

Technote

PDF/X-1a and PDF/X-3: Conversion and verification in pdfInspektor2 and PDF/X-3 Inspector (Freeware)

29 June 2002

PDF/X-1a and PDF/X-3: Conversion and verification in pdfInspector2 and PDF/X-3 Inspector 2 (Freeware)

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Preface

What are PDF/X-1a and PDF/X-3, and where can I get hold of them?
Why two PDF/X standards?
Where can I get hold of the PDF specification?

PDF/X-1a and PDF/X-3 preflight rules in pdfInspektor2

PDF must be version 1.3 or earlier
Page must not be separated
OutputIntent must be present
OutputIntent must contain exactly one PDF/X entry
OutputConditionIdentifier required in PDF/X OutputIntent
Destination profile must be embedded or Registry Name must be filled out
OutputIntent Info key must be present
Destination profile must be ICC output profile (type 'prtr')
Only DeviceCMYK and spot colors allowed
Uses DeviceRGB
Fonts must be embedded
LZW compression prohibited
Trapped key must be True or False
GTS_PDFXVersion key must be present
Invalid GTS_PDFXVersion (PDF/X-1a)
Invalid GTS_PDFXConformance (PDF/X-1a)
Invalid GTS_PDFXVersion (PDF/X-3)
CreationDate, ModDate and Title required
Document ID must be present in PDF trailer
Either TrimBox or ArtBox must be present
Page boxes must be nested properly
Transfer curves prohibited
Halftone must be of Type 1 or 5
Halftone Name key prohibited
Embedded PostScript prohibited
Encryption prohibited
Alternate image must not be default for printing
Annotation and Acrobat form elements must be outside of TrimBox and BleedBox
Actions and JavaScript prohibited
Operators not defined in PDF 1.3 prohibited
File specifications not allowed
Transparency not allowed

Registry of printing conditions maintained by the International Color Consortium

More information at www.pdfx.info · PDF/X mailing lists



Preface

pdfInspektor2 offers conversion of PDF files into PDF/X-1a and PDF/X-3 files and verification of PDF/X-1a and PDF/X-3 files. (Note: PDF/X-3 Inspector (Freeware) offers conversion to PDF/X-3 only. Nevertheless conversion and verification are working in the same way as PDF/X-3 conversion and verification in pdfInspektor2). When converting PDF files into PDF/X files, pdfInspektor2 resp. PDF/X-3 Inspector run a preflight check to find out whether there are problems that cannot be fixed by pdfInspektor2. A couple of problems are fixed automatically to allow for a smooth user experience.

PDF/X Plus – rules and requirements on top of the PDF/X ISO standard

Also, in addition to the rules set forth by the PDF/X-1a and PDF/X-3 standard, pdfInspektor2 offers additional checks to make integration of PDF/X into today's workflows as easy as possible. These checks let a user

- constrain PDF/X-3 to use of CMYK and spot colors only (not applicable for PDF/X-1a, as PDF/X-1a only allows CMYK and spot colours anyway)
- define a minimum resolution for continuous tone as well as bitmap images
- define the maximum number of plates that will result from separating the PDF/X file.

While these additional checks are by no means part of the PDF/X-1a or PDF/X-3 standard, in many environments by simply integrating these checks with PDF/X conversion and verification will cover practically all of the essential preflight requirements. Using these additional checks while converting to or verifying PDF/X saves the user from having to run two workflow steps – one to meet PDF/X-1a or PDF/X-3, and a separate one to control essential minimal workflow requirements. The concept of using additional rules for PDF/X files is commonly known as “PDF/X Plus”.

What are PDF/X-1a and PDF/X-3, and where can I get hold of them?

PDF/X-1a and PDF/X-3 are ISO standards formally known as ISO 15930-1 and ISO 15930-3 respectively. Both standards define requirements for using the PDF format for digital file exchange. The actual standards themselves can be ordered from the respective national standardisation institutes for a handling fee (estimated fee: 50 US\$).

Why two PDF/X standards?

PDF/X actually is a whole family of standards, targeted at different workflows and needs in the graphic arts industry. Currently the two most important ones are PDF/X-1a and PDF/X-3 which define how a «complete» exchange of digital files should be done. The big difference between them is, that PDF/X-1a only allows CMYK and spot colors, whereas PDF/X-3 allows device independent color spaces (like ICC based RGB or Lab) on top of that.

Many users currently are very happy with a CMYK based workflow, but some are already now considering moving towards a «device independent» workflow. In a device independent workflow, images for example are typically kept in an ICC based RGB color space (instead of CMYK for a specific output process, e.g. web offset printing according to SWOP), and only at output time will these images be converted to CMYK, using the appropriate ICC output profile. The big advantage in such a scenario is, that the decision about the conversion to the color space of the printing process is only done in the last minute, and it is easy, efficient and very economical to use the same image data for possibly quite different output device (e.g. gravure, offset and news print).

Where can I get hold of the PDF specification?

The PDF specification has been published by Adobe Systems, Inc. The current version is 1.4. Please note though, that PDF/X-3 is based on PDF 1.3. The PDF specifica- ►

tion – versions 1.3 and 1.4 – can be downloaded for free from Adobe's website (cf. www.adobe.com). It has also been published as a book through Addison Wesley. In this Technote, any references to the «PDF Reference Manual» are to the second edition of the PDF 1.3 specification: Adobe portable document format, version 1.3 · Adobe Systems Incorporated. · 2nd ed. · ISBN 0-201-61588-6 · Addison Wesley 2000





PDF/X-1a and PDF/X-3 preflight rules in pdfInspector2

In pdfInspector2 a preflight profile is defined by associating rules with it. A rule is composed of one or several conditions. pdfInspector2 uses special built-in preflight profiles to preflight whether a PDF file is suitable for conversion to PDF/X-1a or PDF/X-3, as well as for verifying files that presumably already are PDF/X-1a or PDF/X-3 files.

As most of the requirements for PDF/X-1a and PDF/X-3 are identical, the following list of PDF/X preflight rules in pdfInspector2 covers PDF/X-1a and PDF/X-3 at the same time. For every rule it is indicated, whether it applies to PDF/X-1a or PDF/X-3:


: is required for PDF/X-1a


: is required for PDF/X-3

 : is required for both PDF/X-1a and PDF/X-3

The rectangles in the icons described above may be surrounded by a single thick or two thin lines. The thick line indicates that this requirement must be met before pdfInspector2 will even try to convert it to PDF/X. Examples for this are encrypted PDF files or missing fonts.

Two thin lines indicate that pdfInspector2 is in a position to make the PDF file meet this requirement, even if the PDF prior to converting it to PDF/X does not comply with this requirement. Examples for this are removal of transfer curves or recompression of LZW compressed objects using ZIP compression:

: a light gray line indicates that pdfInspector2 will make the PDF file comply with this requirement, applying a «fix» if needed

: a thick black line indicates that pdfInspector2 will not even try to convert a PDF file to PDF/X if this requirement is not met by the PDF file.

PDF must be version 1.3 or earlier

PDF/X-3 is based upon the PDF 1.3 specification from Adobe. This specification explicitly states (see page 56 of the PDF Reference Manual) that valid PDF 1.3 files are those that have in their header PDF 1.3 or any earlier version.

Note: pdfInspector2 will convert a PDF 1.4 file to PDF 1.3 if necessary.

PDF version is newer than 1.3

Document | PDF version | greater | 1.3

Document | PDF version | greater | 1.3

Page must not be separated

PDF/X-3 only allows non separated pages in the PDF file. If a page has a SeparationInfo dictionary this is a clear indicator that the page is a pre-separated page.

PDF has separated plates

This page is a separated plate

Page | Is separated | is true

OutputIntent must be present

A PDF/X-3 file must have an OutputIntent array. This array is supposed to contain a PDF/X-3 specific OutputIntent. This PDF/X-3 OutputIntent indicates, for which printing condition the PDF/X-3 file has been prepared.

OutputIntent missing
Output Intent is missing
Output Intents | Has OutputIntent | is not true

OutputIntent must contain exactly one PDF/X entry

PDF/X-1a PDF/X-3

While an OutputIntent array may contain more than one entry, exactly one of its entries must have the Subtype «GTS_PDFX». This is the OutputIntent entry in an OutputIntents array that is the one required for a PDF/X-3 file.

Note: OutputIntents are not defined in the PDF Reference Manual for PDF 1.3. Adobe cooperated with ISO to provide a definition for OutputIntents. This definition has first been published by Adobe as Technote 5314 «Recording Output Intentions for Color Critical Workflows», and thereafter has been integrated into the specification for PDF 1.4.

OutputIntent for PDF/X missing
OutputIntent not for PDF/X
Output Intents | Sub type | unequal | GTS_PDFX

OutputConditionIdentifier required in PDF/X OutputIntent

PDF/X-1a PDF/X-3

The PDF/X OutputIntent entry must have an OutputConditionIdentifier. This OutputConditionIdentifier can be the value of a registered printing condition – in this case it is necessary to indicate the registry in the OutputIntent key «RegistryName» or another entry identifying the intended printing condition such that the recipient will recognize it.

OutputConditionID missing
OutputConditionID missing
Output Intents | Output Condition Identifier | equal | (empty string)

Note: Currently, the International Color Consortium maintains a registry of printing conditions at www.color.org. Please see Appendix of this Technote for more details.

Destination profile must be embedded or Registry Name must be filled out

PDF/X-1a PDF/X-3

It is required for a PDF/X-1a or PDF/X-3 file that either the RegistryName be present or an ICC output profile that characterizes the intended printing condition is embedded in the OutputIntent. Also, if colors other than the process colors of the printing process of the intended printing condition or spot colors are used, this ICC output profile must be embedded as well.

OutputIntent incomplete
DestOutputProfile missing
Output Intents | Has ICC output profile | is not true
Registry name missing
Output Intents | Registry Name | equal | (empty string)

OutputIntent Info key must be present

PDF/X-1a PDF/X-3

The Info key in a PDF/X OutputIntent is required. It should contain descriptive information about the intended printing condition.

OutputIntent Info missing
Info in OutputIntent missing
Output Intents | OutputIntent Info | equal | (empty string)

Destination profile must be ICC output profile (type 'prtr')

PDF/X-1a PDF/X-3

The ICC profile embedded as a destination profile into a PDF/X-3 OutputIntent must be an output profile (type 'prtr').

OutputIntent profile not 'prtr'
OutputIntent profile not 'prtr'
Output Intents (ICC profile) | Type of profile | does not contain | prtr

Only DeviceCMYK and spot colors allowed**PDF/X-1a**

For a PDF/X-1a file, only the base color spaces DeviceGray, DeviceCMYK and Separation (spot colors) are allowed. This applies for the color actually used as well as for any alternate color spaces.

Neither 4c nor spot

Is not CMYK

Color | is Device CMYK | is not true

Is not spotcolor

Color | is spotcolor | is not true

Is not B/W (DeviceGray)

Color | is DeviceGray | is not true

Is not registration color

Color | is registration color | is not true

Is not «None» color

Color | is None color | is not true

Is not DeviceN

Color | is deviceN | is not true

Uses DeviceRGB**PDF/X-3**

The only color space that is not allowed in a PDF/X-3 file is plain RGB (DeviceRGB).

Uses RGB color

Uses RGB color

Color | Base color space name | equal | DeviceRGB

Fonts must be embedded**PDF/X-1a PDF/X-3**

All fonts must be embedded in a PDF/X-1a or PDF/X-3 file.

Font not embedded

Font is not embedded

Fonts | is embedded | is not true

LZW compression prohibited**PDF/X-1a PDF/X-3**

In a PDF/X-1a or PDF/X-3 file it is not allowed to use LZW compression. Instead, any other non-lossy compression may be used. ZIP compression (in PDF terminology «Flate») is as efficient as LZW and will usually be used instead of LZW compression.

Note: pdfInspector2 recompresses any LZW compressed objects in a PDF file using ZIP (Flate) compression.

LZW used for page description

This page is LZW compressed

Page | Type of compression for page description | contains | LZW

Image uses LZW compression

Image is LZW compressed

Image | Type of compression filter | contains | LZW

Trapped key must be True or False**PDF/X-1a PDF/X-3**

For every given PDF/X file it must be known whether it still requires trapping or not. Accordingly the Trapped key must be set to True or False.

Note: When converting a PDF file to PDF/X pdfInspector2 sets the Trapped key to False if it has a value that is neither True nor False.

Trapped key incorrect

Trapped key not true or false

Document info | Is Trapped | is not contained in | True False true false

GTS_PDFXVersion key must be present

PDF/X-1a PDF/X-3

This key in the Info dictionary is a kind of digital photo ID – signaling to a software that analyses a PDF that this PDF is pretending to be a valid PDF/X file.

Note: Given pdfInspector2 is able to convert a PDF file into a PDF/X-1a or PDF/X-3 file it will automatically insert the GTS_PDFXVersion key.

GTS_PDFXVersion key missing

GTS_PDFXVersion key missing

Document info | Has PDF/X version | is not true

Invalid GTS_PDFXVersion (PDF/X-1a)

PDF/X-1a

For a PDF/X-1a file the value of the GTS_PDFXVersion key must be «PDF/X-1:2001».

Note: Given pdfInspector2 is able to convert a PDF file into a PDF/X-1a file it will automatically insert the correct value into the GTS_PDFXVersion key.

GTS_PDFXVersion not PDF/X-3

GTS_PDFXVersion not PDF_X-3

Document info | PDF/X version | is not contained in | PDF/X-1:2001

Invalid GTS_PDFXConformance (PDF/X-1a)

PDF/X-1a

For a PDF/X-1a file the value of the GTS_PDFXConformance key must be «PDF/X-1a:2001».

Note: Given pdfInspector2 is able to convert a PDF file into a PDF/X-1a file it will automatically insert the correct value into the GTS_PDFXConformance key.

GTS_PDFXConform. not PDF/X-1a

GTS_PDFXConform. not PDF/X-1a

Document info | PDF/X conformance | not equal | PDF/X-1a:2001

Invalid GTS_PDFXVersion (PDF/X-3)

PDF/X-3

For a PDF/X-3 file the value of the GTS_PDFXVersion key must be «PDF/X-3:2002».

Note: Given pdfInspector2 is able to convert a PDF file into a PDF/X-3 file it will automatically insert the correct value into the GTS_PDFXVersion key.

GTS_PDFXVersion not PDF/X-3

GTS_PDFXVersion not PDF_X-3

Document info | PDF/X version | is not contained in |

PDF/X-3:2002 PDF/X-3:2001

CreationDate, ModDate and Title required

PDF/X-1a PDF/X-3

The Info dictionary keys CreationDate, ModDate and Title in any PDF/X file should contain reasonable values. Formally the only thing that can be checked is whether they are missing or empty.

Creation date missing

Document creation date missing

Document info | Document created | equal | (empty string)

Modification Date missing

Modification Date missing

Document info | Document modified | equal | (empty string)

Title missing

Title missing

Document info | Title | equal | (empty string)

Document ID must be present in PDF trailer

PDF/X-1a PDF/X-3

A PDF file usually has in its trailer section a document ID containing two parts. One part is computed, using a complex algorithm called «MD5», when the document is created, and the second part is computed every time the document has been

changed. The MD5 algorithm generates – with a very high probability – values that will be different each time they are computed. Thus, simply by looking at the document ID it can easily be derived whether two files are identical or not. The PDF/X standards require that this document ID be present.

Note: If a PDF does not have a document ID, resaving it with Adobe Acrobat will generate a document ID.

Document ID is missing

Document ID missing

Document | Document ID | equal | (empty string)

Either TrimBox or ArtBox must be present

PDF/X-1a PDF/X-3

A PDF/X file must contain either a TrimBox or an ArtBox for every page in the PDF. While both TrimBox or ArtBox may be used, the PDF/X-3 standard recommends to prefer the TrimBox.

Note: If pdfInspector does not find a valid TrimBox in a PDF to be converted to PDF/X-1a or PDF/X-3, it will use the values of the CropBox – or if the CropBox is missing those of the MediaBox – and will create a TrimBox with these values. Also, if both TrimBox and ArtBox are present, pdfInspector2 will simply remove the ArtBox.

TrimBox missing

TrimBox is missing

Page | Has TrimBox | is not true

ArtBox and TrimBox present

Has TrimBox

Page | Has TrimBox | is true

Has ArtBox

Page | Has ArtBox | is true

Page boxes must be nested properly

PDF/X-1a PDF/X-3

The relevant page boxes – namely MediaBox, BleedBox and TrimBox – must be nested properly. The TrimBox must extend neither beyond the BleedBox nor the MediaBox, and the BleedBox must not extend beyond the MediaBox.

Page boxes not nested properly

PageBoxes not nested properly

Page | Media-, Bleed-, Trim-, ArtBox nested properly | is not true

Transfer curves prohibited

PDF/X-1a PDF/X-3

Transfer curves are not allowed in a PDF/X-1a or PDF/X-3 file.

Note: pdfInspector2 automatically removes Default and Identity transfer curve entries in a PDF file when converting it to PDF/X.

Uses transfer curve

Uses transfer function

General graphic state | Has transfer function | is true

Halftone must be of Type 1 or 5

PDF/X-1a PDF/X-3

Halftone dictionaries in a PDF/X-3 file must be of Type 1 or Type 5.

Halftone not of type 1 or 5

Halftone is present

Halftone | Is halftone present | is true

Halftone not of type 1

Halftone | Halftone type | unequal | 1

Halftone not of type 5

Halftone | Halftone type | unequal | 5

Halftone Name key prohibited

PDF/X-1a PDF/X-3

The Halftone Name key is not allowed in PDF/X-3 files

Halftone Name key not allowed

Halftone is present

Halftone | Is halftone present | is true

Halftone Name key not allowed

Halftone | Halftone name | unequal | (empty string)

Embedded PostScript prohibited

PDF/X-1a PDF/X-3

A PDF/X-3 file must not contain embedded PostScript.

Note: pdfInspector2 removes embedded PostScript when converting a PDF file to PDF/X-3.

Embedded PostScript operator

Embedded PostScript operator

Embedded PostScript | Uses PostScript operator | is true

Embedded PostScript XObject

Embedded PostScript XObject

Embedded PostScript | Uses PostScript XObject | is true

Encryption prohibited

PDF/X-1a PDF/X-3

A PDF/X-3 must not be encrypted. Encryption is used, if access to a PDF file is password protected. Even if no password is needed for opening or printing a PDF file password protection for modifying the file is prohibited.

Note: If an encrypted PDF is to be converted to PDF/X-3 it is necessary to resave the PDF in Adobe Acrobat resetting its security settings to no security.

Document is encrypted

Document is encrypted

Document | Is encrypted | is true

Alternate image must not be default for printing

PDF/X-1a PDF/X-3

While a PDF/X-3 file may have alternate images for its image XObjects, the key DefaultForPrinting for such alternate images must not be set to true.

Alternate image set to print

Alt. image set to print

Image | Alternate image is default for printing | is true

Annotation and Acrobat form elements must be outside of TrimBox and BleedBox

PDF/X-1a PDF/X-3

While annotations and form elements may be present in a PDF/X-3 file they must reside completely outside of the TrimBox and BleedBox.

Note: If pdfInspector2 rejects a PDF file when trying to convert it to PDF/X-3, open the file in Adobe Acrobat and move all annotations – including the associated text pop-up windows – and Acrobat form elements to a location completely outside the TrimBox and BleedBox. They are located completely outside the TrimBox or BleedBox if the PDF is viewed at 100% magnification and all annotation and form elements are displayed outside the TrimBox and BleedBox.

Annotations inside page area

Annotation inside page area

Annotations | Inside BleedBox or TrimBox | is true

Acrobat Forms inside page area

Acrobat Forms inside page area

Acrobat forms elements | Inside BleedBox or TrimBox | is true

Actions and JavaScript prohibited

PDF/X-1a PDF/X-3

A PDF/X-3 file must not contain Actions or JavaScript.

Document contains Action

Document contains actions

Document | Has actions | is true

Document contains JavaScript

Document contains JavaScripts

Document | Has JavaScripts | is true

Operators not defined in PDF 1.3 prohibited

PDF/X-1a PDF/X-3

According to the PDF Reference Manual a page description may contain operators not defined in PDF 1.3 as long as they are enclosed in the operators BX and EX. A PDF/X-3 file must not contain operators not defined in PDF 1.3, even if they enclosed with BX and EX.

Note: pdfInspector2 removes the BX and EX operators.

BX...EX in page description

BX...EX used

Page description | is inside BX...EX | is true

File specifications not allowed

PDF/X-1a PDF/X-3

File specifications – typically used for OPI comments as well as for external streams – are not allowed in PDF/X-3.

Note: pdfInspector2 removes OPI comments when converting a PDF to PDF/X-3.

Uses OPI

Uses OPI

OPI | OPI Version | is unequal | (empty string)

Transparency not allowed

PDF/X-1a PDF/X-3

Formally it was not possible for PDF/X-3 to prohibit transparency as it had only been introduced in PDF 1.4 and the PDF 1.4 specification had been published by Adobe after final editing of PDF/X-3 had already been completed. Nevertheless, it was already known what the transparency specification would look like, and in its informal annex to the PDF/X-3 standard itself it is recommended not use transparency as hardly any tool or system that was implemented for PDF 1.3 would be able to successfully handle transparency.

Uses transparency

Transparent object

General graphic state | Has transparency | is true

Registry of printing conditions maintained by the International Color Consortium

Currently, the International Color Consortium maintains a registry of printing conditions at www.color.org. For each of the registered printing conditions, characterisation data can be obtained (for TR001/SWOP, please contact NPES; for the other printing conditions currently registered at www.color.org characterisation data can be downloaded from www.color.org).

Note: Characterisation as such usually cannot be used directly to convert data into the intended printing condition. Instead, it will usually be necessary to create ICC output profiles from the characterisation data and use the resulting ICC output profiles for any conversion. As different ICC profiles can be built from the same characterisation data – depending on settings in the profile creation software as well as depending on the specific version of profile creation software used – the International Color Consortium seems to have decided not to provide any ICC profile directly. ICC profiles generated from the characterisation data listed below can be obtained from various sources though, e.g. from vendors of proofing and output systems, as well as companies dedicated to services around color management. pdfInspector2 comes with a selection of ICC profiles kindly provided by Heidelberger Druckmaschinen AG and ifra.

As of April 3, 2002, the printing conditions registered at www.color.org are:

Reference Name: CGATS TR 001

Data Description: SWOP (Publication) printing in USA

Printing process definition: ANSI CGATS.6

Characterization data

Documentation source: None

Electronic data source: ANSI CGATS TR 001-1995 NPES (small fee)

Responsible Organization: ANSI CGATS Standards Committee

Additional Information:

Contact Information:

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Fax: +1 (703) 620-0994

email: mabbott@npes.org

Reference Name: OF COM PO P1 F60

Printing process definition: offset commercial and speciality printing according to ISO 12647-2, positive plates, paper type 1 (gloss-coated, above 70 g/m²), screen frequency 60/cm

Characterization data

Documentation source: see www.color.org for downloadable report [readme.pdf](#) above or [readme](#) at www.fogra.org and Traber, K.; Dolezalek, F.: Adaptation of digital proofing systems to offset printing (in German).

Electronic data source: Publication with CD-ROM data set, 2nd ed. Bundesverband Druck und Medien, Wiesbaden, Germany, 2001 and downloadable file «FOGRA1.txt» at www.color.org.

Responsible Organization: German Printing and Media Industries' Federation (Bundesverband Druck und Medien), Wiesbaden, and FOGRA, Graphic Technology Research Association, Munich, both Germany (<http://www.fogra.org>).

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Fax: +49-89-43 182-100

email: dolezalek@fogra.org

Reference Name: OF COM PO P2 F60

Printing process definition: offset commercial and specialty printing according to ISO 12647-2, positive plates, paper type 2 (matte-coated, above 70 g/m²), screen frequency 60/cm

Characterization data

Documentation source: see www.color.org for downloadable report [readme.pdf](#) above or [readme](#) at www.fogra.org and Traber, K.; Dolezalek, F.: Adaptation of digital proofing systems to offset printing (in German).

Electronic data source: Publication with CD-ROM data set, 2nd ed. Bundesverband Druck und Medien, Wiesbaden, Germany, 2001 and downloadable file «FOGRA2.txt» at www.color.org.

Responsible Organization: German Printing and Media Industries' Federation (Bundesverband Druck und Medien), Wiesbaden, and FOGRA, Graphic Technology Research Association, Munich, both Germany (<http://www.fogra.org>).

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email: dolezalek@fogra.org

Reference Name: OF COM PO-P3 F60

Printing process definition: offset commercial and specialty printing according to ISO 12647-2, positive plates, paper type 3 (light weight coated web, 70 g/m² and below), screen frequency 60/cm.

Characterization data

Documentation source: see www.color.org for downloadable report [readme.pdf](#) above or [readme](#) at www.fogra.org and Traber, K.; Dolezalek, F.: Adaptation of digital proofing systems to offset printing (in German).

Electronic data source: Publication with CD-ROM data set, 2nd ed. Bundesverband Druck und Medien, Wiesbaden, Germany, 2001 and downloadable file «FOGRA3.txt» at www.color.org.

Responsible Organization: German Printing and Media Industries' Federation (Bundesverband Druck und Medien), Wiesbaden, and FOGRA, Graphic Technology Research Association, Munich, both Germany (<http://www.fogra.org>).

Contact Information:

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Tel: +49-89-43 182-311

Fax: +49-89-43 182-100

email: dolezalek@fogra.org

Reference Name: OF COM PO P4 F60

Printing process definition: offset commercial and specialty printing according to ISO 12647-2, positive plates, paper type 4, uncoated white offset above 70 g/m², screen frequency 60/cm.

Characterization data

Documentation source: see [downloadable report readme.pdf](#) above or [readme](#) at www.fogra.org and Traber, K.; Dolezalek, F.: Adaptation of digital proofing systems to offset printing (in German).

Electronic data source: Publication with CD-ROM data set, 2nd ed. Bundesverband Druck und Medien, Wiesbaden, Germany, 2001 and downloadable file «FOGRA4.txt» at www.color.org.

Responsible Organization: German Printing and Media Industries' Federation (Bundesverband Druck und Medien), Wiesbaden, and FOGRA, Graphic Technology Research Association, Munich, both Germany (<http://www.fogra.org>).

Contact Information:

Fred Dolezalek, FOGRA

Tel: +49-89-43 182-311
Fax: +49-89-43 182-100
email: dolezalek@fogra.org

Reference Name: **OF COM NE P1 F60**

Printing process definition: offset commercial and speciality printing according to ISO 12647-2, negative plates, paper type 1 (gloss-coated, above 70 g/m²), screen frequency 60/cm.

Characterization data

Documentation source: see www.color.org for downloadable report [readme.pdf](#) above or [readme](#) at www.fogra.org and Traber, K.; Dolezalek, F.: Adaptation of digital proofing systems to offset printing (in German).

Electronic data source: Publication with CD-ROM data set, 2nd ed. Bundesverband Druck und Medien, Wiesbaden, Germany, 2001 and downloadable file «FOGRA5.txt» at www.color.org.

Responsible Organization: German Printing and Media Industries' Federation (Bundesverband Druck und Medien), Wiesbaden, and FOGRA, Graphic Technology Research Association, Munich, both Germany (<http://www.fogra.org>).

Contact Information:

Fred Dolezalek, FOGRA
Tel: +49-89-43 182-311
Fax: +49-89-43 182-100
email: dolezalek@fogra.org

Reference Name: **OF COM NE P2 F60**

Printing process definition: offset commercial and speciality printing according to ISO 12647-2, negative plates, paper type 2 (matte-coated, above 70 g/m²), screen frequency 60/cm.

Characterization data

Documentation source: see www.color.org for downloadable report [readme.pdf](#) above or [readme](#) at www.fogra.org and Traber, K.; Dolezalek, F.: Adaptation of digital proofing systems to offset printing (in German).

Electronic data source: Publication with CD-ROM data set, 2nd ed. Bundesverband Druck und Medien, Wiesbaden, Germany, 2001 and downloadable file «FOGRA6.txt» at www.color.org.

Responsible Organization: German Printing and Media Industries' Federation (Bundesverband Druck und Medien), Wiesbaden, and FOGRA, Graphic Technology Research Association, Munich, both Germany (<http://www.fogra.org>).

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Reference Name: **OF COM NE P3 F60**

Printing process definition: offset commercial and specialty printing according to ISO 12647-2, positive plates, paper type 2 (matte-coated, above 70 g/m²), screen frequency 60/cm.

Characterization data

Documentation source: see www.color.org for downloadable report [readme.pdf](#) above or [readme](#) at www.fogra.org and Traber, K.; Dolezalek, F.: Adaptation of digital proofing systems to offset printing (in German).

Electronic data source: Publication with CD-ROM data set, 2nd ed. Bundesverband Druck und Medien, Wiesbaden, Germany, 2001 and downloadable file «FOGRA7.txt» at www.color.org.

Responsible Organization: German Printing and Media Industries' Federation ►

(Bundesverband Druck und Medien), Wiesbaden, and FOGRA, Graphic Technology Research Association, Munich, both Germany (<http://www.fogra.org>).

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Reference Name: **OF COM NE P4 F60**

Printing process definition: offset commercial and speciality printing according to ISO 12647-2, negative plates, paper type 4 (uncoated white offset), above 70 g/m², screen frequency 60/cm.

Characterization data

Documentation source: see www.color.org for downloadable report [readme.pdf](#) above or [readme](#) at www.fogra.org and Traber, K.; Dolezalek, F.: Adaptation of digital proofing systems to offset printing (in German).

Electronic data source: Publication with CD-ROM data set, 2nd ed. Bundesverband Druck und Medien, Wiesbaden, Germany, 2001 and downloadable file «FOGRA8.txt» at www.color.org.

Responsible Organization: German Printing and Media Industries' Federation (Bundesverband Druck und Medien), Wiesbaden, and FOGRA, Graphic Technology Research Association, Munich, both Germany (<http://www.fogra.org>).

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Reference Name: **SC GC2 CO F30**

Printing process definition: screen printing according to ISO 12647-5, gamut class 2, conventional UV or water-based air dried, screen frequency 30/cm.

Characterization data

Documentation source: see ISO 12647-5 and compare values to downloadable report [readme.pdf](#) at www.color.org or [readme](#) at www.fogra.org, the data «fogra1.txt» may be used. Electronic data source: see downloadable file «FOGRA9.txt» at www.color.org.

Responsible Organization: German Printing and Media Industries' Federation (Bundesverband Druck und Medien), Wiesbaden, and FOGRA, Graphic Technology Research Association, Munich, both Germany (<http://www.fogra.org>).

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Reference Name: **Ifra_NP_40lcm_neg+CTP_05.00**

(Explanation: Ifra = Ifra, NP = Newspaper, 40lcm = Screen ruling 40 lines per centimeter, neg = Negative acting plates, CTP = Computer to plate, 05.00 = May 2000)
Printing process definition: Coldset offset, screen ruling 40 lines per cm, contact exposed negative acting plates and directly exposed plates (computer to plate)

Characterization data

Documentation source: see ISO 12647-3

Electronic data source: see [Ifra_NP_40lcm_neg+CTP_05.00.xls](#) (download from www.color.org).

Responsible Organization: Ifra, Washingtonplatz, 64287 Darmstadt, Germany.
Phone: +49 6151 733-6. Fax: +49 6151 733-800. <http://www.ifra.com>.

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