

# The Important Roles of Inks and Media in the Light Fading Stability of Inkjet Prints

*Henry Wilhelm*

*Director of Research, Wilhelm Imaging Research, Inc.*

*Grinnell, IA 50112-0775*

*Mark H. McCormick-Goodhart*

*Conservation Analytical Lab/MSC, Smithsonian Institution*

*Washington, DC 20560*

*Joseph Holmes*

*Imaging and Color Management Consultant*

*Kensington, CA 94707*

## Abstract

In the fine art field, the high-resolution inkjet printers made by IRIS Graphics, Inc. have during the last 6 years become the preferred direct digital output device for printing large format color images. The IRIS printers can produce near-continuous-tone color images on a greater variety of substrates than that of any other type of traditional or digital color printing process. IRIS prints can be made with almost every type of paper (including heavyweight artists' watercolor paper having a variety of surface textures), coated polyester or other plastic sheets, photographic-type papers, cloth, and most other materials that will accept the water-based inks used with the printers.

Prints may be produced in sizes up to 34 x 46 inches, and the cost of consumables (paper and inks) is minimal. IRIS printers operate in bright light, use no processing chemicals or wash water, and have no effluents that require disposal. All of these factors have contributed to the appeal of IRIS printers among photographers working with scanned photographic images in Adobe Photoshop, Live Picture, or other digital image processing programs, and with "digital artists" who utilize computers to create their work.

IRIS printers were originally intended for direct digital proofing in the graphic arts field, and for computer-aided

industrial design work. In most such applications, good light fading stability is not an important requirement and the inks that were originally supplied for IRIS printers had comparatively poor light fading stability characteristics – the prints had a much shorter display life than that of traditional types of color prints. (If made on a stable, non-yellowing print support material, the dark storage stability of the original types of inks is very good.) In the fine art field, however, where prints may be sold for many thousands of dollars and the longest possible display is desired, new inks with much better light fading stability have been developed during the past several years.

In this presentation, the light fading characteristics of several recently introduced ink sets will be discussed. "Hybrid" ink sets which consist of inks selected from two or more standard ink sets supplied by the various manufacturers will also be described. Wet-intermixture effects of two or more inks, the importance of starting density, the influence of the support material, and the effects of various protective coatings on the light fading characteristics of the prints will be discussed. Also discussed will be the influence of media on the light fading stability of prints made with Epson and Hewlett-Packard desktop inkjet printers.