

Color Paper: What Must Be Done to Meet the Challenge of Non-Impact Printing Technologies

Takeo Koitabashi
Managing Director, Konica Corporation
Tokyo, Japan

Introduction

"The Lexmark Report on Computing and the American Family" reports that personal computers have outpaced televisions as America's most desired household appliance¹. In the coming century, the computer can be expected to become the main appliance in most any home. At the same time, the social agenda to protect our environment has grown stronger than ever and can only grow more determined.

These two trends are decisively shaping tomorrow's color photographic paper. To flourish in coexistence with non-impact printing technologies, conventional photographic images will have to be digitized with accuracy and efficiency so that they can feed the stream of digital processing and transmission. At the same time, silver halide photography will have to do its part to protect the environment by dealing with the harmful compounds and processing solutions that have long been part of its technology.

Color Paper's Superior Imaging

Without a doubt, silver halide color paper provides the highest quality color hardcopy images in existence today, a fact that is most often acknowledged by citing its exceptional resolution, measured in dots per inch, and its extremely fine gradation, as seen in its unsurpassed capability to capture highlights.

But there are parameters of image quality beyond these. For example, the surface gloss and surface transparent layer of color paper dramatically affects image perception. As Honjo notes, the surface of color paper suggests to the eye the surface of water or of a mirror, giving color paper the ability to present images that most naturally resemble the original subject.²

Another measure of color paper's value can be found in Takahashi's concept of a hardcopy galaxy³. Takahashi compares a number of hardcopy systems in terms of image quality and copy volume per minute. When current copy volume data are injected into his framework of comparison, the continued superiority of silver halide systems, in both image quality and copy volume, is confirmed.

Challenges of the New Century

Yet, despite such powerful performance, silver halide color paper and its related technologies must continue to progress if the challenges of the coming century are to be met. Two steps are foremost and essential.

First, non-impact digital printing systems serving color paper must be significantly improved. Again referring to Takahashi's hardcopy galaxy, when copy volumes for analog printing and digital printing are considered separately, performance flags in the realm of digital printing. This is a challenge to color paper's current position as the hardcopy imaging technology of both highest quality and lowest cost.

Second, the environmental problems posed by color paper's silver halide technology must be solved. To be sure, every effort must be made to minimize or eliminate harmful compounds. But we must also target the silver halide system's need for water. Color paper provides superior imaging, but its imaging chemistries also require water, and, with the exception of dry silver systems, no completely dry silver halide system exists. The solution to this may lie in a virtually dry system, a path suggested by such recent innovations as Fuji's Pictography and Konica's Ecojet systems.

With focus and determination, we can and will meet these challenges and assure that the beauty and power of color paper will continue to be enjoyed.

References

1. Hard Copy Supply Journal (Dec. 1996)
2. S. Honjo, "New Issues of Color Hardcopy Technologies", SID '96, Digest of Tech. Papers, XXVII, 943 (San Diego, May 1996)
3. K. Takahashi, "Proceedings of Symposium on Tomorrow's Hardcopy Technology" (Osaka, May 1997)