

The Right Paper

by Constance Sidles

A school director consulted me about the printing quality of a brochure she had commissioned. “The brochure cost a fortune but the photos looked awful,” she said.

The photos did look plugged up with ink, so I explained this was because the paper was uncoated. Photos do not look very sharp on uncoated paper.

“Then why would anyone in their right mind ever use uncoated paper?” asked the director.

Sometimes uncoated paper is the best choice. Learn the differences between coated and uncoated paper so you can make the best choices for your products.

Uncoated paper

All paper is formulated from a pulp that contains fiber mixed with water. As the pulp dries, the fibers bond together in a mat, with most of the fibers more or less parallel. This mat is rough and porous. Paper mills run the paper over polishing cylinders to smooth the surface and seal it. Usually, this completes the manufacturing process for uncoated papers.

Uncoated paper can look as if it has a very solid surface, but its ability to keep ink on the surface—called ink holdout—is limited. Instead, the ink sinks into the crevices between the paper fibers and spreads out, causing the ink’s colorants to lose density. Details become blurry because the dots used to produce the images in offset printing lose their hard edges.

Uncoated papers can also look smooth, but they are not. When light strikes the paper, its rough surface scatters the light. Some light is reflected back to our eyes, but a lot is lost. This reduces color saturation and detail even more. Uncoated paper is rough and scatters light randomly. Some light reaches our eyes, but a lot is lost. Colors look grayer and detail is less sharp.

Coated paper

To improve ink holdout and reflectance, paper mills apply a coating to the paper, creating coated paper. Ink printed on coated paper dries on the surface without spreading, providing maximum color saturation. The smoothness of the coating also reflects light back uniformly. Because dots keep hard edges, detail is preserved. Coated paper lets ink dry on the surface, where it can transmit the most color information.

So why doesn’t everyone use coated stock? The answer is that coated papers have their own unique limitations:

- They provide no interesting texture. Uncoated papers, by contrast, appeal to our sense of touch as well as to our sense of sight.
- They lack bulk. Uncoated papers bulk more thickly.
- They generally cost more than uncoated papers.
- Coated papers often have glossy finishes with high reflectance that can make the eye tired. If you are contemplating a job with lots of color and text, balance your needs for color fidelity against readability.
- The coating can crack when the paper is folded. Thick, uncoated papers can crack also, but scoring can solve this problem. Coated papers of comparable weight often cannot be scored successfully because they are too hard and brittle.

Solutions

Some designers try to get the best of both kinds of paper by selecting an uncoated sheet and then using a printing process that maximizes color saturation. Flexography, for example, uses opaque inks that sit up more on the paper. Historically, flexography presses were limited to coarse screen values (120 lines per inch or fewer). But there are now flexo presses that can reliably print 133-line screens.

Another process that uses dense, opaque inks is screen printing. Screen printing is also limited by coarse screen values and irregular registration. But in the right circumstances, screen printing can produce very bright colors, on almost any kind of surface. Still another option is waterless printing. Because waterless presses require no fountain solution, dots do not spread out much, even on uncoated paper. You might also consider some of the newer digital printing technologies which use dry toner instead of ink.

Keep your main goal in mind: to select a paper and a process that together help you achieve your design objectives. Only then can you be sure that you are choosing the right paper.❖

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