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*2<sup>nd</sup> International Conference on*  
**“Colour Photography and Film: analysis, preservation,  
and conservation of analogue and digital materials”**  
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**A 145-Year History of the Stability and Preservation of Color Photographs  
and Film – The Overlapping Roles of Manufacturers, Photographers,  
Collecting Institutions, and the Consumer Marketplace – From 1877 to 2022**

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# **Photographic Prints**

**19th Century Prints = Analog/Chemical Processes**

**20th Century Prints = Analog/Chemical Processes**

**21st Century Prints = Digital Pigment & Dye Processes**

**It is believed that at the present time, more than 99% of the world's photographic prints are being produced with digital color and monochrome processes.**

**Included are modern prints made from scans or digital camera captures of original film and glass plate negatives and transparencies.**

# Digital Photographic Print Processes

- 1) **Silver-Halide – Dye** (chromogenic) (Kodak and Fuji with Durst Lambda in 1994)
- 2) **Dye Diffusion Thermal Transfer – Dye** (Kodak “dye-sub” printers in 1991)
- 3) **Aqueous Inkjet – Dye** (especially with Iris Graphics printers in 1989)
- 4) **Aqueous Inkjet – Dye** (especially with Epson printers from 1994)
- 5) **Aqueous Inkjet – Pigment** (especially with Epson printers from 2000)
- 6) **Aqueous Inkjet – Pigment** (with HP and Canon printers from 2006)
- 7) **Solvent Inkjet – Pigment** (many manufacturers, from the mid-1990’s)
- 8) **Latex Inkjet – Pigment** (especially with HP Latex printers from ~2008)
- 9) **Electrophotographic – Pigment** (especially with Indigo from ~1993)
- 10) **UV-Curable Inkjet – Pigment** (many manufacturers, especially from ~2010)
- 11) **Sublimation Inkjet Thermal Transfer – Dye** (on fabrics, from ~2008)
- 12) **Sublimation Inkjet Thermal Transfer – Dye** (ChromaLuxe aluminum print panels (white and clear “metal prints”), plywood, and other materials, from ~2010)

# **Digital Photographic Print Processes**

**Despite the widespread adoption of inkjet, dye diffusion thermal transfer (“dye-sub”), and other “direct” digital print processes, *digitally-printed* silver-halide dye color (chromogenic) prints continue to be widely used in the portrait, wedding, fine art, commercial display, and high-end photobook markets. These prints are also supplied by online photofinishing companies such as Shutterfly and Snapfish.**

**The Kodak and Fuji Process RA-4 color papers are digitally printed with Noritsu and Fuji Frontier printers and, for larger format prints (up to 72-inches wide with Kodak papers), with Oce Lightjet, Durst Lambda, Chromira, and Polielettronica digital photo printers.**

**The latest industry figures are that there are currently more than 60 manufacturers of UV-Curable inkjet printers in the world, and that these printers are being sold under more than 90 different brands.**

**There are also numerous suppliers of UV-Curable ink manufacturers, and that the number of different types of rigid and flexible substrates that can be used with these printers is essentially infinite.**

**The difference in light-stability  
between the most stable and the  
least stable of current inkjet inks  
is greater than 2000 to 1.**

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