



NCS PRE-ORDER PRODUCTION

QUALITY RESULTS INDEX 2018

NCS PRE-ORDER PRODUCTION 2018

Report date

Stockholm, 12 April 2018

To ensure a high quality and hassle-free colour communication, NCS Colour AB has set up the NCS Quality Centre in Stockholm to provide accurate colour products that meet various professional needs.

All productions of NCS Colour Products are rigorously checked, controlled and certified by the NCS Quality Centre to ensure that the final products have the perfect colour appearance. The target for the colour matching is a tolerance below $0.3 \Delta E_{2000}$ to ensure the best final result. The final result is always controlled on random samples. Our NCS Quality Management ensures that the NCS samples are produced with EU-approved pigments and accordingly to the primary standard on global-leading colour accuracy and consistency.

Each production of certified NCS Original or customized colour products is documented. This report includes graphs for the quality outcome, where the results shown are from the final production.

For the final products, NCS Quality Centre has launched three clear quality levels to meet professional requirements; NCS Calibrated Matching Standards, NCS Quality Level 1 and NCS Quality Level 2. The production has achieved exceptionally good result. 99.8% of the colours have a maximum deviation of $0.6 \Delta E$ and 74.6% less than $0.3 \Delta E$ in D65.

We are proud to be able to say that we can offer you the best quality on the market that ensures your quality, colour communication and your customer trust and confidence.

Please note that NCS – the Natural Colour System[®] is a registered trademark and may only be used commercially after a license agreement has been signed with NCS Colour AB.

Controlled and certified,



ANDERS NILSSON

NCS Quality Centre Manager

NCS Colour AB

NCS PRIMARY STANDARDS

A set of well-defined deep-frozen unique NCS Primary Standards has been developed and kept at NCS Quality Centre. The NCS Primary Standards are checked annually, and the readings are stored and form the base for the production and control of any further NCS Calibrated Matching Standards and for the control of any quality assured production.

NCS Calibrated Matching Standards

NCS Calibrated Matching Standards are commercially available from NCS Quality Centre for customers and with the highest level of quality in 1950 NCS Calibrated Colour Samples!

In NCS Calibrated Matching Standards each colour standard sample is individually measured, checked and calibrated by the NCS Quality Centre on the date of sale. Differences from the unique NCS Primary Standard are specified on each sample. Guarantees are given for world-leading minimum tolerances, with a deviation of less than 0.5 ΔE . (Mean value of 0.27 ΔE through the years)

NCS Quality Level 1

Professional working tools for industry, research and design.

Tolerances:

80% $\Delta E < 0.6$

100% $\Delta E < 1.0$

Gloss 15-20

Recent years' results in practice: 99.9% $< \Delta E 0.6$

NCS Quality Level 2

Products Fans, take-away cards

Tolerances 70% $\Delta E < 0.6$

90% $\Delta E < 1.0$

100% $\Delta E < 1.5$

Gloss 13-22

Recent years' results in practice 99.8 % $< \Delta E 0.6$

Light sources: D65, A, F11

All evaluation of colour differences is done in the three light sources D65, A and F11. D65 is standard daylight, A is tungsten light and F11 is a representative three-band fluorescent light.

Measurement Conditions

Measurement values are evaluated according to CIE 15:2004. Measurement geometry $d_i:8^\circ$ (diffuse illumination, specular component included), UV component included, readings every 10 nm from 360 to 750 nm. All $\Delta E_{00(1:1:1)}$ values are calculated according to CIE DE2000 in accordance with CIE 142-2001. NCS S 0500-N (white) is used as a sample backing in reflectance measurement. Standard light sources used are D65, A and F11 (CIE 15:2004). Gloss measurements in accordance to ISO 2813, 60° .

Controlled and Certified

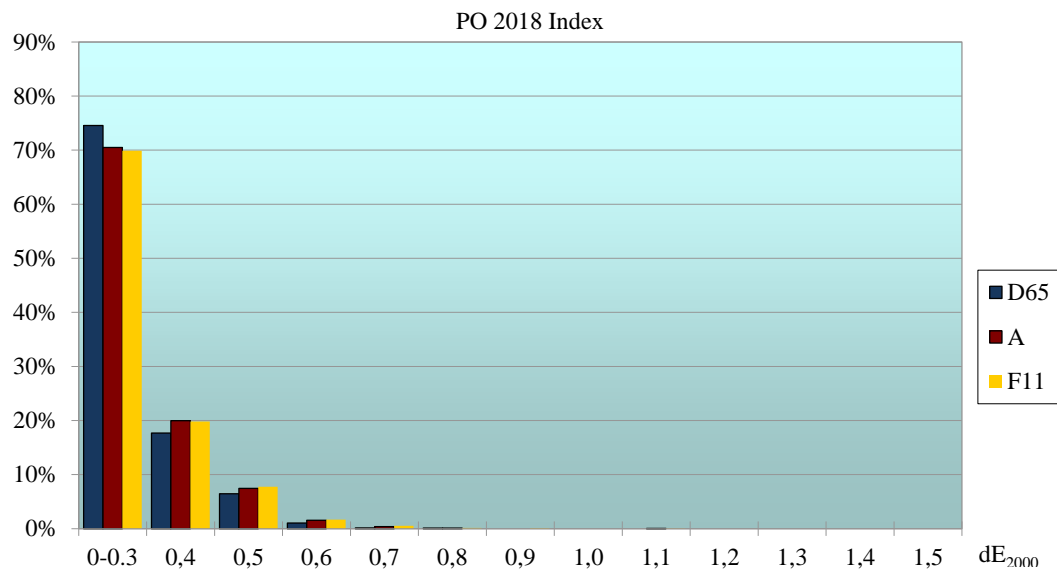
Products that are controlled by NCS Quality Centre and meet all the NCS Quality Management requirements may be marked with the Quality symbol.



PRODUCTION RESULTS

Index, QL2 2018

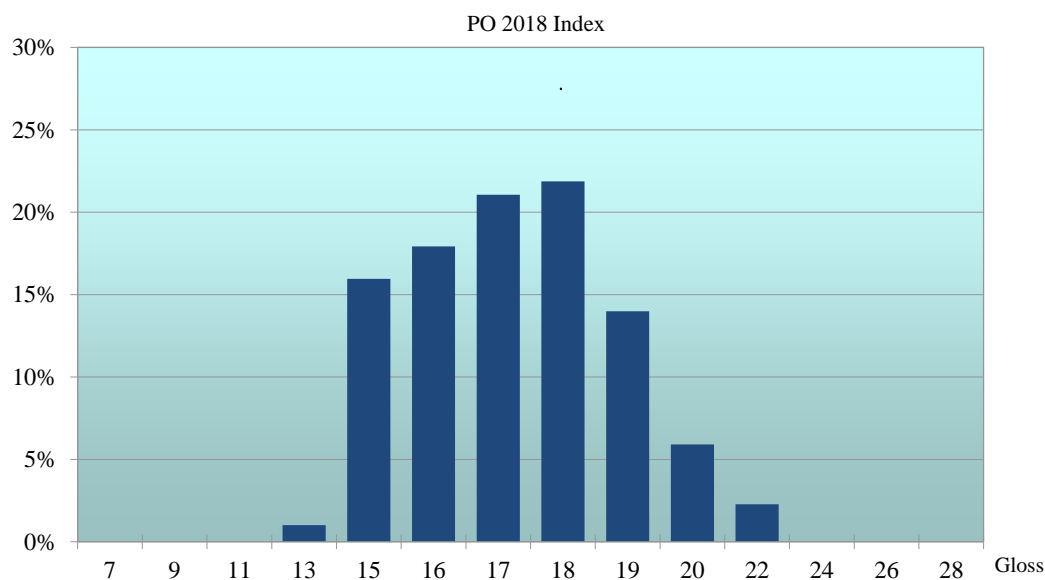
Different between production and the NCS Primary standard, colour accuracy.



NCS Quality Level 2 2018 (Index)			
ΔE_{2000}	D65	A	F11
0-0.3	74,6%	70,5%	69,9%
0-0.6	99,8%	99,9%	99,9%
0.6-1.0	0,2%	0,1%	0,1%
1.0-1.5	0,0%	0,0%	0,0%
Sum:	100,0%	100,0%	100,0%

Index, QL2 2018

Gloss accuracy.



Gloss NCS Quality Level 2 2018 (Index)

<i>Gloss</i>	<i>Fraction</i>	<i>Aim</i>
7	0,0%	
9	0,0%	
11	0,0%	
13	1,0%	x
15	16,0%	x
16	17,9%	x
17	21,1%	x
18	21,9%	x
19	14,0%	x
20	5,9%	x
22	2,3%	x
24	0,0%	
26	0,0%	
28	0,0%	
30	0,0%	
summa	100%	