

Printing Guidelines 2011

HELPING PRINT BUYERS AND PRINT PROVIDERS ACHIEVE CONSISTENT, HIGH QUALITY COLOR PRINTING, ACCORDING TO THE LATEST G7 SPECIFICATIONS AND ISO STANDARDS

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How to use this poster: *Creatives & Print Buyers* explains how to ensure your work is prepared, proofed and printed as accurately as possible. It also discusses some of the challenges facing color printing and how to manage expectations. *Prepress & Proofing* describes how to convert creative materials into press-ready CMYK files and how to create and verify accurate prepress proofs. *Pressroom* charts the ISO-standard inks and substrates and the G7 print control metrics for various print specifications.

Creatives & Print Buyers

When Creating for Print

To make sure the color you see on screen comes as close as possible to simulating the final printed work:

- Your monitor must have its own custom ICC profile.
- Your application's Color Settings must suit the intended print condition (GRACoL®, SWOP®, etc.) default Adobe Color Settings (files can be downloaded from the G7 web page at www.idealliance.org).
- Keep images in RGB as long as possible but remember they may be less colorful when printed, depending on the gamut of the printing system (see *Color Gamut sidebar*).
- To see how an RGB image will look when printed, select Proof Colors (CMYK preview) (Mac: Command+Y, PC: Control+Y).
- Always embed the profile when saving images. This happens automatically with default Color Settings Files from the G7 web page at www.idealliance.org.

About Proofs

- The only purpose of a prepress proof is to simulate how the job will appear on press.
- Prints made on an un-profiled desktop printer are **NOT PREPRESS PROOFS** and will usually be rejected by your printer or made-over at additional cost.

- Never accept a proof unless it has been made on an IDEAlliance-certified GRACoL® or SWOP® proofing system.
- ALL proofs should have the IDEAlliance ISO 12647-7 Control Strip included on the edge (see *example at foot of poster*).
- Proofs and press sheets should only be viewed under ISO-standard D50 lighting. Non-standard illumination (e.g., office fluorescent tubes) will often cause a good proof or press sheet that looked acceptable under D50 lighting, to look unacceptable.

About Printing

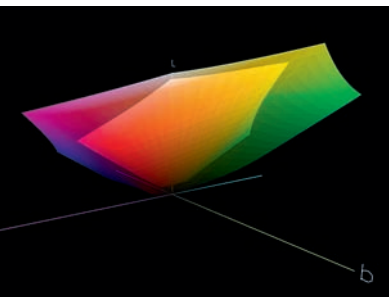
- There are over 100 variables in a typical printing process, not all of which can be controlled by the printer.
- It is theoretically impossible for even the most skilled printer to **EXACTLY MATCH** a prepress proof.
- It is theoretically impossible to re-print a job exactly the same way twice.
- Good printing should look close to the proof in the most important colors, but will always have some small differences.
- Generally, the closer the match you ask for between proof and press, the more the printing will cost.
- If the proof and press sheet are printed on different-colored paper, expect the image areas, especially lighter colors, to be affected by that difference (see *Paper Shade sidebar*).

Color Gamut

A good CMYK reproduction will usually have less color saturation than the original RGB image viewed on a computer monitor. The actual color gamut of a printing process depends on the choice of substrate (paper) and colorant (ink) as well as other variables. This example shows the same image printed on a high-quality commercial press using expensive bright white stock, compared to printing on a typical newspaper press.

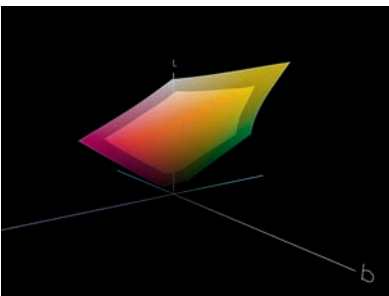
GRACoL®

The smaller object represents the color gamut of a high-quality commercial press (GRACoL) compared to the larger gamut of a good LCD monitor.



Newsprint

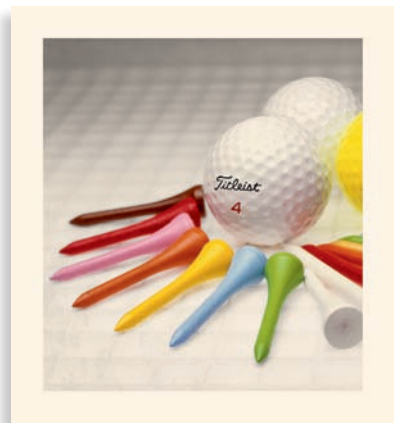
The smaller object represents the color gamut of a newspaper press compared to the relatively larger gamut of a commercial press.



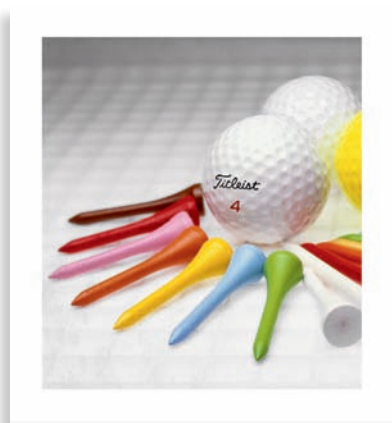
Paper Shade

The samples below show how a proof made on one paper shade may not match a press sheet on another paper.

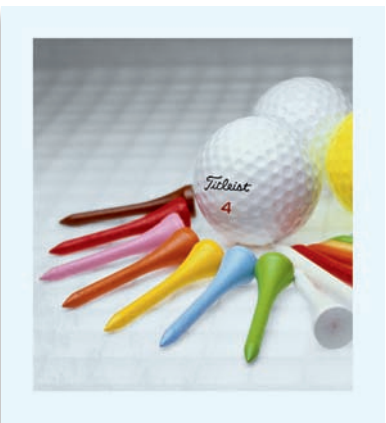
Cream shade



Neutral shade



Blue shade



Prepress & Proofing

Converting to CMYK

- The chart shows the default ICC profiles (where available), TAC and Maximum K values for various printing conditions.
- Expert users who want to alter GCR, TAC or black printer strength can create their own ICC profile from the appropriate characterization data set, e.g., GRACoL2006_Coated1.

GCR & TAC

- Medium GCR is built into the default IDEAlliance profiles. Higher GCR levels and longer-range blacks will improve dark colors and press stability in neutral tones.

Standardized Proofs

- Except in special circumstances, proofs should only be made on IDEAlliance-certified GRACoL® or SWOP® proofing systems, according to the vendor's ADS (Application Data Sheet).
- All proofing systems should be tested for accuracy by printing and measuring at least one IT8.7/4 and P2P25 target and comparing the IT8 target to the reference print condition (e.g., GRACoL2006_Coated1) and comparing the P2P target to the G7 NPDC and gray balance specifications (see *G7 How-To*).
- To verify individual production proofs, include an IDEAlliance ISO 12647-7 Control Strip (see *example at foot of poster*) at the edge of **EVERY** proof, measure it, and compare it in a suitable proof verification software.

	Reference Print Condition	Default ICC Profile	TAC†	Max K%
Offset	GRACoL® 2006 Coated1	GRACoL2006_Coated1v2.icc	320	100
	SWOP® 2006 Coated3	SWOP2006_Coated3v2.icc	300	100
	SWOP® 2006 Coated5	SWOP2006_Coated5v2.icc	300	100
	SuperCal (proposed)	–	260-280	–
	Prem Uncoated (proposed)	–	280	–
Flexo	Heatset News (proposed)	–	260	–
	SNAP-2009-Coldset Newsprint	–	240	–
	Narrow Web Flexo† (GRACoL® 2006 Coated)	–	260-320††	–
	Corrugated Sheet Flexo	–	260-320††	–
	Wide Web Film†	–	260-320††	–
D50 2° 0, 45 or 45, 0 geometry † White backer reference ISO 13655 †† Actual TAC values for Flexography should be determined from print trials per substrate ‡ TAC depends on Max K% & GCR%				

Pressroom

Standardized Printing

- The chart shows paper type and color, solid ink CIELAB values and G7 NPDC values for various printing conditions. Achieving these conditions on a G7-calibrated press should eliminate the need for custom ICC press profiles, so long as CMYK files are made with ICC profiles based on the appropriate characterization data set.

- Since 2006, neither GRACoL® nor SWOP® nor G7® have specified solid ink densities or TVI (dot gain) values. **Legacy solid density or TVI values are no longer valid.**
- To find YOUR target solid ink densities, first achieve the closest solid Lab values possible, then switch the instrument to density and record your particular values.

- Note that density values found for one ink/ paper/ instrument combination may be different than those for another ink/ paper/ instrument combination.

	Reference Print Condition	Paper Substrate	TAC	Nominal Paper Lab	Solid Primary Colorimetry (L*a*b*)												Solid Overprint Colorimetry (L*a*b*)												NPDC Excluding Paper			Nominal Densitometric Values†																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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Offset				L	a	b	L	a	b	L	a	b	L	a	b	L	a	b	L	a	b	L	a	b	L	a	b	L	a	b	25% Grey	50% Grey	75% Grey	CMY/K	CMY/K	CMY/K	K	C	M	Y	K	C	M	Y																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	GRACoL® 2006 Coated1	Grade # 1-2 Coated	320	95	0	-2	15	0	0	55	-37	-50	48	74	-3	89	-5	93	47	68	48	50	-68	25	24	17	-46	23	0	0	.25/.22	.54/.50	.90/.90	1.70	1.40	1.50	1.05	20	16	16	15																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	SWOP® 2006 Coated3	Grade # 3-4 Coated	300	93	0	0	18	0	0	57	-37	-45	48	72	-3	88	-5	88	47	66	45	52	-65	25	26	18	-44	25	0	0	.25/.22	.54/.49	.89/.87	1.60	1.30	1.40	1.00	20	17	17	16																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	SWOP® 2006 Coated5	Grade # 5 Coated	300	90	0	4	19	1	1	57	-38	-41	48	70	-4	86	-6	85	47	64	43	52	-62	27	27	19	-42	25	0	0	.25/.22	.54/.49	.89/.88	1.60	1.30	1.40	1.00	20	17	17	16																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	SuperCal (proposed)	Supercal SCB-SCA	260-280	88	0	2	23	1	1	54	-33	-36	46	63	-2	82	-5	78	46	58	37	48	-52	23	28	14	-37	27	0	0	.25/.22	.54/.49	.89/.86	1.40	1.15	1.20	0.95	21	18	18	17																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	Prem Uncoated (proposed)	Premium Uncoated	280	95	0	-2	30	1	1	59	-26	-44	55	61	-1	89	-4	77	54	55	30	54	-44	17	37	11	-31	33	0	0	.25/.22	.52/.48	.83/.80	1.30	1.10	1.15	0.95	22	19	19	19																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Flexo	Heatset News (proposed)	Improved Newsprint	260	86	1	4	28	1	2	53	-28	-33	48	55	-2	78	-3	71	47	51	31	47	-44	20	33	11	-31	29	0	0	.25/.22	.53/.48	.86/.82	1.20	1.05	1.05	0.90	23	20	20	20																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	SNAP 2009 Coldset Newsprint	Newsprint	240	83	1	5	37	2	4	59	-24	-26	55	46	0	79	-3	56	53	43	24	55	-36	17	41	6	-22	40	0	0	.25/.22	.50/.46	.75/.74	1.05	0.90	0.90	0.85	26	26	26	26																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	Narrow Web Flexo† (GRACoL® 2006 Coated)	Coated Paper	260-320††	95	0	-2	15	0	0	55	-37	-50	48	74	-3	89	-5	93	47	68	48	50	-68	25	24	17	-46	23	0	0	.25/.22	.54/.50	.90/.90	1.70	1.40	1.40	1.00	20	16	16	15																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	Corrugated Sheet Flexo	Coated Paper	260-320††	93	0	0	20	0	0	57	-37	45	48	72	-3	88	-5	88	47	66	45	52	-65	25	26	18	-44	25	0	0	.25/.22	.54/.49	.89/.87	1.50	1.40	1.40	1.00	20	17	17	16																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	Wide Web Film†	Film Products	260-320††	93	0	0	20	0	0	57	-37	-45	48	68	-2	88	-5	88	47	66	48	52	-65	25	26	18	-44	25	0	0	.25/.22	.54/.49	.89/.85	1.50	1.32	1.32	1.00	21	18	18	17																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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The IDEAlliance ISO 12647-7 Digital Control Strip (shown here) should be included and measured on EVERY proof.

