The Great Paper Chase

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Finding the right paper for your printer

In addition to paper made by the manufacturer of your printer, there are many combinations of third party papers available at different price points. How can you be sure which papers offer the best combination of price and quality for your work? You could always use the "buy it and try it" approach, but that can get expensive as you start to collect stacks of paper in the corner that don't work well with your printer. Some papers may not even work *properly* in your printer; the ink may never dry, the dot gain can make dot patterns too noticeable, and ink pooling may occur. Here are a few tips on buying paper that might help save you some time and money.

Paper types and coatings

All papers start out with a matte surface. The coating applied to the paper is what gives the paper some level of gloss. Different coatings and amounts allow for anything between a matte surface (little or no coating) to luster and semigloss (coarse coating) to premium glossy papers (fine, smooth coating).

While some are better than others, most matte papers work in all printers and with all inks. The quality of the matte paper basically depends on the "weave" of the paper as to how much resolution the paper can handle. In general, matte papers offer reduced contrast and color gamut when compared to glossy papers because the ink doesn't sit on the top of a smooth surface. Due to the ink interacting directly with the paper (instead of the coating), matte papers can be more difficult to profile and usually have less vibrant colors. On the plus side, matte papers tend to be less prone to gas fading (fading of colors due to exposure to gases in the air) and are usually easy to match up with different printers.

All papers with coatings force the inks to interact with the gloss layer, making inks sit closer to the surface of the paper. This is a good thing for contrast and color gamut because the inks don't get "diluted" by the paper surface. Other problems, however, are introduced due to the chemical interaction between coatings and inks. Some types of coatings are compatible with dye inks (most inkjet printers) and others are compatible with pigment inks (archival inkjets). In general, any paper with a coating will have higher dynamic range (contrast), better color gamut than a matte paper and will be easier to profile using profiling software, that is, as long as the paper is working properly in your printer!

Ink type versus paper type

If you have a dye sub printer rather than an inkjet, you will have a very limited selection of papers to choose from, usually those sold by the company who makes your printer. In a way, that's a positive trait because you know what works with your printer and won't get confused with all the options. On the other hand, you'll have fewer options and will have to pay whatever the manufacturer charges for your paper.

If you have an inkjet printer, make sure you know what type of inks you are using. Most inkjets use dye inks unless otherwise specified. Archival printers, printers designed to produce longer lasting prints, use pigment inks. There are fewer pigment ink printers on the market, and as of this writing, most of the pigment ink printers are Epson inkjets. The most common Epson pigment inkjet printers are: R800, 2100/2200, 2000P, 4000, 7600, 9600. Most other consumer model printers use dye inks unless you buy third party pigment inks to replace your original inks.

- Microporous/nanoporous paper: Most high gloss paper is a porous paper designed to accept both dye and pigment inks. These papers generally produce high resolution prints with the least noticeable dot patterns and are water resistant. Porous papers offer the highest print quality and often do better at realizing the resolution potential of your printer, however, they are known to be more prone to gas fading when using dye inks. Porous papers are usually labeled "quick dry" or "instant dry".

- Swellable polymer papers: Swellable papers are designed to greatly reduce gas fading issues with dye ink printers to produce dye ink prints that outlast those printed on porous paper. They do this by encapsulating the ink inside a gelatin like coating that actually swells when it reacts to the ink. These papers, which normally are not recommended for use with pigment inks, produce good quality prints on dye based inkjets that resist fading but they are not water resistant. Prints on swellable papers often produce slightly more noticeable dot patterns, making them look a bit "grainy" to those who are sensitive to dots in prints. Inks also take longer to dry on swellable papers (sometimes days) and even when dry, a single drop of water accidentally rolled down your print can ruin it. Some inkjets also have problems with ink pooling on these papers, particularly the Canons since they print much faster than other printers. The plus side of course, is the simple fact that your dye based prints will not fade as fast as they would on porous papers, especially when the print is exposed to the air (not under glass). Some examples of swellable papers are Ilford Classic Pearl, Ilford Classic Gloss, and Epson Colorlife. Swellable papers are usually marked "not compatible with pigment inks".

Where to start

If you use a pigment (archival) based printer and prefer a glossy or luster surface, I would suggest sticking with the porous papers such as Epson Premium Glossy Photo

Paper or Epson Premium Luster paper, both of which can be found in most office supply and computer stores. Ilford and Red River also offer great glossy papers so be sure to check them out as well. If you like high gloss, Epson Premium Glossy paper is a staple in the industry that seems to work well in just about any printer, whether your printer uses dye or pigment inks! Note that if you are using an Epson archival printer with Ultrachrome pigment inks (2100/2200, 4000, 7600, 9600), your prints may exhibit some gloss differential, often referred to as "bronzing", on high gloss papers. This effect can be seen when viewing the print from an angle, as the gloss on the surface of the print may appear more/less glossy in places depending on how much ink is placed on the print. This problem can be minimized by using a luster or semigloss paper or completely eliminated by using matte paper. The R800 is currently the only Epson pigment printer that does not suffer from this gloss differential/bronzing problem on high gloss papers.

If you have a dye based printer and you are concerned about longevity and print fading, you may want to try one of the swellable papers. One favorite on the web seems to be Ilford Classic Pearl. Just be aware that swellable papers can produce more noticeable dot patterns and sometimes ink pooling. Dot patterns can be seen by looking closely at light areas on your prints such as the sky, clouds, or other bright (almost white) areas. Ink pooling can be found by printing an image with a wide variety of colors such as a color chart with many color patches and looking at the print at an angle. If the print appears to have differences in the amount of gloss on the surface, pooling might be an issue. When pooling occurs, it can often be seen in the darker colors on the print where more ink is being deposited on the paper.

Any time you decide to use a third party paper, it is very important to read the notes that come with the paper. There will usually be an insert in the package that tells you which selections to make in the print driver for your printer. Making the proper selections is important because your print driver will only have "standard" selections based on papers from the same manufacturer as your printer. That means that you'll have to select a paper in the driver that is not the paper you are using, but the one that works best with your third party paper. Again, settings for different types of papers are usually listed on an instruction sheet included with the paper.

Acid Free

If you are creating scrapbooks where it is important to use acid free papers, I recommend getting a pH testing pen to test your favorite papers. Acid free is not normally an aspect of paper that is listed on the package, and even when it is, you may not be able to trust the claim because sometimes the front is acid free while the back of the page is not. It is always best to buy an inexpensive pH testing pen and test for yourself. In general, papers that are rated for greater longevity such as those marked "fine art", "archival", or "colorlife" will be better for your scrapbooks anyway, even if they are not acid free. By the way, in case you are wondering, almost all prints that you get developed at your drug store or 1 hour photo that are based on regular film are *not* acid free.

What about print longevity

Print longevity is something that in my opinion, is still not tested using methods that will give you an idea of how fast *your* prints will fade in *your* particular display environment. Nevertheless, there are outfits who do longevity research and can give you a reasonable idea of how your printer/ink/paper stacks up to others with respect to how fast your prints might fade. Here are a couple of links to longevity based testing. You may be able to find your printer, ink, and paper combination to compare longevity with other combos by visiting these sites:

Wilhelm Research

Livick.com

Final Thoughts:

As with anything else, a little research can save you a lot of time. Walking by the photo paper display at an office superstore and picking a paper that has the best packaging, the best wording like "ultra", "professional", "premium", or picking the one that has the best claims on the cover can be an expensive and unrewarding proposition! The best advice I can give is to check out the online forums and do some searches for your type of printer with the word "paper" in the search. Sticking with the paper made by the manufacturer of your printer is always a safe bet, but if you have certain issues that you are trying to address like print longevity or even cost, chances are good that others have been in the same spot and have already found the answer that will work for your printer and your ink. When you make your decision, see if any sample packs are available for the paper you have chosen, or order the minimum number of sheets to try. That way, if you do encounter any of the issues mentioned in this article such as ink pooling, graininess, problems with drying time or water fastness, or other problems, you won't be stuck with a lot of paper you can't use.