

UPSHOT: The S300's low purchase price plus its reasonable ink costs equal a great value for this all-purpose printer.

6 Canon S500 Color Bubble Jet Printer

WHAT'S HOT: The S500's graphics quality ranks among the best on our chart. We especially liked the great detail and realistic highlighting and textures of photos

on glossy paper. Another advantage: cheap ink. With this printer, your cost is only 2 cents per text page and just 10.7 cents per page of color graphics—the S500 ties its cousin the S600 as the least-expensive model on our chart to operate. Over its USB connection, the S500 also performed quickly, delivering text at 5.8 ppm and graphics at 0.7 ppm.

WHAT'S NOT: The ink bled somewhat on

our text samples, and letters appeared slightly jagged in places. Though the paper trays look sturdy, they fall off if you bump them accidentally.

WHAT ELSE: The S500 sports a parallel port for legacy PCs. Its useful software bundle includes Canon's PhotoRecord digital photo album software and PhotoStitch for combining several side-by-side photos into one panoramic image. ▶

FADE TESTS

IF YOU'VE EVER stuck a print of a digital photo on your refrigerator, you've likely seen it fade quickly. That's because sunlight, fluorescent light, air pollution, and humidity all take a toll on digital prints. So what's the secret to making those prints last?

Keeping photos framed under glass, instead of tacked onto the fridge, offers some protection. Photo longevity also depends on the ink you use. Most photo printers—and a few lower-priced general-purpose ink jets, such as Epson's C80—use pigment-based inks, which contain small, waterproof color flecks that make the inks more fade-resistant than the water-soluble, dye-based inks that typically last only six months to a year without fading.

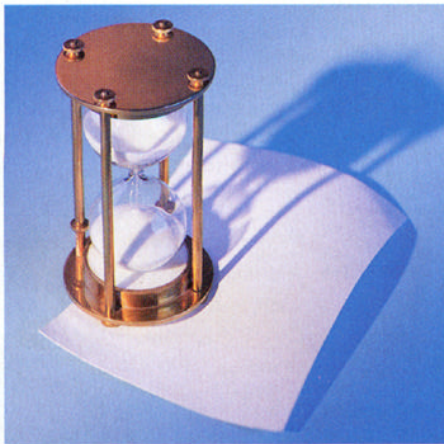
PICKING PERFECT PAPER

PAPER IS ANOTHER important factor in print longevity. Though there are many different kinds of paper, most fall into either of two groups: porous and nonporous. Nonporous (sometimes called swellable polymer) coatings are composed of ozone-resistant polymer materials, but ink takes longer to dry on them. Microporous coatings, on the other hand, suck up ink like a sponge. The paper dries almost instantly because inks are absorbed into the surface and are held there, but they never completely seal. Microporous paper is so absorbent that it's more susceptible to fading from harmful light and ozone.

Vendors optimize their printers for specific kinds of paper and ink—usually their own proprietary blend—so if you use paper other than what's recommended, your prints may fade quickly.

"Papers that are designed to be compatible with all brands of printers suffer from serious design constraints," says Henry Wilhelm, founder and president of Wilhelm Imaging Research. "These papers can't be for optimized any particular printer. Unless there

SECRETS
to print longevity
revealed



is specific information on the permanence [of prints] on the paper, you are really flying blind."

LONGEVITY TESTS

WILHELM'S LAB derives the longevity of glass-filtered and unprotected papers and inks by conducting accelerated light exposure tests that simulate typical fluorescent-lit indoor display conditions. By putting prints in a controlled environment and increasing the amount of light a typical room would receive in a day, Wilhelm can induce fading, changes in color balance, and staining normally occurring over months or years of display.

In his tests, prints made with Epson's C80 printer, using Epson's DuraBrite pigmented inks and Archival Matte Paper, were extremely lightfast, lasting up to the equivalent of 70

years on display before any fading occurred.

Prints from HP's Deskjet 970, when used with that company's Colorfast Photo Paper and HP cartridge number 78 dye-based inks, can last 18 to 20 years when displayed under glass, says Wilhelm, and 10 to 13 years without glass (about the same longevity as prints from the silver halide film used in a traditional camera).

On the other end of the spectrum, consider Wilhelm's tests of the now-discontinued Lexmark Z51 Color Jetprinter with its 12A1990 Photo inks and Lexmark Photo Paper (one introduced in 1998 and another in 1999). The 1998 paper showed noticeable fading after the equivalent of two to three years, while its 1999 paper showed fading occurring in less than a year.

Lexmark has developed new inks for the Z23 and Z33 Color Jetprinters that it says last longer, but it hasn't made claims about archivability. Wilhelm is currently conducting longevity tests.

—Alexandra Krasne