



■■■■ PRINECT ■■
ANWENDERTAGE

10. und 11. Oktober 2014

Prinect Anwendertage, 10. und 11. Oktober 2014

Color Tool 2015

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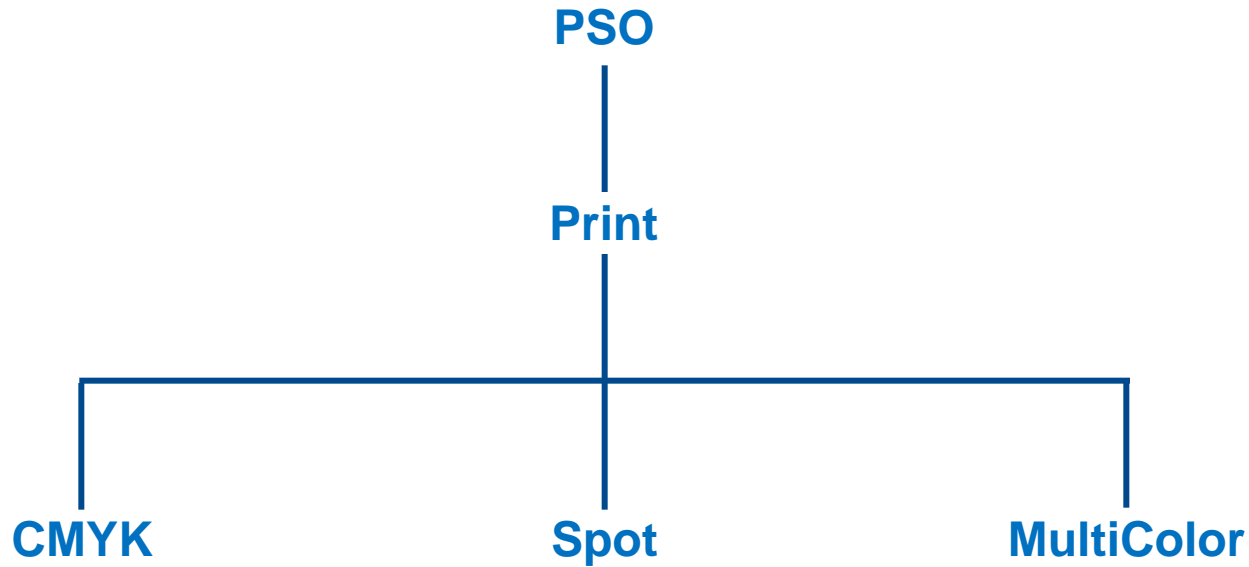
HEIDELBERG



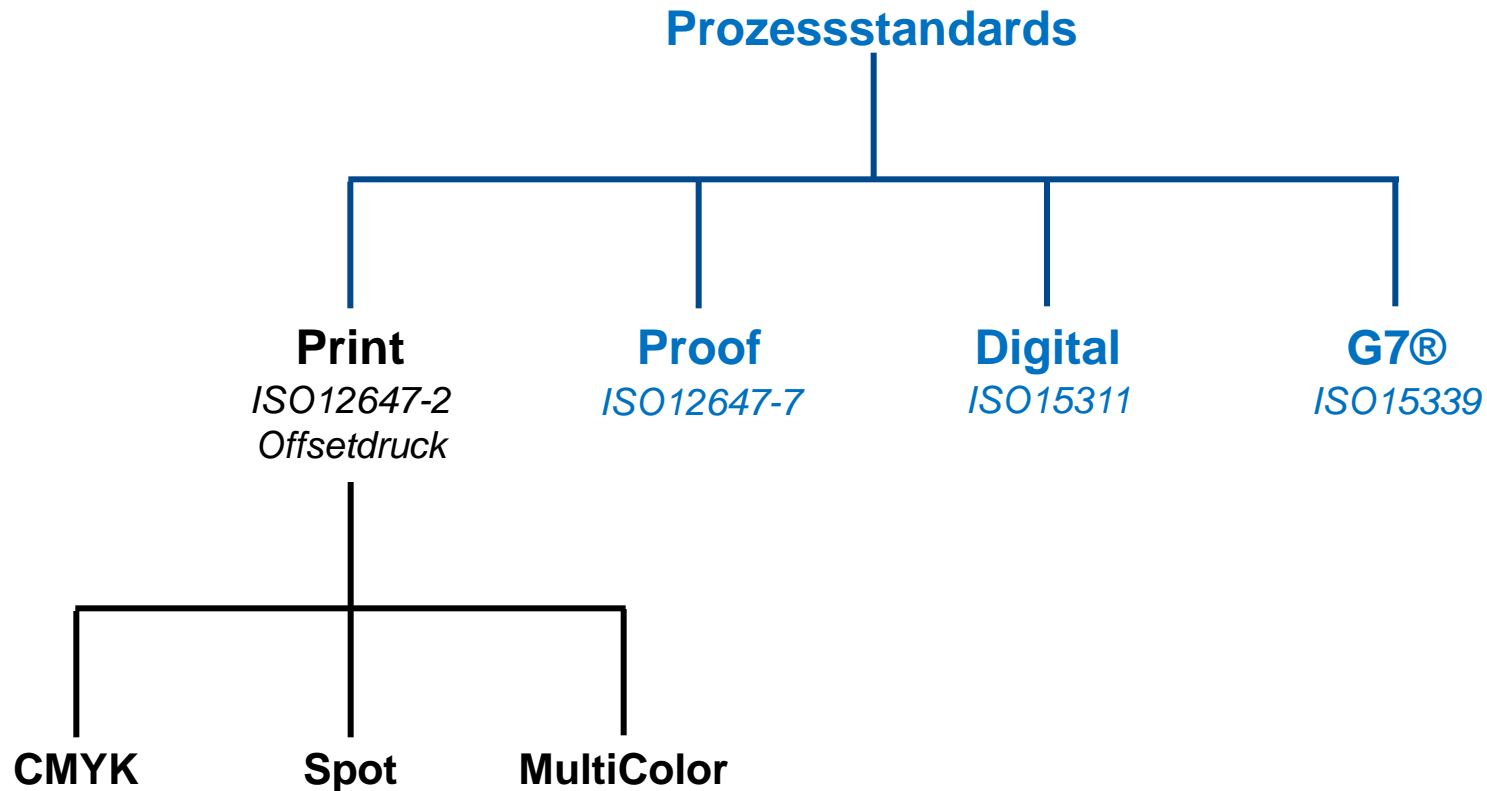
Agenda

1. Prozessstandards: *Neue Typen*
2. **PSD: P**rocess **S**tandard **D**igital
3. Prozessstandard **GRACOL G7 (CGATS)**
4. Profile Tool: *Weniger GCR/K in Hauttönen*
5. Unterstützte Messgeräte
6. **Arbeiten mit Sonderfarben** (*Prinect 2016*)

Color Tool: Prozessstandards *Aktuell: Nur Offset-Druck*



Color Tool: **Neue Prozessstandard - Typen**

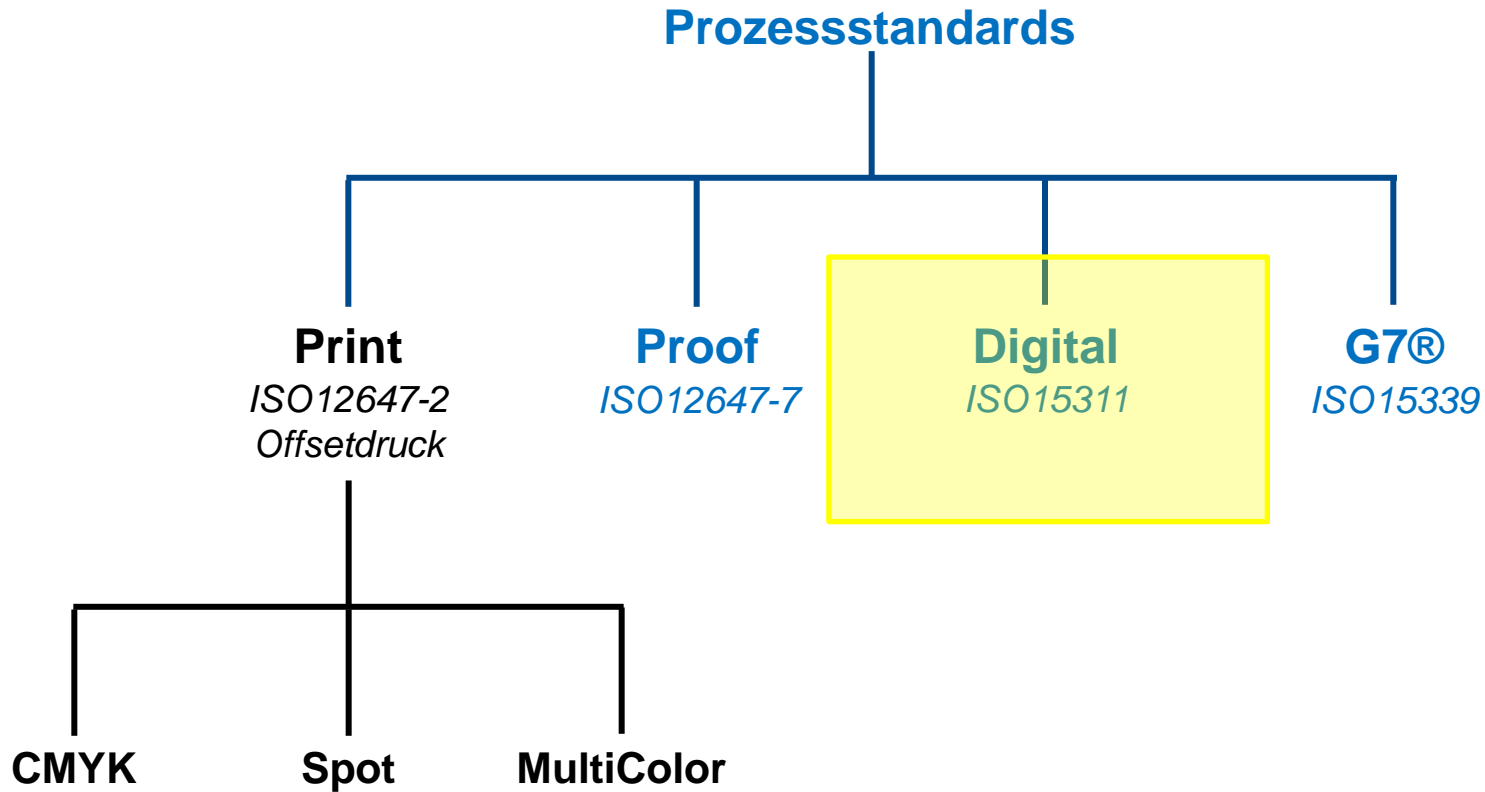




Prozessstandard **Digitaldruck [PSD]**: ISO 15311



Color Tool: **Neue Prozessstandard** – Typen: Digitaldruck



Vorgehen für Digitaldruck-Check



FOGRA Medienkeil CMYK V3



generiere
pdf



Digitaldruck



Messen
Color Tool





PSD-Check: *Messen: Wie?*

4 Spektralmessbedingungen:

1. **M0**: unspezifizierte Beleuchtung *(fast alle aktuellen Meßgeräte)*
2. **M1**: D50(Tageslicht) Beleuchtung *Optimal*
3. **M2**: UV-cut -Filter *(IC-NG)*
4. **M3**: M2 + Polfilter *(Inpress)*

Standard spezifiziert **M1** oder **M0**, aber:

- Standard bezieht sich auf FOGRA39-Offset (**M0**) von 2007
- FOGRA39: keine UV-Aufheller im Papier
- Meisten Digitaldruck-Papiere: substantielle UV-Aufheller

→ **Praktische Erfahrung: Beste Ergebnisse mit M2 (UV-cut)**



PSD-Check: *CMM-Hintergrund*

CMYK
ISOcoated_v2_eci



Digitaldruck:

- Unterschiedliche Technologie als Offset-Druck
- Ganz andere Tinten

} eigenes CMYK-ICC-Profil

→ inhärentes Color Management notwendig



PSD-Check: *Color Management in Digitaldruck*



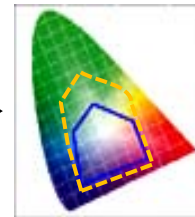
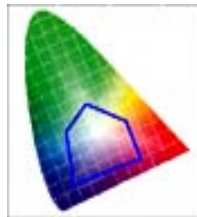
ISOcoated_v2_eci



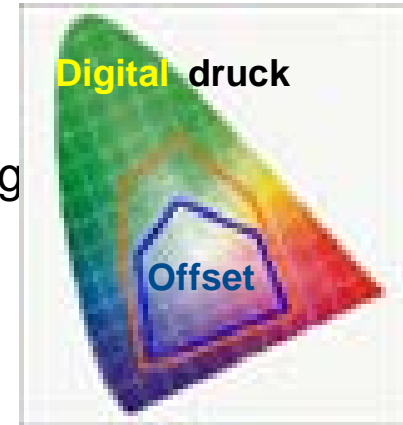
Digitaldruck
ICC-Profil



- Digitaldruck identisch zu Offset → **kein Farbumfangsabb.**
- Digitaldruck-Umfang **größer oder identisch** als Offset-Umfang

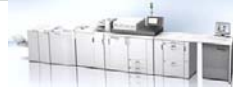


selber Farbumfang
in Lab



Rendering Intent: relativ oder absolut (wie Proof)

→ Process Standard Digital[PSD] checkt: **Wie gut diese Konvertierung?**



PSD-Check: *Was wird gecheckt?*



1. Primärfarben
2. Sekundär- / Tertiär-Farben und Trapping
3. Halbtöne
4. Graubalance
5. Substrat

Check: Vergleich mit interner Charakterisierungsdatei als Referenz:

- Vergleich Messwerte gegen Referenzwerte
- Mittelwert und Maximum der Unterschiede

Interne Charakterisierungsdatei als Referenz: Mögliche Referenzdateien

- *Gestrichen: FOGRA39L 2007*
- *Ungestrichen: FOGRA47L 2007*



Process standard Digital [PSD]: *Eigenschaften 1*

- ΔE_{00} : Invers bewichtet mit Chroma
- sensibler um Grauachse
 - insensibel bei gesättigten Farben

- Farbabstand: nur ΔE_{00}
- Führt 3 Qualitätsstufen für Check ein:

A=hoch[*Proof*]

B=gut[*Offset*]

C=akzeptabel[*Büroumgebung*]

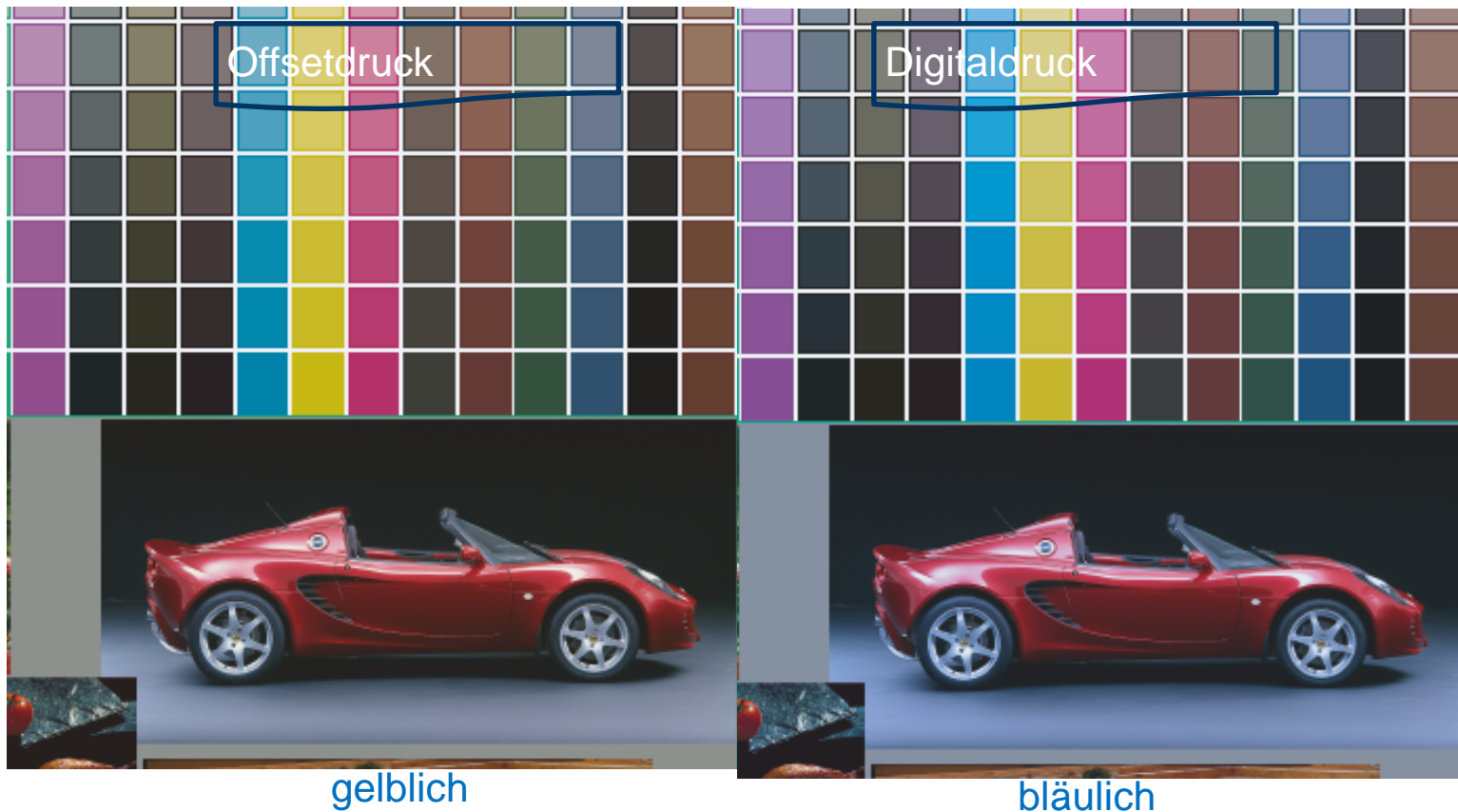
	A [<i>Proof</i>]	B [<i>Offset</i>]	C [<i>Office</i>]
Substrate	$\Delta E_{00} \leq 2.5$	$\Delta E_{00} \leq 3.5$	$\Delta E_{00} \leq 4.5$
All Patches (except Substrate)	Max. $\Delta E_{00} \leq 6.5$ Mean $\Delta E_{00} \leq 2.5$	Max. $\Delta E_{00} \leq 7.5$ Mean $\Delta E_{00} \leq 3.5$	Max. $\Delta E_{00} \leq 8.5$ Mean $\Delta E_{00} \leq 4.5$
CMYKRGB	Max. $\Delta H_{ab} \leq 4.5$	Max. $\Delta H_{ab} \leq 5.5$	Max. $\Delta H_{ab} \leq 6.5$
Gray Reproduction	Mean $\Delta C_h \leq 2.5$	Mean $\Delta C_h \leq 3.5$	Mean $\Delta C_h \leq 4.5$

Prozessstandard Digitaldruck: *Eigenschaften 2a*



➤ 2 Vergleichs – Ansätze: 1

- **Seite-an-Seite** (klassischer Ansatz, aber schwerer zu erfüllen)



Prozessstandard Digitaldruck: *Eigenschaften 2b*



➤ 2 Vergleichs – Ansätze: 2

- **Medienrelativ** (*neu, einfacher*) **Virtuelles Papierweiß L=100/0/0**



→ **Kein Einfluß von Papier mehr!**

→ **Virtueller Vergleich**

Prozessstandard Digitaldruck: *Eigenschaften 2c*

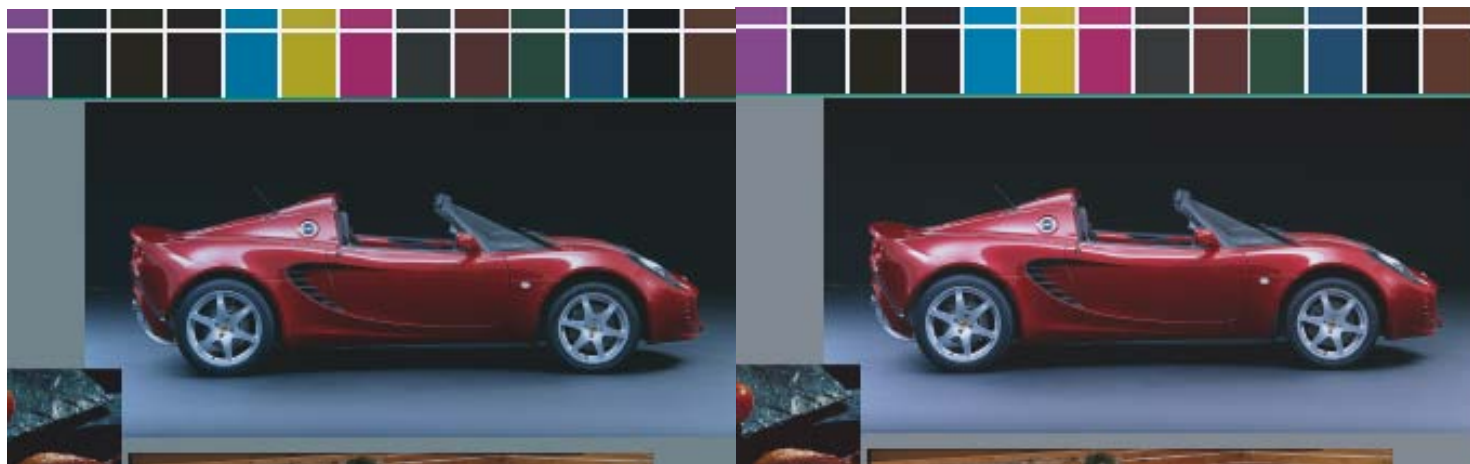


- **Seite-an-Seite**



- **Medienrelativ**

Virtuelles Papierweiß L=100/0/0





PSD-Check: *Welche Elemente?*

Minispots / Testformen für Check:

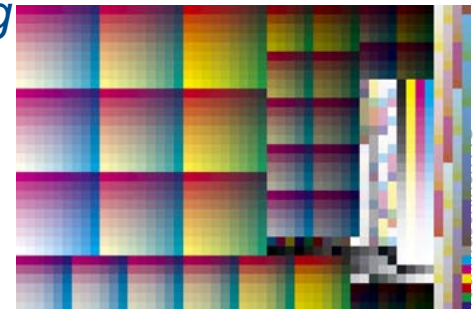
➤ *Standard-Check*

- **FOGRA Medienkeil v3**
- IDEAlliance Control Strip 2009
- IDEAlliance Control Strip 2013



➤ *Erweiterter-Check: Testform für Einrichten & Profilierung*

- **Testformen (ISO 12642-2) = IT8.7/4 + ECI2002**
 - visuell + stochastisch



➤ Alle anderen Elemente → **Warnung**

Prozessstandard Digitaldruck: *Eigenschaften 3*



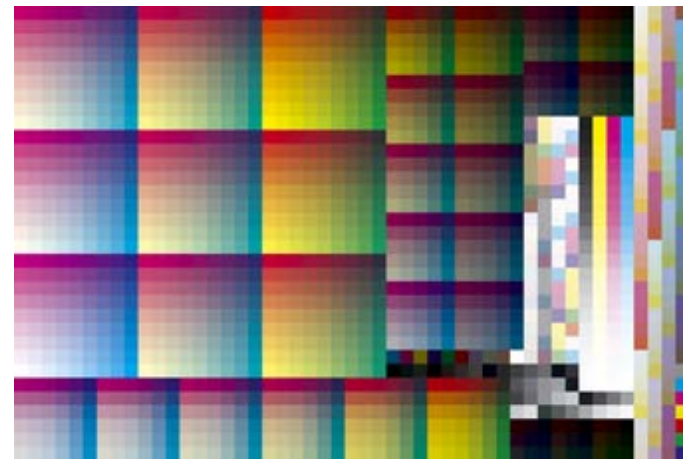
➤ Zwei Checkstufen:

- Standard-Check für Minispots

FOGRA Medienkeil CMYK V3



- Erweiterter-Check für Testformen (Einrichten, Profilierung, iterative Korrektur)
 - Mittelwert aller Felder
 - Mittelwert bunter Felder
 - Abweichung von 95% aller Felder





PSD-Check zu Proof-Check: *Vergleich*

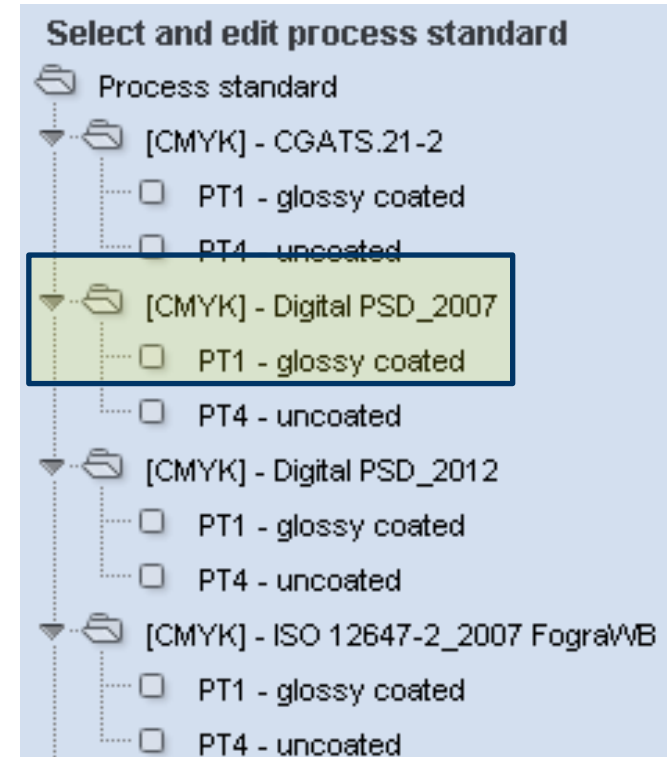
- PSD-Check und Proof-Check: Ähnlichkeiten
 - Standard und erweiterter Check
 - dieselben internen Charakterisierungsdateien als Referenz

- Unterschiede:
 - PSD checkt mehr, innovativ
 - PSD: ΔE_{00} Proof: ΔE_{ab}
 - PSD: 3 Qualitätsstufen Proof: 1 Qualitätsstufe
 - PSD: 2 Vergleiche Proof: 1 Vergleich (Seite-an-Seite)
 - Unterscheiden sich auch in Evaluierung identischer Elemente



Color Tool: Schritte des PSD-Checks

1. Wähle einen Digitaldruck-Prozessstandard
2. Messen oder Öffnen der Messdatei
3. Durchführung des PSD-Checks in „Messen“





Color Tool: *Auswahl Digitaldruck-Prozessstandard*

Measure Compare Analysis Create Edit **Process standard**

Standard: Digital PSD_2007 CMYK Printing Material: PT1 - glossy coated

PS Norm Type: Digital Delta E Type: Delta E2000 Density status: ISO 5-3 Status E

CharacterizationDataSet: FOGRA39L.bt **interne Referenzdatei**

Comment: Digital printing according to ISO12647-2:2007, Reference FOGRA39, White Backing, glossy coated PT1

- Show dot gain curves
- Show dot gain values
- Show paper white
- Show CIELAB color values and density values
- Show Gray balance parameter
- Show G7 parameter
- Hide digital parameter

Ok-Sheet Requirements Side-by-Side	A	B	C	Applicability Media relative	A	B	C
Substrat difference ΔE_{00}	2.50	3.50	4.50	White point difference ΔE_{00}	6.50	8.50	11.50
All patches maximum ΔE_{00}	6.50	7.50	8.50	Black point difference ΔL	3.50	10.50	15.50
All patches average ΔE_{00}	2.50	3.50	4.50	Ok-Sheet Requirements Media relative			
C,M,Y,R,G,B maximum ΔHab	4.50	5.50	6.50	All patches average ΔE_{00}	1.50	2.50	4.50
Near neutral average ΔCh	2.50	3.50	4.50	All patches 95% Percentile ΔE_{00}	5.50	7.50	10.50
Extended Requirements Side-by-Side				Extended Requirements Media relative			
Gamut patches average ΔE_{00}	3.50	5.50	7.50	Gamut patches average ΔE_{00}	3.50	5.50	7.50
All patches average ΔE_{00}	3.50	5.50	7.50	All patches average ΔE_{00}	3.50	5.50	7.50
All patches 95% Percentile ΔE_{00}	5.50	7.50	10.50	All patches 95% Percentile ΔE_{00}	5.50	7.50	10.50

Show proof parameter

Show print order

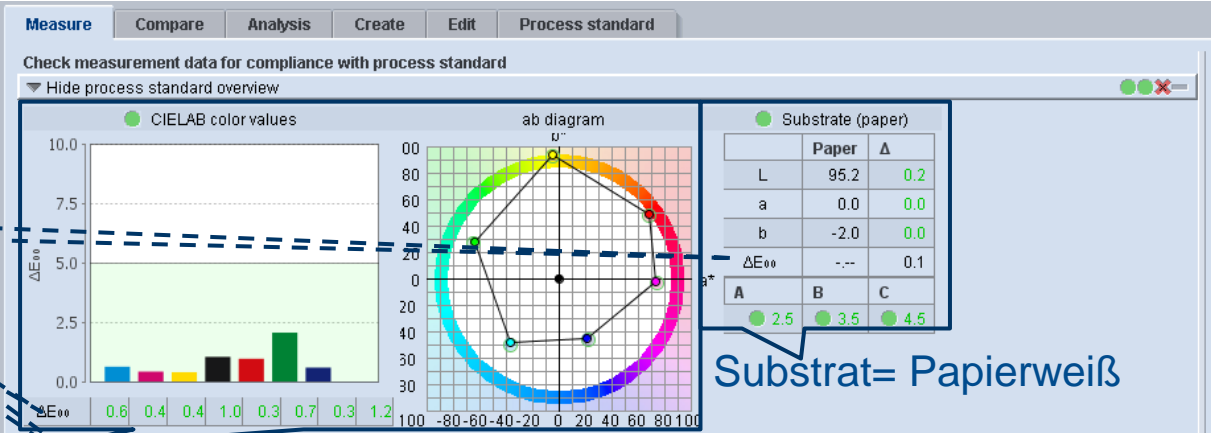
Import Export Dry -> Wet

Standard: [CMYK] - Digital PSD_2007 **PS Norm Type: Digital** Printing Material: glossy coated

Color Tool: *PSD – check* Standard



ΔE_{00}



Substrat= Papierweiß

Primär-/Sekundär-Farben

Seite-an-Seite

Medienrelativ

Evaluation of digital print

Ok-Sheet Requirements Side-b...	Δ	A	B	C
Substrat difference ΔE_{00}	0.2	2.5	3.5	4.5
All patches maximum ΔE_{00}	1.5	6.5	7.5	8.5
All patches average ΔE_{00}	0.5	2.5	3.5	4.5
C,M,Y,R,G,B maximum ΔHab	1.3	4.5	5.5	6.5
Near neutral average ΔCh	0.4	2.5	3.5	4.5

Applicability Media relative	Δ	A	B	C
White point difference ΔE_{00}	0.2	6.5	8.5	11.5
Black point difference ΔL	0.5	3.5	10.5	15.5

Ok-Sheet Requirements Media...	Δ	A	B	C
All patches average ΔE_{00}	0.6	1.5	2.5	4.5
All patches 95% Percentile ΔE_{00}	1.4	5.5	7.5	10.5

Extended Requirements Side-b...	Δ	A	B	C
Gamut patches average ΔE_{00}	--	3.5	5.5	7.5
All patches average ΔE_{00}	--	1.5	2.5	4.5
All patches 95% Percentile ΔE_{00}	--	5.5	7.5	10.5

Extended Requirements Media...	Δ	A	B	C
Gamut patches average ΔE_{00}	--	3.5	5.5	7.5
All patches average ΔE_{00}	--	1.5	2.5	4.5
All patches 95% Percentile ΔE_{00}	--	5.5	7.5	10.5

Standard-Check Medienkeil

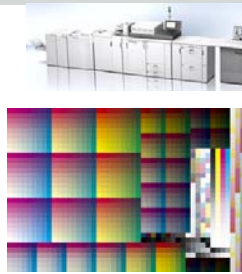
New Open Measure Process parameters Save

File name: Check-epson4800-heaven42.bt <M0>

Standard: [CMYK] - Digital_2007WB PS Norm Type: Digital Printing Material: glossy coated



Color Tool: PSD – Check *Erweitert*



Test chart

Process standard

Substrate

Color values

Dot gain

Gray values

Ink zones

Gradual fading

Measure Compare Analysis Create Edit Process standard

Check measurement data for compliance with process standard

Hide process standard overview

CIELAB color values

ΔE₀₀ 3.7 0.7 1.4 0.3 1.0 3.0 1.2 0.5

ab diagram

Substrate (paper)

	Paper	Δ
L	94.8	-0.2
a	-0.4	-0.4
b	-1.4	0.6
ΔE ₀₀	---	0.8
A	B	C
● 2.5	● 3.5	● 4.5

Check Part „FOGRA MKV3“ aus Testform

Evaluation of digital print

Ok-Sheet Requirements Side-b...	Δ	A	B	C
Substrat difference ΔE ₀₀	0.8	● 2.5	● 3.5	● 4.5
All patches maximum ΔE ₀₀	4.9	● 6.5	● 7.5	● 8.5
All patches average ΔE ₀₀	0.9	● 2.5	● 3.5	● 4.5
C,M,Y,R,G,B maximum ΔHab	2.6	● 4.5	● 5.5	● 6.5
Near neutral average ΔCh	0.6	● 2.5	● 3.5	● 4.5

Applicability Media relative	Δ	A	B	C
White point difference ΔE ₀₀	0.8	● 6.5	● 8.5	● 11.5
Black point difference ΔL	4.3	✗ 3.5	● 10.5	● 15.5

Ok-Sheet Requirements Media...	Δ	A	B	C
All patches average ΔE ₀₀	0.7	● 1.5	● 2.5	● 4.5
All patches 95% Percentile ΔE ₀₀	3.6	● 5.5	● 7.5	● 10.5

Extended Requirements Side-b...	Δ	A	B	C
Gamut patches average ΔE ₀₀	0.9	● 3.5	● 5.5	● 7.5
All patches average ΔE ₀₀	0.6	● 1.5	● 2.5	● 4.5
All patches 95% Percentile ΔE ₀₀	1.5	● 5.5	● 7.5	● 10.5

Extended Requirements Media...	Δ	A	B	C
Gamut patches average ΔE ₀₀	0.8	● 3.5	● 5.5	● 7.5
All patches average ΔE ₀₀	0.4	● 1.5	● 2.5	● 4.5
All patches 95% Percentile ΔE ₀₀	1.4	● 5.5	● 7.5	● 10.5

Seite-an-Seite Medienrelativ

Check gesamte Testform

New Open Measure Process parameters Save

File name: IT874randConv2RicoH901rel.cmyk2XYZ-ABSOLUTE+.txt <M0>

Standard: [CMYK] - Digital_2007WB PS Norm Type: Digital Printing Material: glossy coated



Color Tool: *PSD – Check: detailliert: Substrat*

Measure Compare Analysis Create Edit Process standard

Display of the substrate (paper) values

CIELAB color values (paper)

ΔE^*_{00}	1.1
Tolerances:	2.5 3.5 4.5
Lab:	94.9 -0.3 -0.9

$\Delta Ch^* = 1.1$

ΔE^*_{ab}	1.1
ΔL^*	-0.1
Δa^*	-0.3
Δb^*	1.1

New Open Measure Process parameters Save

File name: Ave-FOGRAMKV3_mid_M2.bt <M2>

ΔE_{00}



Color Tool: *PSD – Check: detailliert: Farbwerte*

Test chart

Process standard

Substrate

Color values

Dot gain

Gray values

Ink zones

Gradual fading

ab diagram

Measure Compare Analysis Create Edit Process standard

Display of the color values

CIELAB color values

ΔE^*_{00} 3.7 Lab: 51.6 -34.3 -44.7	ΔE^*_{00} 1.2 Lab: 46.7 73.6 -3.1	ΔE^*_{00} 0.7 Lab: 88.4 -6.0 94.9	ΔE^*_{00} 0.7 Lab: 16.8 -0.3 0.2
<p style="font-size: small;">cyan</p>	<p style="font-size: small;">magenta</p>	<p style="font-size: small;">yellow</p>	<p style="font-size: small;">black</p>
ΔE^*_{ab} 6.8 ΔL^* -3.4 Δa^* 2.7 Δb^* 5.3	ΔE^*_{ab} 1.3 ΔL^* -1.3 Δa^* -0.4 Δb^* -0.1	ΔE^*_{ab} 2.2 ΔL^* -0.6 Δa^* -1.0 Δb^* 1.9	ΔE^*_{ab} 0.8 ΔL^* 0.8 Δa^* -0.3 Δb^* 0.2

ΔE^*_{00} 1.5 Lab: 45.8 67.9 45.8	ΔE^*_{00} 3.2 Lab: 47.0 -60.8 25.5	ΔE^*_{00} 1.7 Lab: 22.1 19.2 -43.6	ΔE^*_{00} 2.2 Lab: 24.4 1.4 0.1
<p style="font-size: small;">red</p>	<p style="font-size: small;">green</p>	<p style="font-size: small;">blue</p>	<p style="font-size: small;">overprint</p>
ΔE^*_{ab} 2.5 ΔL^* -1.2 Δa^* -0.1 Δb^* -2.2	ΔE^*_{ab} 5.4 ΔL^* -3.0 Δa^* 4.2 Δb^* -1.5	ΔE^*_{ab} 4.1 ΔL^* -1.9 Δa^* -2.8 Δb^* 2.4	ΔE^*_{ab} 1.9 ΔL^* 1.4 Δa^* 1.4 Δb^* 0.1

ΔE^*_{00}

New Open Measure Process parameters Save

● File name: Ave-FOGRAMKV3_mid_M2.bt <M2>

Standard: [CMYK] - Digital PSD_2007 PS Norm Type: Digital Printing Material: glossy coated

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PSD: *Mitgelieferte Digitaldruck-Standards*

➤ **Digital_PSD2007:** → aktueller Offset-Druckstandard ISO12647-2:2007

- Papiertyp PT1-2: glänzend- (1) und matt (2) gestrichen Papier
- Papiertyp PT4: ungestrichen weiß Papier

➤ **Digital_PSD2013:** → neuer Offset-Druck standard ISO 12647-2:2013

- Papiertyp PT1 = neues Substrat "PS1 = Premium coated".
- Papiertyp PT4 = neues Substrat "PS5 = Woodfree uncoated".

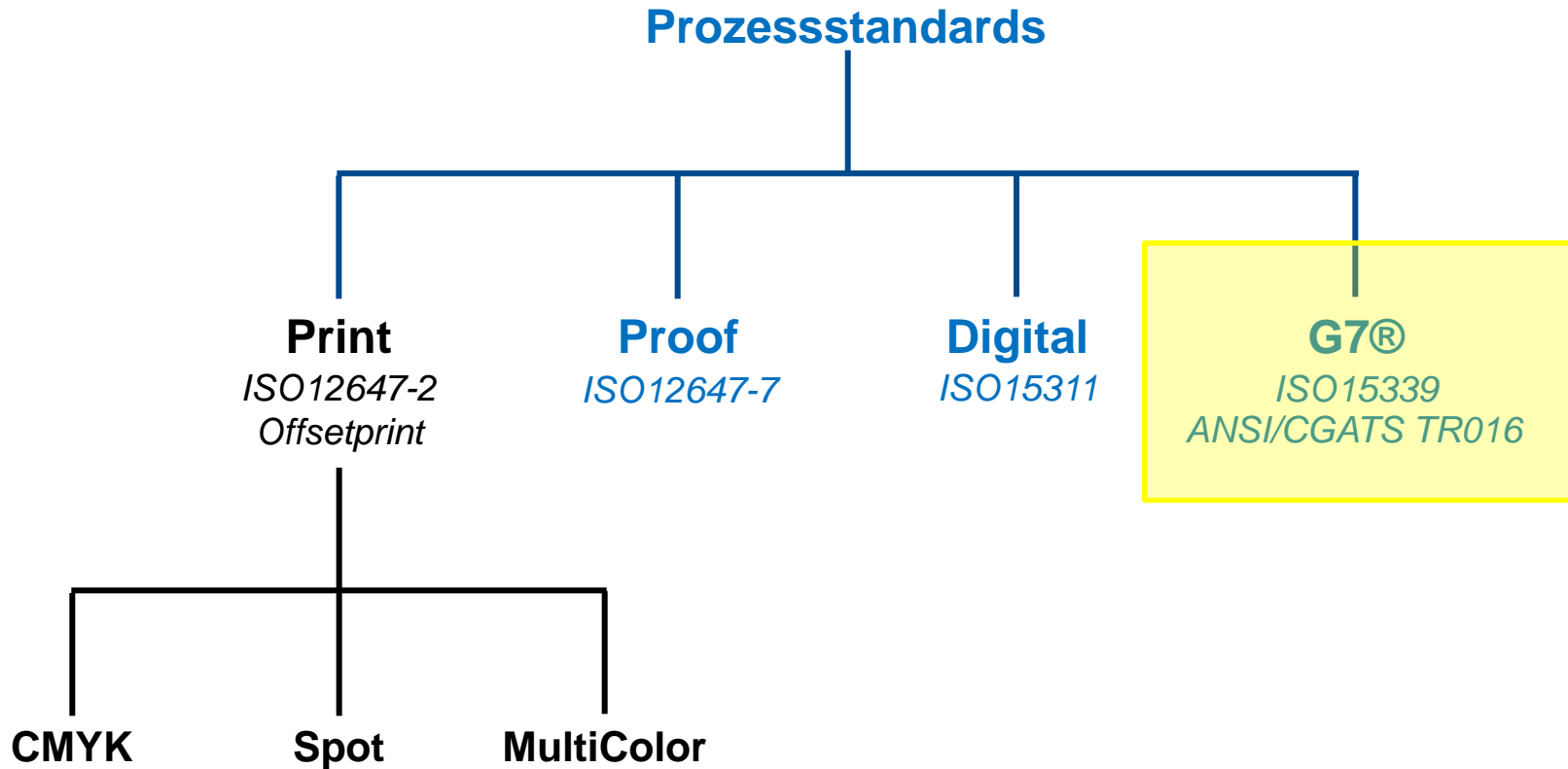
Prozessstandard	PapTyp	int Ref
Digital_PSD2007	1	FOGRA39L
	4	FOGRA47L
Digital_PSD2013	1	PC1_PremiumCoated_Beta
	4	PC5_WoodfreeUncoated_Beta



Processtandard GRACOL **G7**: *ISO 15339* (**CGATS**)

- US-Offset-Druckstandard

Color Tool: **Neue Prozessstandard** – Typen: G7





Prinzipien der Prozessstandards

G7: ANSI/CGATS TR016

- Graubalance
- Farborte Primär-/Sekundärfarben
- Substrat (*informativ*)
 - *dynamische Adaptation der Primär-/Sekundärfarben ans Substrat*

interne Charakterisierungsdatei
als Referenz **notwendig**

Graubalance für
25%, 50% und 75%

ISO 12647-2 (BVDM/FOGRA)

- Farborte Primär-/Sekundärfarben
- Tonwertzunahme
- ~ Graubalance
- Substrat (*informativ*)
 - *Absolutwerte*

Keine interne Charakterisierungsdatei
als Referenz

Graubalance für
30%, 50% und 70%

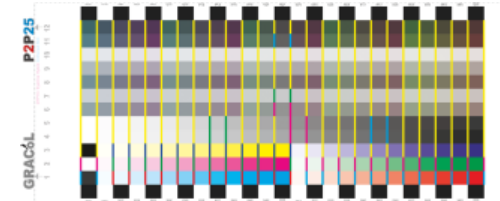


Color Tool: G7-Check (ISO15339): Elemente

Unterstützte Minispots:

➤ *Standard-Check*

- P2P25
- FMS – G7 von HDM



- IDEAlliance Control Strip 2009
- IDEAlliance Control Strip 2013



➤ Alle anderen Elemente → **Warnung**

Color Tool: *Auswahl G7-CGATS-Prozessstandard*



Übersicht

Verwaltung

Messen
Vergleichen
Analysieren
Generieren
Bearbeiten
Prozessstandard

Prozessstandard auswählen und bearbeiten

Standard: CGATS.21-2 CMYK Bedruckstoff: PT1 - glänzend gestrichen

PS Norm Type: G7 Delta E Type: Delta Eab Density status: ISO 5-3 Status E

CharacterizationDataSet: CGATS21-2-CRPC6_PT1.bt Öffnen

Kommentar: Offset printing according to CGATS.21-2_CRPC6, Universal Premium Coated, white backing

▷ Tonwertdiagramm anzeigen

▷ Tonwerttabelle anzeigen

▶ Papierweiss anzeigen

▶ CIELab-Farbwerte und Dichten anzeigen

▷ Show Gray balance parameter

▼ G7 Parameter verbergen

ΔL CMY Patches		ΔL K Patches		ΔCh CMY Patches	
Weighted peak	3,00	Weighted peak	3,00	Weighted peak	3,00
Weighted average	1,50	Weighted average	1,50	Weighted average	1,50
HR (25/19/19)	2,00	HR (25)	2,00	HR (25/19/19)	3,00
HC (50/40/40)	2,00	HC (50)	2,00	HC (50/40/40)	3,00
SR (75/66/66)	2,00	SR (75)	2,00	SR (75/66/66)	3,00

▷ Digital Parameter anzeigen

▷ Proof Parameter anzeigen

▶ Druckreihenfolge anzeigen

Bearbeiten

Sichern

Abbrechen

Löschen

Importieren Exportieren Trocken -> Nass

Standard: [CMYK] - CGATS.21-2 PS Norm Type: G7 Bedruckstoff: glänzend gestrichen

Internal reference file



Color Tool: G7-Check: Check des Standards

Messen
Vergleichen
Analysieren
Generieren
Bearbeiten
Prozessstandard

Messdaten auf Prozessstandard überprüfen

● CIELAB-Farbwerte

ΔEab	0,8	1,4	1,1	1,0	1,0	2,6	2,9	0,3
------	-----	-----	-----	-----	-----	-----	-----	-----

ab-Diagramm

✗ Substrat (Papier)

Pap...	Δ
L	95,4 0,4
a	-0,0 -1,0
b	-1,9 2,1
ΔEab	-- 2,3

Substrat= Papierweiß

Primär-/Sekundärfarben

G7 Parameter verbergen

G7 Evaluation

NPDC Scale conformance

Eval CMY-Felder-ΔL*

ΔL CMY Patches	ΔL*	Max
Weighted peak	0,5	3,0
Weighted average	0,2	1,5
HR (25/19/19)	0,4	2,0
HC (50/40/40)	0,3	2,0
SR (75/66/66)	0,1	2,0

K-Felder-ΔL*

ΔL K Patches	ΔL*	Max
Weighted peak	0,4	3,0
Weighted average	0,2	1,5
HR (25)	0,1	2,0
HC (50)	0,1	2,0
SR (75)	-0,3	2,0

CMY-Felder-ΔCh*

ΔCh CMY Patches	ΔCh*	Max
Weighted peak	2,1	3,0
Weighted average	1,2	1,5
HR (25/19/19)	1,9	3,0
HC (50/40/40)	1,2	3,0
SR (75/66/66)	1,0	3,0

Check Element

Neu
Öffnen
Messen
Prozessparameter
Speichern

Dateiname: _P2P_Convert_from_profile.bt <MD>

Standard: [CMYK] - CGATS.21-2 PS Norm Type: G7 Bedruckstoff: glänzend gestrichen



Color Tool: **G7-Check**: *Neue Charakterisierungsdatei & PSO für G7-CGATS*

Mitgeliefert in ColorTool:

2 Dateien & PSO's for gestrichenes und ungestrichenes Papier

- Papiertyp PT1 = Substrat "universal premium coated"
- Papiertyp PT4 = Substrat "universal premium uncoated"

Prozessstandard	PapTyp	int Ref
CGATS.21-2	1	CGATS21-2-CRPC6-PT1
	4	CGATS21-2-CRPC3-PT4



ProfilTool: *Was ist neu?*

- Weniger GCR/K in Hauttönen
 - GCR: Gray Component Replacement

*CMY-Anteil, was zu Grau entspricht, ersetzt bei K →
weniger Flächendeckung*

 - Farbeinsparung & stabiler Druck
- Verbesserte Farbumfangsanpassung bei relativem Rendering-Intent
 - weniger Magenta in Blau

GCR: weniger K in Hauttönen

Farbmetrisch identische Werte (identische Lab) **aber**

→ reprototechnisch erfahrenes Auge:

Unreinheit in Hauttönen mit GCR

deshalb Alt: GCR nicht-akzeptiert von Repro

Nun: kein GCR in Mode & Portraits

➤ **Im Farbsektor mit Hauttönen:**

Verringerung von K+GCR in diesem Sektor →

✓ **Hauttöne und Möbel (Holz)**



GCR: weniger K in Hauttönen



The screenshot shows the Heidelberg Color Tool software interface. The main window displays a color calibration chart. Two dialog boxes are open:

- Profile Generation Setup:**
 - Print process parameters: Process/Technology (Ink Saving), Paper class/Media (Wood-free coated), Process colors/Profile type (CMYK, 3 color CMY, Gray).
 - Color composition/Black generation: UCR setting (Total dot area: 260%, Maximum black: 98%), GCR setting (Custom, Modify).
 - Profile calculation options: Gamut mapping (Default), Paper white correction (Default), Smoothing of measured values (Default).
 - Profile parameters: Show, Load, Store, OK, Cancel, ?.
- GCR setting/Black generation:**
 - Selected: **GCR black generation** (Less GCR in skintones checked).
 - GCR value: Slider set to 70% (Min. GCR, Max. GCR).
 - Starting point K[%]: Slider set to 0% (0, 40).
 - Black generation with length and width: Black length (Starting point K[%]: 10, 9), Skeleton (min 2, Full range), Black width (10, Full extent), Only in gray.
 - Buttons: OK, Cancel, Default, ?.

On the right side, there is a 'Patch' information panel with fields for ID, No., x, y, Ref. [%] (CYAN, MAGENTA, YELLOW, BLACK), Ref. [Lab] (L, a, b), Ref. [XYZ] (X, Y, Z), Spectrum (No spectral values available for this patch), and Density (C, M, Y, K).

At the bottom of the main window, there are buttons for 'Open', 'Profile parameters', 'Process parameters', 'Calculate', and 'Save'. The status bar at the very bottom shows 'File name: FOGRA39L.bt' and 'Profile name:'.

Neue Messgeräte: Messmodi M0 – M3

- TECHKON SpectroDens

- Spot / Scan



- X-Rite eXact

- Spot



M0 – M3

- Konica-Minolta FD7

- Spot / Strip
- IO (xy-Tisch)



- X-Rite i1Pro 2

- Spot / Strip
- IO (xy-Tisch)
 - Spot / Strip



M0 – M2



Arbeiten mit Sonderfarben (SoFa):

- *wenig* Color Tool 2015
 - *Hauptteil* Color Tool 2016
-
- *Verpackung*
 - *Digitaldruck*
 - *Offset (Anicolor)*

Arbeiten mit Sonderfarben



Spot Colors										
Multicolor										
Default										
Color Tables										
Name	CIE L*a*b			C	M	Y	K	S1	S2	S3
PANTONE 109 C	86.3	5.0	98.0	0	0	100	0	10	0	0
PANTONE 116 C	84.7	9.0	92.0	0	0	100	0	15	0	0
PANTONE 118 C	59.2	7.0	71.0	7	5	100	33	22	0	0
PANTONE 1225 C	85.1	12.0	67.0	0	0	74	0	21	0	0
PANTONE 137 C	75.7	32.0	84.0	0	0	88	0	46	0	0
PANTONE 138 C	62.7	36.0	80.0	4	0	100	13	63	0	0
PANTONE 145 C	58.8	31.0	68.0	11	0	89	19	62	0	0
PANTONE 1505 C	66.7	57.0	88.0	0	0	67	0	82	0	0
PANTONE 151 C	67.5	51.0	80.0	0	0	65	0	74	0	0
PANTONE 165 C	63.9	60.0	69.0	0	7	0	0	0	0	0
PANTONE 1788 C	53.3	73.0	45.0	0	70	0	0	0	0	0
PANTONE 182 C	82.4	25.0	3.0	0	21	0	0	14	0	0
PANTONE 185 C	49.4	76.0	43.0	0	85	0	0	73	0	0
PANTONE 186 C	43.9	68.0	38.0	5	90	0	8	76	0	0
PANTONE 2425 C	28.6	53.0	-19.0	0	100	5	23	0	0	46
PANTONE 2583 C	50.6	37.0	-35.0	0	49	0	0	0	0	56
PANTONE 2587 C	42.7	38.0	-45.0	0	43	0	0	0	0	73
PANTONE 2627 C	18.0	32.0	-34.0	0	63	16	32	0	0	94
PANTONE 272 C	52.5	14.0	-39.0	15	0	0	0	0	0	64
PANTONE 2766 C	14.5	11.0	-33.0	86	0	21	60	0	0	91
PANTONE 280 C	17.3	13.0	-52.0	100	0	8	36	0	0	82
PANTONE 282 C	12.2	1.0	-28.0	100	6	20	73	0	0	71



Unterschiede wegen:

- Substrat
- Herstellvarianz

Arbeiten mit SoFa's: *Messen in ColorTool 1*



Color Toolbox - New measurement file

Measurement of new test chart

Test chart

ISO 12642-2 / ANSI IT8.7/4

Control strip

User defined

Linearisation strip

PCM

Type: Standard

Reference data

Open

Name (v)	Size	Type	Modified	Attributes
User6C_MB_100_80_40BCMYXZ.ref	2 KB	REF File	5/31/13 ...	
User7C_MB_100_80_40BCMYXZU.ref	3 KB	REF File	5/31/13 ...	
User_Defined.ref	1 KB	REF File	8/15/08	
User_Spot_PW.ref	1 KB	REF File	11/27/13...	
UserCS4_MB_100_80_40_20.ref	2 KB	REF File	1/26/11 ...	
UserDotgain_MC5_CMYK-B.ref	6 KB	REF File	1/17/13 ...	
UserDotgain_MC5_CMYK-G.ref	6 KB	REF File	1/17/13 ...	
UserDotgain_MC5_CMYK-R.ref	6 KB	REF File	1/17/13 ...	
UserDotgain_MC6_CMYK-GB.ref	7 KB	REF File	1/17/13 ...	

File name: User_Spot_PW.ref

Files of type: Reference data (.ref)

New

File name:

Standard: [Spot colors] - Spot-485-WB PS Norm Type: Offset Printing Material: glossy coated

Neuer SoFa-

Minispot:

besteht aus

- 1 Sonderfarbe +
- Papierweiß:

*unter „User defined“
Kontrollelemente*

Arbeiten mit SoFa's: *Messen in ColorTool 2*

The screenshot displays the ColorTool 2 software interface. The main window has a 'Measure' tab selected, with other tabs like 'Compare', 'Analysis', 'Create', 'Edit', and 'Process standard' visible. A sidebar on the left contains a list of options: 'Test chart', 'Process standard', 'Substrate', 'Color values', 'Dot gain', 'Gray values', 'Ink zones', 'Gradual fading', and 'ab diagram'. The main area shows a 'Display of the test chart' with a red dashed box highlighting a portion of the chart. At the bottom, there are buttons for 'New', 'Open', 'Measure', 'Process parameters', and 'Save'. A dialog box titled 'Color measurement of test chart' is open, showing the following settings:

- Measurement device setup:**
 - Device: TECHKON SpectroDens (spot)
 - Buttons: Connect, Calibrate
 - Status: Not connected
- Color measurement:**
 - CIE color values
 - Density values
 - Spectral values
- Measurement conditions:**
 - D50 / 2 degree
 - ISO Status E
- Filter:** none (M0:ISO-13655)
- Backing:** Black
- Color patch measurement:**
 - Single step measurement
 - Button: Start
- Check measured test chart values:**
 - Progress bar: [Green dot]
 - Button: Check
- Save and Repeat chart measurement:**
 - Start automatically
 - Button: Save
- Buttons: Close, ?

Arbeiten mit SoFa's: *Evaluierung 1a: Vergleichen*



Measure Compare Analysis Create Edit Process standard

Display of the test chart

Test chart

Process standard

Substrate

Color values

Dot gain

Gray values

Ink zones

Gradual fading

ab diagram

Color calculator

Calculate color values Compare color

Entscheidung für SoFa-Tabelle:

Table: PANTONE® solid coated

Name: 355 C

automatic search

Input	Table	Changes
L: 51.9	L: 53.5	ΔE^*_{ab} : 2.6
a: -66.7	a: -68.0	ΔE^*_{50} : 1.8
b: 36.5	b: 34.9	ΔL^* : 1.6
		Δa^* : -1.3
		Δb^* : -1.6
		ΔH^* : 2.0
		ΔC^* : 0.4

Import from measure

OK Cancel ?

New Open Measure Process parameters Save

File name: User_Spot_PW-M0-WB-355.bt <M0>

Differenz
Messwert
zu
SoFa-Tabellenwert

Arbeiten mit SoFa's: Evaluierung 1b: Vergleichen



Color calculator

Calculate color values Compare color

Table: PANTONE® solid coated

Name: 1485 C *manuelle Eingabe*

Input	Table	Changes
L: 75.1	L: 80.0	ΔE^*_{ab} : 8.3
a: 29.9	a: 27.7	ΔE^*_{50} : 4.0
b: 53.0	b: 46.7	ΔL^* : 4.9
		Δa^* : -2.2
		Δb^* : -6.3
		ΔH^* : -1.2
		ΔC^* : -6.6

Import from measure

OK Cancel ?

New Open Measure Process parameters Save

File name: User_Spot_PW-M0-WB-1485.bt <M0>

**Differenz
Messwert
zu
SoFa-Tabellenwert**

Arbeiten mit SoFa's: *Evaluierung 2a:*



Measure Compare Analysis Create Edit Process standard

Display of the test chart

Test chart

Process standard

Substrate

Color values

Dot gain

Gray values

Ink zones

Gradual fading

ab diagram

Color calculator

Calculate color values Compare color

Reference profile: ISOcoated_v2_eci.icc

Rendering Intent: Absolute colorimetric Black Point Compensation

Table: manually

Name:

Input	Output	Changes
Lab	C: 92.9	ΔE^*ab : 9.0
L: 51.9	M: 0.0	ΔE^*00 : 2.2
a: -66.7	Y: 100.0	ΔL^* : 0.4
b: 36.5	K: 0.0	Δa^* : 7.2
	S1: 0.0	Δb^* : -5.4
	S2: 0.0	ΔH^* : 1.3
	S3: 0.0	ΔC^* : -8.9
	S4: 0.0	

Import from measure

Include quantization effect

Close ?

OK Cancel ?

New Open Measure Process parameters Save

File name: User_Spot_PW-M0-WB-355.bt <M0>

1. Im Farbraum?

$$\Delta E_{00} < 1 \rightarrow \checkmark$$

2. Wie gut zu ersetzen?

$$\Delta E_{00} <$$

a. 2

b. 3 or 4

c. 6

d. $\Delta E_{00} > 6$

Arbeiten mit SoFa's: *Evaluierung 2b:*



Measure Compare Analysis Create Edit Process standard

Test chart
Process standard
Substrate
Color values
Dot gain
Gray values
Ink zones
Gradual fading
ab diagram

Display of the test chart

Color calculator

Calculate color values Compare color

Reference profile: ISOcoated_v2_eci.icc

Color calculator

Calculate color values Compare color

Reference profile: Ave-7CLR_BVCGMOY-FM-621 21-M0-WB-330K98G50.icc **MC**

Rendering Intent: Absolute colorimetric Black Point Compensation

Table manually

Name

Input	Output	Changes
Lab	C: 0.0	ΔE^*_{ab} : 1.2
L: 51.9	M: 3.6	ΔE^*_{50} : 0.6
a: -66.7	Y: 99.3	ΔL^* : 0.4
b: 36.5	K: 9.6	Δa^* : 0.5
	S1: 0.0	Δb^* : 1.0
	S2: 95.7	ΔH^* : -1.1
	S3: 0.0	ΔC^* : 0.1
	S4: 0.0	

Import from measure

Include quantization effect

File name: User_Spot_PW-M0-WB-355.bt <M0>

1. Wie gut zu ersetzen?
> Anderes Profil: MC

Arbeiten mit SoFa's: *Prozessstabilität: Beispiel 2:* *Mehrere SoFa's und MultiColor [MC]*



Measure
Compare
Analysis
Create
Edit
Process standard

Test chart

Process standard

Substrate

Color values

Dot gain


Gray values

Ink zones

Gradual fading

ab diagram

Display of the test chart



1. Vorgehen für SoFa oder MC
2. „Öffnen“ eine SoFa/MC-Minispot-Datei
 - *ECI_GrayConM_i1* auch verfügbar für 5-7 Farben
3. nun 2 Farben: *Orange und Grün*
4. Eins definiert aus Tabelle, andere aus Messdaten

Patch:

ID:

No.:

x:

y:

Ref. [%]

PANTONEGREENC =

PANTONEORANGE021C =

PANTONEVIOLETC =

BLACK =

CYAN =

MAGENTA =

YELLOW =

Ref. [Lab]

L =

a =

b =

Ref. [XYZ]

X =

Y =

Z =

Spectrum

No spectral values available for this patch

Density

C =

M =

Y =

K =

New
Open
Measure
Process parameters
Save

File name: Ave-4Prof_NKcal3_1-IC2-2013_07_09T7col_Graycon_M_mix.txt <M2>

Arbeiten mit SoFa's: *Beispiel 2:* *Definition MC-Prozessstandard SoFa 1*



Measure Compare Analysis Create Edit **Process standard**

Select and edit process standard

Standard MC6-Or21-PanGreen-FograWB Multicolor Printing Material PT1 - glossy coated

PS Norm Type Offset Delta E Type Delta Eab Density status ISO 5-3 Status E

Internal Reference File Open

Comment FOGRA39 based on ISO 12647-2_2004Amd1, White Backing, glossy- and matte-coated PT1 and 2 and Spot 355 C

Hide dot gain curves

Dot gain preview

Process curve set
Curves from Calibration Manager (MDS)
Z_7C - glossy coated

Show dot gain values

Hide paper white

	L*	a*	b*	ΔL^*	Δa^*	Δb^*	ΔE^*_{ab}
<input checked="" type="checkbox"/> Paper	95.00	0.00	-2.00	3.00	2.00	2.00	3.00

Hide CIELAB color values and density values

Name	L*	a*	b*	ΔE^*	ΔE^*_{ab} PV	ΔH^* PV	De
<input checked="" type="checkbox"/> cyan	55.00	-37.00	-50.00	5.00	4.00	3.00	
<input checked="" type="checkbox"/> magenta	48.00	74.00	-3.00	5.00	4.00	3.00	
<input checked="" type="checkbox"/> yellow	89.00	-5.00	93.00	5.00	5.00	3.00	
<input checked="" type="checkbox"/> black	16.00	0.00	0.00	5.00	4.00	3.00	
<input checked="" type="checkbox"/> Import from color tables	52.00	-67.00	37.00	5.00	4.00	3.00	
<input type="checkbox"/> magenta	50.00	-65.00	27.00	5.00	4.00	0.00	
<input type="checkbox"/> yellow	24.00	22.00	-46.00	5.00	4.00	0.00	

Import from color tables

1. Neuer Standard-Name
2. Änderung PSO-Typ
3. Ergänzung *Kommentar*
4. Änderung TWZ
5. Parametrierung Farbe
 - a. Auswahl Option „Import aus Farbtabelle“

Import from color tables

Table PANTONE® solid coated

Name Yellow C **Eingabe SoFa-Name**

Import from color tables

Table PANTONE® solid coated

Name Orange 021 C

OK Cancel ?

Arbeiten mit SoFa's: *Beispiel 2:*

Definition MC-Prozessstandard SoFa 2



Measure Compare Analysis Create Edit **Process standard**

Select and edit process standard

Standard MC6--Or21-PanGreen-FograWB Multicolor Printing Material PT1 - glossy coated

PS Norm Type Offset Delta E Type Delta Eab Density status ISO 5-3 Status E

Internal Reference File Open

Comment FOGRA39 based on ISO 12647-2_2004Amd1, White Backing, glossy- and matte-coated PT1 and 2 and Spot 355 C

Hide dot gain curves

Dot gain preview

Process curve set
Curves from Calibration Manager (MDS)
Z_7C - glossy coated

Show dot gain values

Hide paper white

Paper L* 95.00 a* 0.00 b* -2.00 ΔL^* 3.00 Δa^* 2.00 Δb^* 2.00 ΔE^*ab 3.00

Hide CIELAB color values and density values

Name	L*	a*	b*	ΔE^*	$\Delta Eab^* PV$	$\Delta H^* PV$	De
<input checked="" type="checkbox"/> cyan	55.00	-37.00	-50.00	5.00	4.00	3.00	
<input checked="" type="checkbox"/> magenta	48.00	74.00	-3.00	5.00	4.00	3.00	
<input checked="" type="checkbox"/> yellow	89.00	-5.00	93.00	5.00	5.00	3.00	
<input checked="" type="checkbox"/> black	16.00	0.00	0.00	5.00	4.00	3.00	
<input checked="" type="checkbox"/> Orange 021 C	62.23	63.55	86.18	5.00	4.00	3.00	
<input checked="" type="checkbox"/> Green C	57.61	-73.73	8.13	5.00	4.00	2.50	
<input type="checkbox"/> blue	24.00	22.00	-46.00	5.00	4.00	0.00	

Import Export Dry -> Wet

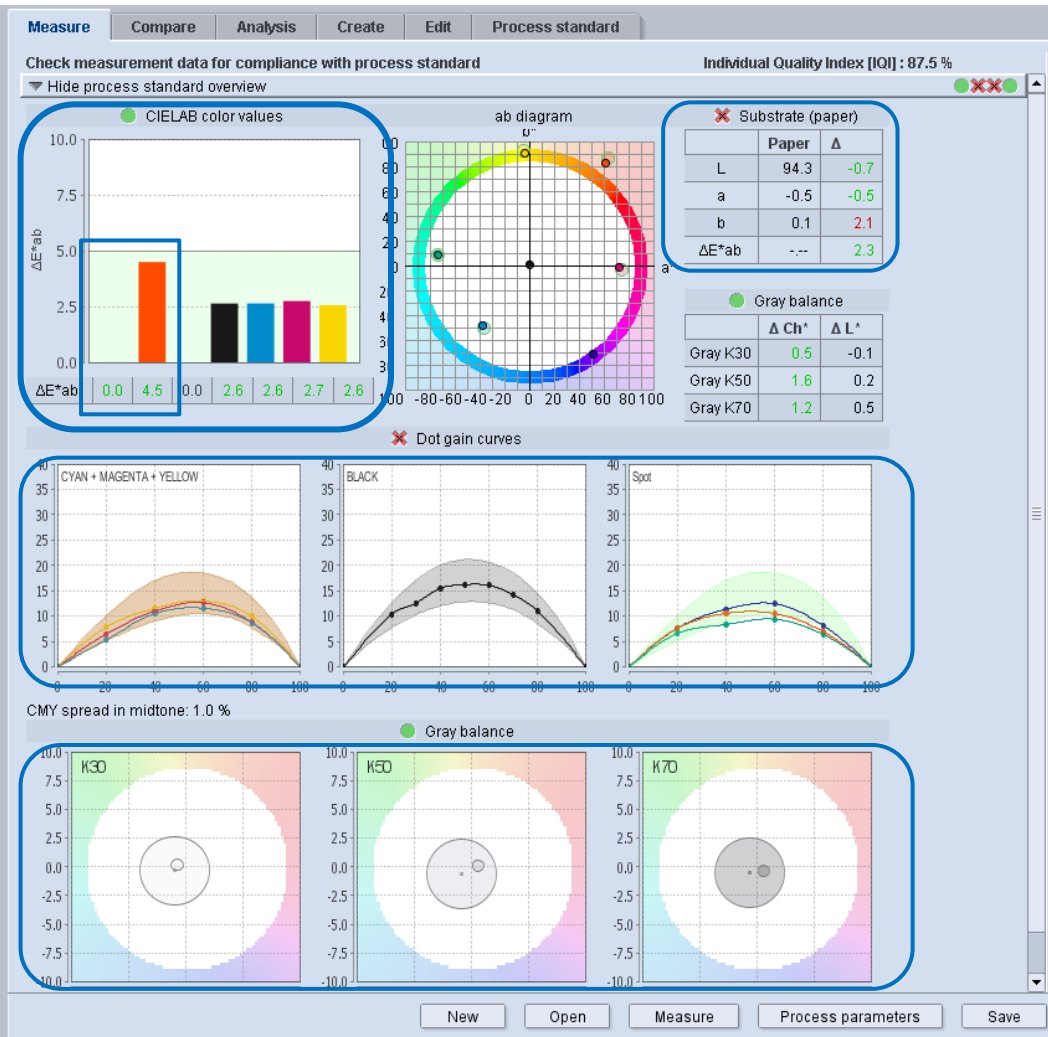
5. Parametrierung Farbe

- Auswahl Option „Import aus Farbtabelle“
- Aktivierung 6
- Auswahl Option „Import aus Messdaten“
- Neuer SoFa-Name

6. Sichern



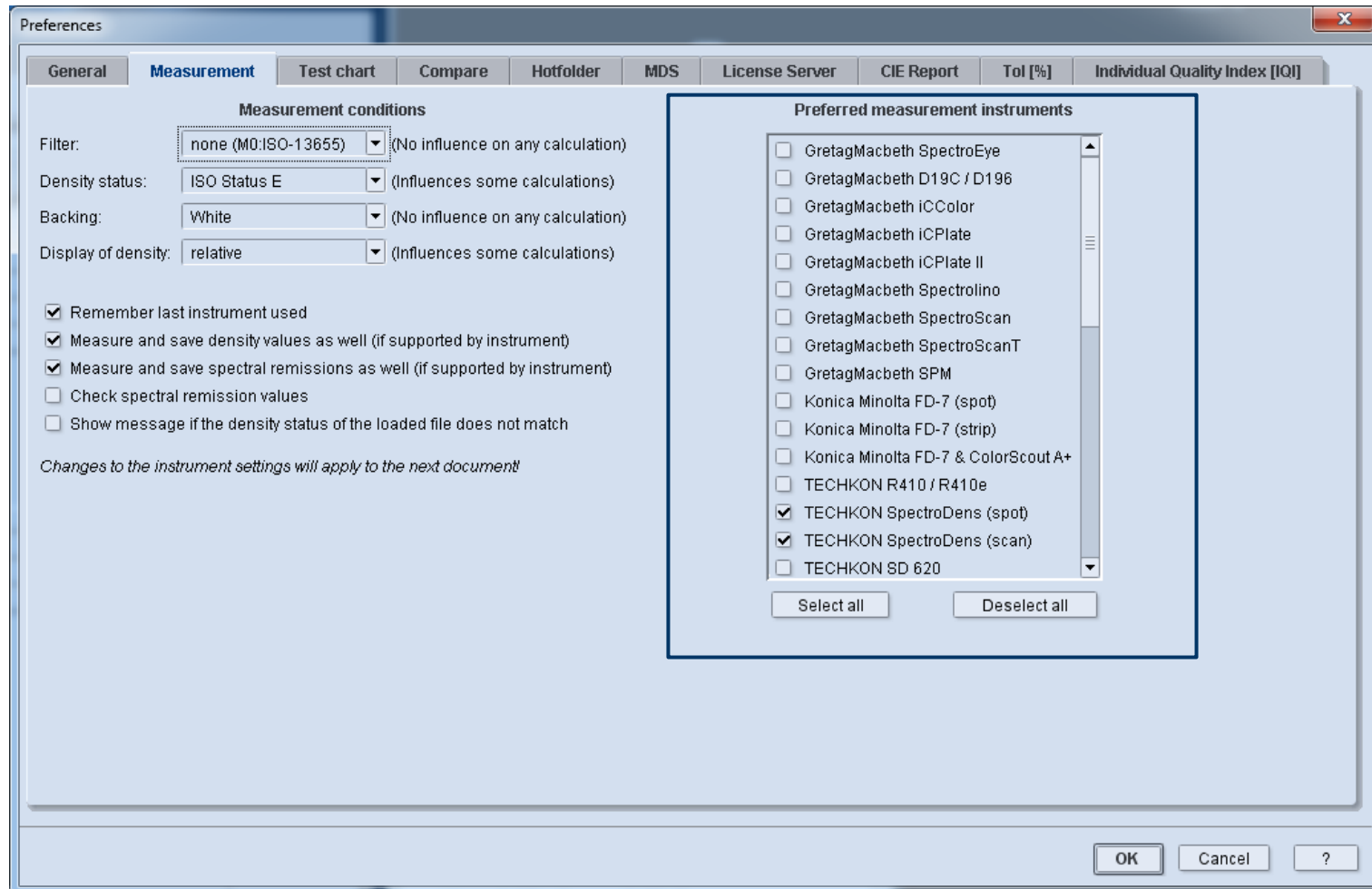
Arbeiten mit SoFa's: *Check Prozess-Stabilität:* *Check mit MC-Prozessstandard*



File name: Ave-4Prof_NKaI3_1-IC2-2013_07_09T7col_Graycon_M_mix.bd <M2>

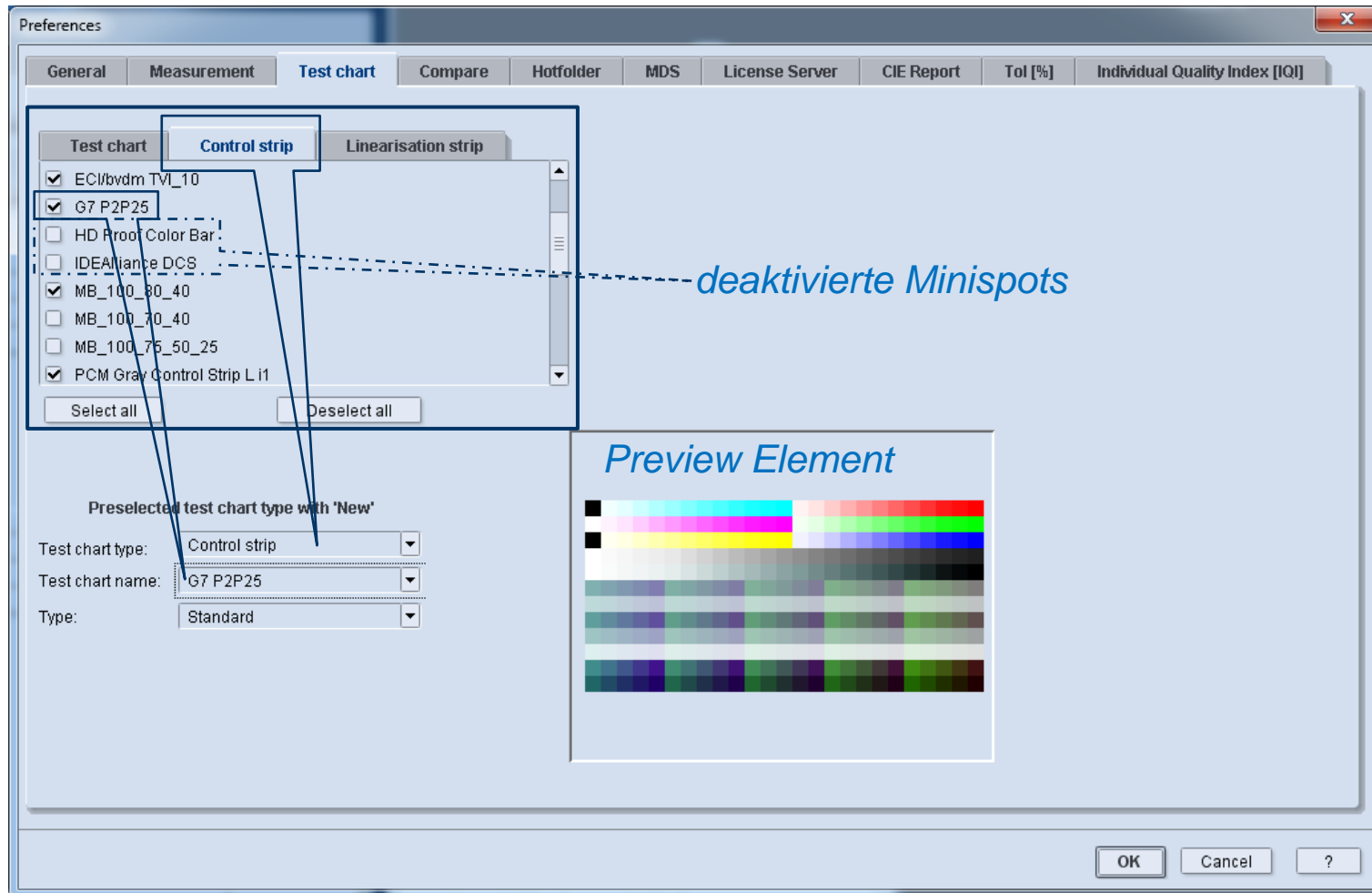
Standard: [Multicolor] - MC6--Or21-PanGreen-FograWB PS Norm Type: Offset Printing Material: glossy coated

Voreinstellungen-Messung: Vorauswahl Messgeräte



- Voreinstellungen-Messung: Liste mit allen unterstützten Messgeräten (Default: alle aktiv)
- Aktivierung einmal für Ihr Messgerät → nur dieses Gerät erscheint in allen Dialogen
- Zusätzlich ColorTool erinnert sich an zuletzt benutztes Messgerät

Voreinstellungen-Testform: Vorauswahl Elemente



- Voreinstellung: Testform: Liste mit allen unterstützten Testformen, Kontrollelementen und Keilen (Default: alle aktiv)
- Aktivierung einmal benutzter Elemente → nur diese erscheinen in allen Funktionen
- Preview unten

Color Tool: **EASE-OF-USE:** *Was ist neu?*

- Drag & drop
- Zuletzt benutzte Verzeichnisse
- Drucken: Neu:
 - Unterstützung Tasten kombination „**Ctrl – P**“ / „**Strg – P**“
 - „**Ctrl+Shift-P**“ → Proof-Bericht → Label-Printer
- Öffne automatisch zuletzt eingemessene Datei nach „Farbmessung-Schließen“
- Voreinstellungen-Messung – Vorauswahl Messgeräte
- Voreinstellungen-Testform – Vorauswahl Testformen/Minispots/Lin-Keile
- Export Prozessstandard: automatische Vorauswahl PSO-Name

Default Prozessstandards:

Measure Compare Analysis Create Edit Process standard

Overview Administration

Select and edit process standard

- Process standard
 - [CMYK] - CGATS.21-2
 - PT1 - glossy coated
 - PT4 - uncoated
 - [CMYK] - Digital PSD_2007
 - PT1 - glossy coated
 - PT4 - uncoated
 - [CMYK] - Digital PSD_2012
 - PT1 - glossy coated
 - PT4 - uncoated
 - [CMYK] - ISO 12647-2_2007 FograWB
 - PT1 - glossy coated
 - PT4 - uncoated
 - [CMYK] - ISO 12647-2_2007 HDM_BB
 - PT1 - glossy coated
 - PT4 - uncoated
 - [CMYK] - ISO 12647-2_2007BB
 - PT1 - glossy coated
 - PT4 - uncoated
 - [CMYK] - ISO 12647-2_2007WB
 - PT1 - glossy coated
 - PT4 - uncoated
 - [CMYK] - ISO 12647-2_2008 FograWB NP
 - PT1 - glossy coated
 - PT4 - uncoated
 - [CMYK] - PSO ISO12647-2_2013
 - PT1 - glossy coated
 - PT4 - uncoated
 - [CMYK] - Proof 12647-2_2007
 - PT1 - glossy coated
 - PT4 - uncoated
 - [CMYK] - Proof ISO12647-2_2013
 - PT1 - glossy coated
 - PT4 - uncoated
 - [Multicolor] - MC-7c_O21PanGrViolet_DG13_PT1BVS_170_M2_dry_BB
 - PT1 - glossy coated
 - [Spot colors] - 5C_ISO 12647-2_2007BB_Beige
 - PT1 - glossy coated

– obsolete alte PSO gelöscht

– 2004-PSO

– HDM-WB *identisch zu FOGRA*

– PT 3 (Web) und 5 (ungestr-gelb)

✓ neu: „PSO 21013“

✓ neue Standard-Typen

✓ 1 Spot- und MC-PSO (Bsp)

Arbeiten mit SoFa's: *Prozess-Stabilität:* *Definition SoFa(Spot)-Prozessstandard 1*



Overview
Administration

White Backing
→ ISO 12647-2 FOGRA WB

Measure Compare Analysis Create Edit Process standard

Select and edit process standard

Standard **Spot 355C -ISO FograWB** Spot colors Printing Material PT1 - glossy coated

PS Norm Type Offset Delta E Type Delta Eab Density status ISO 5-3 Status E

Internal Reference File Open

Comment **FOGRA39 based on ISO 12647-2_2004Amd1, White Backing, glossy- and matte-coated PT1 and 2 and Spot 355 C**

Hide dot gain curves

Dot gain preview

Process curve set
Curves from Calibration Manager (MDS)
Z_7C - glossy coated

Show dot gain values
Hide paper white

	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*ab
<input checked="" type="checkbox"/> Paper	95.00	0.00	-2.00	3.00	2.00	2.00	3.00

Hide CIELAB color values and density values

Name	L*	a*	b*	ΔE*	ΔEab* PV	ΔH* PV
<input checked="" type="checkbox"/> cyan	55.00	-37.00	-50.00	5.00	4.00	3.00
<input checked="" type="checkbox"/> magenta	48.00	74.00	-3.00	5.00	4.00	3.00
<input checked="" type="checkbox"/> yellow	89.00	-5.00	93.00	5.00	5.00	3.00
<input checked="" type="checkbox"/> black	16.00	0.00	0.00	5.00	4.00	3.00
<input checked="" type="checkbox"/> red	47.00	68.00	48.00	5.00	4.00	0.00
<input type="checkbox"/> yellow	51.89	-66.70	36.53	5.00	4.00	3.00
<input type="checkbox"/> black	24.00	22.00	-46.00	5.00	4.00	0.00
<input type="checkbox"/> red	23.00	0.00	0.00	5.00	4.00	0.00
<input type="checkbox"/> green						
<input type="checkbox"/> blue						

Import from measu
Import from color ta

Import Export Dry -> Wet

1. Neuer Standard-Name
2. Änderung PSO-Typ
3. Ergänzung Kommentar
4. Änderung TWZ
5. Parametrierung Farbe
 - a. Deaktivierung 6-8
 - b. Auswahl Option „Import aus Messdaten“

Arbeiten mit SoFa's: *Prozess-Stabilität:* *Definition SoFa(Spot)-Prozessstandard 2*



Measure Compare Analysis Create Edit **Process standard**

Select and edit process standard

Standard Spot colors Printing Material

PS Norm Type Delta E Type Density status

Internal Reference File Open

Comment

Hide dot gain curves

Dot gain preview

Process curve set
Curves from Calibration Manager (MDS)

Show dot gain values

Hide paper white

	L*	a*	b*	ΔL^*	Δa^*	Δb^*	ΔE^*_{ab}
<input checked="" type="checkbox"/> Paper	95.00	0.00	-2.00	3.00	2.00	2.00	3.00

Hide CIELAB color values and density values

Name	L*	a*	b*	ΔE^*	ΔE^*_{ab} PV	ΔH^* PV
<input checked="" type="checkbox"/> cyan	55.00	-37.00	-50.00	5.00	4.00	3.00
<input checked="" type="checkbox"/> magenta	48.00	74.00	-3.00	5.00	4.00	3.00
<input checked="" type="checkbox"/> yellow	89.00	-5.00	93.00	5.00	5.00	3.00
<input checked="" type="checkbox"/> black	16.00	0.00	0.00	5.00	4.00	3.00
<input checked="" type="checkbox"/> 355 C	51.89	-66.70	36.53	5.00	4.00	3.00
<input type="checkbox"/> green	50.00	-65.00	27.00	5.00	4.00	0.00
<input type="checkbox"/> blue	24.00	22.00	-46.00	5.00	4.00	0.00
<input type="checkbox"/> overprint	23.00	0.00	0.00	5.00	4.00	0.00

Show gray balance parameters

Import Export Dry -> Wet

1. Neuer Standard-Name
2. Änderung PSO-Typ
3. Ergänzung Kommentar
4. Änderung TWZ
5. Parametrierung Farbe
 - a. Deaktivierung 6-8
 - b. Auswahl Option „Import aus Messdaten“
 - c. Neuer SoFa-Name
6. Sichern



Arbeiten mit SoFa's: *Check Prozess-Stabilität:* *Check mit SoFa(spot)-Prozessstandard*

Measure Compare Analysis Create Edit Process standard

Check measurement data for compliance with process standard Individual Quality Index [IQI] : 37.5 %

Hide process standard overview

● CIELAB color values

ab diagram

Substrate (paper)

Paper	Δ
L	96.9 1.9
a	0.8 0.8
b	-4.0 -2.0
ΔE^*ab	--- 2.9

Gray balance

	ΔCh^*	ΔL^*
Gray K30		
Gray K50		
Gray K70		

ΔE^*ab 0.0 0.0 0.0 0.0 0.6

Dot gain curves

CYAN + MAGENTA + YELLOW

BLACK

Spot

CMY spread in midtone: Not measured

Gray balance

New Open Measure Process parameters Save

File name: User_Spot_PW-M0-WB-355.txt <M0>

Standard: [Spot colors] - Spot 355C-ISO FograWB PS Norm Type: Offset Printing Material: glossy coated



PRINCT
ANWENDERTAGE

10. und 11. Oktober 2014

Princt Anwendertage, 10. und 11. Oktober 2014

Vielen Dank für Ihre Aufmerksamkeit!

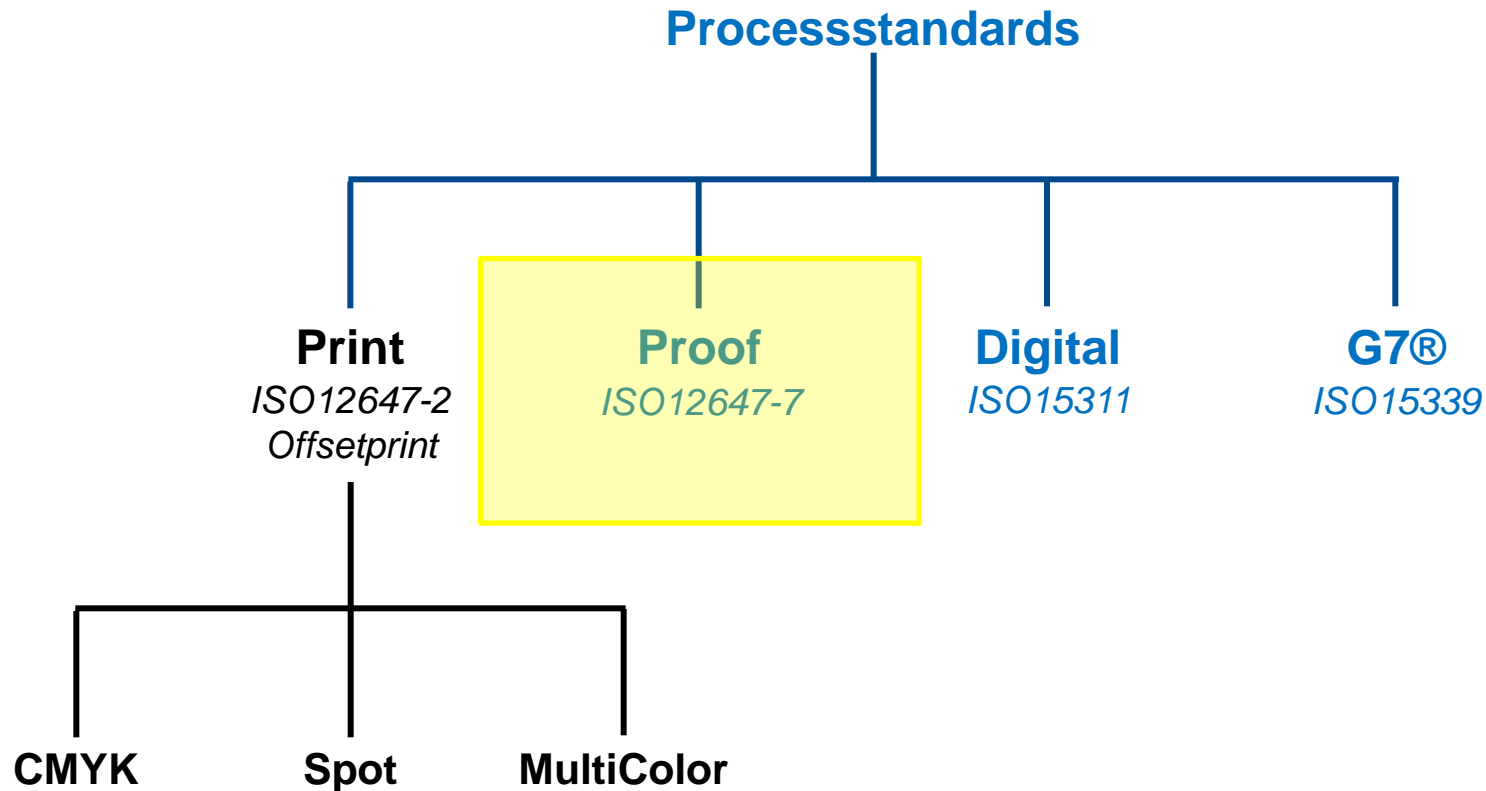
Vortragende

HEIDELBERG



Processtandard **Proof**: ISO 12647-7

Color Tool: **New** Prozessstandard – Types: Proof



Old Proof – check in Compare: ISO 12647-7



Color Toolbox 12.0

File View Special ? Color Toolbox

Measure Compare Analysis Create Edit Process standard

Display of the proof report

	$\Delta E(ab)$	State	Maximum	Patch no.
Paper:	0.09	● OK	3.00	C21
Mean	0.07	● OK	3.00	
Maximum	0.63	● OK	6.00	A18
Primary colors (max)	0.08	● OK	5.00	
Maximum ΔH primary colors	0.08	● OK	2.50	
Mean ΔH CMY gray	0.01	● OK	1.50	
Black	0.00	● OK	5.00	A21
Cyan	0.02	● OK	5.00	A1
Magenta	0.08	● OK	5.00	A6
Yellow	0.04	● OK	5.00	A11
Red	0.09	● OK	6.00	B6
Green	0.08	● OK	6.00	B11
Blue	0.18	● OK	6.00	B1

Test chart
xy diagram
ab diagram
La/Lb diagram
3D color space
Statistics
CIE report
Proof report
Proof statistics
 ΔLab report
 ΔLCH report
Tonal values
Data table

Color Tool: **Proof-Check: ISO 12647-7**

- **Already partially and suboptimally implemented in limited form**
 - Tabs Measure and Compare: *too much dialogs & clicks*
 - Parametrization in Preferences: *proper only for one set, no settings possible*
 - *functions properly only for coated*
- Additionally an internal characterization-set as reference necessary:
 - Coated: FOGRA39L
 - Uncoated: FOGRA47L
 - *Actual: separate parametrization under Preferences: Compare for only one case*
- To be checked: **processstandard, substrate, color values**; no dotgain and gray-balance
- Consists of two checks
 - standard-check for minispots (*already implemented*)
 - extended-check for testcharts (setup, profile-generation, iteration, **new**)
 - Mean-value of all patches
 - Mean-value of saturated color-patches
 - deviation of 95% -percentile of all patches

Color Tool: Proof-Check (ISO12647-7): Used Elements

Minispots / testcharts to be checked:

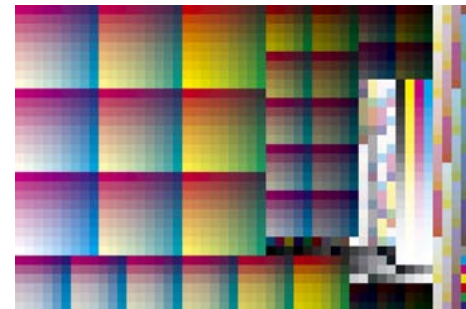
➤ *Standard-Check*

- **FOGRA MKV control-strip v3**
- IDEAlliance Control Strip 2009 (already supported; different name: „GRACOL-DCS“)
- IDEAlliance Control Strip 2013



➤ *Extended-Check: Testchart for setup & profiling*

- **Testcharts (ISO 12642-2) = IT8.7/4 + ECI2002**
 - visual + random



➤ All other elements → **Warning**

Color Tool: Proof-Check: Select a proof-process standard as reference

Process standard

Select and edit process standard

Standard: Proof 12647-2_2007 | CMYK | Printing Material: PT1 - glossy coated

PS Norm Type: Proof | Delta E Type: Delta Eab | Density status: ISO 5-3 Status E

CharacterizationDataSet: FOGRA39L.tst (Internal reference file) | Open

Comment: Proof according to ISO 12647-2_2007, Reference FOGRA39, White Backing, glossy coated PT1

- Show dot gain curves
- Show dot gain values
- Show paper white
- Show CIELAB color values and density values
- Show Gray balance parameter
- Show G7 parameter
- Show digital parameter
- Hide proof parameter

Proof sheet requirements	
All patches average ΔE	3.00
All patches maximum ΔE	6.00
Maximum ΔE primary colors	5.00
Maximum ΔH primary colors	2.50
Mean ΔH CMY gray	1.50
Extended requirements 12642-2	
Gamut patches average ΔE	4.00
All patches average ΔE	4.00
All patches 95% Percentile ΔE	6.00

Show print order

Import | Export | Dry -> Wet

Standard: [CMYK] - Proof 12647-2_2007 | PS Norm Type: Proof | Printing Material: glossy coated

Color Tool: Proof-Check: Standard check FOGRA MKV v3

Test chart

Process standard

Substrate

Color values

Dot gain

Gray values

Ink zones

Gradual fading

Measure Compare Analysis Create Edit Process standard

Check measurement data for compliance with process standard

▼ Hide process standard overview

● CIELAB color values

ΔEab 2.0 0.5 0.8 1.1 1.0 2.1 0.6 0.9

ab diagram

● Substrate (paper)

	Paper	Δ
L	95.2	0.2
a	0.0	0.0
b	-2.0	0.0
ΔEab	---	0.2

Substrate= paper white

▼ Hide proof parameter

Proof evaluation

Proof sheet requirements	ΔE(ab)	Maximum	Patch no.
All patches average ΔE	● 0.8	3.0	
All patches maximum ΔE	● 2.3	6.0	
Maximum ΔE primary colors	● 2.0	5.0	
Maximum ΔH primary colors	● 0.8	2.5	
Mean ΔH CMY gray	● 0.2	1.5	

Extended requirements 12642-2	ΔE(ab)	Maximum
Gamut patches average ΔE	---	6.0
All patches average ΔE	---	3.0
All patches 95% Percentile ΔE	---	4.0

Further check of control strip

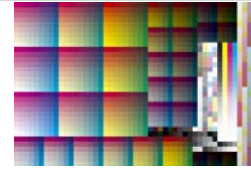
New
Open
Measure
Process parameters
Save

● File name: Check-epson4800-heaven42.tst <M0>

Standard: [CMYK] - Proof 12647-2_2007 **PS Norm Type:** Proof **Printing Material:** glossy coated

NEW

Color Tool: Proof-Check: extended (IT8.7/4)



Test chart

Process standard

Substrate

Color values

Dot gain

Gray values

Ink zones

Gradual fading

Measure Compare Analysis Create Edit Process standard

Check measurement data for compliance with process standard

▼ Hide process standard overview

✗ CIELAB color values

ΔEab	1.9	1.4	2.7	2.3	3.3	3.4	6.4	6.3
------	-----	-----	-----	-----	-----	-----	-----	-----

ab diagram

● Substrate (paper)

Paper	Δ
L	95.0
a	0.5
b	-1.6
ΔEab	0.7

▼ Hide proof parameter

Proof evaluation

Proof sheet requirements	ΔE(ab)	Maximum	Patch no.
All patches average ΔE	● 2.4	3.0	
All patches maximum ΔE	✗ 7.1	6.0	
Maximum ΔE primary colors	● 2.7	5.0	
Maximum ΔH primary colors	● 1.3	2.5	
Mean ΔH CMY gray	● 1.5	1.5	

Extended requirements 12642-2	ΔE(ab)	Maximum
Gamut patches average ΔE	● 2.4	6.0
All patches average ΔE	● 2.4	3.0
All patches 95% Percentile ΔE	✗ 5.3	4.0

▶ Show digital parameter

▶ Show G7 parameter

New Open Measure Process parameters Save

● File name: H64261_HP130_U400_K100_IsoCoated_Proof_lter1.txt <M0>

Standard: [CMYK] - Proof 12647-2_2007 **PS Norm Type: Proof** Printing Material: glossy coated

This part checks the intersection FOGRA MKV3 out of the testchart

This part checks the whole testchart

NEW

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65

Proof-Check: *Delivered proof standards*

➤ **Proof_12647-2_2007**: proofs actual offset-print standard ISO12647-2:2007

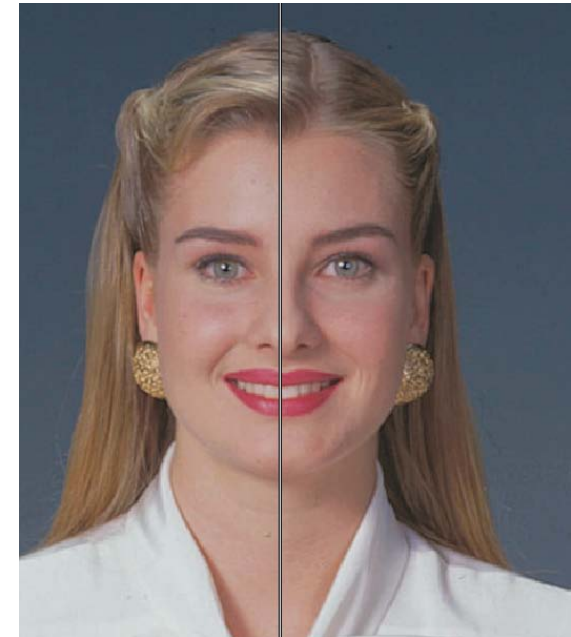
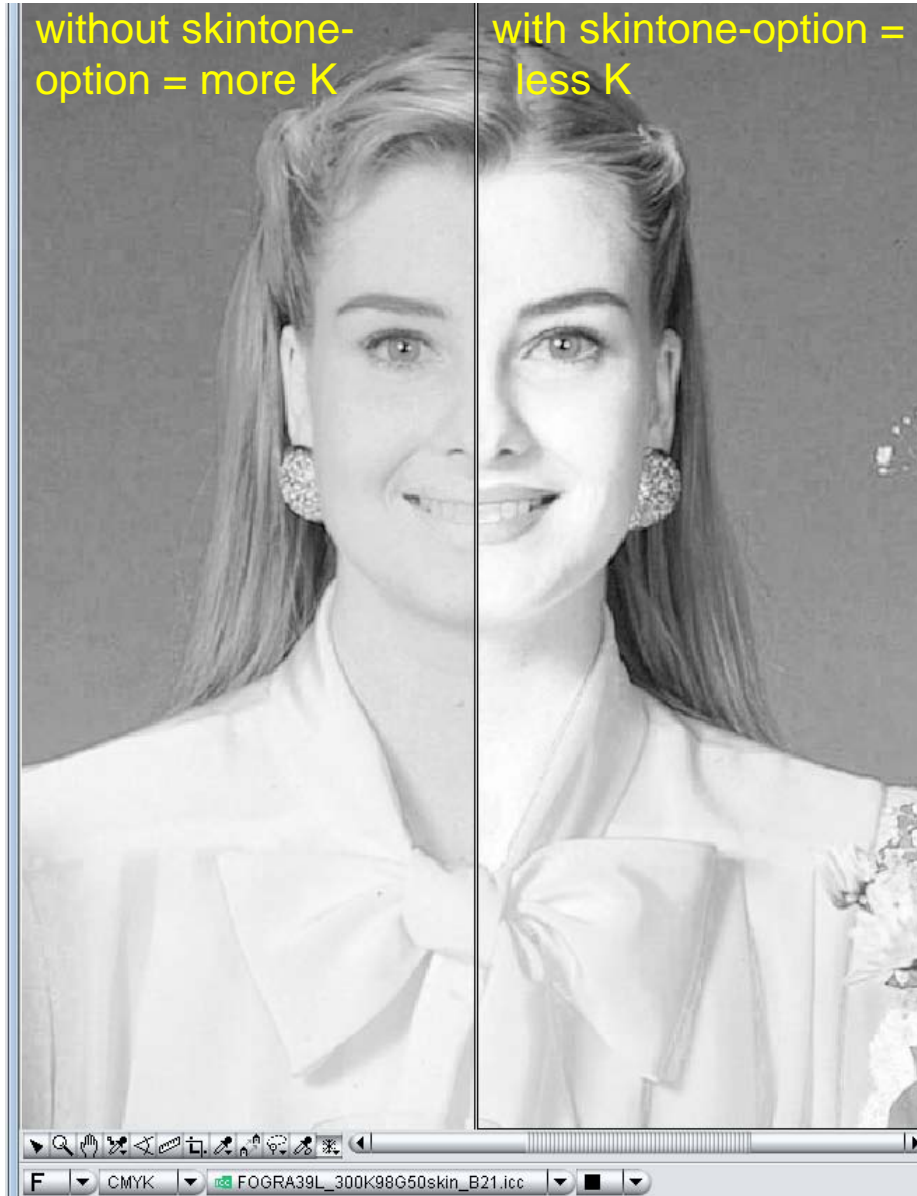
- Paper type PT1-2: glossy-coated (1) and matte-coated (2) paper
- Paper type PT4: uncoated white paper

➤ **Proof_ISO12647-2_2013**: proofs new offset-print standard ISO 12647-2:2013

- Paper type PT1: This corresponds to the new substrate "PS1 = Premium coated".
- Paper type PT4: This corresponds to the new substrate "PS5 = Woodfree uncoated".

Prozessstandard	PapTyp	int Ref
Proof_12647-2_2007	1	FOGRA39L
	4	FOGRA47L
Proof_12647-2_2012	1	PC1_PremiumCoated_Beta
	4	PC5_WoodfreeUncoated_Beta

GCR: less K in skintones



**In CMYK identical, but in print more pure, since less K in skin
GCR 50%**



GCR: less K in skintones



In CMYK identical, but in print more pure, since less K in skin
GCR50%

Create: actualized/revised profile parameter sets

Create – Profile parameters - Profile generation settings: default parameter sets outdated

Process	Paper	UCR total dot area	UCR max Black	UCR black length	UCR black width	GCR max
Digital Printing	Proof glossy	260	98			80
	Proof matt	260	98			80
	Proof semimatt	260	98			80
Offset Printing	Wood-free coated	330	95	9	10	
	Wood-free uncoated	300	98			50
	Light weight coated	300	98	10	10	
	Machine finished coated	280	98			50
	Super calendered	260	98	9	10	
	Newsprint	260	98	9	10	
Newspaper Printing	Standard newsprint	240	95			70
Gravure printing	Light weight coated Plus	360	85	25%	5	
	Light weight coated Std	360	85	25%	5	
	Super calendered Plus	360	85	25%	5	
	Super Calendered Std	360	85	25%	5	
	Machine Finished	375	80	3	5	
Proof	Proof glossy	400	100	6	8	
	Proof matt	400	100	6	8	
	Proof semimatt	400	100	6	8	
MultiColor Offset Printing	Wood-free coated	330	95			50
	Wood-free uncoated	300	95			50
Ink saving	Wood-free coated	280	98			70
	Wood-free uncoated	260	98			80