



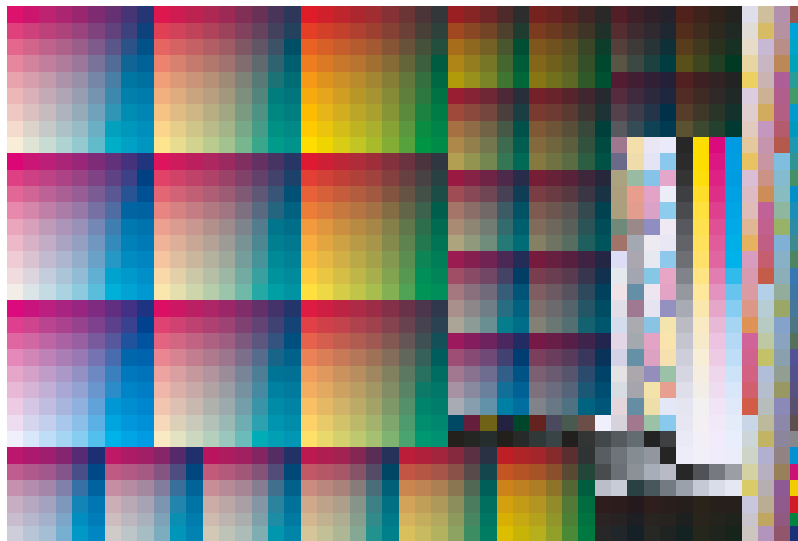
FOGRA51_Spectral.txt

1. Chart Information

Number of patches	1617
Device data	CMYK
Measurement data	Remission
ISO28178	-
FILE_DESCRIPTOR	FOGRA51
ORIGINATOR	Fogra, www.fogra.org, developed by GMG GmbH & Co. KG, Heidelberg Druckmaschinen AG
CREATED	May 2015
TARGET_TYPE	ISO12642-2
INSTRUMENTATION	D50, 2 degree, geometry 45/0, no polarisation filter, white backing, according to ISO 13655:2009 M1
PRINT_CONDITIONS	Offset printing, according to ISO 12647-2:2013, OFCOM, print substrate 1 = premium coated, fluorescence moderate (8-14 DeltaB according to ISO 15397), 115 g/m2, tone value increase curves A (CMYK)
KEYWORD	Multiple values
TRACEABILITY	NIST
NUMBER_OF_FIELDS	41
NUMBER_OF_SETS	1617
SAMPLE_ID	Multiple values

2. General

Patches



Brightener

Brightener detected based on spectral analysis. Brightener correction would change paper white by DeltaE-76 6.88

Printing standard

Selected profile: ISO Coated v2 (ECI) (79% match)
Best profile: PSoc coated_v3_TAC300_K96.icc (100% match)

3. Color Comparison

CMYK	PatchID	L	a	b	C	h	dE ¹	dH/dL ¹
Substrate/Paper white								
0 / 0 / 0 / 0	27	95.00	1.49	-5.99	6.17	284.01	4.18	0.85 dH
Maximum								
100 / 100 / 0 / 100	1285	11.43	5.76	0.00	5.76	0.03	6.97	5.39 dH
Full Primary								
100 / 0 / 0 / 0	291	56.12	-34.89	-52.54	63.07	236.41	3.50	3.19 dH
0 / 100 / 0 / 0	19	48.06	75.29	-5.16	75.47	356.08	2.56	2.15 dH
0 / 0 / 100 / 0	603	88.94	-4.04	92.38	92.47	92.50	1.14	0.92 dH
0 / 0 / 0 / 100	1221	16.00	0.07	-0.33	0.34	281.35	0.36	-0.01 dL
Full (CMY) Secondary								
100 / 100 / 0 / 0	283	24.74	21.13	-47.46	51.95	294.00	1.92	1.49 dH
100 / 0 / 100 / 0	867	49.45	-65.92	24.35	70.28	159.73	2.92	2.86 dH
0 / 100 / 100 / 0	595	48.00	69.34	45.89	83.15	33.50	2.71	2.51 dH
Maximum Primary								
0 / 2 / 0 / 0	1447	94.02	3.02	-6.57	7.23	294.68	4.51	0.09 dH
Maximum (CMY) Secondary								
7 / 7 / 0 / 0	1237	89.04	3.48	-10.57	11.13	288.20	4.46	0.31 dH

(1) ISO Coated v2 (ECI)

The dE values shown are according to your choice: DeltaE-76

CMYK	PatchID	L	a	b	C	h	dE ¹	dH/dL ¹
Highlight								
2 / 0 / 0 / 0	1480	94.35	0.55	-7.23	7.25	274.32	4.32	1.25 dH
0 / 2 / 0 / 0	1447	94.02	3.02	-6.57	7.23	294.68	4.51	0.09 dH
0 / 0 / 2 / 0	1414	94.95	1.09	-4.05	4.20	284.99	3.69	0.90 dH
0 / 0 / 0 / 2	1381	93.76	1.44	-6.03	6.20	283.43	4.22	0.83 dH
Midtone								
50 / 0 / 0 / 0	1470	75.02	-16.20	-29.84	33.95	241.51	3.18	1.82 dH
0 / 50 / 0 / 0	1437	70.47	36.08	-9.53	37.31	345.20	3.38	1.63 dH
0 / 0 / 50 / 0	1404	91.62	-3.44	39.95	40.10	94.92	1.24	0.52 dH
0 / 0 / 0 / 50	1371	62.72	0.31	-4.43	4.44	273.96	3.05	0.43 dH

(1) ISO Coated v2 (ECI)

The dE values shown are according to your choice: DeltaE-76

CMYK	PatchID	L	a	b	C	h	dE¹	dH/dL¹
Near Neutral (CMY)								
50 / 40 / 40 / 0	1611	56.52	0.53	-2.91	2.96	280.30	2.33	0.01 dH
CMY Black								
100 / 100 / 100 / 0	859	23.26	-1.43	-1.68	2.21	229.67	2.30	0.99 dH
CMYK Black								
100 / 100 / 100 / 100	1483	12.71	0.53	4.89	4.92	83.79	4.91	0.57 dH
Maximum Duplex								
0 / 100 / 0 / 100	1219	13.30	8.90	4.27	9.87	25.65	6.55	4.14 dH
Maximum Triplex								
100 / 100 / 0 / 100	1285	11.43	5.76	0.00	5.76	0.03	6.97	5.39 dH

(1) ISO Coated v2 (ECI)

The dE values shown are according to your choice: DeltaE-76

4. Gradations

	L	a	b	C	h	Density
Cyan 2.00%	94.35	0.55	-7.23	7.25	274.32	0.01
Cyan 3.00%	93.93	0.24	-7.55	7.55	271.84	0.02
Cyan 5.00%	93.14	-0.52	-8.49	8.51	266.52	0.04
Cyan 7.00%	92.40	-1.23	-9.47	9.55	262.58	0.05
Cyan 10.00%	91.19	-2.29	-10.91	11.15	258.17	0.07
Cyan 15.00%	89.19	-3.96	-13.24	13.82	253.34	0.11
Cyan 20.00%	87.20	-5.65	-15.57	16.56	250.06	0.15
Cyan 25.00%	85.18	-7.33	-17.89	19.33	247.71	0.19
Cyan 30.00%	83.19	-9.04	-20.25	22.18	245.94	0.24
Cyan 40.00%	79.15	-12.57	-24.93	27.93	243.24	0.33
Cyan 50.00%	75.02	-16.20	-29.84	33.95	241.51	0.44
Cyan 55.00%	72.95	-18.09	-32.32	37.04	240.77	0.50
Cyan 60.00%	70.86	-20.12	-34.85	40.25	240.00	0.56
Cyan 70.00%	66.57	-24.03	-39.85	46.54	238.92	0.71
Cyan 75.00%	64.50	-26.07	-42.36	49.74	238.39	0.80
Cyan 80.00%	62.52	-28.09	-44.75	52.84	237.88	0.89
Cyan 85.00%	60.62	-30.19	-47.08	55.93	237.33	1.00
Cyan 90.00%	58.99	-32.22	-49.18	58.79	236.78	1.12
Cyan 95.00%	57.50	-33.85	-50.99	61.20	236.42	1.24
Cyan 98.00%	56.57	-34.53	-52.00	62.42	236.41	1.32
Cyan 100.00%	56.12	-34.89	-52.54	63.07	236.41	1.36
Magenta 2.00%	94.02	3.02	-6.57	7.23	294.68	0.01
Magenta 3.00%	93.54	3.67	-6.72	7.65	298.62	0.02
Magenta 5.00%	92.53	4.99	-6.99	8.59	305.54	0.04
Magenta 7.00%	91.57	6.23	-7.18	9.51	310.95	0.05
Magenta 10.00%	90.08	8.15	-7.41	11.01	317.73	0.07
Magenta 15.00%	87.63	11.40	-7.88	13.86	325.33	0.11
Magenta 20.00%	85.20	14.67	-8.27	16.84	330.57	0.15
Magenta 25.00%	82.76	18.02	-8.61	19.97	334.45	0.19
Magenta 30.00%	80.34	21.38	-8.86	23.15	337.50	0.24
Magenta 40.00%	75.43	28.45	-9.22	29.91	342.04	0.33
Magenta 50.00%	70.47	36.08	-9.53	37.31	345.20	0.44
Magenta 55.00%	67.98	40.02	-9.54	41.14	346.59	0.50
Magenta 60.00%	65.44	44.20	-9.56	45.22	347.79	0.57
Magenta 70.00%	60.42	52.70	-9.15	53.49	350.14	0.72
Magenta 75.00%	57.94	56.96	-8.66	57.61	351.36	0.81
Magenta 80.00%	55.59	61.25	-8.18	61.79	352.40	0.91
Magenta 85.00%	53.33	65.55	-7.69	66.00	353.31	1.02
Magenta 90.00%	51.31	69.52	-7.27	69.90	354.03	1.15
Magenta 95.00%	49.57	72.85	-6.61	73.15	354.82	1.29
Magenta 98.00%	48.59	74.49	-5.79	74.71	355.56	1.37
Magenta 100.00%	48.06	75.29	-5.16	75.47	356.08	1.43
Yellow 2.00%	94.95	1.09	-4.05	4.20	284.99	0.01
Yellow 3.00%	94.88	0.92	-3.21	3.34	286.08	0.02
Yellow 5.00%	94.73	0.65	-1.43	1.57	294.40	0.04
Yellow 7.00%	94.60	0.33	0.34	0.48	45.60	0.05
Yellow 10.00%	94.39	-0.06	3.03	3.03	91.11	0.07
Yellow 15.00%	93.99	-0.64	7.39	7.41	94.92	0.11
Yellow 20.00%	93.66	-1.17	11.89	11.95	95.63	0.15

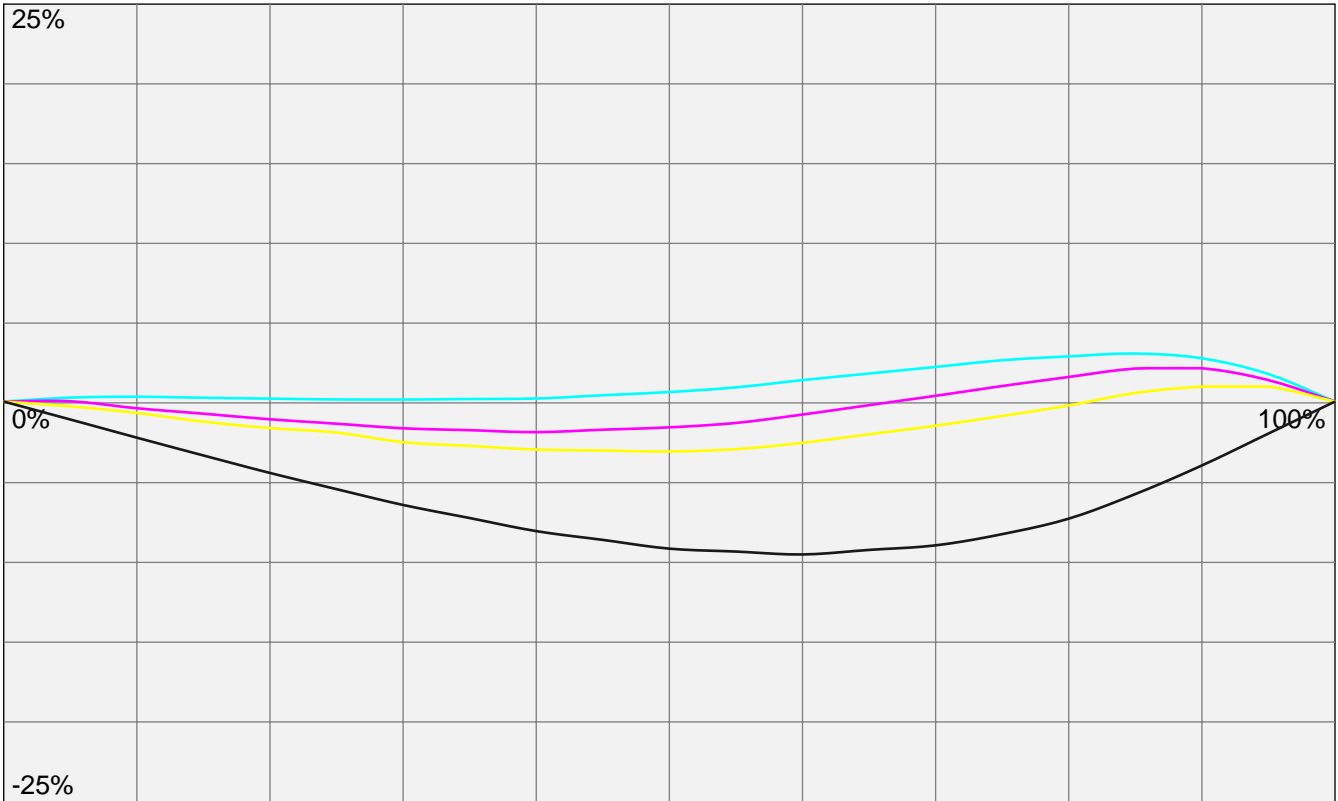
Density calculated according to method: Status-E
Densities are expressed in paper relative values.

	L	a	b	C	h	Density
Yellow 25.00%	93.40	-1.69	16.52	16.61	95.83	0.19
Yellow 30.00%	92.93	-2.12	20.83	20.94	95.80	0.23
Yellow 40.00%	92.30	-2.85	30.22	30.36	95.39	0.32
Yellow 50.00%	91.62	-3.44	39.95	40.10	94.92	0.42
Yellow 55.00%	91.32	-3.67	45.04	45.18	94.66	0.48
Yellow 60.00%	91.03	-3.89	50.36	50.51	94.42	0.55
Yellow 70.00%	90.44	-4.21	61.29	61.43	93.93	0.69
Yellow 75.00%	90.11	-4.17	66.83	66.96	93.57	0.77
Yellow 80.00%	89.85	-4.19	72.41	72.53	93.32	0.86
Yellow 85.00%	89.59	-4.30	78.12	78.24	93.15	0.96
Yellow 90.00%	89.33	-4.25	83.44	83.55	92.92	1.06
Yellow 95.00%	89.18	-4.14	88.38	88.48	92.69	1.16
Yellow 98.00%	89.05	-4.12	91.03	91.12	92.59	1.23
Yellow 100.00%	88.94	-4.04	92.38	92.47	92.50	1.26
Black 2.00%	93.76	1.44	-6.03	6.20	283.43	0.02
Black 3.00%	93.17	1.43	-6.01	6.18	283.41	0.02
Black 5.00%	91.93	1.35	-5.94	6.09	282.79	0.04
Black 7.00%	90.74	1.28	-5.90	6.04	282.26	0.05
Black 10.00%	88.87	1.19	-5.83	5.95	281.53	0.08
Black 15.00%	85.80	1.06	-5.71	5.81	280.53	0.12
Black 20.00%	82.71	0.93	-5.61	5.69	279.44	0.16
Black 25.00%	79.55	0.80	-5.45	5.51	278.36	0.20
Black 30.00%	76.38	0.69	-5.29	5.33	277.44	0.24
Black 40.00%	69.76	0.48	-4.89	4.91	275.64	0.34
Black 50.00%	62.72	0.31	-4.43	4.44	273.96	0.46
Black 60.00%	55.11	0.15	-3.89	3.89	272.26	0.59
Black 70.00%	46.75	0.02	-3.25	3.25	270.32	0.75
Black 75.00%	42.24	-0.02	-2.95	2.95	269.65	0.85
Black 80.00%	37.53	-0.06	-2.55	2.55	268.60	0.96
Black 85.00%	32.37	-0.08	-2.07	2.07	267.92	1.09
Black 90.00%	27.02	-0.06	-1.52	1.52	267.84	1.25
Black 95.00%	21.52	-0.02	-0.81	0.81	268.37	1.44
Black 98.00%	18.05	0.02	-0.43	0.43	272.24	1.57
Black 100.00%	16.00	0.07	-0.33	0.34	281.35	1.65

Density calculated according to method: Status-E
Densities are expressed in paper relative values.

5. Linearity

Colorimetric Linearity: The diagram shows the colorimetric linearity of the primaries. Flat curves indicate good linearity, that is the deltaE to white and solid color is proportional.



Cyan

Tone Value	1.00	2.00	3.00	4.00	5.00	7.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00
Linearity	0.20	0.39	0.21	0.23	0.24	0.26	0.30	0.24	0.18	0.13	0.12	0.16	0.19
Tone Value	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00		
Linearity	0.39	0.60	0.88	1.34	1.75	2.16	2.58	2.82	3.00	2.70	1.72		

Magenta

Tone Value	1.00	2.00	3.00	4.00	5.00	7.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00
Linearity	0.09	0.18	0.10	0.06	0.02	-0.19	-0.42	-0.76	-1.11	-1.38	-1.67	-1.79	-1.91
Tone Value	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00		
Linearity	-1.76	-1.61	-1.34	-0.81	-0.22	0.36	0.97	1.54	2.06	2.08	1.34		

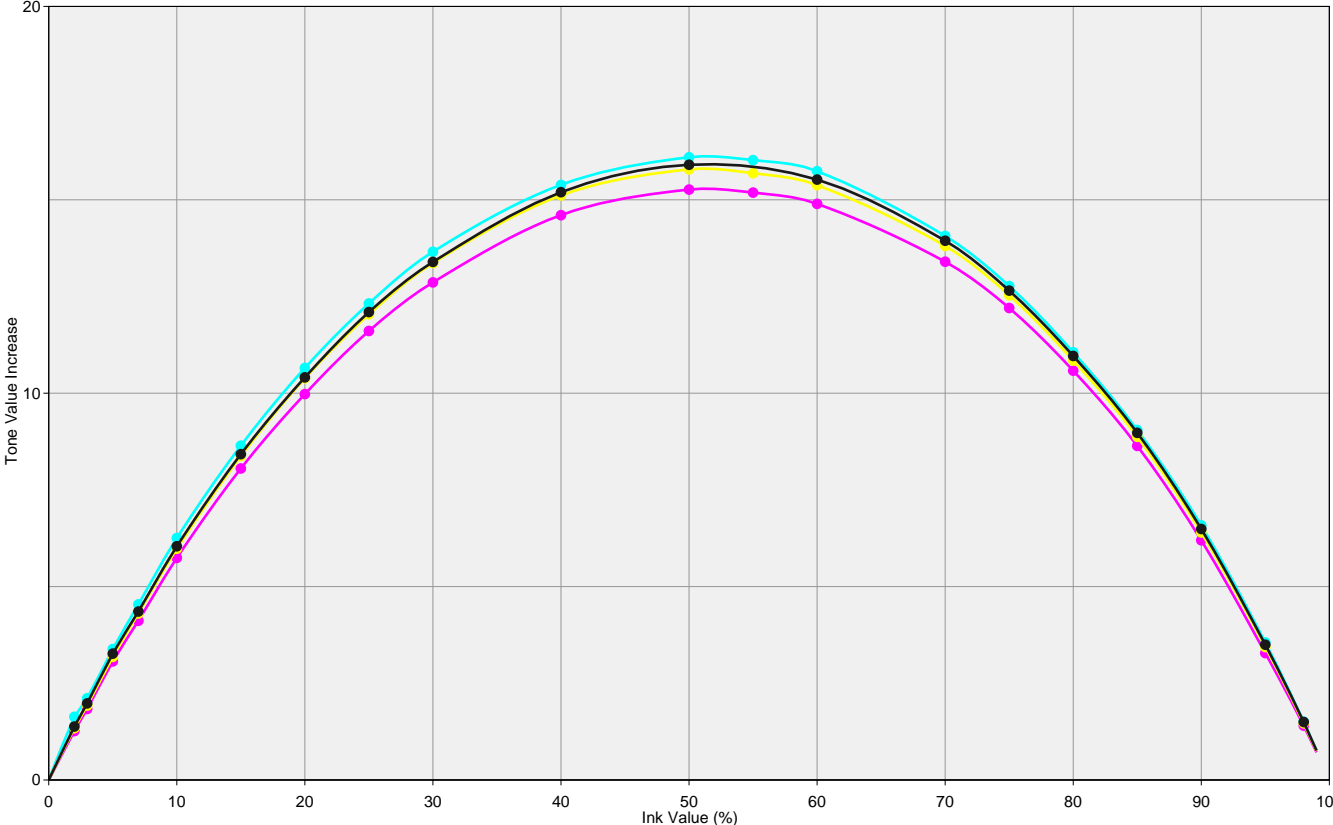
Yellow

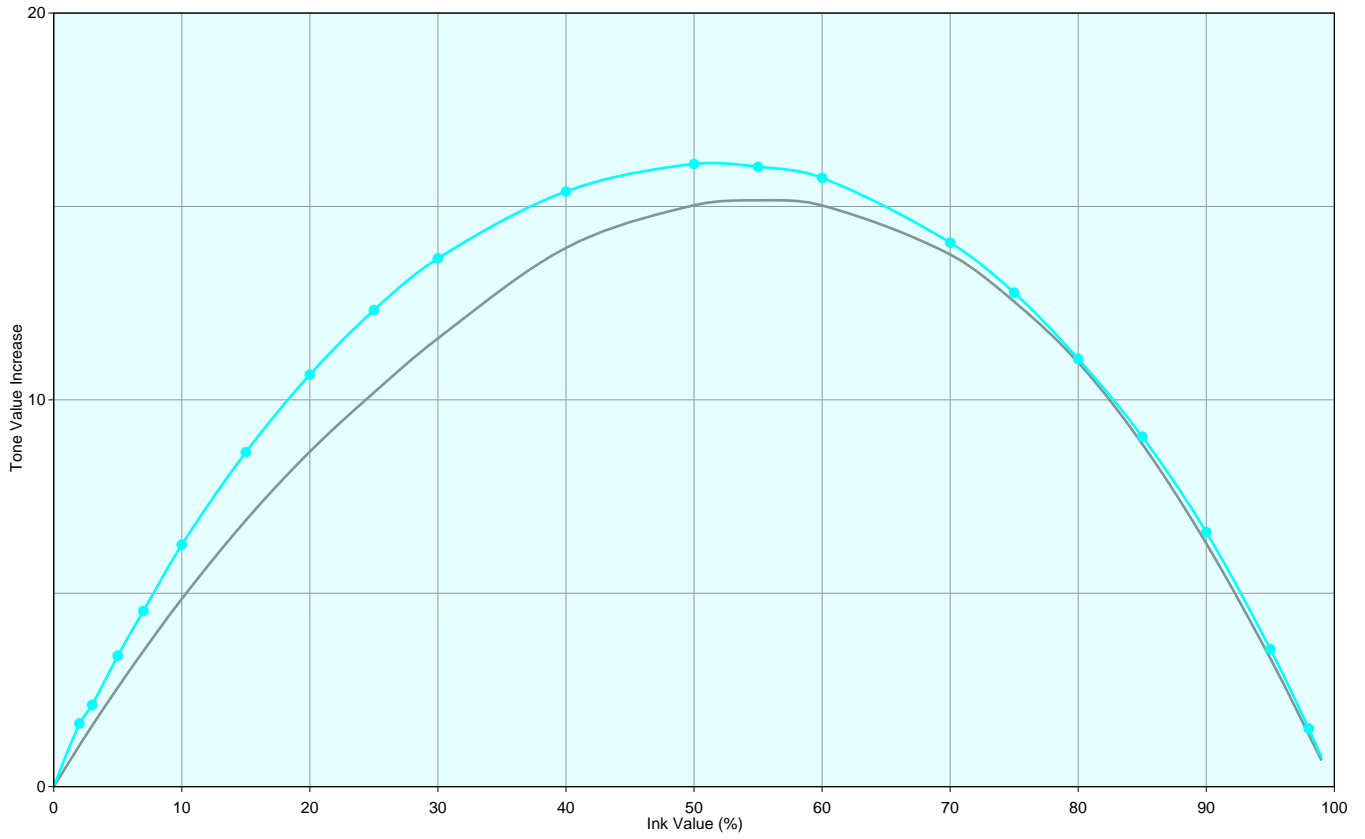
Tone Value	1.00	2.00	3.00	4.00	5.00	7.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00
Linearity	0.00	0.00	-0.12	-0.21	-0.30	-0.47	-0.71	-1.26	-1.66	-1.94	-2.54	-2.77	-3.00
Tone Value	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00		
Linearity	-3.06	-3.12	-2.97	-2.58	-2.04	-1.51	-0.90	-0.25	0.54	0.93	0.94		

Black

Tone Value	1.00	2.00	3.00	4.00	5.00	7.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00
Linearity	-0.22	-0.44	-0.69	-0.91	-1.12	-1.61	-2.26	-3.37	-4.46	-5.47	-6.46	-7.28	-8.10
Tone Value	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00		
Linearity	-8.64	-9.19	-9.37	-9.55	-9.27	-8.98	-8.28	-7.32	-5.78	-3.99	-2.00		

6. Tone Value Increase Curves





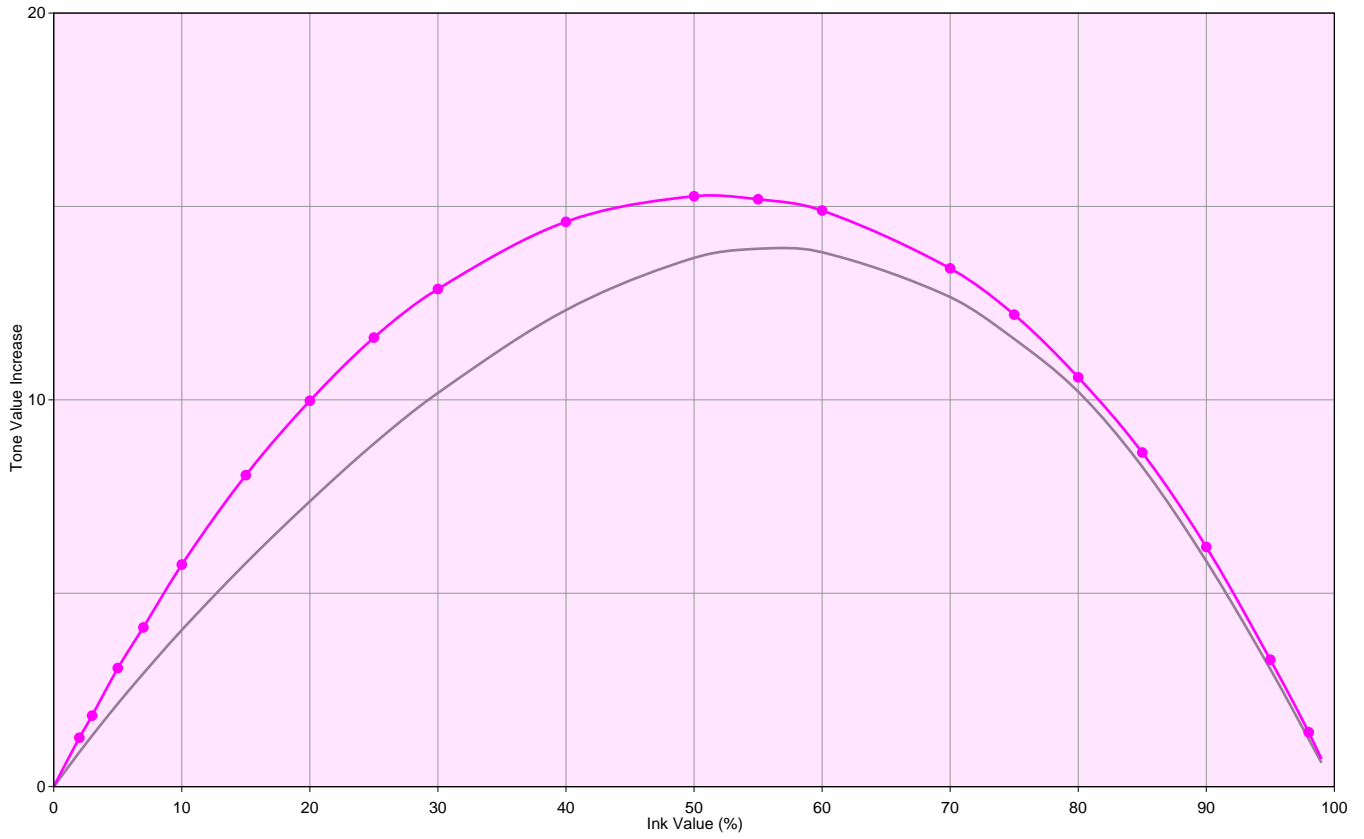
— Tone Value Increase
 — Chosen Profile¹

Cyan

Tone Value	2.00%	3.00%	5.00%	7.00%	10.00%	15.00%	20.00%	25.00%	30.00%	40.00%	50.00%	55.00%	60.00%
Tone Value Increase	1.63	2.11	3.38	4.54	6.26	8.64	10.65	12.32	13.66	15.38	16.10	16.03	15.74
Chosen Profile¹	1.06	1.57	2.56	3.50	4.85	6.89	8.66	10.19	11.59	13.93	15.03	15.16	15.03

Tone Value	70.00%	75.00%	80.00%	85.00%	90.00%	95.00%	98.00%
Tone Value Increase	14.07	12.77	11.06	9.05	6.58	3.56	1.50
Chosen Profile¹	13.76	12.54	10.97	8.86	6.29	3.32	1.35

(1) ISO Coated v2 (ECI)



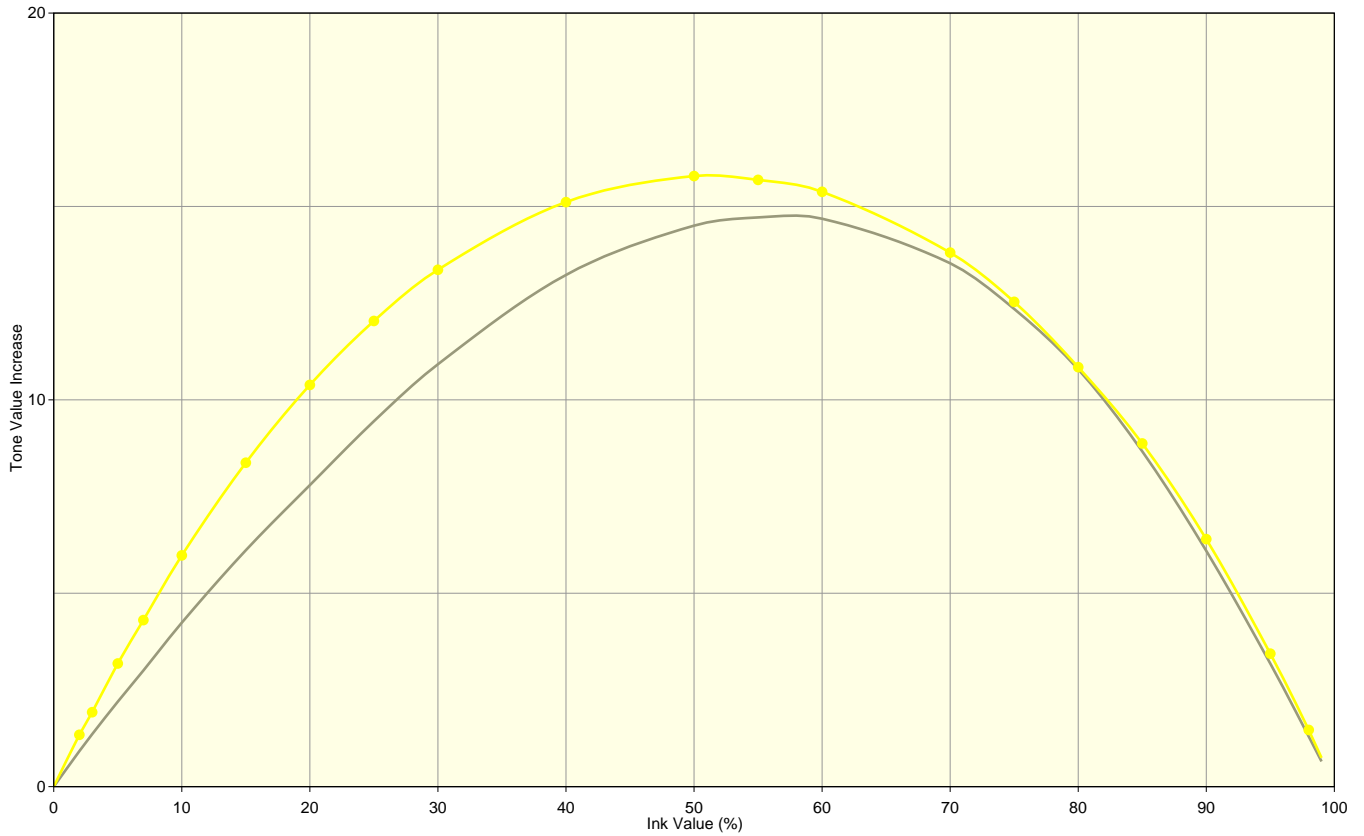
— Tone Value Increase
 — Chosen Profile¹

Magenta

Tone Value	2.00%	3.00%	5.00%	7.00%	10.00%	15.00%	20.00%	25.00%	30.00%	40.00%	50.00%	55.00%	60.00%
Tone Value Increase	1.26	1.84	3.07	4.12	5.74	8.05	9.98	11.61	12.87	14.60	15.26	15.19	14.90
Chosen Profile¹	0.89	1.32	2.14	2.93	4.05	5.78	7.38	8.87	10.18	12.32	13.67	13.91	13.82

Tone Value	70.00%	75.00%	80.00%	85.00%	90.00%	95.00%	98.00%
Tone Value Increase	13.40	12.20	10.58	8.64	6.20	3.28	1.41
Chosen Profile¹	12.66	11.58	10.21	8.27	5.83	3.04	1.23

(1) ISO Coated v2 (ECI)



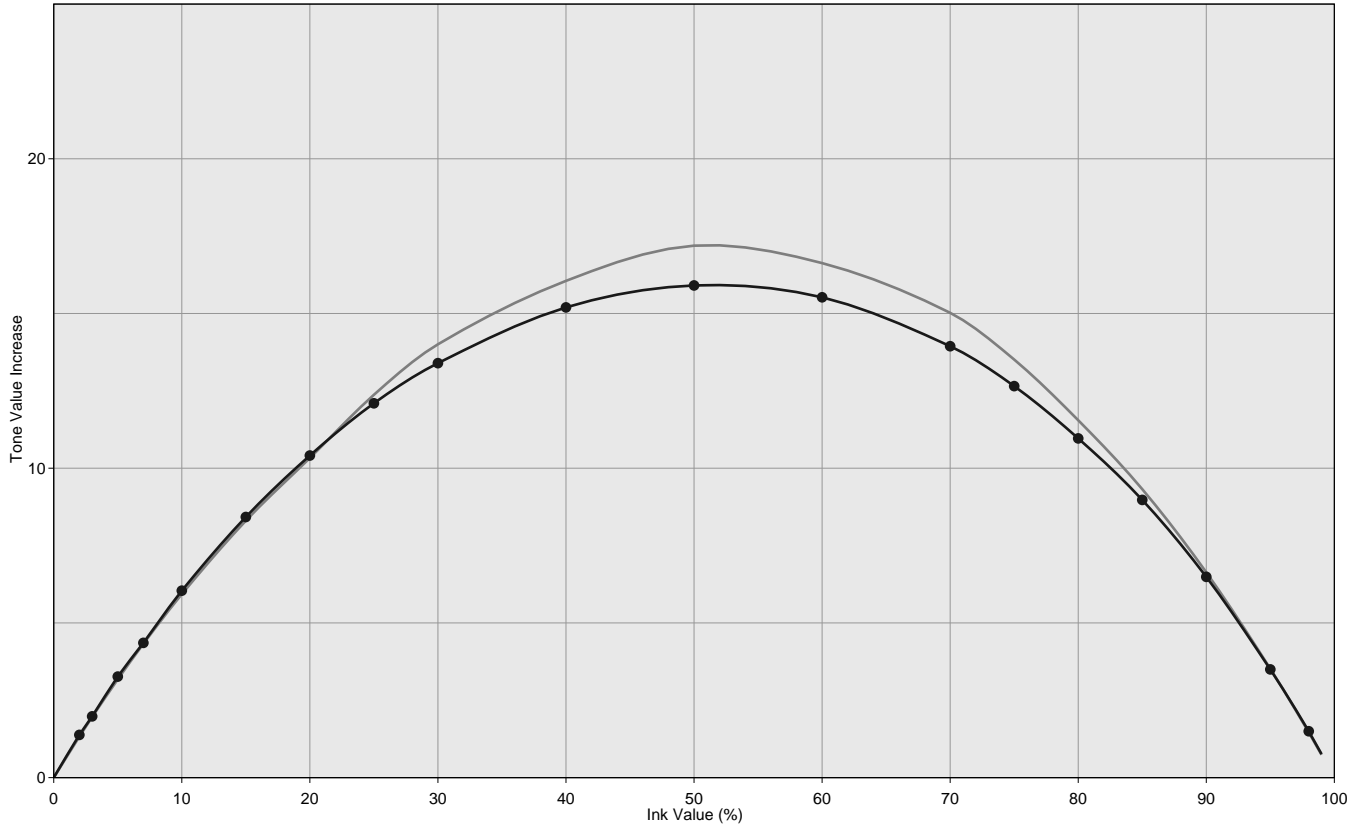
— Tone Value Increase
 — Chosen Profile¹

Yellow

Tone Value	2.00%	3.00%	5.00%	7.00%	10.00%	15.00%	20.00%	25.00%	30.00%	40.00%	50.00%	55.00%	60.00%
Tone Value Increase	1.34	1.92	3.18	4.31	5.98	8.37	10.39	12.04	13.36	15.11	15.79	15.69	15.38
Chosen Profile¹	0.92	1.36	2.20	3.00	4.24	6.11	7.79	9.45	10.92	13.23	14.50	14.72	14.68

Tone Value	70.00%	75.00%	80.00%	85.00%	90.00%	95.00%	98.00%
Tone Value Increase	13.81	12.53	10.84	8.87	6.40	3.44	1.47
Chosen Profile¹	13.53	12.35	10.79	8.67	6.10	3.18	1.30

(1) ISO Coated v2 (ECI)



Tone Value Increase
 Chosen Profile¹

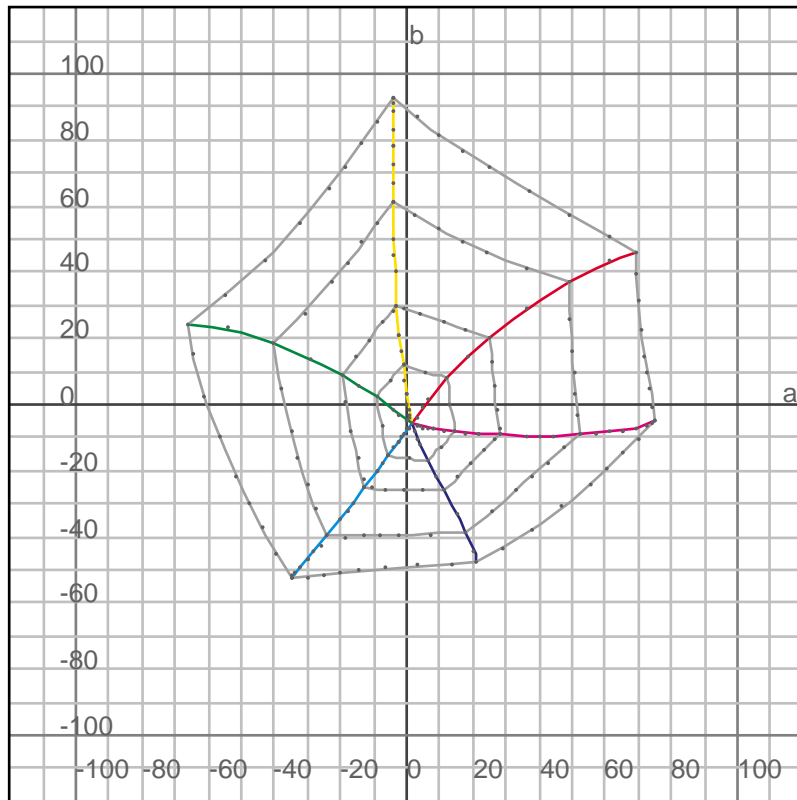
Black

Tone Value	2.00%	3.00%	5.00%	7.00%	10.00%	15.00%	20.00%	25.00%	30.00%	40.00%	50.00%	60.00%	70.00%
Tone Value Increase	1.38	1.98	3.27	4.36	6.04	8.42	10.41	12.10	13.39	15.20	15.91	15.52	13.94
Chosen Profile¹	1.33	1.96	3.18	4.32	5.93	8.30	10.33	12.37	14.00	16.05	17.19	16.63	15.02

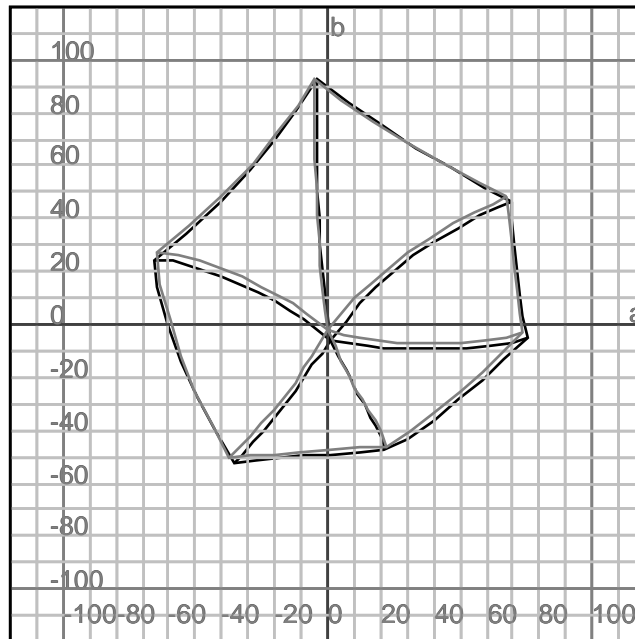
Tone Value	75.00%	80.00%	85.00%	90.00%	95.00%	98.00%
Tone Value Increase	12.65	10.96	8.98	6.49	3.50	1.50
Chosen Profile¹	13.51	11.55	9.32	6.63	3.52	1.46

(1) ISO Coated v2 (ECI)

7. Spider Web



ISOcoated_v2_eci.icc



Printing standard

Selected profile:

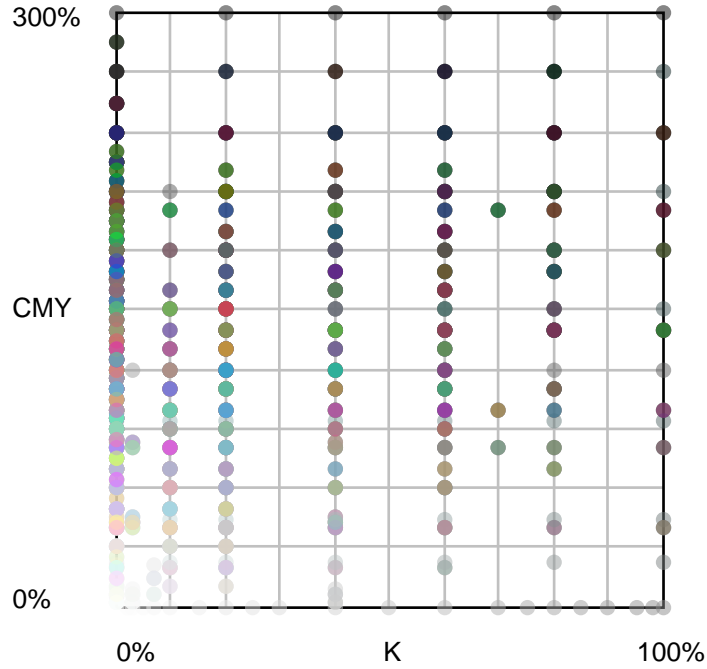
ISO Coated v2 (ECI) (79% match)

Best profile:

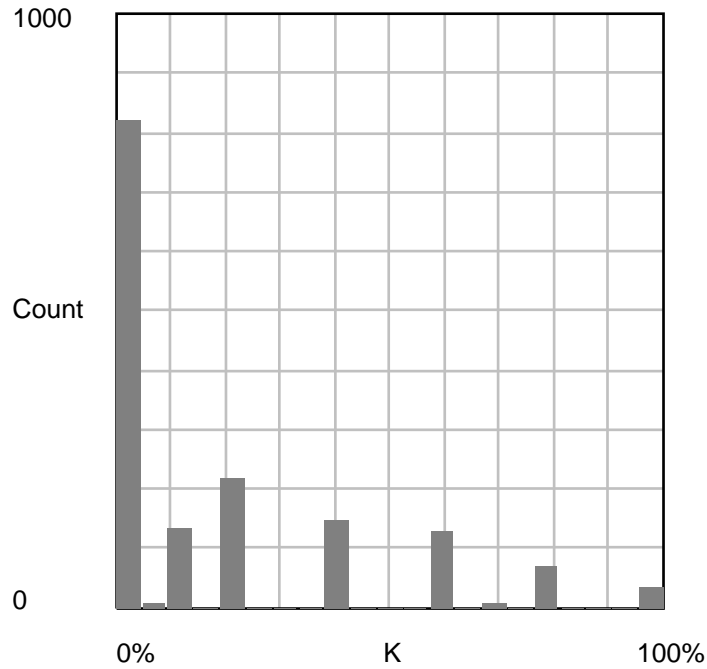
PSOcoated_v3_TAC300_K96.icc (100% match)

8. CMYK Distribution

This diagram shows the distribution of the CMYK patches. The dots show CMYK combinations ordered by black (x axis) and TAC of CMY (y axis). A good, generic testchart should have colors on all edges. The patches should be distributed evenly, typically with less patches on the right side (high black amount). There shouldn't be large holes, because this limits the flexibility for different separation methods.



This diagram shows the number of CMYK patches (y axis) for different black levels (x axis). Typically there are less patches on the right side (high black amount).



9. Quality Evaluation

Details:

Number of redundant patches	58 in 29 group(s)
Redundancy Delta	0.01 (max)
Correction Delta	0.01 (max), 0.00 (average)
Smoothing Delta	0.44 (max), 0.12 (average)