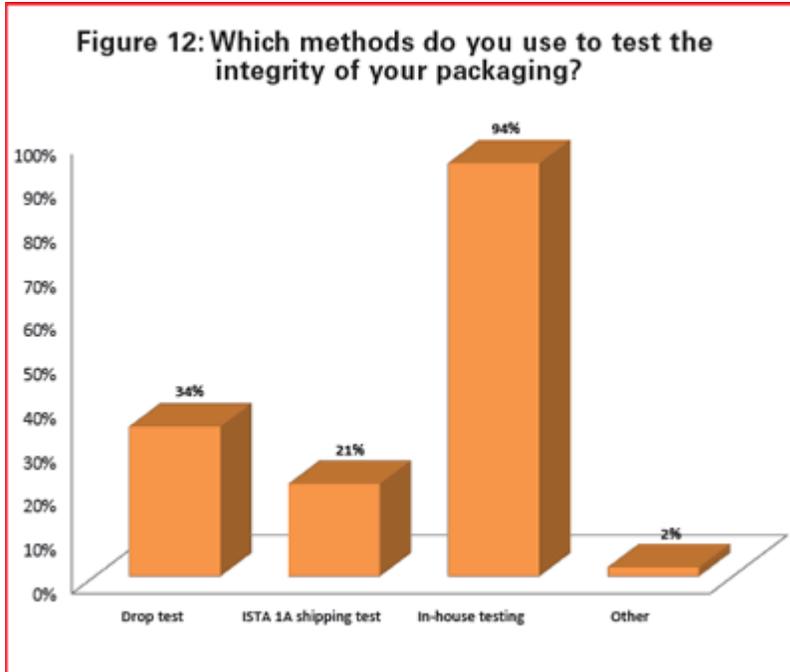


Leakage was again the top factor, with 98 percent reporting that they test for it, up from 94 percent last time and 84 percent in 2008. Pull strength (42 percent) and burst resistance (23 percent) were more distant second- and third-place choices, similar to the 41 percent and 28 percent they received last time but down from 55 percent and 32 percent, respectively, in 2008. "Other" received just 4 percent this year and included such answers as "don't use seals" and "don't split hoppers."

**16) Do you test for package integrity? If yes, what method do you use? How often do you perform these tests?**

Package integrity was another category that saw a fairly sizeable increase in positive responses this year. Eighty-six percent of respondents reported that they test for package integrity, up from 64 percent in 2010 and 56 percent in 2008. In-house testing, which has typically been the most popular method of testing, remains so, with 94 percent choosing it, up from 87 percent last time and 85 percent in 2008. Drop-

testing came in at 34 percent, down from 47 percent last time and 45 percent in 2008. The ISTA 1A shipping test received 21 percent of responses, up slightly from 16 percent last time and 13 percent in 2008. “Other” received 2 percent, with “customer feedback” and “hand deliver” among the responses. See Figure 12.



Regarding frequency of testing, the most common response was “when packaging changes” at 32 percent (47 percent last time). Twenty-four percent test on monthly intervals (4 months on average — more frequently than 2010’s five-month average, which was chosen by 29 percent of respondents).

Ultimately, the testing survey yielded a mixed bag of results. The next edition of the survey will be available in the next few months on [Rechargermag.com](http://Rechargermag.com) as well as in the pages of this magazine, and we encourage your input as we continue to work toward a quality-conscious industry.