



**ECI offset profiles 2008**

July 2008

### **Additional characterization data and ICC profiles for standard printing conditions**

As of July 2008, new Fogra characterization data sets, as well as ECI offset profiles for four new printing conditions are available.

The characterization data sets "FOGRA41" for heatset web offset printing on MFC paper (machine finished coating), and "FOGRA42" for heatset web offset printing on SNP paper (standard newsprint), are based on print runs conducted by the ECI web offset working group.

For offset printing with non-periodic screening (NP screening), also known as FM screening (frequency modulated screening), the characterization data sets "FOGRA43" for paper types 1 and 2 (gloss- and matte-coated paper) and "FOGRA44" for uncoated white paper have been introduced.

### **Why are special characterization data sets and ICC profiles for non-periodic screening needed?**

The new characterization data sets for offset printing with non periodic screens have been developed in a Fogra research project.

Fogra realized an extensive series of test prints on coated and uncoated stock using non-periodic screening systems from several vendors. As expected, the tone value increase was significantly higher than on prints with conventional AM screening (amplitude modulated screening).

For the following reasons, it is not recommended to adjust FM screened plates to the aim values used for AM screening on the respective paper types:

- 1) Significant colour differences in areas with identical tone values between prints using AM and FM screening although CIELAB values of the ink solids and tone value increase curves have been carefully aligned.
- 2) When using FM screening, different paper types have no significant impact on the tone value increase (dot gain) compared to prints using AM screening.
- 3) With FM screening, all four printing inks show identical tone value increase, where-

as in prints using AM screening, the tone value increase of the black ink can be up to 3 percent greater in the mid tones than that of the chromatic inks cyan, magenta and yellow.

- 4) Large correction curves at the platemaking stage to compensate for high tone value increase, are not recommended as it may cause problems such as banding in gradations.

Therefore curve F as stipulated in the ISO 12647-2:2004 standard is the process control aim for all paper types and printing inks. The tone value increase of curve F in the mid tone (at 40%) is 28 percent.

### **What is the meaning of the letters "PSO" in the profile names?**

PSO stands for "Process Standard Offset printing". By indicating the printing technology at the beginning of the profile names, the ECI is continuing the use of the naming system established with rotogravure profiles, which begin with the letters PSR (process standard rotogravure).

The PSO is published by the German Printing and Media Industries Federation (bvdM). The starting points for the PSO are international standards such as ISO 12647-2 for process control of sheetfed and heatset web offset printing, as well as the ISO 15930 series for the exchange of printing data using PDF (PDF/X).

In order to help users implement ISO standards practically, the PSO covers all steps of the print media production; from the creation of printing data to production printing, accompanied by objective quality control through measurement.

With regard to quality control, the PSO explicitly refers to the parameters, aim values and tolerances published in the ISO 12647-2 standard. In addition, the CIELAB values of the Fogra characterization data sets are used for the quality control of contract proofs.

To further simplify the practical implementation of ISO standards, the PSO includes detailed instructions, and refers to helpful tools published by organisations such as ECI, Fogra and Ugra.

In short, the relationship between the ISO standard and PSO can be explained as follows: ISO defines the aim – PSO the method.

Therefore new ECI offset profiles contain references to the respective ISO standards in their profile names. ECI profiles for paper types which are not yet covered by the ISO standard do not contain this reference. This is the case with MFC and SNP papers.

However, as in the case of all other printing conditions, the print runs for creating the characterization data sets for these paper types followed the process control specifications of ISO 12647-2:2004. This applies in particular to the tone value increase curves. You will find a reference to the respective tone value increase curves as published by ISO 12647-2:2004 in the table on page 4 and in the info file of the respective ECI offset profile.

### Which new profiles are available?

The two ECI profiles “PSO MFC Paper (ECI)” and “PSO SNP Paper (ECI)” apply for heatset web offset printing on MFC (machine finished coating) and SNP (standard newsprint) paper. These profiles are an addition to the current “SC Paper (ECI)” profile in an effort to enhance solutions for the creation of prepress data as well as contract proofs for paper types frequently used in web offset printing.

The respective characterization data sets “FOGRA41” for MFC and “FOGRA42” for SNP paper have been developed by the ECI web offset working group based on an extensive series of test prints conducted by several web offset printers.

The ECI offers three ICC profiles for offset printing using non-periodic screening. The two profiles for matte and gloss-coated paper differ only with regard to the maximum tone value sum. The profile named “PSO Coated NPscreen ISO12647 (ECI)” creates a maximum tone value sum of 330 percent where “PSO Coated 300% NPscreen ISO12647 (ECI)” creates 300 percent, which is well suited for web offset printing. Both profiles are based on the characterization data set “FOGRA43” (20 µm).

The profile “PSO Uncoated NPscreen ISO12647 (ECI)” which is for offset printing

using non-periodic screening (30 µm) on uncoated white paper, is based on the characterization data set “FOGRA44”.

### Which profile should I use?

In general, the ECI, bvdm, and Fogra recommend using the ICC profile which matches the intended printing condition, for colour conversion as well as for proofing. You will find an overview of all ECI offset profiles for standard printing conditions on page 4.

Some paper manufacturers and suppliers provide information regarding recommended characterization data sets (Fogra number) and ECI offset profiles according to the paper stock.

The ECI offset profile “ISO Coated v2 (ECI)” is a good choice in cases where the intended printing condition is not yet known. Prepress data prepared with this profile can be converted to many other printing conditions with good results, however, the best possible results will be achieved with cmyk prepress data prepared with the profile that matches that printing condition exactly.

### Where can the profiles be obtained? From which date are they valid?

The new ECI offset profiles can be freely downloaded from the ECI website ([www.eci.org](http://www.eci.org)). To simplify the selection, the profile package “ECI\_Offset\_2008” contains both the new offset profiles and all profiles from the previous set “ECI\_Offset\_2007”.

The characterization data sets “FOGRA41” through “FOGRA44” can be downloaded also free of charge from the Fogra website ([www.fogra.org](http://www.fogra.org)).

The ECI, bvdm and Fogra recommend the immediate use of the new characterization data sets and profiles, as the new profiles are an extension, and do not replace any of the current valid profiles in the package “ECI\_Offset\_2007”.

## “Offset” package 2008 – Overview

Profiles for sheetfed and heatset web offset printing according to ISO 12647-2:2004 and ISO 12647-2:2004/Amd 1:2007

Profile file name	Profile name	Printing condition	Characterization data
ISOcoated_v2_eci.icc	ISO Coated v2 (ECI)	Paper types 1 and 2, gloss and matte coated • Tone value increase curves A (CMY) and B (K) as defined in ISO 12647-2:2004	FOGRA39L
ISOcoated_v2_300eci.icc	ISO Coated v2 300% (ECI)	Paper types 1 and 2, gloss and matte coated • Tone value increase curves A (CMY) and B (K) as defined in ISO 12647-2:2004	FOGRA39L
ISOwebcoated.icc	ISO Web Coated	Paper type 3, gloss coated (LWC) • Tone value increase curves B (CMY) and C (K) as defined in ISO 12647-2:2004	FOGRA28L
ISOuncoated.icc	ISO Uncoated	Paper type 4, uncoated white offset • Tone value increase curves C (CMY) and D (K) as defined in ISO 12647-2:2004	FOGRA29L
ISOuncoatedyellowish.icc	ISO Uncoated Yellowish	Paper type 5, uncoated yellowish offset • Tone value increase curves C (CMY) and D (K) as defined in ISO 12647-2:2004	FOGRA30L
SC_paper_eci.icc	SC Paper (ECI)	Paper type SC, Super calandered • Tone value increase curves B (CMY) and C (K) as defined in ISO 12647-2:2004	FOGRA40L
PSO_MFC_paper_eci.icc <i>New 2008</i>	PSO MFC Paper (ECI)	Paper type MFC, Machine finished coating • Tone value increase curves B (CMY) and C (K) as defined in ISO 12647-2:2004	FOGRA41L

Tone value increase for the 40% control patch:

Curve **A: 13%** • Curve **B: 16%** • Curve **C: 19%** • Curve **D: 22%** • Curve **F: 28%**

The bvdM “Media Standard Print” (free of charge download from [www.bvdm.org](http://www.bvdm.org)) provides aim values for the whole range from 0 up to 100 percent in 5% steps.

Profile file name	Profile name	Printing condition	Characterization data
PSO_SNP_paper_eci.icc <i>New 2008</i>	PSO SNP Paper (ECI)	Paper type SNP, Standard newsprint, heatset web offset printing • Tone value increase curves C (CMY) and D (K) as defined in ISO 12647-2:2004	FOGRA42L
PSO_Coated_NPscreen_ISO12647_eci.icc <i>New 2008</i>	PSO Coated NPscreen ISO12647 (ECI)	Paper type 1 and 2, gloss and matte coated • non-periodic screening (NPscreen), 20 µm • Tone value increase curve F (CMYK) as defined in ISO 12647-2:2004	FOGRA43L
PSO_Coated_300_NPscreen_ISO12647_eci.icc <i>New 2008</i>	PSO Coated 300% NPscreen ISO12647 (ECI)	Paper type 1 and 2, gloss and matte coated • non-periodic screening (NPscreen), 20 µm • Tone value increase curve F (CMYK) as defined in ISO 12647-2:2004	FOGRA43L
PSO_Uncoated_NPscreen_ISO12647_eci.icc <i>New 2008</i>	PSO Uncoated NPscreen ISO12647 (ECI)	Paper type 4, uncoated white offset • non-periodic screening (NPscreen), 30 µm • Tone value increase curve F (CMYK) as defined in ISO 12647-2:2004	FOGRA44L

Tone value increase for the 40% control patch:

Curve **A: 13%** • Curve **B: 16%** • Curve **C: 19%** • Curve **D: 22%** • Curve **F: 28%**

The bvdM "Media Standard Print" (free of charge download from [www.bvdm.org](http://www.bvdm.org)) provides aim values for the whole range; from 0 up to 100 percent in 5% steps.