

## Appendix C

### NIST Handbook 130 – Uniform Regulation for the Method of Sale Commodities

**Item:**

232-6: 2.XX. Printer Ink and Toner Cartridges Labeling

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**From:** [Barkley, Matthew](#)  
**To:** [Warfield, Lisa](#)  
**Cc:** [Cardin, Judy L - DATCP](#)  
**Subject:** Open Hearing Comments: Transcript  
**Date:** Tuesday, July 17, 2012 8:42:42 PM

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Lisa-

Below is the transcript of the comments I made during the Open Hearings. I hope this helps. Please let me know if you have any questions.

Thanks and regards,

Matt

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Chair, Members of the L&R Committee, and members of the association – my name is Matthew Barkley representing Hewlett Packard. Thank you for the opportunity to speak with you today.

As the agenda and proposal regarding test methodology were delivered late last week, and our first opportunity to discuss it in detail just yesterday, HP and industry in general have not yet had the time to formulate a clear position or provide detailed comments on the test methods we discussed. However, as the proposal moves forward in consideration and revision by the NCWM I would urge the membership to keep in mind the following concerns which HP and other industry members have:

First, any proposal should weigh whether it creates significant competitive disadvantage or advantage for any particular technology or sub-sector of our industry. For example, since our products are subject to re-use and remanufacturing we should be sure that the burdens of compliance are fairly and consistently placed across all players in the market.

Second, some of the proposals discussed by the work group could place manufacturers under a substantial cost burden to comply – costs incurred as a result of mandatory changes to a very complex, very developed and very global manufacturing and distribution system. For example in our discussions yesterday, I cited the example of products manufactured in various locations around the globe and imported to the US for final packaging in a variety of states – as individual cartridges or as multipacks. The costs from changes to this complex system would surely be passed on to consumers.

Third, we must ensure that the proposals put forward into consideration be clearly aimed to help consumers make value comparisons that inform their purchase decisions – to HP this is an especially important criteria as whatever gets places on packaging for our industry will be used by consumers to facilitate – or even be determinative to – their purchase decisions amongst several different competitive options in the market. It would be harmful to HP, to the substantial

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investments its made in its product and technology, and to its customers if changes to Handbooks 130 and 133 resulted in consumers making erroneous value comparisons in their purchase decisions.

To that end, I would like to submit to the record a letter and addendum industry prepared and submitted to the former work group chair following our meetings last year in Missoula. While clearly linked to our discussions on the method of sale proposal it also addresses industry's concerns with testing methodology and the comments I have made here today.

Thank you again for the opportunity to speak to you today.



**Information Technology Industry Council**  
Leading Policy for the Innovation Economy

August 10, 2011

Ms. Maureen Henzler  
Chair, Task Group on Printer  
Ink and Cartridges  
<Via Email>

Mr. Ms. Henzler:

On behalf of the Information Technology Industry Council (ITI) and participating industry members, I would like to take this opportunity to share additional comments on the NCWM proposal before Laws & Regulations Committee's Task Group on Printer Ink and Toner Cartridges ("the TG"). We appreciate the opportunity to participate in the 96<sup>th</sup> Annual Meeting and to share our presentation with the TG concerning products, technologies, consumer value, and the ISO/IEC standards related to the proposal. We regret that there was insufficient time to provide our entire presentation, nor time for the TG to fully discuss the complex issues raised by the presentation. A copy of the presentation is attached along with additional comments that will both be submitted for inclusion in the NCWM Publication 16. We look forward to continuing to inform and support the TG's efforts.

The participating industry members viewed the TG session in Montana to be very productive. At the same time, it is clear that a great deal of work remains. To facilitate the process moving forward, we recommend that all interested parties reflect on the content shared to-date and frame questions, observations, and the like, to be shared with the group in advance of our next meeting. We would also suggest that it might be helpful for the Chair to circulate a "work plan" to identify all steps necessary to reach a satisfactory outcome for the TG process. This should be shared with all participants for feedback. A work plan might also help avoid any further misunderstanding or miscommunication concerning expectations of participants.

This miscommunication was evident at the TG meeting in Montana, when there were several comments indicating that a proposal was expected as part of industry's presentation. We were unaware that any of the TG participants were asked or expected to develop a proposal. To our knowledge, the only proposal pending comes from the Southern Weight and Measures Association and mandates that provision of weight and volume measurements on inkjet and toner cartridges. Our presentation in Montana addressed (as time allowed) questions circulated by the Chair to task group members at the 2011 Interim meeting and detailed the reasons for our opposition to this proposal. Our presentation also outlined the general reasons why we believe that the application of page yield based on relevant ISO/IEC standards might better achieve the current proposal's objective to clarify the labeling requirements for industry, consumers and weights and measures officials.

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It is our hope that a full discussion of the issues, including resolution of the many questions and concerns highlighted in the attached, will help the TG progress toward a resolution acceptable to all stakeholders. To that end, we make the following recommendations:

- **Poll all stakeholders to identify missing or incomplete information.** We have highlighted several items in the addendum to this letter. It would be helpful for state regulators and other TG members to identify any outstanding technical or other information that industry could begin working to develop and provide.
- **Provide further input on how best to communicate efficiently and effectively on these complex issues.** We appreciate the suggestion that industry representatives attend the upcoming NCWM regional meetings and hold further discussion on this issue. However, considering the early stage of our exploration of the issues involved and the need for additional guidance from the TG (as noted above), we question how effective it would be to attend such meetings at this time.
- **Have the TG jointly develop a formal written request to the FTC seeking legal determination as to the scope of the “ink” exemption under the FPLA.** Resolution of how federal law applies to the labeling of cartridges is central to what, if any, action is considered by the NCWM.
- **Compile all consumer complaints submitted to weights and measure jurisdictions that would be helpful in determining the scope and nature of the problem being addressed by the proposal before the TG.** Such data will help the participating industry members to better understand the consumer complaints that brought this issue before NCWM and evaluate possible solutions.
- **Provide further detail of the intended end-point of this process.** Will a final report be submitted to the Laws & Regulations Committee? Will all stakeholders be able to review the draft report before it is finalized and sent to the L&R Committee? Is the goal to reach consensus? If not, or consensus is not reached, what is the goal? How have other working groups addressed these issues?

We appreciate the thoughtful dialogue advanced by the Task Group and look forward to your reply regarding the next steps in the process.

Sincerely,



Josh Rosenberg  
Director, Global Policy



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## **Printer Toner and Ink Cartridges:**

### **Best Practices for Conveying Yield Performance to the consumer**

This paper has been prepared by the Information Technology Industry Council (ITI). ITI is the premier voice, advocate, and thought leader for the information and communications technology (ICT) industry. ITI is widely recognized as the tech industry's most effective advocacy organization in Washington D.C., and in various foreign capitals around the world. ITI's members include the leaders of printer manufacturing technologies including Epson, Hewlett Packard, Kodak, and Lexmark, among others.

#### **Executive Summary:**

The ultimate goal of any product measure is to provide information to a customer that facilitates an informed purchase decision. At first glance, comparing the volume or weight of ink or toner would seem to be a good proxy for the page yield. For a host of reasons this is often not the case. Toner and ink cartridges are complex mechanisms designed to deliver a consistent customer experience and because of this, ink or toner can be used in different amounts when printing and for purposes other than printing. All of this is highly dependent on the design of the larger printing system of which the cartridge is a critical but not independent part.

The printing industry realized the difficulty of presenting cartridge performance information to the customer and because of this voluntarily chose to develop several standards for measuring yield performance. These standards are developed specifically for these devices and use standard test patterns and methods to provide accurate and repeatable measurement. Moreover, the standards include protocols for clear and consistent communications to users regarding cartridge yields. The industry wholly believes that these test procedures provide a more reliable means of measurement and a more accurate method for consumers to determine value than comparing the volume or weight of ink or toner.

## **Printer Toner and Ink Cartridges:**

### **Best Practices for Conveying Yield Performance to the consumer**

Objectives of weights and measures regulations include facilitating value comparisons and providing a standard of fairness in the marketplace. When it comes to selecting printer hardware and replacement supplies, these objectives dictate that weights and measures criteria that could lead the consumer to making economically incorrect decisions regarding value should not be implemented.

Some customers are interested in making comparisons on the relative value between printing supplies, both at the initial printer purchase and afterwards when purchasing additional supplies. In addition to cost, product reliability, brand reputation and print quality another important measure considered by some customers during the supply purchase is page yield. At first glance, comparing the volume or weight of ink or toner would seem to be a good proxy for the page yield. Unfortunately this is often not the case. This paper will outline the drawbacks of using weight or volume as a proxy for page yield and highlight the reasons why all major printer manufacturers use a set of ISO/IEC standards to measure and communicate printer yield.

Depending on the printing technology, the use of ink or toner can be impacted by several factors.

The amount of toner applied in printing pages compared to the amount of toner supplied in the cartridge is dependent on many factors and that a simple measure of the weight of the toner will not give a clear indication of ultimately how many pages can be printed. In electro-photographic (laser) printers, different toner formulations will use different amounts of toner when printing the same page. This is due to charge, particle size and formulation variation between toners. These attributes are engineered and varied by each cartridge vendor to provide what they feel to be the best experience to their customers. Some customers prefer thin sharp lines and fine detail, others prefer thick bold lines. Depending on the choices that a given manufacturer makes in toner formulation (base polymer, particle size, charge distribution and charge control agents), the amount of toner used to print the same page may vary. Additionally, the amount of toner cleaned and deposited in the waste hopper depends on several variables including the job size, coverage environment and printer design. Finally, the bulk densities of toners are not the same; for a given volume of toner, there can be significant differences in weights. All of these factors result in the reality that two different toner supplies of the same weight will not necessarily deliver the same number of pages.

Similar to laser printers, inkjet printer cartridge vendors manipulate several variables in their ink formulation to meet the needs they identify as important for their customers. Some of the variables that manufacturers consider and apply include: different ink formulations; dye vs. pigment inks, actual loads of pigment or dye in the ink formulation, and drop size. Different combinations of these ink content characteristics will result in substantially different ink consumption rates while printing the

same page. In addition, all inkjet systems perform routine servicing, and those servicing routines may be driven by a number of factors such as the ink formulation, usage and content. In addition, changes to non-ink materials by the inkjet cartridge manufactures or during remanufacture can affect the amount of ink that can be used in printing pages. Finally, for the same volume of ink, two different systems or the same model cartridge from two different vendors can print a different number of pages.

Ultimately what matters to many customers is answering the question, “How much can I print with a cartridge in a given printer?” Page yield reported using the ISO/IEC methodology better addresses this question than weight or volume. ISO/IEC JTC1 SC28 identified this as a consumer need in 2000 and started working on a family of standards that address this customer need. Standards now published measure yield for monochrome laser printers (ISO/IEC 19752), color laser and color inkjet printers (ISO/IEC 19798 & ISO/IEC 24711) using a common test suite (ISO/IEC 24712). Currently under development are standards to measure photo yield consisting of a methodology for inkjet printers (ISO/IEC 29102) and a photo test suite for any printing technology (ISO/IEC 29103). These standards are based on common design philosophies and change their methods slightly, depending on the technology being measured. The following attributes are endemic to each standard:

1. Use of a well defined consumer type document for printing – Coverage can vary depending on how it is measured and depending on what choices are made in defining coverage; the same “coverage” page can perform differently. For the ISO/IEC standards, the test pages were defined so that a consumer can more easily relate them to their work stream. These pages are freely available so customers can view and understand what the standard is based on. These test pages can be found at [www.iso.org/jtc1/sc28](http://www.iso.org/jtc1/sc28).
2. Testing of multiple printers and cartridges to account for printer and supply variation – There is manufacturing variation not only with how much ink or toner is put in a supply, but how effectively a printing system uses that ink or toner. This usage is also impacted by the specific printer used during test; some printers of the same model will use more or less ink or toner. For this reason, the ISO/IEC standards require a minimum of three cartridges to be used on a minimum of three printers (minimum of 9 cartridges tested). The yield information from these 9 cartridges is reported using a lower 90% confidence bound (LCB) on the mean. This gives a reliable estimate of lowest predicted average yield with 95% statistical confidence. The LCB not only takes into account the average performance of the cartridges tested, but also the breadth of variation in the cartridges and printers tested. The goal is to try and characterize the end user experience taking into account some of the normal variations in printers and supplies.
3. A well controlled printing environment – The environment that a printing system operates in can have an impact on the number of pages printed for a given amount of ink or toner. For laser systems both temperature and humidity can impact the amount of toner used. For this reason both the temperature and humidity are controlled for toner yield testing. For inkjet,

temperature is the main environmental driver for ink usage, so only temperature is controlled during testing.

4. A well defined end of life criteria – For the purposes of the ISO standards, end of life is defined in one of two ways. First, when the printer stops printing and reports that the supply should be changed. The other method requires a visual assessment of elements on the test targets. This visual assessment is defined as a visually significant fade in the target elements greater than 3mm as compared to the 100<sup>th</sup> print for that cartridge. These two methods are meant to represent the two common criteria that users would choose to determine if a supply has to be changed.

When the publication of the first yield standard occurred in the summer of 2004 it was accepted by industry and consumer's groups as the best method for conveying one attribute of cartridge performance that was of interest to customers. Building on this acceptance, ISO/IEC JTC1 SC28 created additional standards for yield; these have been met with similar market acceptance as the original.

Because well established methods for the measure of cartridge yield exist and weight and volume are not as useful or meaningful in making value comparisons, this group recommends that cartridge performance information be conveyed to customers using the developed ISO/IEC yield standards.

Footnotes to press releases and reception of ISO yield standards:

<http://www.pcmag.com/article2/0,2817,2183959,00.asp>

<http://www.hp.com/hpinfo/newsroom/press/2004/040617b.html>

<http://www.incits.org/press/2007/pr200701.pdf>