



The Need for Expanded-Gamut Printing

About Idealliance four and seven color expanded gamut research programs

Since 2006, GRACoL has enjoyed enormous success as a world-wide default color space for preparing CMYK files. The combination of GRACoL and G7 has greatly improved the efficiency and consistency of print production, not only in offset but also in other printing methods like flexo, gravure, ink jet and electrophotography. For many printers and print buyers, GRACoL has become the defacto-standard for exchanging CMYK files between one process and another.

The one limitation of GRACoL is that its color gamut is noticeably smaller than that of many new printing methods, which puts GRACoL printers at a disadvantage when maximum color saturation is required. GRACoL is perfect for general commercial printing, but falls short of the richly saturated color gamut needed for packaging and high-impact printing.

When more color is needed on press, the traditional solution is to augment the CMYK inks with additional inks and custom ICC profiles, under the generic term “expanded gamut” (or “extended gamut”) printing. Unfortunately, this approach lacks the standardization benefits of GRACoL, because every expanded gamut system uses its own unique ink colors, software and ICC profiles, and files made for one system cannot be printed directly on another. This is being addressed by the new Idealliance Expanded Gamut Project.

The Idealliance Expanded Gamut Project

The Idealliance Expanded Gamut Project seeks to make expanded gamut printing easier and more efficient by researching and publishing optimized methodologies, ink specifications and ICC profiles. The goal of the project is to bring at least some of the convenience and easy file interchange already enjoyed by GRACoL to the expanded gamut market. But first some basic questions must be answered, such as how many inks are needed, and what color should they be?

CMYKOGV (7-Color Expanded Gamut)

Traditional expanded-gamut offset uses up to seven inks – normal CMYK plus (typically) orange, green and/or violet – hence the generic process name “CMYKOGV”. Optimizing the OGV ink colors is a key goal of the Expanded Gamut Project, but an equally important goal is to determine how the CMYK inks should be printed. If the CMYK inks are only printed to GRACoL specifications, the full potential of CMYKOGV printing cannot be achieved, because the OGV inks do nothing to expand the gamut in pure cyan, magenta or yellow areas. To maximize the gamut of seven color printing, the gamut of the CMYK inks must be expanded independently of the OGV inks, which brings us to the concept of XCMYK, or “eXpanded-gamut CMYK”.

XCMYK (4-Color Expanded Gamut)

XCMYK is a GRACoL committee research program that explores the maximum color gamut achievable with just four (CMYK) inks. More than 26 experimental press runs over two years have

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shown that with optimized inks, non-traditional screening, and high quality media, XCMYK printing can consistently yield a color gamut much greater than GRACoL, although not as large as CMYKOGV. In November 2016, Idealliance released the XCMYK profile and announced a new colorspace or (Characterized Reference Print Condition) for general industry use, representing XCMYK expanded gamut printing that can be achieved on offset and digital devices.

XCMYK or CMYKOGV – Which Should You Use?

The XCMYK and CMYKOGV expanded gamut methods are not competitive, but rather symbiotic, because XCMYK already defines the CMYK gamut of an optimized CMYKOGV color space. XCMYK is simply a more cost-effective stepping-stone whose color space (and costs) lie somewhere between GRACoL and CMYKOGV. So, which should you use?

- If you want the very largest color space possible, and the work merits the cost of extra color units, use CMYKOGV.
- If you want a color space significantly richer than GRACoL but less expensive and complicated than CMYKOGV, use XCMYK.
- If you want excellent commercial color printing with maximum file interchange potential, but don't have the need for expanded gamut, use GRACoL.

Regardless of which system you use, remember that because GRACoL, XCMYK and CMYKOGV are all based on the same CMYK inks and G7, they share many of the benefits that have made GRACoL so successful. These include easier file exchange, standardized ICC profiles, standardized proofing specifications, and standardized workflows.

About Idealliance

Idealliance is a graphic communications industry association representing a unique convergence of printers, mailers, marketers, agencies, publishers, and their media materials and technology providers. The association works to collaborate on its integrated capabilities to advance technical and management best practices; deliver best-in-class research, education, and certifications; and serve as a united industry advocate.

For more than 50 years, Idealliance has developed standards defining and redefining workflow and supply chain for color, content, mail, paper, production and applying fundamental XML technology. Core media specifications created by Idealliance include GRACoL®, G7®, Mail.dat®/XML™, papiNet®, PRISM®, PROSE/XML™, and SWOP®.