

TECHNICAL DATA SHEET

Date: 09.04.2018, Version: 4

Range name :

TEMPO ELITE

Description :

Vegetable based and high quality sheet-fed series, suitable for all sheetfed offset presses, specially recommended for 4+4 or 5+5 perfecting presses.

The series does not contain any petroleum derivatives and no cobalt salt.

Application Fields / Market :

High quality packaging, needing intensive shades: agribusiness packaging, cosmetic and pharmaceutical packaging. This series can be used for the production of secondary food packaging when there is no "low odour" nor low migration requirements.

All commercial jobs: art books, fashion magazines, leaflets, booklets, standard poster printing etc...

Product safety:

This series is not suitable for: Food packaging, pharma or hygiene.

For production of primary food packaging, we recommend to use the low odour and low migration series specially developed for this application: TEMPO NUTRIPACK 2, please contact our technical department

For further information, please refer to **Siegwerk's Customer Guidance: Printing Inks for Food Packaging ("Know How")** on <https://www.siegwerk.com/en/our-responsibility/product-responsibility/customer-communications/food-packaging-safety.html>

Substrates:

Coated papers

Matt and semi-matt coated papers

All kinds of board

Features - Performances:



ON THE PRESS SIDE

- Easy to use : very good stability and water / ink balance
- Suitable for all dampening systems with or without alcohol
- Duct fresh overnight
- High speed runnability
- Very fast setting
- No build-up on the counter-pressure cylinder



ON THE PRINTING SIDE

- High gloss level
- High colour intensity
- Superb dot sharpness, contrast and trapping
- Over-printable with water based and UV varnishes
- Suitable for lamination
- Good rub resistance



Warning:

- The use of an IR drier or warm air will improve the setting and the gloss but it is recommended to respect 30°C maximum in the stack.
- With high room temperatures, the ink film may dry on the rollers when the press is stopped for several hours. Therefore, spray some anti-oxidant on the rollers before stopping for a longer period.
- These inks have a shelf life of 2 years from the date of production. This has to be interpreted as a warranty of "the best use" concerning the printing properties of the inks, providing the cans are not opened and stored at room temperature. After this date the inks are still usable on the press but their printing properties could eventually be altered in terms of transfer, trapping, optical density and to a certain extend in term of shade by consequence of the transfer.
- In case of cartridge packaging, the shelf life is limited to 1 year only.
- For toy applications, please contact our technical department.

Auxiliary printing additives :

When certain substrates or machine conditions imply adjustments of the ink properties, the additives should be chosen in function of this substrate and of the further processing of the printed matter.

Role	Designation	References numbers	Proportions
Thinner	Diluent	61-470295-9	1 to 3 %
Tack reducer	Stargel	61-470080-5	2 to 4%

For Fountain additives and Cleaning products please contact our technical department.

Packing size:

✓	Vacuum Metallic Tins	2.5 kg	Packaging code	1200
✓	Metallic drums with plastic in-liner	200 kg	Packaging code	1530
✓	Cartridge	2.0 kg	Packaging code	2850
	Automatic use type "INKLINE" or "HANDY FILL"			

The range :

Colours	Reference	Fastness			
		IWS (1)	Alcohol	Solvent	Alkali
Standard Yellow	60-302208-8	5	5	4	5
Greenish Yellow	60-302596-6	5	5	4	5
Magenta	60-802395-8	5	5	5	3
Cyan	60-116165-6	8	5	5	5
Black	60-902589-5	8	2	3	5
Very Deep Black	60-902932-7	7	2	3	5
Fast Black	60-902906-1	8	5	5	5

Standard process colours (Yellow, Magenta, Cyan, Black) of Tempo ELITE series have successfully passed all the tests related to PSO certification. A copy of the PSO certificate can be obtained on demand.

Standard process colours of the Tempo ELITE series are meeting the specifications of the ISO 2846-1:2006(E); « Graphic technology – colour and transparency of inks sets for four-colour printing ».

Process colours of the **TEMPO ELITE** are ISO 2846-1 and ISO 12647-2 certified

We do not recommend to use above Black inks for mixing system.

2846-1 : 2006 (E) VALEURS DE REFERENCE ET TOLERANCES

Conditions of measurement: geometry 0°:45°, illuminant D50, observer 2°
Printing on APCO II/II

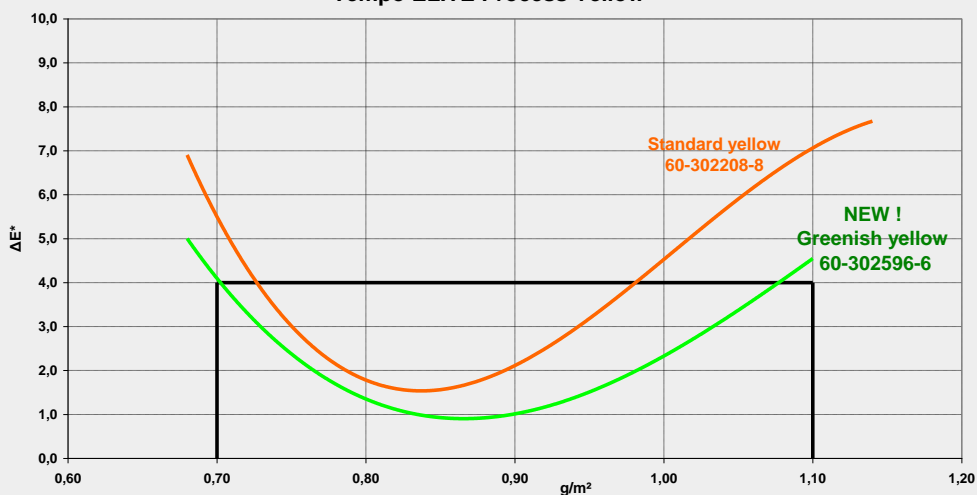
Ink	CIEL*ab ref. values			Tolerances			
	L*	a*	b*	dE*	da*	db*	L*
Yellow	91,0	-5,1	95,0	4,0	---	---	---
Magenta	50,0	76,0	-3,0	4,0	---	---	---
Cyan	57,0	-39,2	-46,0	4,0	---	---	---
Noir	18,0	0,8	0,0	---	+/-1,5	+/-3,0	=<18

The following figures are given as an indication without any contractual agreement

Tempo ELITE Process Yellow

	sample weight [g/m²]	density D _V without polarization filter	L* ELITE	a* ELITE	b* ELITE	L* Standard	a* Standard	b* Standard	ΔE	ΔH*
Tempo ELITE Greenish Process Yellow 60-302596-6	0,68	1,05	93,71	-6,61	90,76	91	-5,1	95	5,3	1,77
	0,73	1,07	92,08	-5,82	92,6	91	-5,1	95	2,7	0,85
	0,80	1,09	91,75	-5,32	94,62	91	-5,1	95	0,9	0,24
	0,90	1,2	91,97	-5,56	96,56	91	-5,1	95	1,9	0,37
	1,05	1,27	92,32	-5,93	96,91	91	-5,1	95	2,5	0,72
	1,10	1,28	92,31	-5,87	99,82	91	-5,1	95	5,1	0,5
Tempo ELITE Process Yellow 60-302208-8	1,14	1,44	90,01	-2,49	102,29	91	-5,1	95	7,8	-2,89
	1,06	1,39	90,19	-3,03	100,28	91	-5,1	95	5,7	-2,28
	0,96	1,34	90,3	-3,36	98,55	91	-5,1	95	4,0	-1,89
	0,85	1,22	90,57	-4,07	95,13	91	-5,1	95	1,1	-1,03
	0,77	1,17	90,74	-4,43	92,55	91	-5,1	95	2,6	-0,55
	0,68	1,09	91,03	-4,91	88,11	91	-5,1	95	6,9	0,19

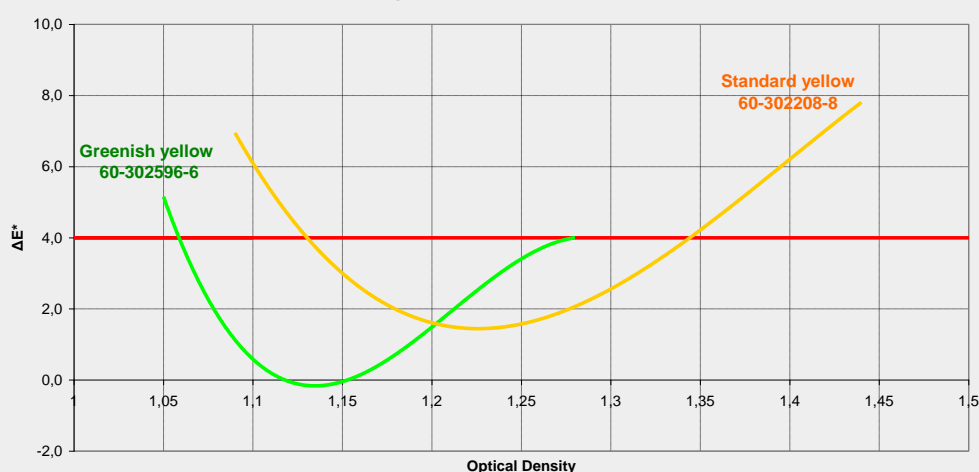
ΔE* in dependence of the ink layer thickness
Tempo ELITE Process Yellow



Illuminant: D 50 / observer 2°, no filter
International Standard: ISO 2846

print substrate: Apco II / II

ΔE* in dependence of Optical Density (without polarization filter, stat E)
Tempo ELITE Process Yellow

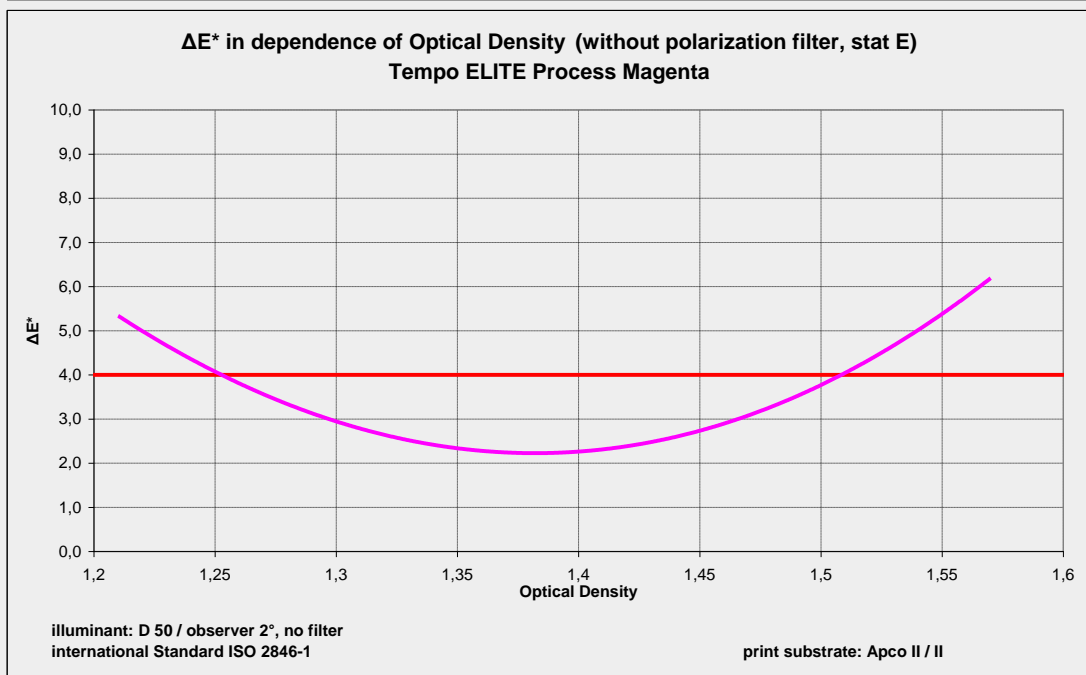
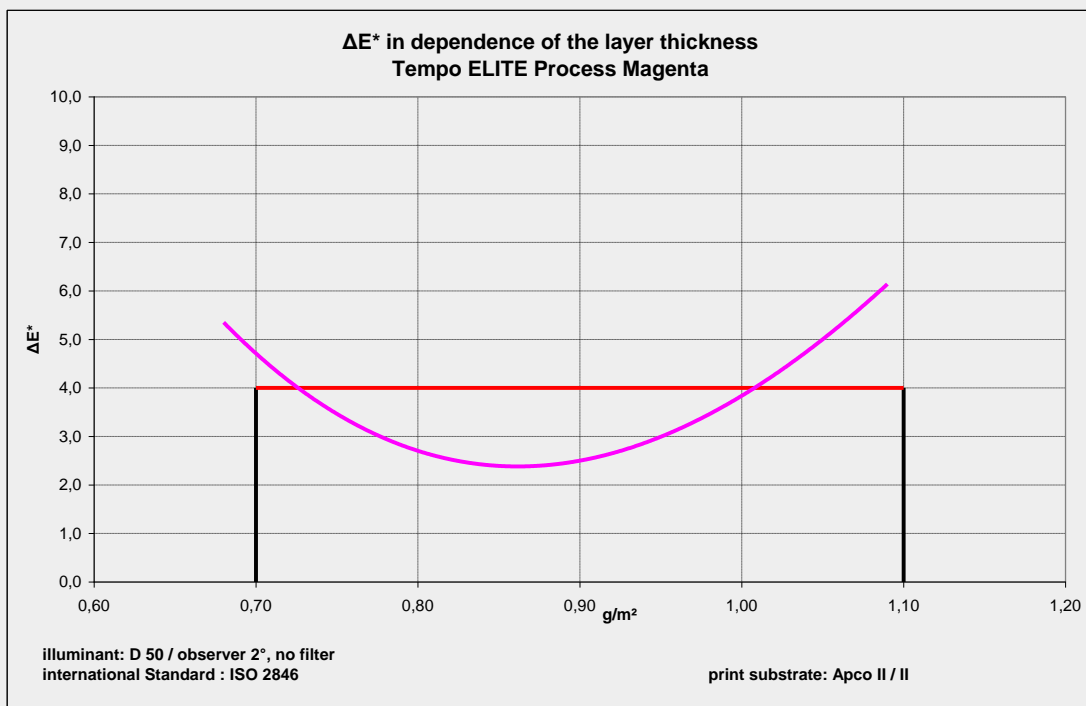


illuminant: D 50 / observer 2°, no filter
international Standard ISO 2846-1

print substrate: Apco II / II

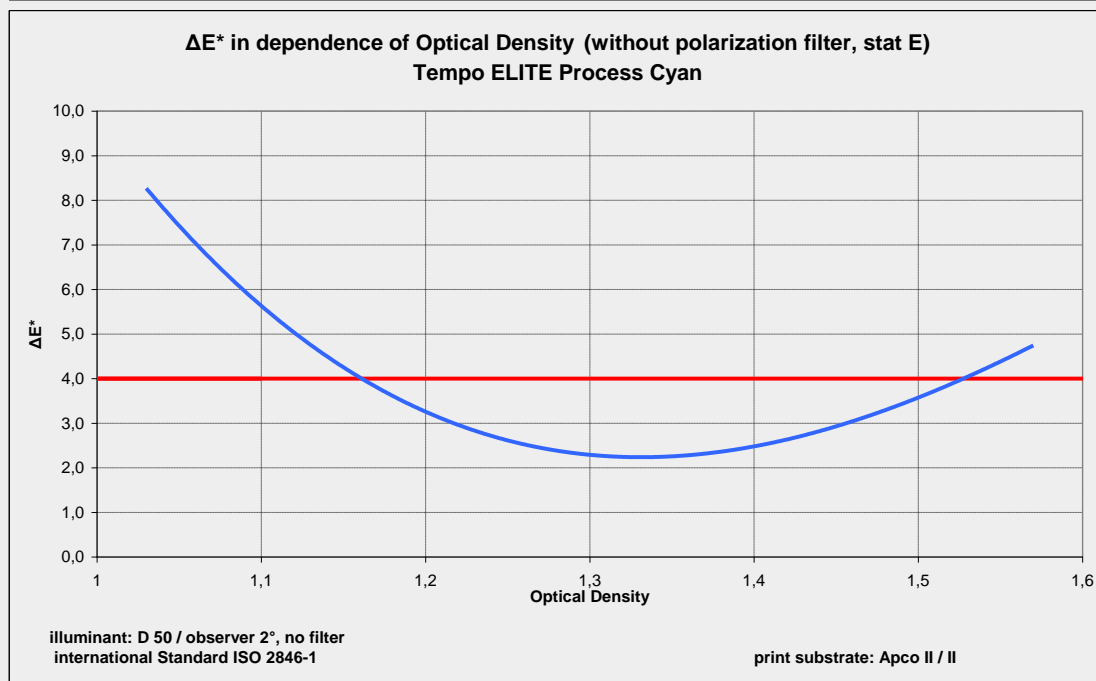
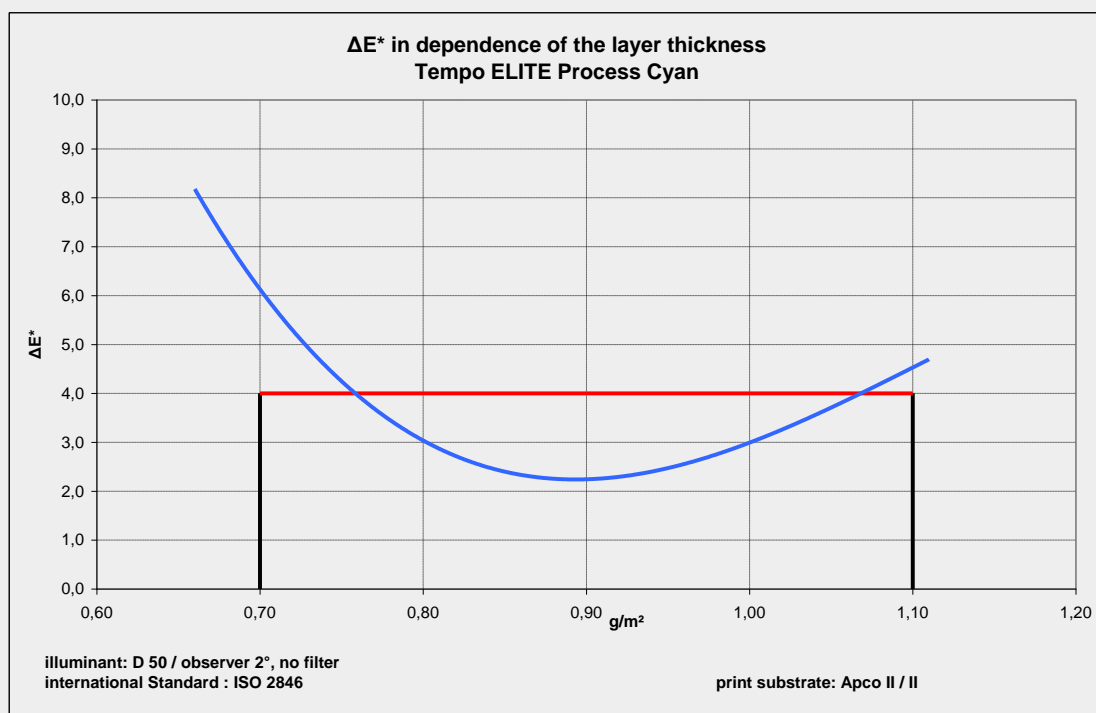
Tempo ELITE Process Magenta

sample weight [g/m ²]	density D _V without polarization filter	L* ELITE	a* ELITE	b* ELITE	L* Standard	a* Standard	b* Standard	ΔE	ΔH*
1,09	1,57	46,13	77,15	1,57	50	76	-3	6,1	-1,01
1,04	1,53	46,61	76,98	0,16	50	76	-3	4,7	-0,41
0,95	1,47	47,25	76,54	-1,31	50	76	-3	3,3	-0,16
0,84	1,36	48,61	75,3	-3,99	50	76	-3	1,8	0,33
0,75	1,27	50,01	73,97	-6,44	50	76	-3	4,0	0,58
0,68	1,21	50,64	73	-7,16	50	76	-3	5,2	0,7



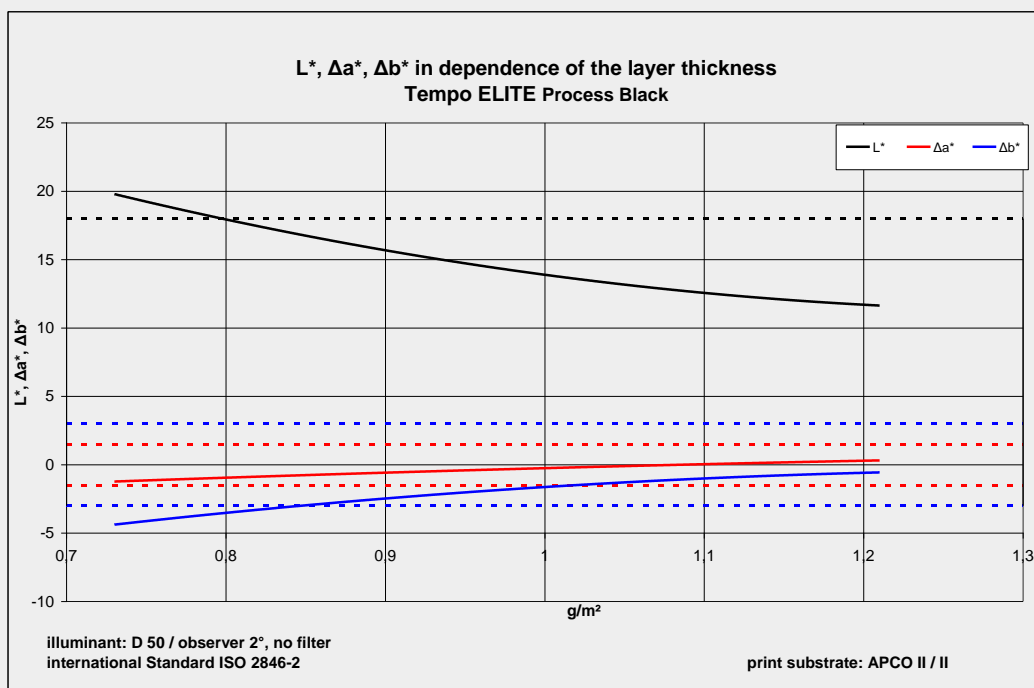
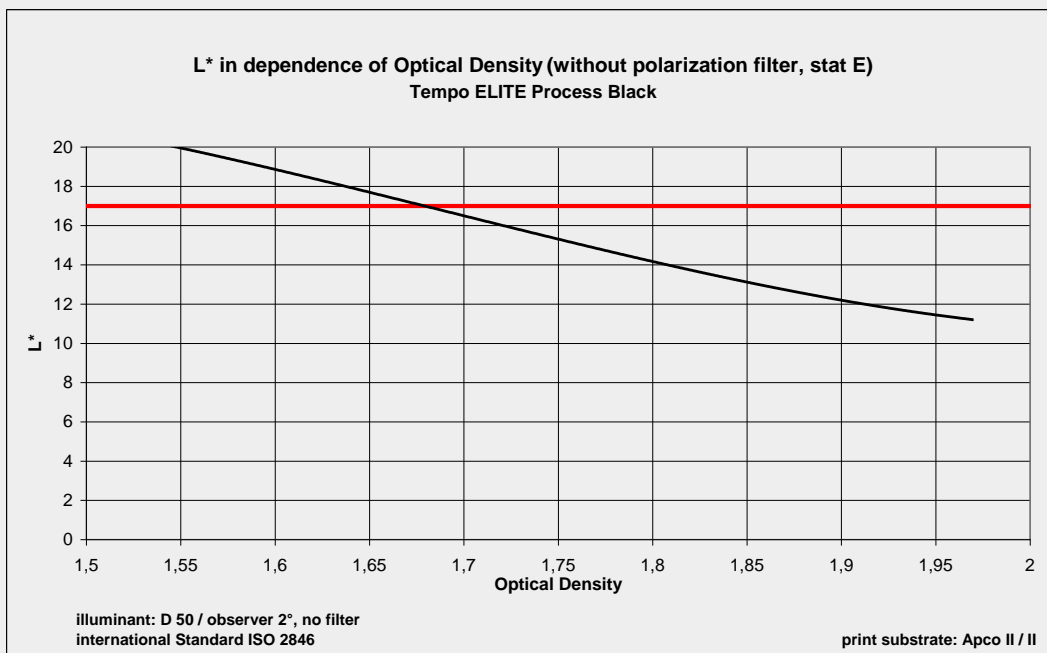
Tempo ELITE Process Cyan

sample weight [g/m ²]	density D _v without polarization filter	L* ELITE	a* ELITE	b* ELITE	L* Standard	a* Standard	b* Standard	ΔE	ΔH*
1,11	1,57	55,31	-39,43	-50,36	57	-39,2	-46	4,7	-1,01
0,97	1,43	56,66	-39,54	-49,02	57	-39,2	-46	3,1	-0,41
0,94	1,34	58,08	-39,36	-47,5	57	-39,2	-46	1,9	-0,16
0,82	1,21	59,98	-38,94	-45,45	57	-39,2	-46	3,0	0,33
0,75	1,17	60,73	-38,56	-44,58	57	-39,2	-46	4,0	0,58
0,66	1,03	63,45	-37,02	-41,4	57	-39,2	-46	8,2	0,7

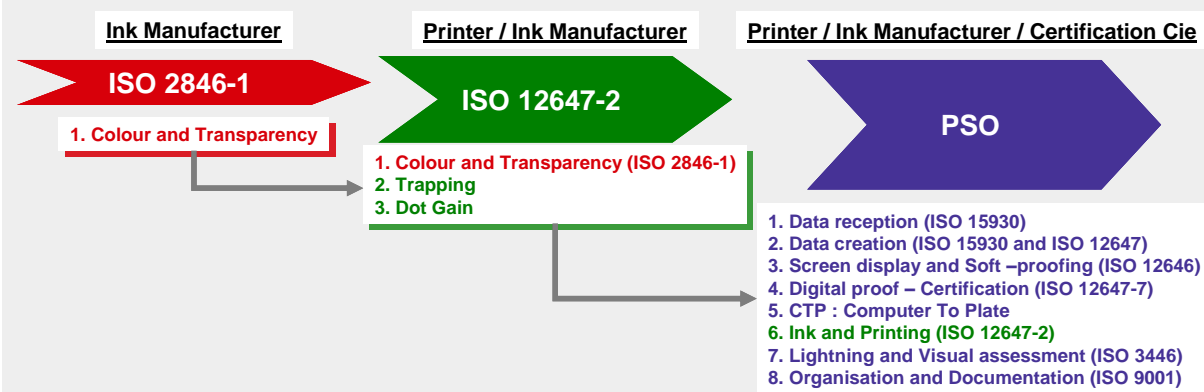


Tempo ELITE Process Black 60-902589-5

sample weight [g/m ²]	density D _V without polarization filter	L* ELITE	a* ELITE	b* ELITE	L* standard	a* standard	b* standard	ΔE	backing
1,21	1,97	11,28	0,47	0,55	< 18	0,8 ± 1,5	0 ± 3	6,8	white
1,13	1,85	12,38	0,7	0,87	< 18	0,8 ± 1,5	0 ± 3	5,7	
1,08	1,86	13,21	0,85	1,34	< 18	0,8 ± 1,5	0 ± 3	5,0	
1,03	1,82	13,76	1,1	1,68	< 18	0,8 ± 1,5	0 ± 3	4,6	
0,92	1,77	15,1	1,29	2,26	< 18	0,8 ± 1,5	0 ± 3	3,7	
0,87	1,74	15,94	1,54	2,87	< 18	0,8 ± 1,5	0 ± 3	3,6	
0,8	1,64	17,52	1,68	3,37	< 18	0,8 ± 1,5	0 ± 3	3,5	
0,73	1,54	20,27	2,06	4,44	< 18	0,8 ± 1,5	0 ± 3	5,1	



THE PROCESS OF CERTIFICATION



Within the framework of the standardisation of the offset printing process, the following 3 steps have to be considered :

- ISO 2846-1
- ISO 12647-2
- PSO : **P**rocess **S**tandard **O**ffset

- As an ink manufacturer, Siegwerk is responsible for the compliance with the norm ISO 2846-1 which defines the colour and the transparency of a process ink.

The compliance with this norm lays down the use of a reference substrate, the respect of L*,a*,b* values and transparency based on defined applied ink grammages.

- The printer has to be compliant with the norm ISO 12647-2 which specifies the standard values of the printing document on reference substrates, such as:
 - colorimetric values
 - trapping
 - dot gain
- The PSO certification gathers together all norms related to the graphic chain through the following steps:
 - data reception
 - data creation
 - screen display and soft-proofing
 - digital proof - certification
 - CTP
 - ink and printing
 - lightning and visual assessment
 - organisation and documentation

This information is based on our experience and on results obtained in the laboratory, using specific processes and types of application. In view of the diversity of substrates and printing conditions, this data is communicated for information purposes only and is provided without any warranty on our part and must be authenticated by industrial tests before the products are used. Improvements are being made to our products on an ongoing basis and we therefore reserve the right to modify their composition as well as the contents of our technical data sheets. We disclaim any liability for applications for which this ink series is not foreseen.