

Image Permanence: Comparing the Technologies

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Abstract

In today's market, the consumer has a wide array of technologies to choose from when making photo prints. The most prevalent of these include piezo inkjet, thermal inkjet, silver halide, color electrophotography and dye thermal imaging. Some of these are available as inexpensive printers for the home or business, and some through use of a kiosk or retail supplier. This presentation provides the results of testing of representative samples of each of the technologies that are readily available to consumers.

Due to a growing awareness of the need for image longevity, consumers are recognizing the value of using a technology that will provide a lasting image. To date there is no industry standard or test methodology, so TPR has used commonly used methods and procedures for accelerated exposure under several conditions that have been shown to affect image stability. The tests include the effects of long-term UV exposure, gas fastness, dark keeping and humidity exposure. Prints from the following sources were tested:

Desktop Inkjet Printers

*Canon MP600
Epson RX580
Epson CX7800
HP Photosmart 5180
Kodak EK5300
Lexmark X9450*

Desktop Laser Printers

*Dell 3010
HP Color Laserjet 2600
Konica Minolta 2400W*

Retail Kiosks

*Altech CW01 (thermal)
HP Edgeline Kiosk (inkjet)
Kodak Kiosk (thermal)
Mitsubishi CP-9550 (thermal)
Sony (thermal)*

Photo Labs

*Fuji Crystal Archive (silver halide)
Kodak Professional Super Endura (silver halide)
Kodak Royal (silver halide)*

Tested prints included fine lines and bleed patterns as well as color density patches and typical photos. Absolute predictions of image life can be contentious, so a comparison of each technology and its image stability performance is made and conclusions are drawn. No attempt has been made in this test to assess or compare image quality parameters.

Author Biography

Peter Mason has more than 30 years experience in the development of digital printers including more than 20 years at Xerox Corporation. He was directly responsible for the first commercial laser printer. His technical expertise includes technology evaluation and selection, product architecture, program management, powder and inkjet printing systems, and direct printing technologies. He also manages the inkjet testing and analysis operations including ink formulations, failure analysis, new applications, and the image stability laboratory. He has directed image stability testing at Torrey Pines research for the past seven years and has presented several papers detailing the results.