

# Replacement Inks: The Good, the Bad & the Rewarding

You see them everywhere – so what’s the answer for *your* business?

By Dave King



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The replacement ink market has been a sensitive subject for a number of years, but I’m going to be brave and try to lay it all out on the table. I’ll try to cover the most important aspects of the replacement ink market so you can take this information and use it to make the right decision for your business. Replacement inks are available for most types of inkjet printers — aqueous dye/pigment, hot solvents, mild/low-solvents, eco-solvents, UV-curable etc. And if you’ve been to a graphics tradeshow lately, you know there are literally hundreds of companies offering

alternatives to OEM inks, but be careful out there – if you don’t do your homework, you could get burned.

It seems like everyone who sells a replacement ink system promotes it primarily on the basis of cost savings. And it would be easy for me to start with the money because on the surface it’s very attractive. But I am not going to, because there are often side-effects and hassles that they are not telling you about, or (on the plus side) additional features that you might also want to consider.

## INK DELIVERY SYSTEMS

Many inkjet printers operate with ink cartridges, others use bulk ink systems. Bulk-feed ink replacement systems designed to replace – or work in conjunction with – cartridge ink systems have been around for years. Some are good; some are not so good. One plus side of sticking with OEM cartridge systems is that they are clean, easy to use and take much of the guesswork out

of the printing process. In most cases, if you stick to the OEM program (cartridge or bulk), you are pretty much going to be able to produce quality, sellable output with minimum hassle — every time.

Replacement cartridge systems are readily available (either remanufactured OEM cartridges or outright replacement cartridges). Many OEM cartridge systems employ some kind of security chip to discourage replacement ink devices. Some replacement systems circumvent the chip or replace it with an ersatz chip.

Personally, I’m a big fan of bulk-feed systems. They allow you to print continuously until you run out of media before you run out of ink (great for overnight printing jobs). These systems can save you money in cartridges; and tossing cartridges that are “not quite empty” becomes a thing of the past.

## COLOR – SAME OR BETTER?

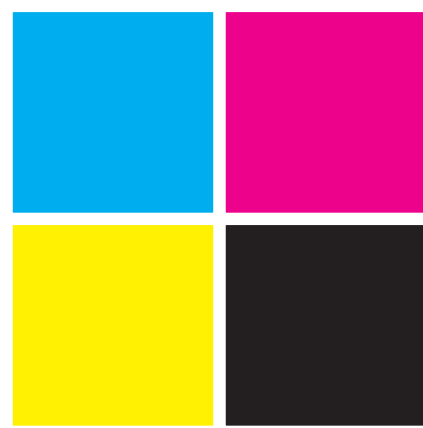
Although many replacement ink



Some bulk feed systems are designed to work with cartridge-based machines.



One thing to consider when exploring replacement ink systems is the fact that many will require a whole new set of ICC profiles for the new inks and all the media you plan to use with them. However, some systems are designed as an exact OEM match and may not require new profiles.



manufacturers boast that their product can offer a wider color gamut than OEM ink, you may be perfectly happy with the color gamut. You may not want the added hassle of having to flush out the entire ink system, re-calibrate your printer and follow up by producing a whole new set of ICC profiles to accommodate the new ink's gamut and ink load properties. Maybe you simply want a way to save money on ink and cartridges costs.

Well, a number of the replacement ink manufacturers offer “plug and play” inks touted as being an exact color/performance match to the OEM inks, so a change in ink should not disrupt your current color management workflow. Some replacement cartridge systems can replace OEM inks on the fly, a single color at a time, avoiding ink waste during conversion.

However, if your color is *not* good enough, some ink systems offer an improved color gamut. A few of my clients have replaced their inks and gained as much as a 20 percent better color gamut — with more accurate reds and greens. Of course, as stated above, an upgrade in color gamut with a new ink system will also require a new set of ICC color profiles for the inks and all the media you plan to use. This can be considered a major headache, but reputable replacement ink companies sometimes offer to help you in this area to get up and running. In this case, downtime during conversion must be factored into your decision to switch.

Either way — matching color or upgrading color — you need to research the color you are buying into, as this can be a huge issue.

### HEAD CLOGGING

The issue of head clogging is another huge reason people change from one ink



Remanufactured inkjet cartridges are basically re-filled OEM cartridges.



Some well-established replacement ink companies offer a wide range of digital replacement ink products, and may back them up with written warranties. Be sure to do your homework before buying in.

to another — either because an OEM ink tends to clog, or, if a replacement ink causes clogging, a shop will switch *back* to more dependable OEM inks. In any case, it's important to remember that inks are all made differently. Particle size of the pigments in a replacement ink may be larger than those provided by the printer OEM. This could lead to settling, clogging



Replacing your inks may require a service call to flush your system of the old inks, as well as buying and installing new filters, dampers, etc.

or result in duller colors. Larger particles can add a dirty tone to the colors they produce. Look for inks whose pigments have been *triple ground* because the resulting smaller pigment particles will reduce the chances of head clogging.

Also, some aftermarket inks contain extra ingredients (such as glycerin) to improve printhead reliability. This reduces nozzle

clogging in poorly-made pigmented inks, and may look good on inkjet paper, but on plastic substrates will result in an easily-smearing print that never appears to dry.

With that said, I have to add that there is more to the head clogging issue than just ink. Let's talk about dirt, heat and humidity. All of these play a huge part in the life of a printhead. I recommend that shops put their printer in its own room. Build a room for the printer; keep the inks, media and everything that the printer uses in this room. Ideally, the room should be equipped with a humidifier and an air conditioner to maintain a constant 70 degrees with 50 percent humidity. This precaution alone will reduce printhead clogging significantly. This will also cut down on the dirt in and around the printer.

### WARRANTY ISSUES

Now this subject is a real hard one for many people. If your printer is new, it likely came with a full warranty. On the one hand, you've been told by the replacement

ink people that switching out your inks will you save money, and in some cases, get better color. On the other hand, the printer manufacturer has told you that if you switch out the inks you will void the warranty. And yes, they can do that.

Some manufacturers of replacement inks do offer a full warranty on the ink systems they sell; and they cover all the parts of your printer that come in contact with the ink — printheads, lines, tanks, pumps, etc. Check with the ink company to see if they offer such a warranty. You should also check to see what the cost is of new printheads for your printer. You might find that the cost of a few printheads is much less than the savings on the ink, and again, you need to evaluate your options and make the best decision for your business.

Keep in mind; the cost of lost business due to a printer being down is *huge!*

However, if your printer is out of warranty, you have very little to be concerned about. You just might hit the jackpot by choosing a replacement ink

manufacturer that offers a full warranty on your "out of warranty" printer.

### OTHER CONSIDERATIONS

Another consideration with replacement inks is the solvents used in both eco/mild- and hot-solvent formulas. One needs to be very careful that they don't contain ingredients that are more hazardous than those in the OEM inks. The material safety data sheet (MSDS) provided with the inks should list the solvents. Beware of companies that fail to fully disclose the solvents in their inks. Check the toxicity of these solvents to be sure the shop and its employees are protected.

Remember that the quality of remanufactured ink cartridges varies widely. While some are produced with high levels of technical sophistication, others are remanufactured in garage-type operations with questionable quality assurance. Only a reputable supplier of remanufactured cartridges should be considered. Be sure they will guarantee their products before *and after* the purchase.

### COST SAVINGS

Okay, now for the closer! Assuming that a replacement ink manufacturer has figured out how to trick your printer into thinking it has new cartridges (if your printer uses cartridges) or you have to purchase a special device that resets or replaces the chip on the cartridge; you can take the next step(s) to looking into a replacement ink system. Here is a formula you can use to help determine the cost savings by switching:

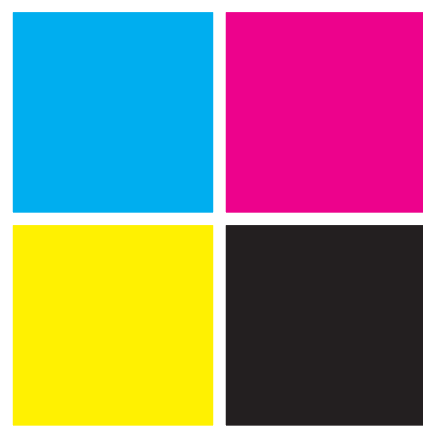
The first step is to determine what you are currently paying per liter for your ink. To get there you first have to determine the price per milliliter. Multiplying that by 1,000 will give you the price per liter. Example, for a 440 ml cartridge that costs \$347:

$$\$347 \div 440 = 79¢ \text{ (cost per ml)}$$



Converting from a cartridge-based system to a bulk-feed system can cost between \$2,000 and \$5,000.





79¢ x 1,000 = \$788.60 (cost per liter)

Now, I always print about 750 square feet of output per liter of ink, and I've found the number to be something of a constant. So, if you divide the per-liter cost by 750 you can determine the cost per square foot.

$\$788.60 \div 750 = \$1.05$  (cost per square foot)


Use the same process to determine the cost per square foot of the replacement ink. Subtract the old cost per square foot by the new cost per square foot to determine the savings per square foot. If your old ink cost was \$1.05 a square foot and your new ink cost is 97¢ cents a per square foot, then you have a savings of 8¢ cents a square foot.

Now, for an estimate of the total savings per week and per year, start with an average roll of media at 150' x 54". This equals 675

square feet, but we all know you don't use the whole roll, so figure you actually use about 60 percent of this roll, or about 400 square feet. Multiply your savings per square feet (8¢ cents) by 400 square feet of vinyl used per roll, and you have an ink savings of \$32 per roll. If you go through one roll a week you save \$32, or about \$1,664 a year in ink. If you go through two rolls a week you would save about \$64 a week, or \$3,328 a year.

The last thing you must consider is the cost of conversion. Part of this, as mentioned earlier, is the cost/hassle of developing a new set of ICC profiles, if needed. If you are going to a bulk ink system, the system cost is typically \$1,500. There is also the cost of tossing all your old inks, a service call to flush your system of the old inks, the fluid to flush the system, buying/

installing new filters, dampers, etc.; not to mention the cost of the new ink itself. This type of conversion typically costs between \$2,000 and \$5,000. If, however, you are not installing a bulk ink system, or you are simply refilling cartridges or tanks with an OEM-match ink set, then your conversion costs will be much lower.

Most people jump at the savings in ink costs as the main justification for the switch. I hope after reading this article you will consider *all* the issues before you make any changes to your printing system. Please always get references and talk with end-users who are using prospective new inks with the *exact* printer that you have. Talk with these people and get their feedback; it could save you a lot of time, money, and headaches. 

### Replacement ink companies to consider

Company	Products	Web site
American Ink Jet	aqueous/dye, solvent inks, replacement & remanufactured cartridge systems	<a href="http://www.amjet.com">www.amjet.com</a>
Bordeaux	aqueous/dye, mild-solvent, hot solvent, UV-curable, oil-based, sublimation and textile inks	<a href="http://www.c-m-y-k.com">www.c-m-y-k.com</a>
Image Specialists	aqueous/pigment inks, remanufactured cartridges, hot solvents (bulk)	<a href="http://www.image-specialists.com">www.image-specialists.com</a>
JetBest USA	aqueous/dye, mild solvent, eco-solvent, hot solvent, cartridge and bulk ink systems	<a href="http://jetbestusa.com">http://jetbestusa.com</a>
LexJet	aqueous UV/dye in remanufactured cartridges, low-solvent inks in replacement cartridges	<a href="http://www.lexjet.com">www.lexjet.com</a>
Megaink INX	hot solvent inks and bulk ink systems	<a href="http://www.megainkusa.com">www.megainkusa.com</a>
Nazdar (Lyson)	aqueous/dye, eco-solvent, hot solvent, UV-curable inks	<a href="http://www.nazdar.com">www.nazdar.com</a>
Triangle INX	eco-solvent, hot solvent and UV-curable inks, replacement cartridges, bulk systems, chip electronics	<a href="http://www.triangleinks.com">www.triangleinks.com</a>

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