

The right color is important...



Technical Impact on the Industry

Traditional, subjective color management no longer will suffice among global brands. Only a standardized approach can provide the means to satisfy this competitive market.

ISO 17972-4 CxF/X-4 *is a common language to communicate color across supply lines.*

Over the next 5 – 10 years, printers, ink makers and designers will increasingly adopt CxF in response to pressure from global brand owners.

How we communicate color today?



Challenges on color that we face day to day:



we are guessing it ?

- not me
- not my press operator
- not my customer
- not my boss too
- then who?

but the color must be right !

That's how I mix my color in the lab,
but don't worry, every time can be the same..



Who is responsible for the right color?



- The Customer?
- The Design Agency?
- The Pre-Press Company?
- The Ink Company?
- The Printer?

Color control?

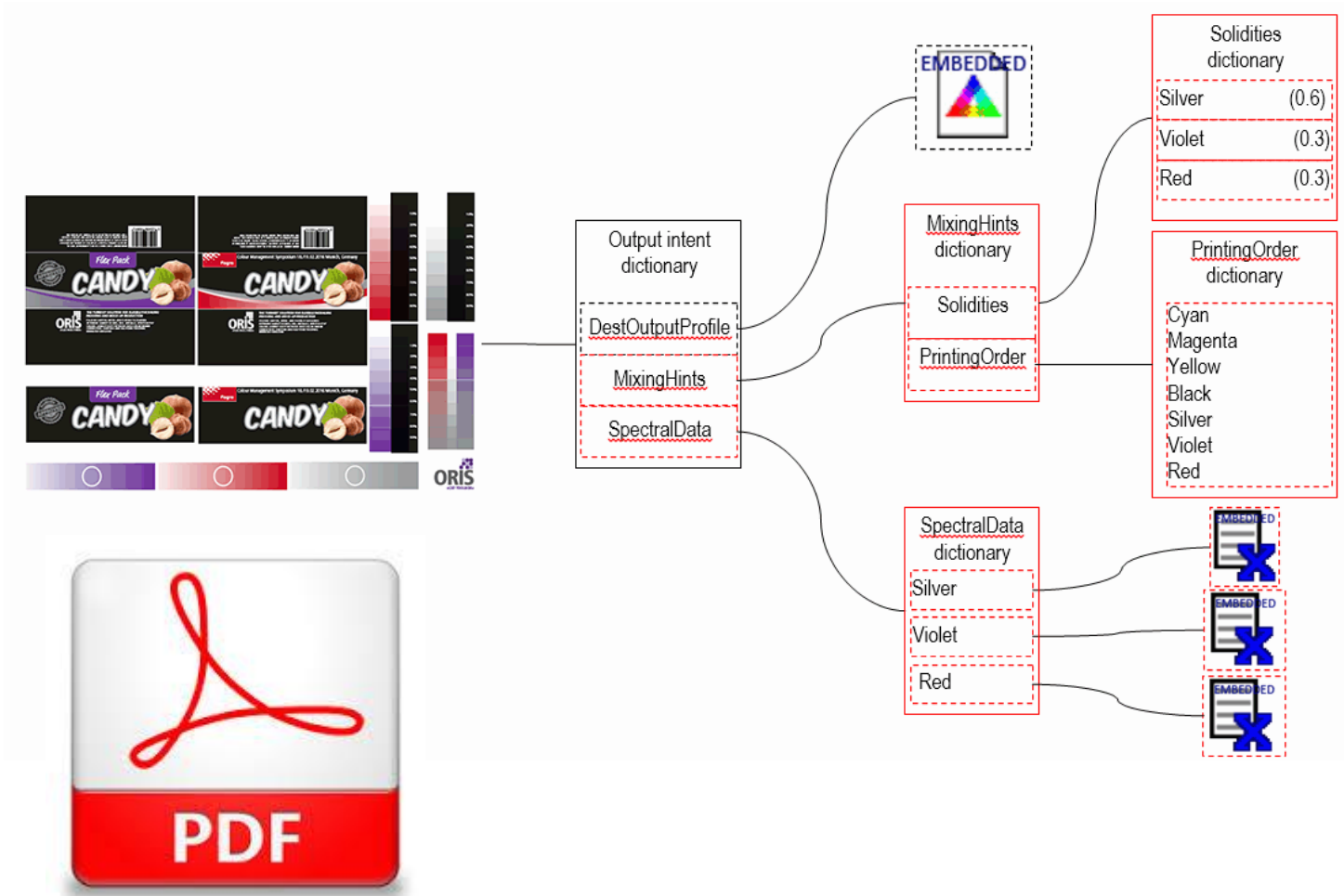
Everyone is involved

Why not using CxF???

What is CxF?

- CxF is the "new" CGATS data exchange format for spectral color information
- CxF /X-4 allows tags and additional information to be stored with the color data
- CxF /X4 data can be embedded in the new **PDF 2.0 Standard** (ISO 32000-2)

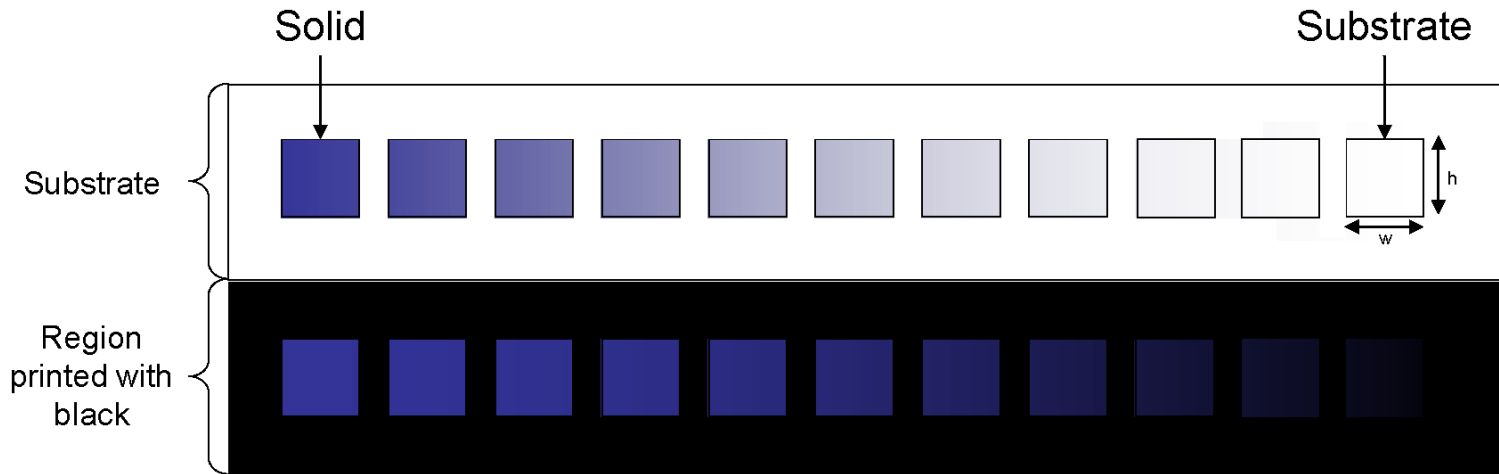
PDF 2.0 (all embedded)



CxF/X Standard

- ISO standard that established the Color Data Exchange Format (CxF/X) for spot color characterization data
- After measurements are taken of a brand color, users can convert the data to CxF/X4 data, and then export it to a PDF/X file, tagging it with color definitions and sequence instructions
- CxF technology is used to control and verify compliance with the brand color throughout the supply chain—from brand owners to packaging designers
- A key benefit is its standards-based and non-proprietary nature as well as its ability to communicate color precisely between multiple graphic service providers.

CxF/X Standard

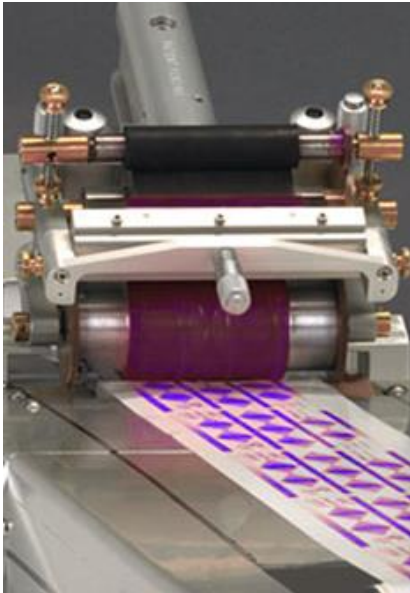


Minimum of 3, recommended 11 tint levels including solid and substrate

Type of measurement	CxF/X-4	CxF/X-4a	CxF/X-4b
Solid ink printed on substrate	Required	Required	Required
Tints of ink printed on substrate	3 minimum, 11 recommended	3 minimum, 11 recommended	No requirement
Tints of ink printed on black background	3 minimum	No requirement	No requirement

Digitized CxF data for PDF Global Workflow

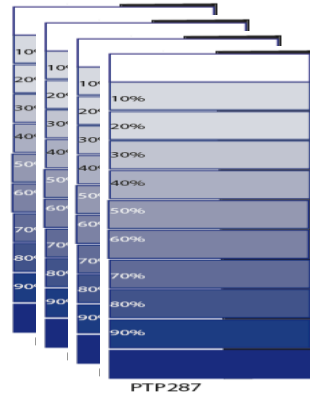
Print Brand Colors



Read Results



Take Average



Create CxF File



Technology Overview

- Step by Step:
Measure spectral data
(patches or strips)



Measure CxF/X-4 Data

Device: Eye-One

Reference: 11 patches on substrate and black

Average 2 measurements

Measure strips Measure single patches

Click on 'Start Measurement' to perform measurement.

	A	B	C	D	E	F	G	H	I	J	K
1											
2											

Start Redo Create CxF/X-4 data

Technology Overview

- Step by Step:

Define the CxF/X-4 data and save it!

Import and Edit CxF/X-4 Data

File: C:\Users\bernd\Aktuell\ORIS CxF Toolbox\CxF Daten\CxF4\CGS Violet.cxf

Color name: CGS Violet

#1 of 1 spot color characterisations

Reflectance Spectrum 100 % on Substrate

Wavelength (nm)	Reflectance
390	0.10
420	0.35
450	0.38
480	0.25
510	0.15
540	0.10
570	0.12
600	0.15
630	0.15
660	0.18
690	0.15

Spot Color

Color name	CGS Violet	Creation date	2016-02-17T11:06:28+00:00
Inventory ID	001	Comment	Measured with ORIS CxF Toolbox
Substrate	Pearl Super	Brand owner	CGS
Substrate type	Coated Paper	Contact	Bernd Rückert
Print process	Inkjet		
Surface finish	Gloss Laminated		

Delete Delete all Edit all Report Certif Export Save

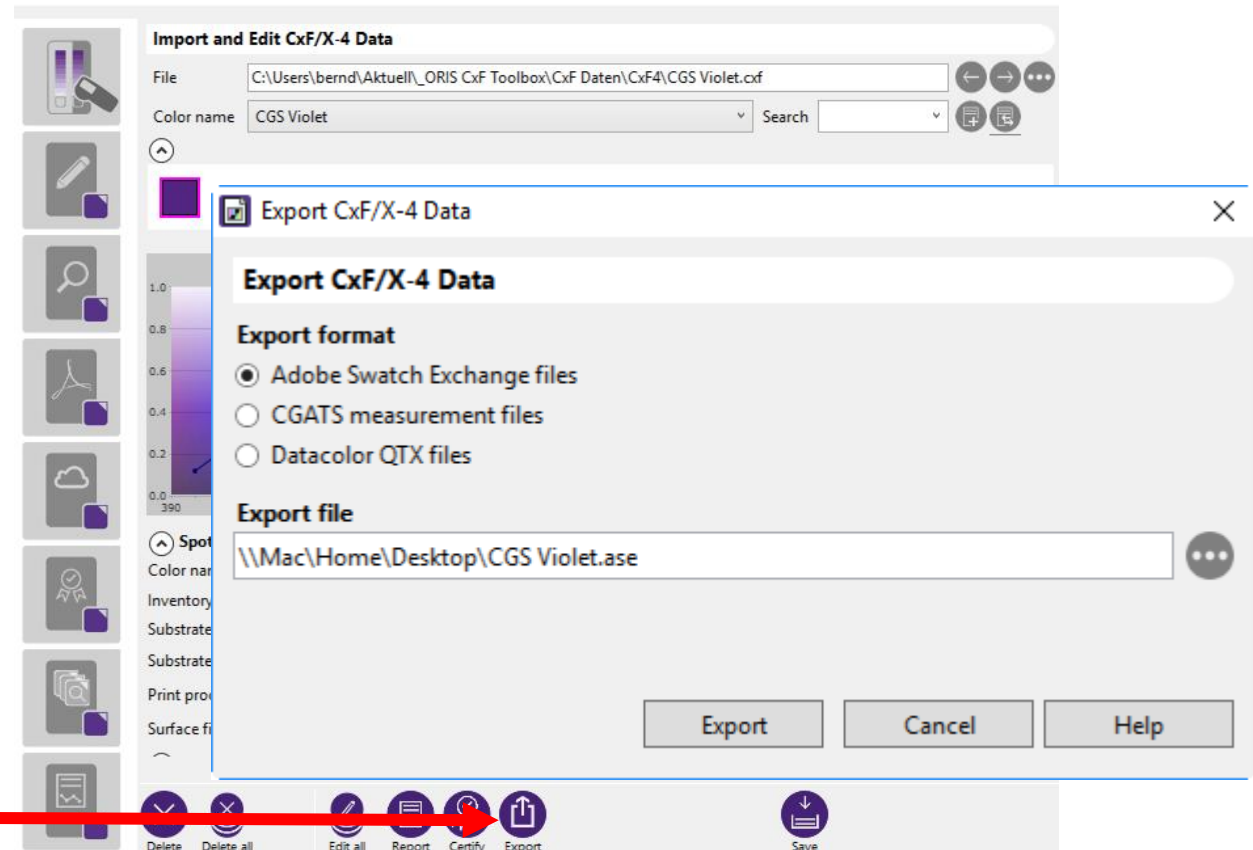


Technology Overview

- Step by Step:

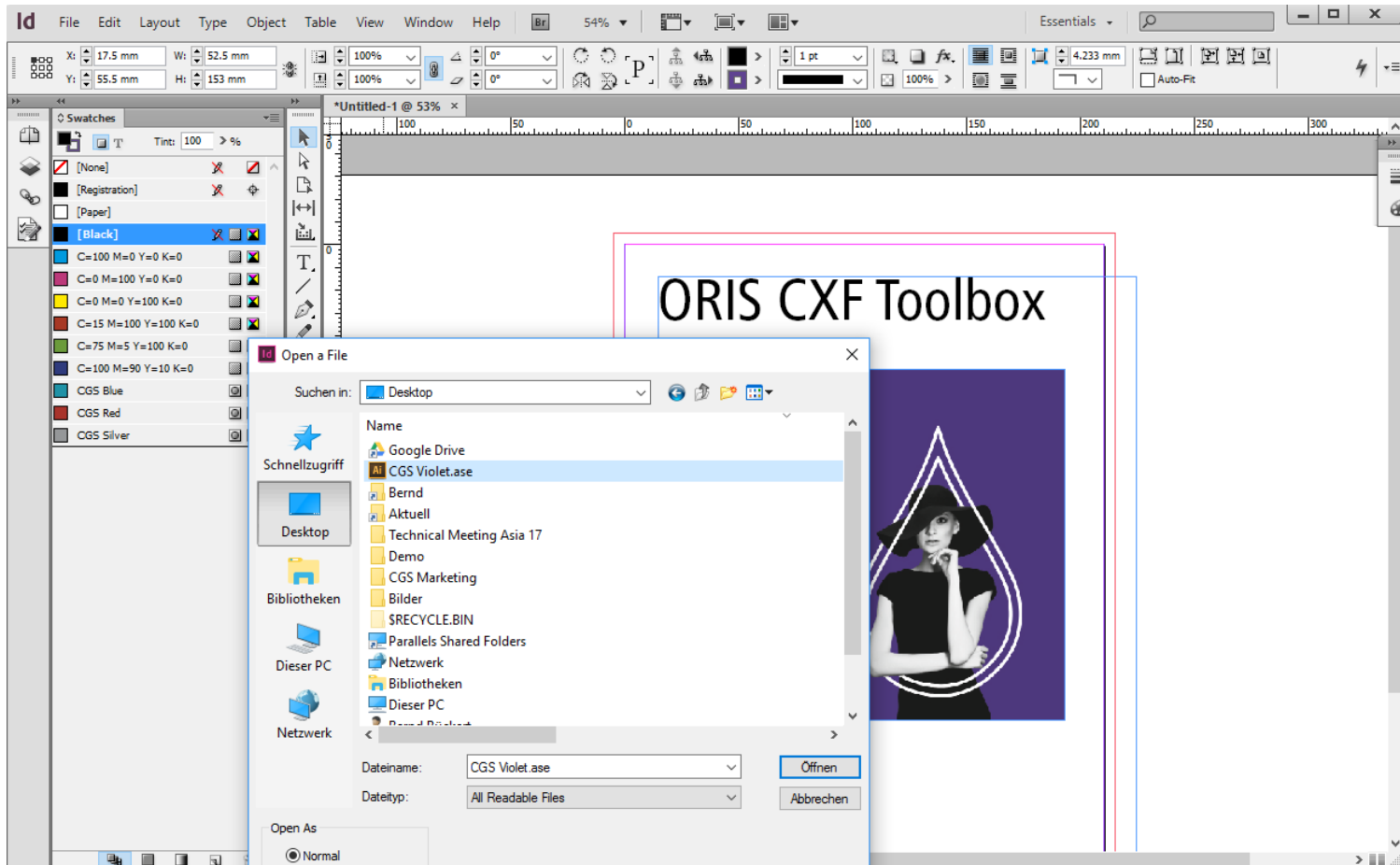


Export Adobe Swatch Exchange Files for CS



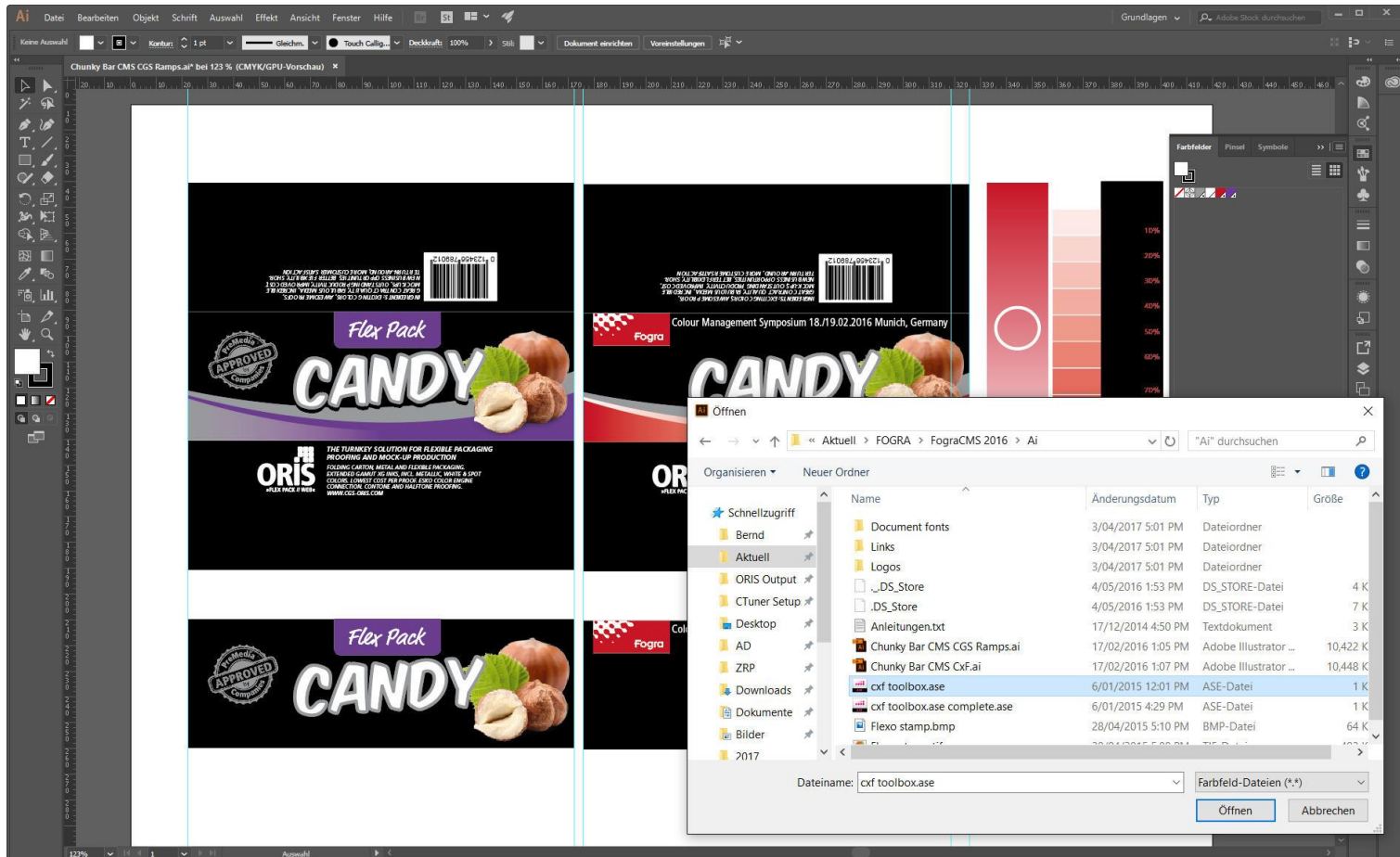
Technology Overview

- Use exported ASE data in Adobe Indesign



Technology Overview

- Use exported ASE data in Adobe Illustrator



Technology Overview

- Step by Step:

Manage and replace the ASE with CxF in the PDF file



Manage CxF/X-4 Data in PDF File

C:\Users\bernd\Aktuell\FOGRA\FograCMS 2016\PDF\Chunky Bar CMS CxF.pdf

Output intent info ISO Coated v2 (ECI)

ICC profile ISO Coated v2 (ECI)

CxF/X-4 library

- C:\Users\bernd\Aktuell\FOGRA\FograCMS 2016\CxF\CGS Blue.cxf
- C:\Users\bernd\Aktuell\FOGRA\FograCMS 2016\CxF\CGS Red.cxf
- C:\Users\bernd\Aktuell\FOGRA\FograCMS 2016\CxF\CGS Silver.cxf
- C:\Users\bernd\Aktuell\FOGRA\FograCMS 2016\CxF\CGS Violet.cxf
- C:\Users\bernd\Aktuell\FOGRA\FograCMS 2016\CxF\Fogra CMS.cxf
- C:\Users\bernd\Aktuell\FOGRA\FograCMS 2016\CxF\Fogra Red.cxf
- C:\Users\bernd\Aktuell\FOGRA\FograCMS 2016\CxF\Orange.cxf

CxF/X-4 data

Spot Color in Document	CxF/X-4 Data
CGS Red	<embedded>
CGS Silver	<embedded>
CGS Violet	<embedded>

Display only CxF/X-4 data used in PDF file

Ink laydown order

CMYK

- CGS Red
- CGS Silver
- CGS Violet

Keep process colors grouped

View Report Certify Save



Callas pdf Toolbox

Chunky Bar CMS CxF.pdf - callas pdfToolbox

Datei Bearbeiten Anzeige Werkzeuge Fenster Hilfe

Chunky Bar CMS CxF.pdf

callas pdf Toolbox

CxF Daten

```

-cc:CxF xmlns:sic="http://colorexchangeformat.com/CxF3-SpotInkCharacterisation"
xmlns:cc="http://colorexchangeformat.com/CxF3-core"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://colorexchangeformat.com/CxF3-core
CxF3_Core.xsd">
  -cc:FileInformation>
    -cc:Creator>ORIS CxF Toolbox, Version 1.0.0.67, Link date
    16/01/2016 12:37:36</cc:Creator>
    -cc:CreationDate>2016-02-
    10T13:51:53+00:00</cc:CreationDate>
    -cc:Description>No description supplied</cc:Description>
  </cc:FileInformation>
  -cc:Resources>
    -cc:ObjectCollection>
      -cc:Object ObjectType="Standard" Id="A1" Name="A1">
        -cc:CreationDate>2016-02-
        10T13:42:06+00:00</cc:CreationDate>
        -cc:ColorValues>
          -cc:ReflectanceSpectrum
          ColorSpecification="CS001"> 0.218 0.2517
          0.3208 0.5635 0.8402 0.9298 0.9522 0.9355
          0.9167 0.9074 0.8971 0.8905 0.8877 0.8848
          0.8825 0.8807 0.88 0.8756 0.8655 0.858 0.857
        </cc:ColorValues>
      </cc:Object>
    </cc:ObjectCollection>
  </cc:Resources>
</pre>


Schließen


```

CGS Red

- CGS Red
- CGS Silver
- CGS Violet

1/1 42 x 29.7 cm Pdf 4 CxF ISO Coated v2 (EC)

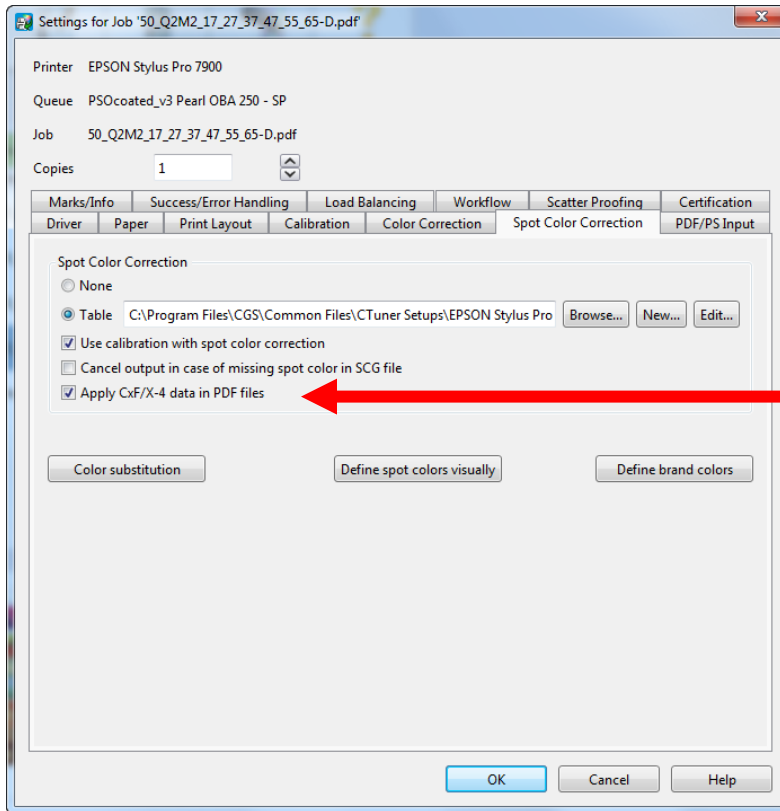
4:55 PM 27/06/2017 DEU

Callas pdf Toolbox



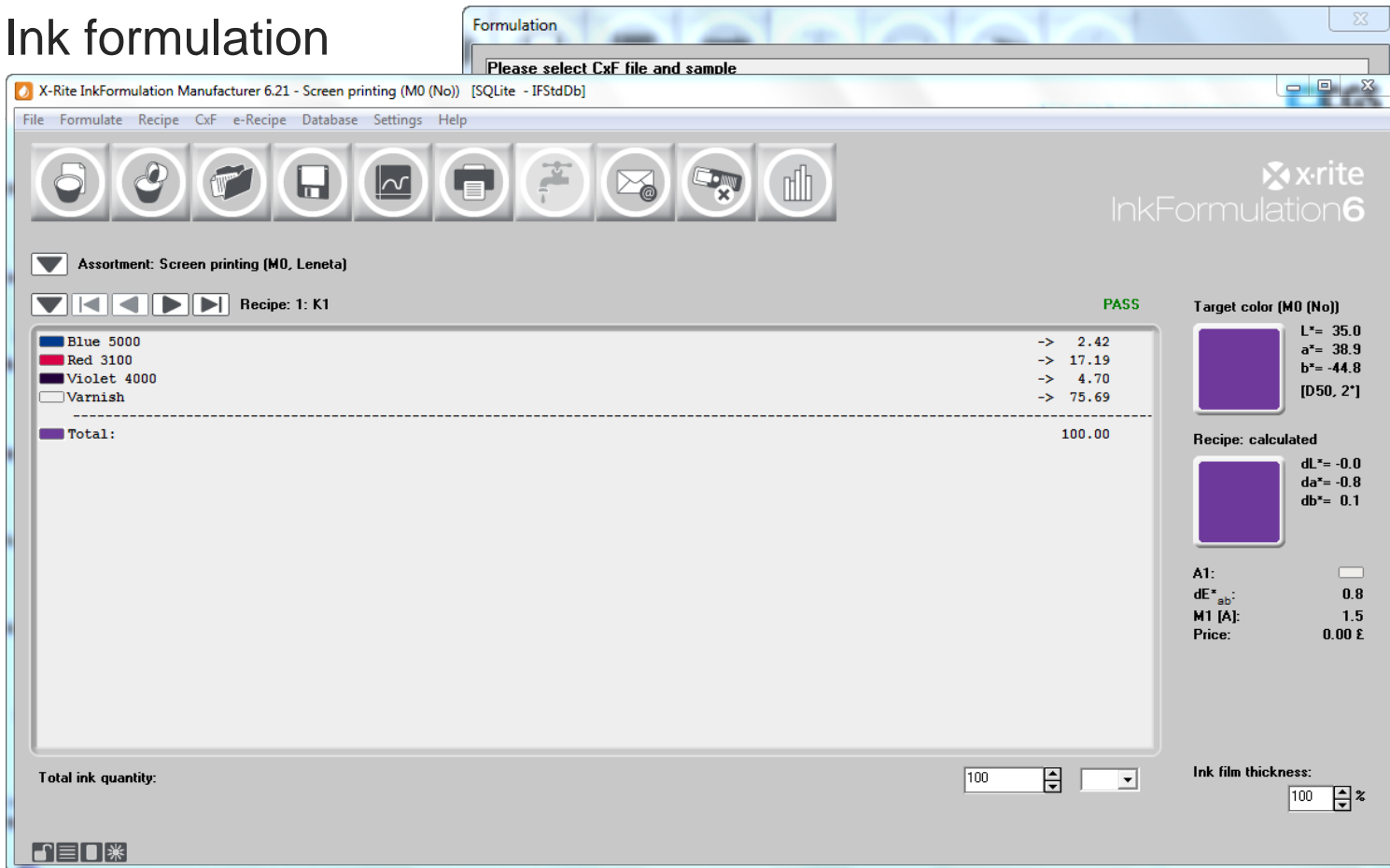
CxF in the your workflow:

- Proof RIP's simply uses CxF data embedded



Using CxF in other Applications:

- Ink formulation



Using CxF for validating

- Step by Step:

CGS Violet

Reflectance Spectrum 100 % on Substrate

CIE a*b*

CIE L*

Measurement

Stop Load

Target Actual

Total Remaining Failed Successful

Colorimetric Data							Metamerism Index				
	L*	a*	b*	C*	h°	dE2000	D50	A	C	F11	Tolerance
Target	34.74	37.85	-43.10	57.36	311.29	2.50		0.54	0.47	0.34	3.00
Actual	35.01	36.87	-41.54	55.54	311.59	0.61					

Comments

View Report Settings Help

Save Load

Overall Result

Incomplete



Technology Overview

- ISO-standard files to communicate color across the entire supply chain will insure a faster process, shorter set-up times, fewer errors, and (most importantly) consistent brand color fidelity at multiple points of sale - even under widely varying lighting and other environmental conditions.



CxF/X Standard

Managing color across supply chain can be expensive and time consuming, but....

it doesn't have to be!

Brand Owners can do it themselves, or bring in their suppliers to work together

What we will share today is the result of work from industry leaders of over 10 years of work from Brand Owners, GWG, ICC, and ISO both for PDFX and CxF/X

Who is adapting to this new method?



DIAGEO

Captain Morgan

SMIRNOFF

Ketel One
VODKA



JCPenney
Every Day Matters

DURACELL®



PET SMART



Industry Support?



www.cxftoolbox.com

Thank you!



MAKING COLOR SEAMLESS BETWEEN
DEVICES AND DOCUMENTS



ICC: EVENTS:

All ICC Events

2017

Prague Graphic Arts
Experts' Day, 29 June

Prague, 27-28 June

Tokyo, 19-20 April

NPES/ICC Print
Business Outlook
Conference, India, 5
Feb

Upcoming ICC Meetings

2016

2016 ICC DevCon

ICC Meetings, 4-5 Nov
San Diego

Medical Imaging, 5 Nov
San Diego

Displays & 3D print, 5-6
May Taipei

Proofing and printing documents that include spot inks

In order to test the use of proposed ISO standards to communicate spot colour ink characteristics effectively, an **example PDF document** is available.

The document (see below) includes Silver, Violet and Red inks each with different ink opacity which are used in conjunction with the process inks.



The document's OutputIntent includes CxF data for each of the spot inks and an ICC profile that describes the process inks.

<http://www.color.org>