

The Money of Color

So you want to remanufacture color laser cartridges? Here's hoping that you have some semblance of what you're getting yourself into. Color has obviously become popular within the last few years, and as prices come down on equipment, sales have been going up. So far as the industry is concerned, sales of color MFP's will out strip color stand alone printers & sales of monochrome printers.



What are you getting yourself into? Four times the cartridges, four times the problems? Not necessarily, as you become adept at remanufacturing one of the model cartridges, the other three will follow, but issues with CMY (Cyan, Magenta & Yellow) might not be the same as with K (Black.) Time for digression number one, My very own Andy Rooney spot. We all know that CMY makes sense, but why K for black? There are at least two popular explanations for this, the first (and my favorite) is the “K” in CMYK stands for *key*, as in four-color printing, cyan, magenta, and yellow printing plates are carefully *keyed* or aligned with the *key line* of the black *key plate*. The second is that the K is the last letter of black, I still like the first.

Now back to the subject at hand. As with the monochrome cartridges, there are many pitfalls, obstacles & just plain nonsense that the OEM's have built into the cartridges, but for the most part these cartridges are generally painless to do as long as you keep your quality high and refrain from shortcuts such as, trying to save on key components like drums and doctor blades.

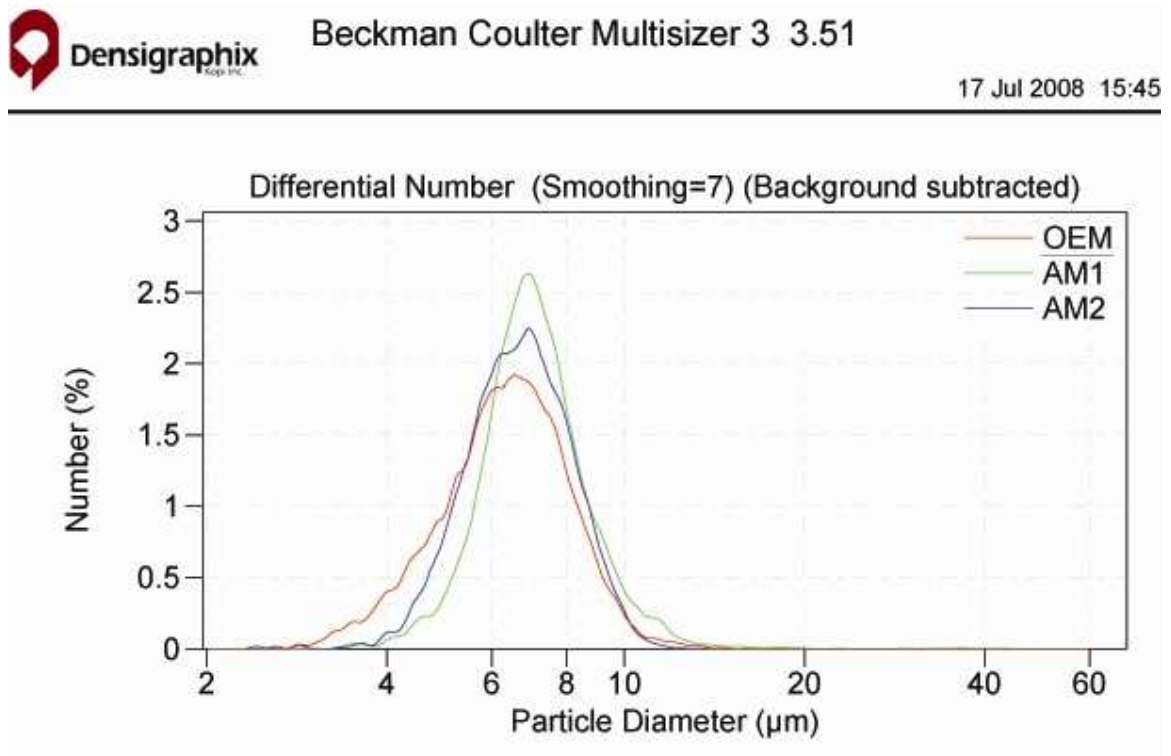
Without going into great detail on how to do specific cartridges here, I will say that without testing cartridges after remanufacturing them is comparable to playing Russian roulette, except in this case using a loaded cartridge to kill your business. Where we once were able to simply add toner, change a few parts and know that the cartridge would work, remanufacturing color cartridges without at the very least, a printer for the type of cartridge you're working on is sure death.

For the purpose of this discussion, I'll use the HP 2600 cartridge as an example. The 2600 has a number of well known “traps.” The best known of which is the inability to remove the drum without cutting or breaking something. You would either need to cut the drum out, to save the waste hopper, or break the waste hopper to save the drum. Since I stated earlier that you must maintain high quality, I remove the drum since that's one of the most important components to print quality. Another trap of the 2600 is the doctor blade, the cartridge body is so flimsy that removing the doctor blade removes almost all

engineered support from the toner hopper. Installing a new doctor blade can be a bit of a headache if you can't install it straight & with equal tension on both sides. There are suppliers that sell jigs to help install the doctor blade with some certainty of success, but as I said you won't know unless you test it.

To CPT or not CPT, what kind of question is that?

Chemically Produced Toner or Chemically Processed Toner, or whatever you want to call it is toner that has, for all intents and purposes been grown. Where traditional toner is pulverized, that is crushed down to the needed size, CPT is "grown" to the size needed. What CPT therefore gives you is a better defined particle size and distribution. The following chart is an example of CPT & traditional toner.



In the example above the graph is showing the average particle diameter & distribution for three toners. The red is the OEM which is a chemical toner, the green (AM1) is an aftermarket supply, also chemical, and the blue (AM2) is a traditional toner that has been "massaged." Which one works comparatively best to the OEM? AM2, the traditional toner, why, it's closer to the OEM than AM1, which in this case is almost too good for the machine type.

A little to the left please

In the last couple of years traditional toner manufactures have been experimenting and testing ways to make pulverized toner act and pass as chemical toners. This can be

accomplished by “massaging” the toners and classifying the product to have a better defined particle size and distribution. In some cases these manufactures have succeeded in their individual processes to create the ultimate mimic toner. While it’s not a true chemical toner, it is neither a version of its former self but a true hybrid product.

For myself, the most important question I have to ask is “Will this toner work well with the printer system?” As a basic question, it more often then not leads to other questions, such as “Will the toner cause damage to the cartridge or the printer?” Knowing the base and construction of the OEM toner will help with the decision about which toners to test. Knowing and trusting your raw materials supplier helps even more. There is no better way to satisfy your questions about new supplies than to test the product to death. But having prior knowledge of the goods and knowing the composition can save valuable time, energy and resources. Ask your supplier to forward their findings, not just the results but, the rules of the test as well. Items such as which test sets did they use, ASTM, ISO, DIN, the test issue numbers as well. What sampling equipment, densitometer, multisizer, scales etc are as important as knowing which drums & parts the toner was tested with. Also ask if the test equipment meets industry standards and of course is it certified (Scales & densitometers to name a couple, need to be recertified yearly.)

Toner transparency is critical. One of the next questions that we have is “Will this toner work well with the OEM toner?” Since the company I’m with has been copier based for the last 30 years, this is a question that is always at the forefront. Unlike the traditional “all-in-one” cartridge design, copier toners have always had the need to mix well with the previous bottle/cartridge, or some sort of container of toner. In copiers, if you cannot move from OEM to aftermarket and back to OEM transparently, then you cannot play in the game.....period! “Transparency” is the ability of the aftermarket product to mimic the results of the original supply, without the end user noticing any difference. The three most important (Yes, I know there are more) transparency goals are density, background or dusting and my all time favorite, yield. Color toner cartridges for today’s laser printers can be “all-in-one,” such as the HP 4600 series. They can also be like the HP 2500, “almost-all-in-one,” in which the drum is separate from the toner section. But the basic problem still exists. If you have any combination of OEM and aftermarket supplies, will they work together? In our laboratory, we are constantly testing for just that scenario.

Working with the latest toners for the newest printers, make sure that the supplier you purchased them from come from the same manufacturer. Or if outsourcing from the same remanufacture, intermixing supplies from different manufactures will only cause aggravation later should something go wrong.

Digression two, the first laser printers were nothing more than small (although expensive) copiers, without a scanner. Canon took the basic components of the copier, shrunk them down to fit in an AIO format & created the disposable cartridge. Or Xerox, it depends who’s story you believe. As copiers became digital, with more & more features added, and became MFP’s, the process unit, (also know as the Imaging unit,) became smaller, what can be referred to as the “almost all in one!” This is not a hard & fast rule, it mainly applies to the segment 3 and lower. Segment 4 and above will generally have a separate

development unit, the process unit will only consist of the drum, which can last as much as five million prints, with it's associated charge/discharge hardware. The cleaning section would also be located here, but the waste would be transported to a large hopper or bottle of some type. In most cases like the laser printer the copier/MFP will have a higher volume of black toner than the colors, the number can be as disproportionate as two kg of black, to 500 grams of color, and the price is also disproportionate, surprise! So what does this have to do with remanufacturing color laser cartridges? Really nothing other than to use as a cheap sales ploy to get you interested in selling copier/ MFP supplies which we also sell, quel surprise!

As I mentioned a couple paragraphs ago, will the toner work with the OEM supplies, particularly the other toners. At this point, unlike monochrome systems, where it's one on one, color is 3 on 1, 2 on 2 or 1 on 3, sounds like a script for a..... never mind, I'll just get myself in trouble, again! Mixing toners from different suppliers makes no sense with monos, it makes even less sense with a four color system. Unless you're able to convince your customer to replace all four cartridges the first time they will use one of your creations, then you need to be sure that your supplies work with the OEM supplies. Obviously, in a perfect world your supplier tests his products, which frees you from having to do the same tests again right? Wrong, unless you absolutely, positively know & trust your supplier, it's your name on the package & invoices that your customer sees, not mine, mind you we do test everything here, log the data, file countless reports & follow the toner from cradle to grave, but that's us, we're just funny that way. Enough of the self promotion!

In a normal test sequence, one color cartridge is replaced at a time, until all cartridges have been rotated within the two sets. Or as the chart below demonstrates, test one AM cartridge with three OEM's.

		OEM			
		C1	M1	Y1	K1
A/M	C2				
	M2				
	Y2				
	K2				

If you followed this in both directions, you will have done sixteen different tests. Too much, definitely. Run one AM with three OEM then switch AM cartridge, as a final test do it as your customer would do it, add each AM cartridge one at a time, taking sample prints each time until all four are replaced.

And finally!

With all the testing you've done is the quality there, and without all the fancy expensive lab equipment that your suppliers (should) have the big question is "Are you happy with the print?" Does it approximate the OEM output in color rendition, warmth, depth and the whole range of benchmarks that are used in testing? Still not sure, one last question, "Do

you like it?" If the answer is yes, then you've succeeded. If not, well there's always suppliers that sell finished product, be they compatibles or remanufactured, they are available. The choice is yours there's no shame in getting someone else to do it, I guess what I'm trying to say is that you should stick with what you know best, if doing color cartridges is not your strong point, then let someone who does thousands per month supply them for you, then you're free to sell. It's not going to get any easier in the near future, as a matter of fact it will only get harder, with the new technologies that the OEM's are cavorting with, it really will be a bumpy ride.