GRACE: “Steps forward in the Graphics Industries towards a Circular Economy”

Vergadering begeleidingsgroep 5 maart 2025

Agenda

10h30: Ontvangst

11h00: Introductie door Canon

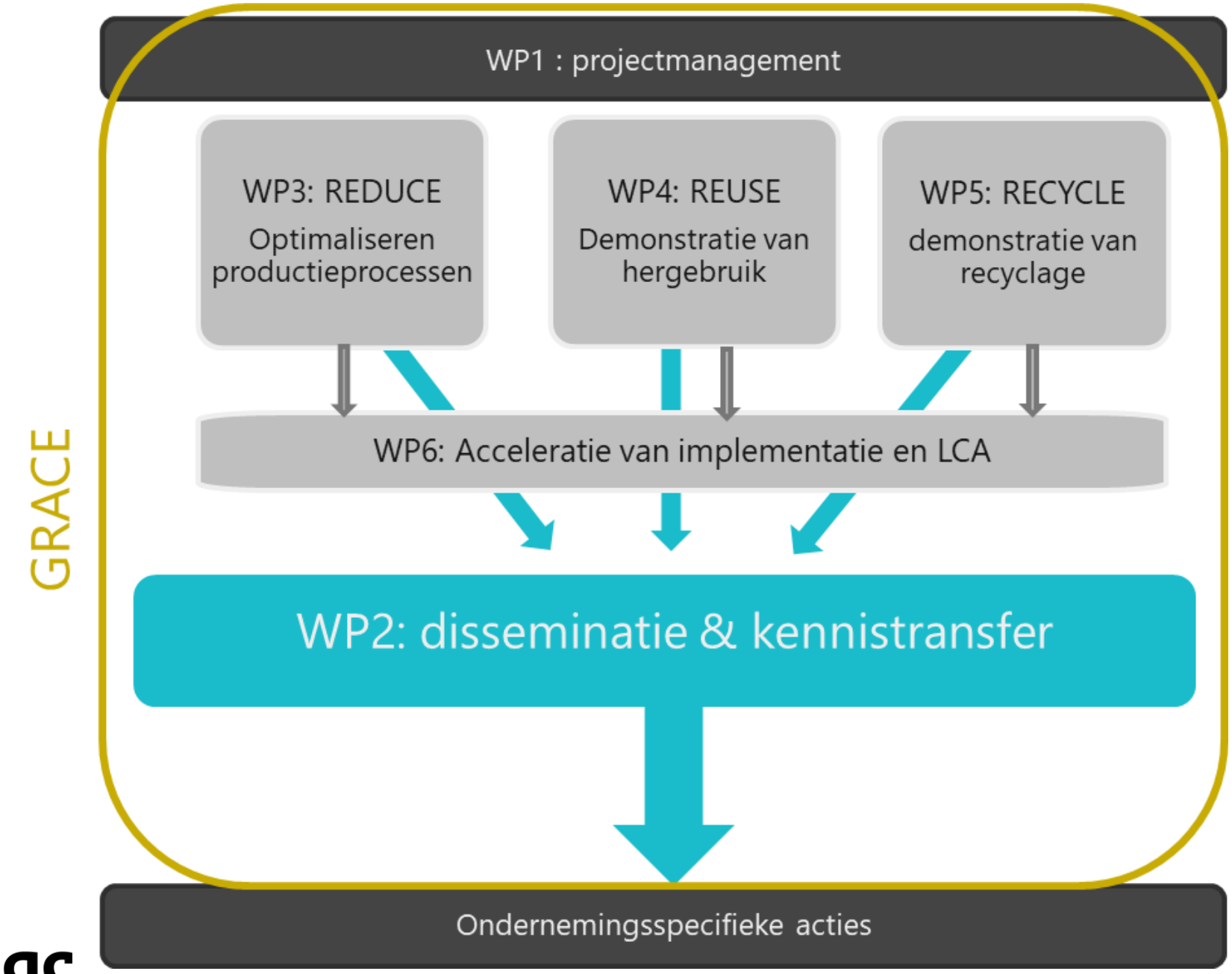
11h15: Bedrijfspitches

- Seenons (recyclage glassine)
- Fespa (Eco-Forward)

11h45: GRACE activiteiten en discussie

12h45: Broodjeslunch met nabespreking

14h00: Rondleiding door de showroom van Canon


GRACE
WP1 : projectmanagement
WP3: REDUCE
Optimaliseren productieprocessen
WP4: REUSE
Demonstratie van hergebruik
WP5: RECYCLE
demonstratie van recyclage
WP6: Acceleratie van implementatie en LCA
WP2: disseminatie & kennistransfer
Ondernemingsspecifieke acties

Disseminatie
Tweede newsletter

Newsletter #02

16/01/2025

Contents

1. Rethinking colour conversions for lower ink consumption
2. Recyclability of PolyVinylChloride (PVC)
3. Grace Info desk: Recycling silicone-coated material
4. Sustainable printing at 'After Adobe MAX'

Newsletter #02

16/01/2025

Met het GRACE-project hebben Centexbel-VKC (Kenniscentrum voor de Textiel- en Kunststoffensector) en VIGC (Vlaams Innovatiecentrum voor Grafische Communicatie) hun krachten gebundeld om de Print & Sign sector klaar te stomen voor een circulaire economie. De principes van 'Reduce, Reuse en Recycle' vormen hierbij het uitgangspunt. Via

With the GRACE project, Centexbel-VKC (Knowledge Center for the Textile and Plastics Sector) and VIGC (Flemish Innovation Center for Graphic Communication) have joined forces to prepare the Print & Sign sector for a circular economy.
The principles of 'Reduce, Reuse, and Recycle' form the foundation for this. Through publications, presentations,

Disseminatie en kennistransfer
Project website

https://www.centexbelpresents.be/en/grace

Grace

Coated and printed substrates are a major challenge for the circular economy and thus for the printing industry. Where the mind-set used to be purely on excellent technical performance and good adhesion of ink to the substrate, today additional focus is put on a circular economy, where inks and coatings need to be removed, but also material efficiency, reuse and recycling are on the agenda.

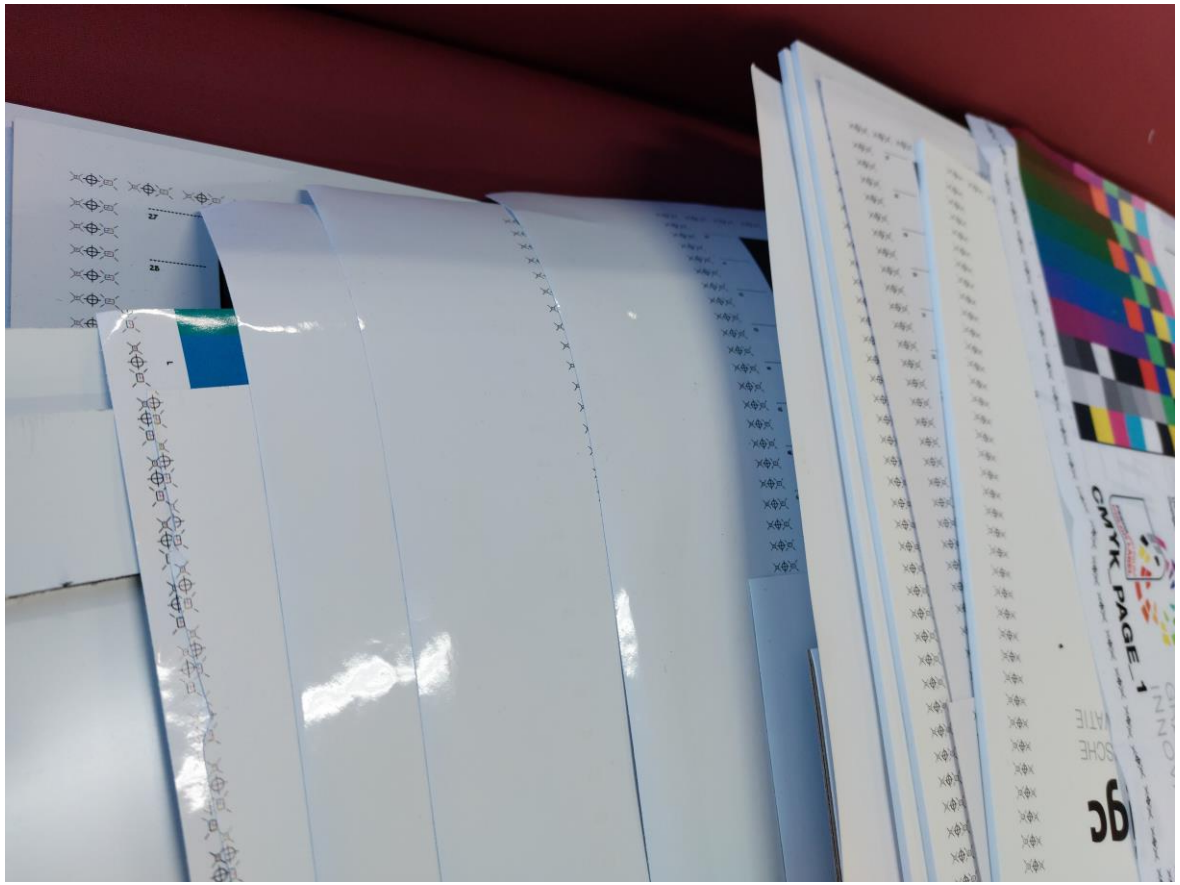
Most Large Format Print & Sign (LFP&S) producers are still in the early stages of the transition to a circular economy.

For the first time in the creation of both organisations, Centexbel-VKC (Knowledge Centre for the Textile and Plastics Sector) and VIGC (Flemish Innovation Centre for Graphic Communication) will join forces to prepare the Large Format Print & Sign sector for a circular economy through market-ready concepts.

THE TARGET GROUP CONSISTS MAINLY OF SMES WHERE THERE IS STILL ROOM AND THE WILL TO MAKE PRODUCTS MORE CIRCULAR. IN ADDITION, THE RECYCLING SECTOR IS ALSO PART OF THE GRACE TARGET GROUP AS RECYCLING IS ONE OF THE 3 THEMES.

REUSE
Verwijderen van inkt

Referentiedrukken voor FESPA color label

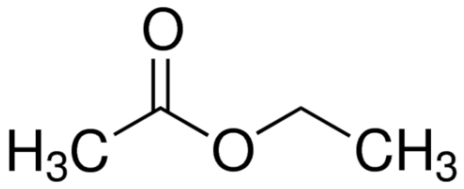


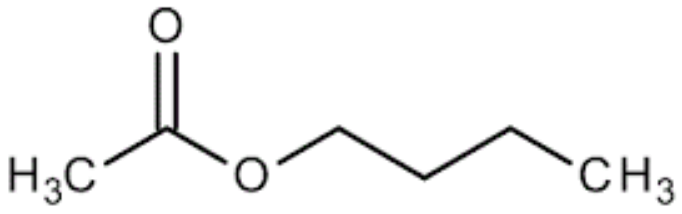
Nr	Substraat	Inkten
1	Spandoek	LED AGFA
2	Georg + Otto Friedrich 7048 GFS	SD-1KR-dye sub
3	Forex	SX1 Hybride-rigide UV-inkt
4	Dibond dlite	Supreme led digital dot
5	Dibond dlite	Supreme led digital dot
6	Georg + Otto Friedrich 7048 GFS	SD-1KR-dye sub
7	Spandoek	LED AGFA
8	Coated Mat Paper 250 gr	LED AGFA
9	Coated Mat Paper 250 gr	LED AGFA
10	Vloervinyl	AGFA anapurna 2050i led
11	Dibond 2403	SQS 2
12	Beelite (Honingraatkarton)	AGFA anapurna 2050i led
13	Displaykarton 2 mm	AGFA anapurna 2050i led
14	Alu, comp. Plaat	AGFA anapurna 2050i led
15	Easy Dot	AGFA anapurna 2050i led
16	Golfkarton	AGFA anapurna 2050i led
17	Synaps	
18	GUPO Tako	
19	(golf)polyprop	
20	Dibond	LED AGFA
21	Dibond	LED AGFA
22	Posterpapier	Canon UV gel

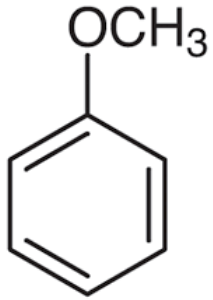
REUSE
Verwijderen van inkt

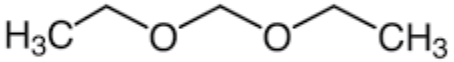
Ontinkten met solventen:

- Ethylacetaat (0,228)
- Butylacetaat (<0,228)
- Anisole (0,198)
- Diethyleneglycolmonobutylether
- Ethylal
- Propylal
- Butylal







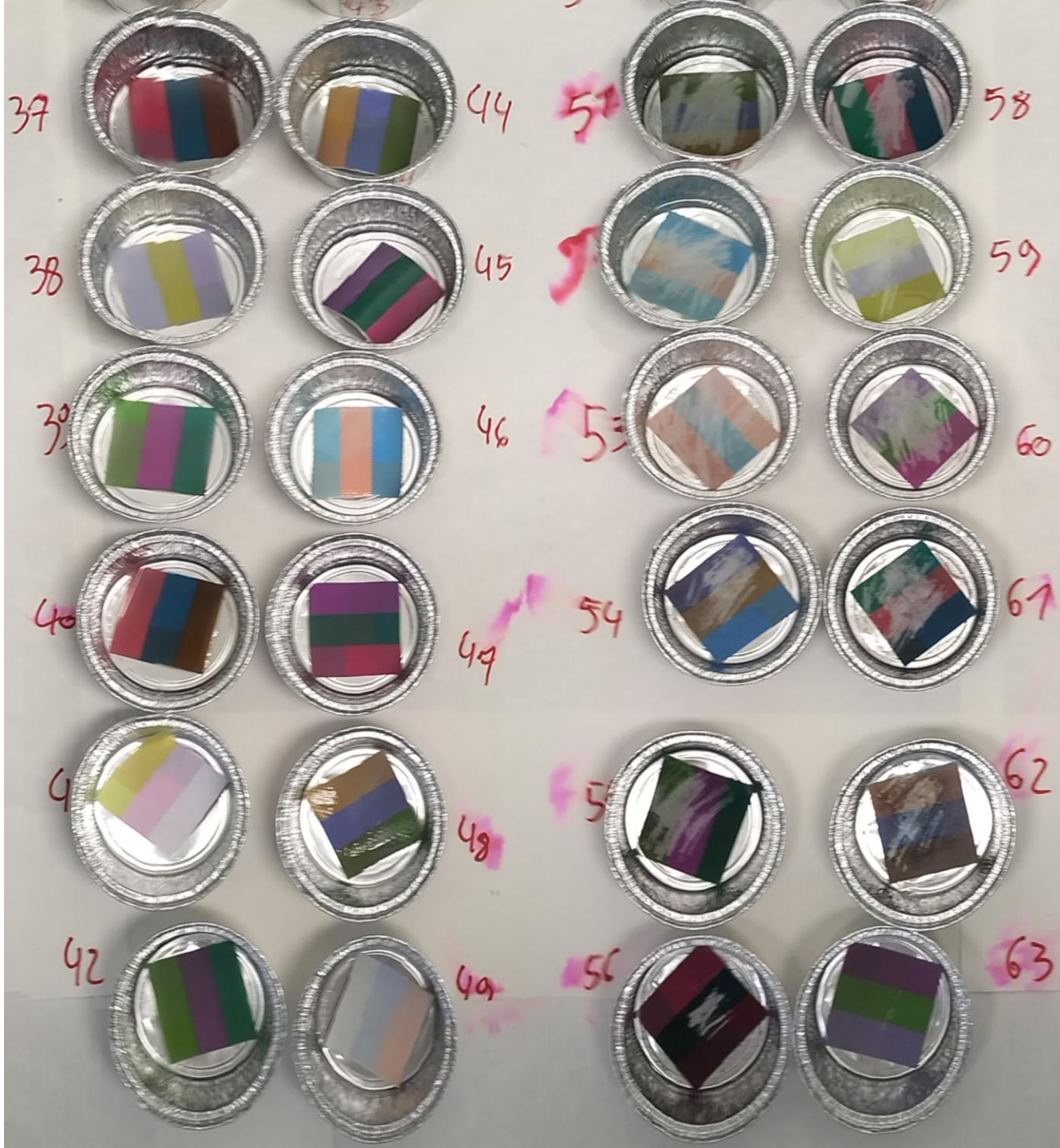


(Hexane: 0,009; water: 1)

REUSE
Verwijderen van inkt

Ontinkten met solventen

- Oplossen van inktlaag met evaluatie na 1, 6 en 24 uur.



REUSE
Ontinkten met solvent

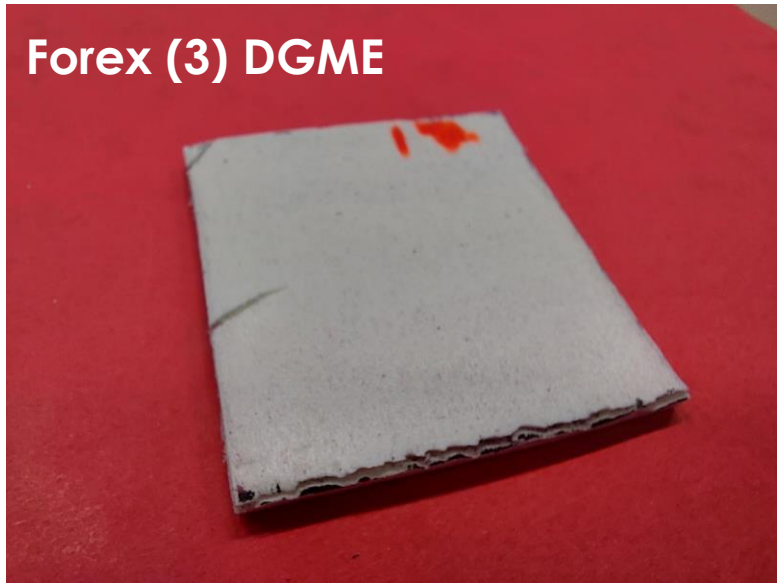
Geen effect op verschillende materialen:

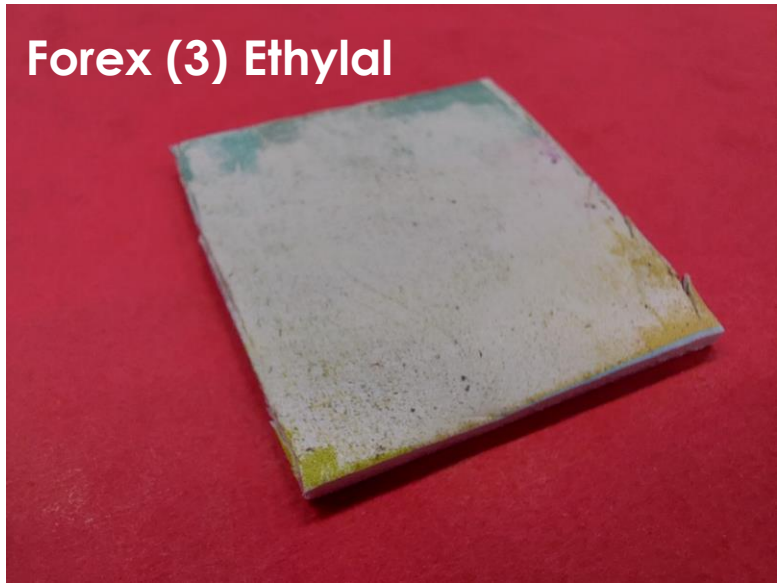
- Spandoek+LED (1,7)
- PES textiel+sublimatie inkt (2,6)
- Vloervinyl (10): enkel oplossen lijmlaag
- Beelite (12)
- Easy dot (15): printlaag wel licht gezwollen
- Golfkarton (16): print kan met veel moeite afgekrast worden na 24u
- Posterpapier (22): enkel oplossen lijmlaag

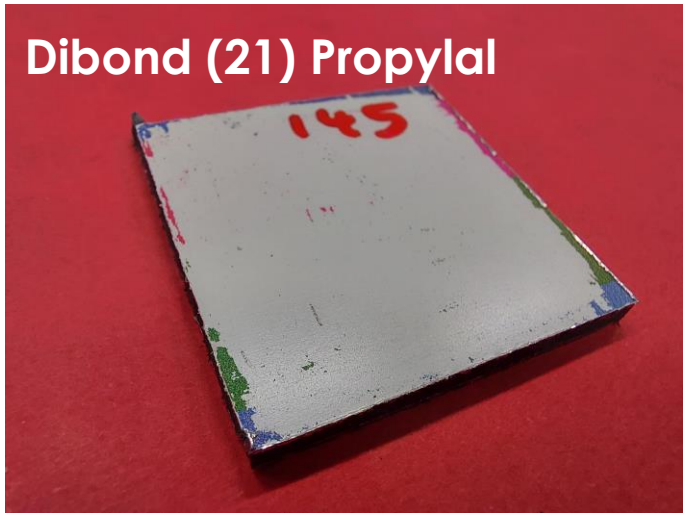
REUSE
Ontinkten met solvent

Verzwakking van de inkt waardoor afkrassen mogelijk was:

- Forex (3): Materiaal is wel sterk opgezwollen, inkt kan afgekrast worden na 1uur. Met diethylene glycol monobutyl ether lijkt het staal niet opgeswollen
- Dibond (4, 5, 11, 14, 20, 21): Na 6 uur in solvent kan de inkt afgekrast worden met een pincet



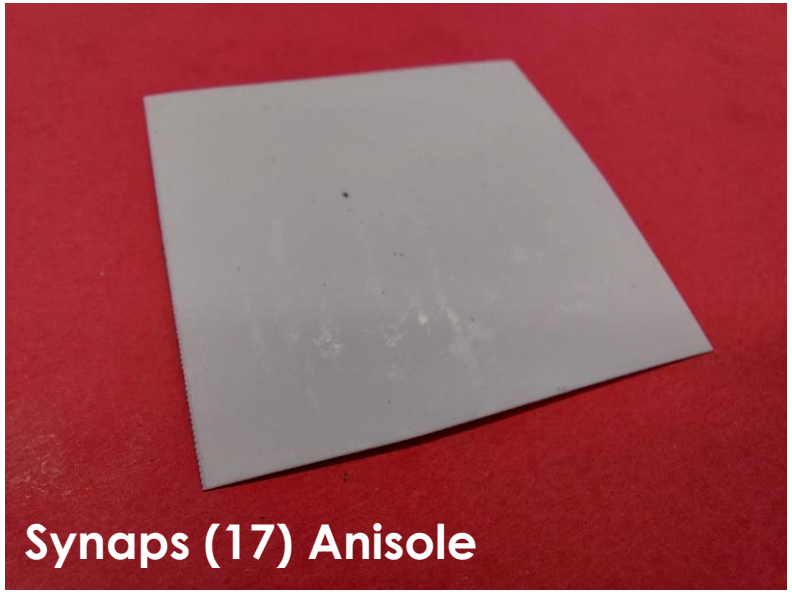




REUSE
Ontinkten met solvent

Verzwakking van de inkt waardoor afkrassen mogelijk was:

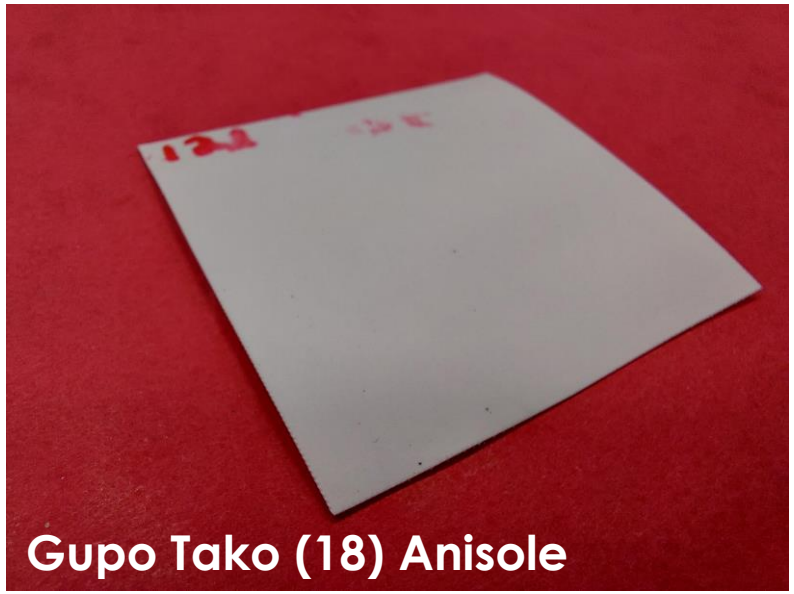
- Gecoat mat papier (8,9): na 1 uur kan de inkt afgekrast worden met een pincet
- Displaykarton (13): print kan zeer makkelijk afgekrast worden na 1 uur in anisole
- Synaps (17): print kan makkelijk afgekrast worden na 6uur

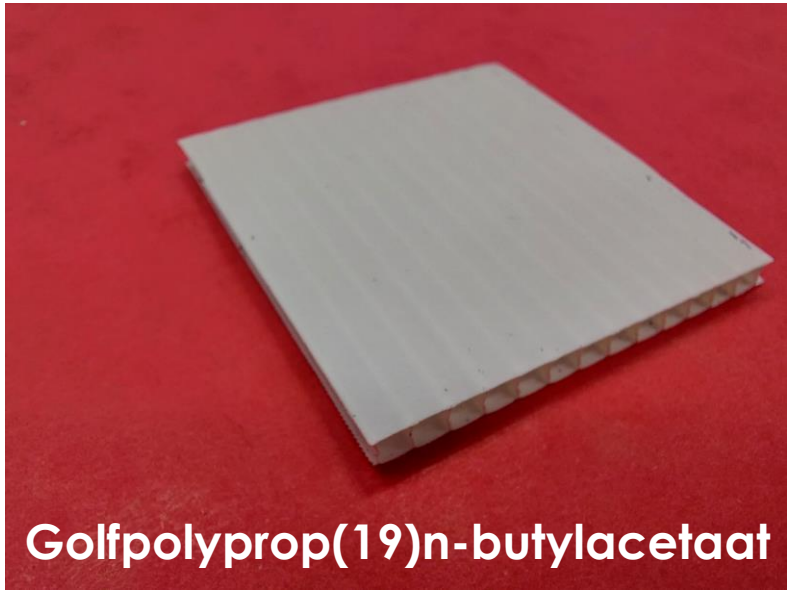


REUSE
Ontinkten met solvent

Verzwakking van inkt, afwrijven met papier is mogelijk:

- Gupo Tako: na 5 minuten in anisole kan de inkt makkelijk afgewreven worden
- Golfpolyprop: na 1 uur in n-butylacetaat kan de inkt makkelijk afgewreven worden


Gupo Tako (18) Anisole


Golfpolyprop(19)n-butylacetaat

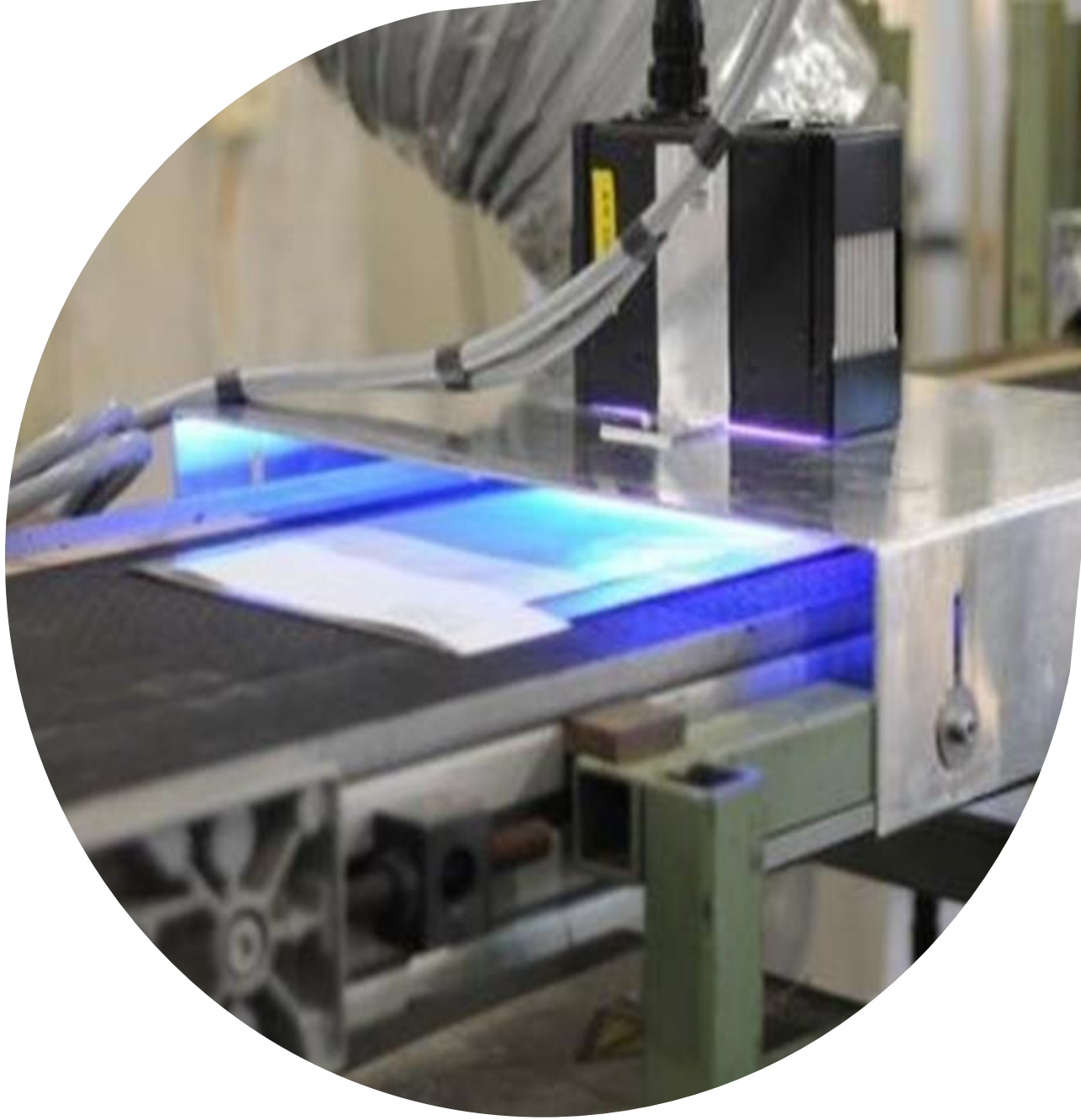
REUSE
Ontinkten met UV

Referentiedrukken voor FESPA color label

Behandeling met UV licht:

- 90% vermogen
- 15 passages

Geen significant effect op kleur of adhesie



REUSE
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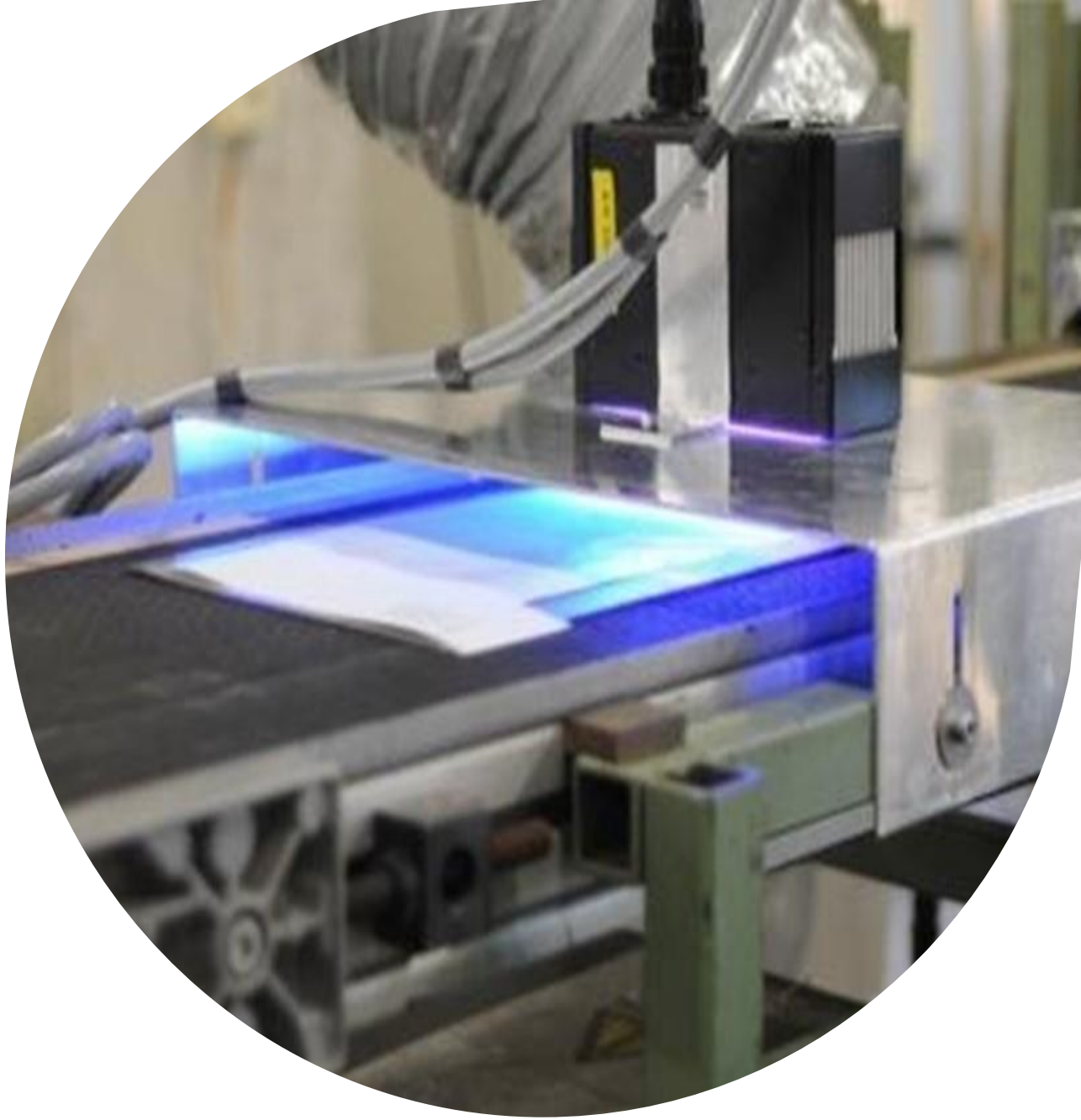
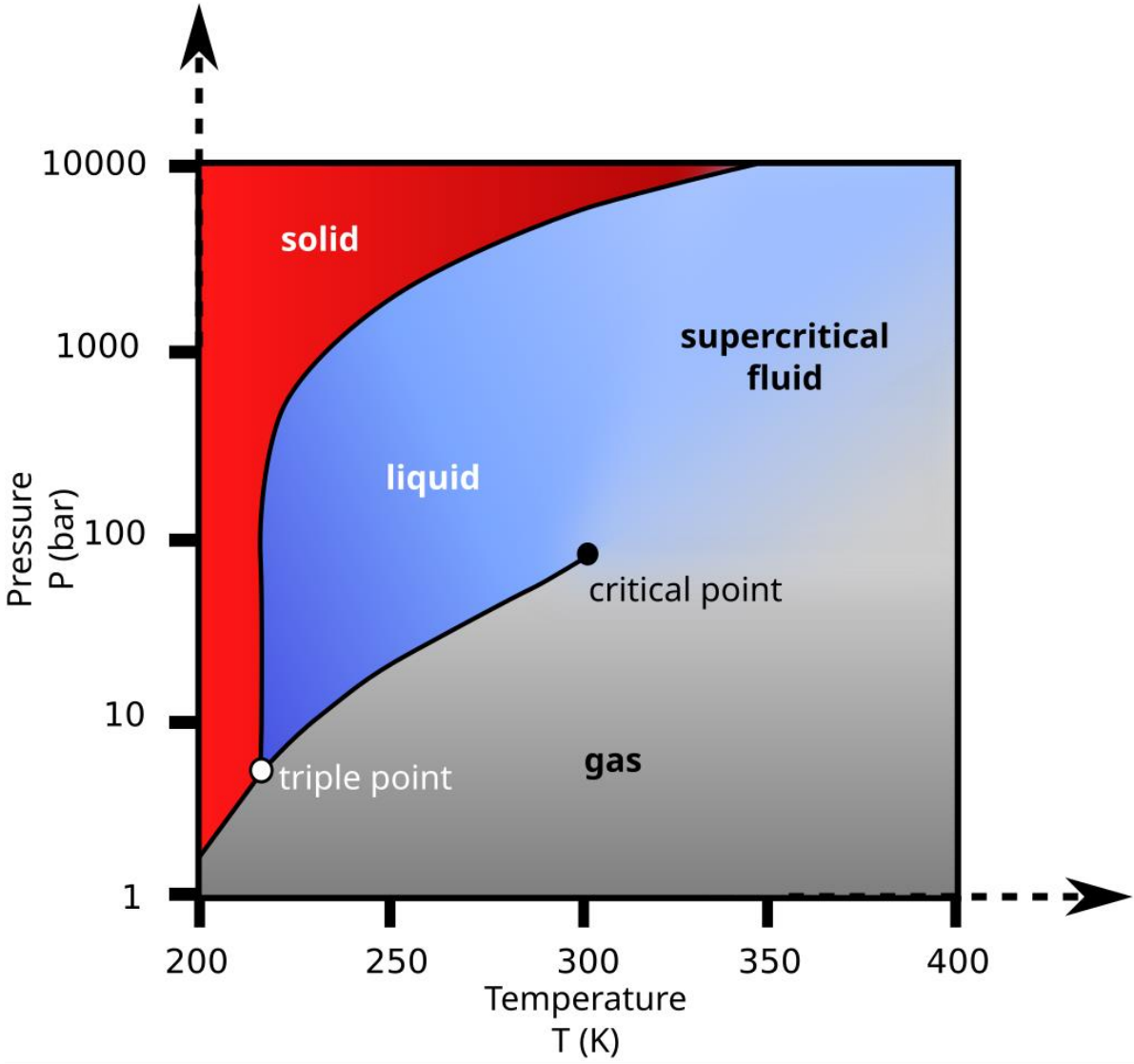


REUSE
Ontinkten met scCO2

Superkritische vloeistof: Toestand zonder onderscheid tussen vloeistof of gas

- Kan als een gas door lagen heen vloeien
- Kan materiaal oplossen zoals een vloeistof
- Densiteit van 0,47 g/cm³



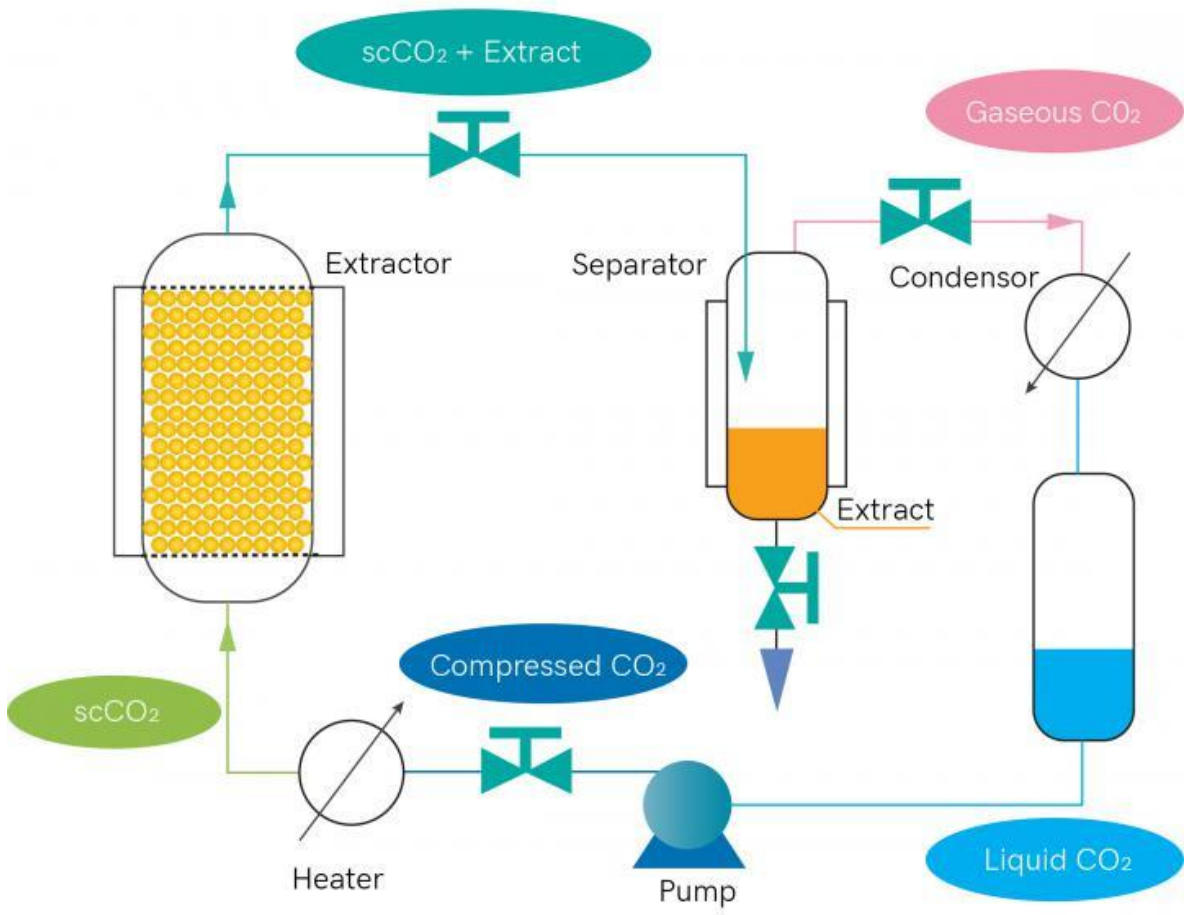
REUSE
Ontinkten met scCO2

Labotoestel met:

- Extractiekamer
- Separatorkamer
- Condensatie+pomp
- Solventpomp

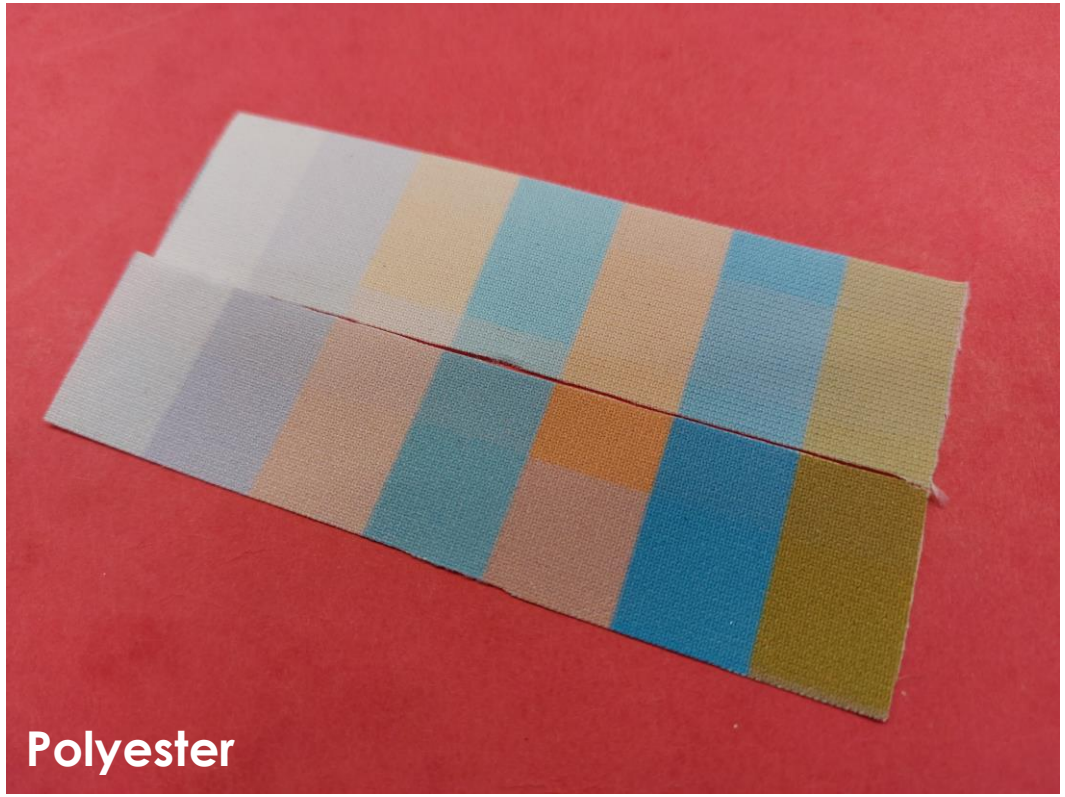
Solvent laat toe om de polariteit van scCO2 te sturen

Testen nog lopend, maar geen effect op meeste materialen



REUSE
Ontinkten met scCO2

Extractie van disperse kleurstof uit PES



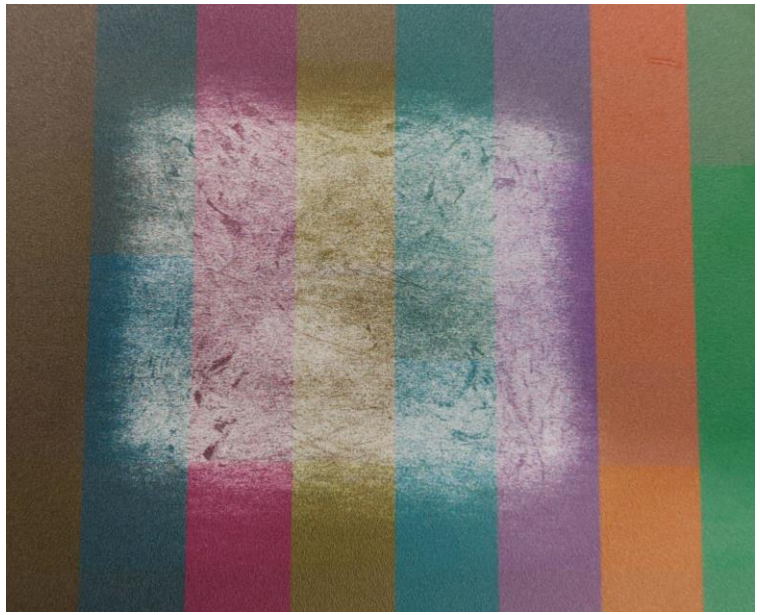
Opblazen van vloervinyl

REUSE
ontinkten via abrasie

Gebruik van schuurpapier in martindale abrasietester om inkt fysisch af te schuren

- Schuurpapier P1200
- 12 kPa druk
- Gestopt na 1400 cycli

Niet efficiënt



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Workshop inktreductie

Leerdoelen

Color Picker

Inktreductie

Workflow

Transformeren

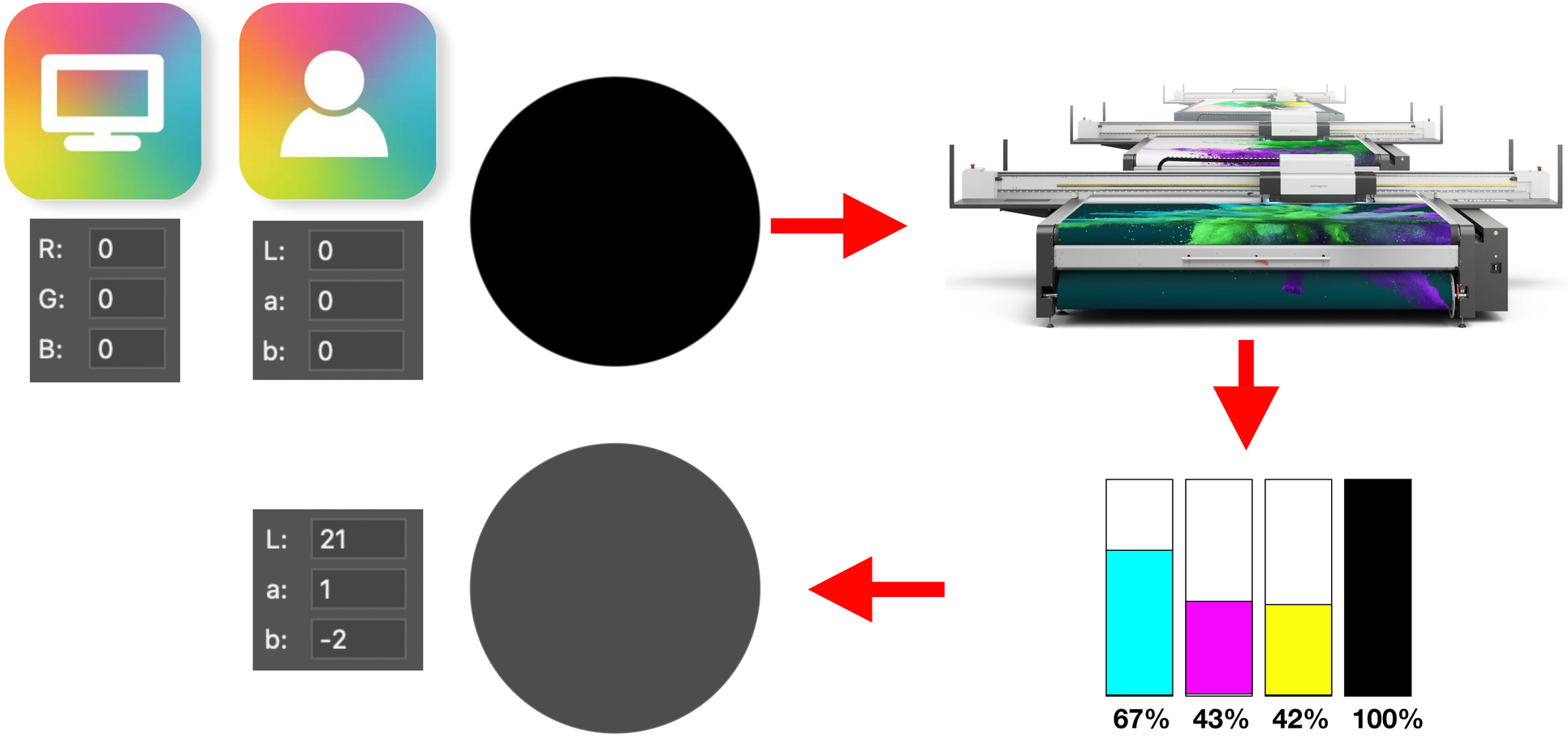
Kwaliteit

- De meest voorkomende soorten kleurcoördinaten opsommen
- De manieren om inkt te reduceren beschrijven
- De elementen uit een digitale print workflow opsommen
- De 2 meest toegepaste methodes om kleuren te vertalen uitleggen
- De relatie inktverbruik - kleurkwaliteit correct inschatten

vigc

Profiles digital printing

Maximum ink coverage

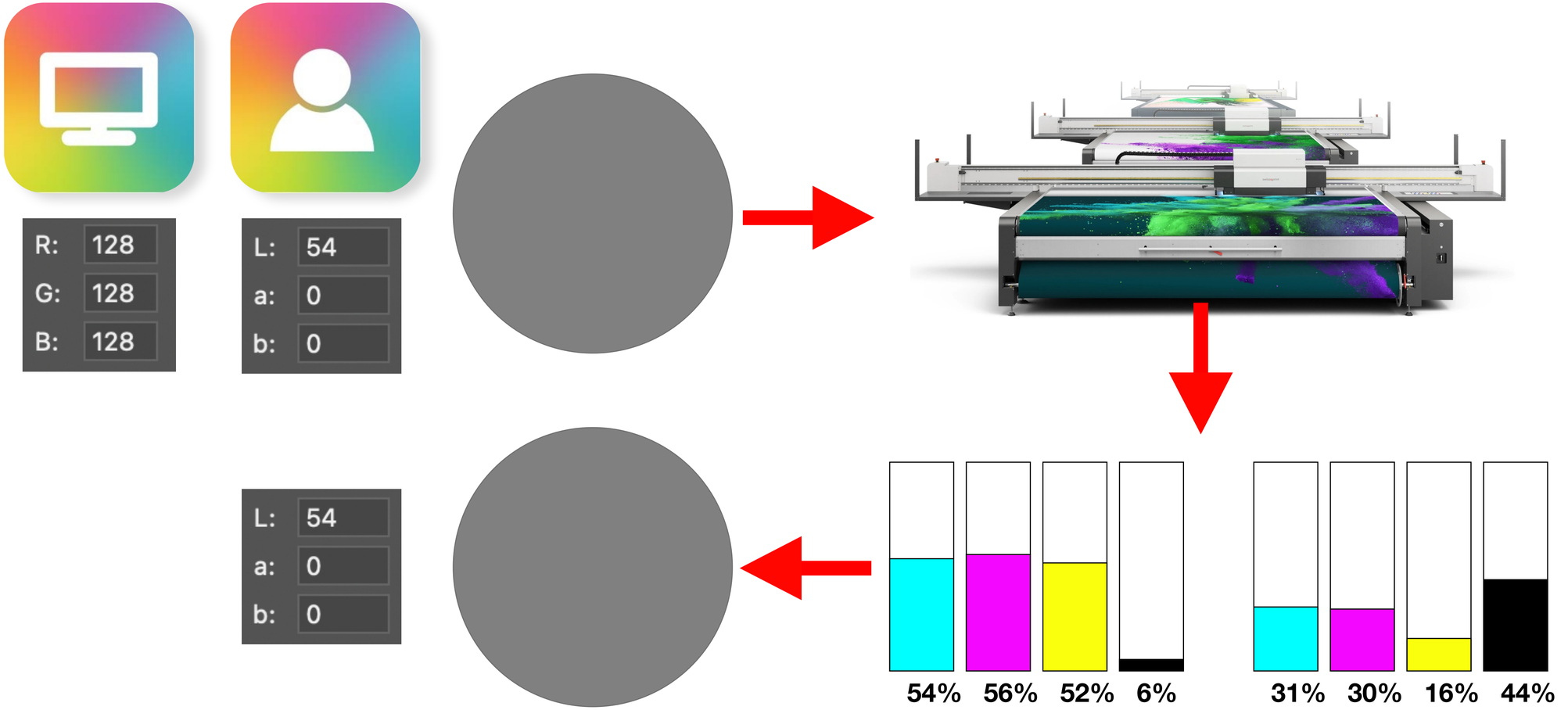


SWISS Q Nyala-4-i op Dibond 2403

Sum = 252%

Profiles digital printing

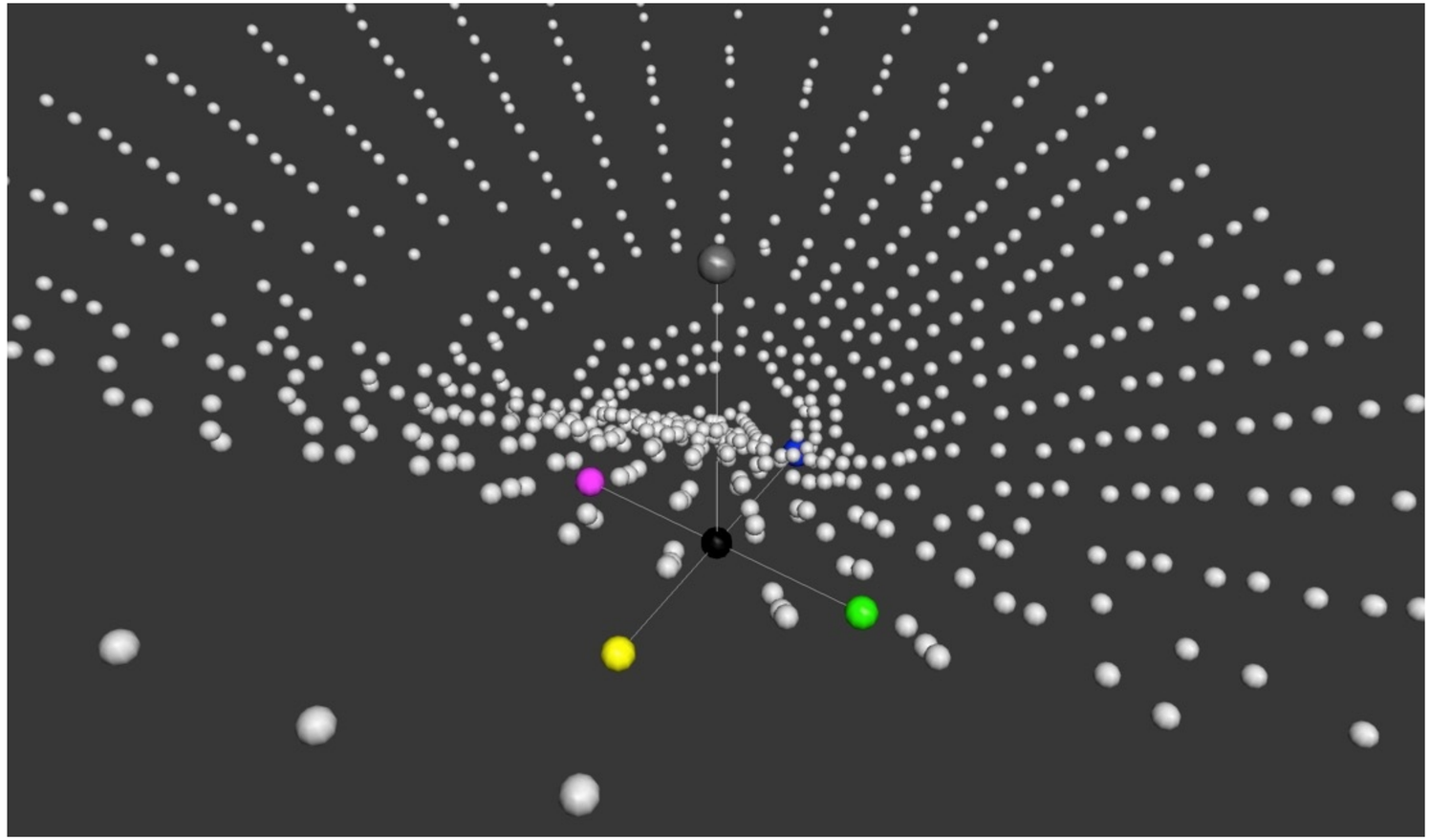
Grey Component Replacement



SWISS Q Nyala-4-i op Dibond 2403

Profiles digital printing

Testing color rendering



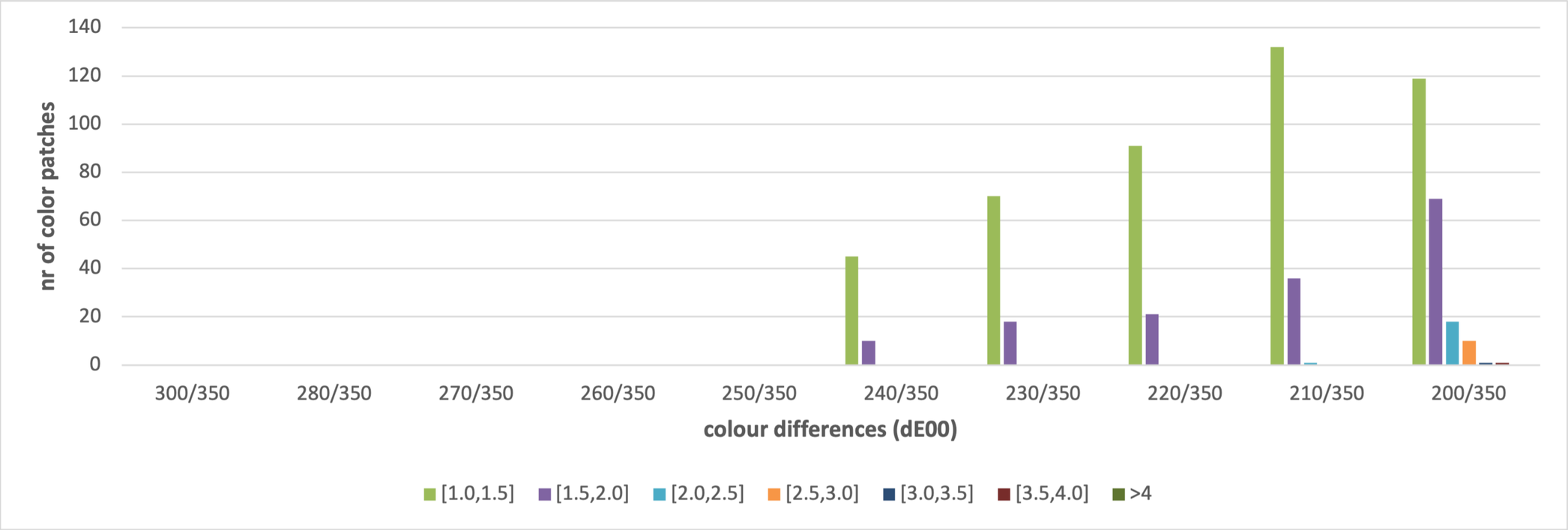
		CMYK-in				
SAMPLE_ID	SAMPLE_NAME	C	M	Y	K	L
1	SUBSTRAAT	0.0	0.0	0.0	0.0	
2	L40H10C58	19.3	100.0	46.3	9.8	
3	L40H20C60	18.4	100.0	65.8	9.0	
4	L40H30C64	18.2	100.0	88.3	8.7	
5	L40H40C56	22.7	87.9	100.0	15.9	
6	L40H50C46	27.4	75.0	100.0	25.2	
7	L40H60C40	30.8	65.4	100.0	32.5	
8	L40H70C37	33.2	57.2	100.0	38.3	
9	L40H80C34	38.3	50.3	99.3	40.9	
10	L40H90C32	47.0	45.2	100.0	39.6	
11	L40H100C30	55.6	42.4	98.7	36.4	
12	L40H110C30	62.1	40.2	99.9	33.0	
13	L40H120C31	68.5	38.1	100.0	29.8	
14	L40H130C33	75.1	35.8	100.0	26.4	
15	L40H140C36	81.7	32.9	100.0	22.9	
16	L40H150C42	90.6	29.0	100.0	18.4	
17	L40H160C49	99.2	25.2	96.0	14.0	
18	L40H170C46	100.0	25.3	81.7	14.1	

Defining 715 test colors:
- maximum chroma
- L* range 10 - 43

Impact on color quality (dark colors)?

Profiles digital printing

Testing color rendering

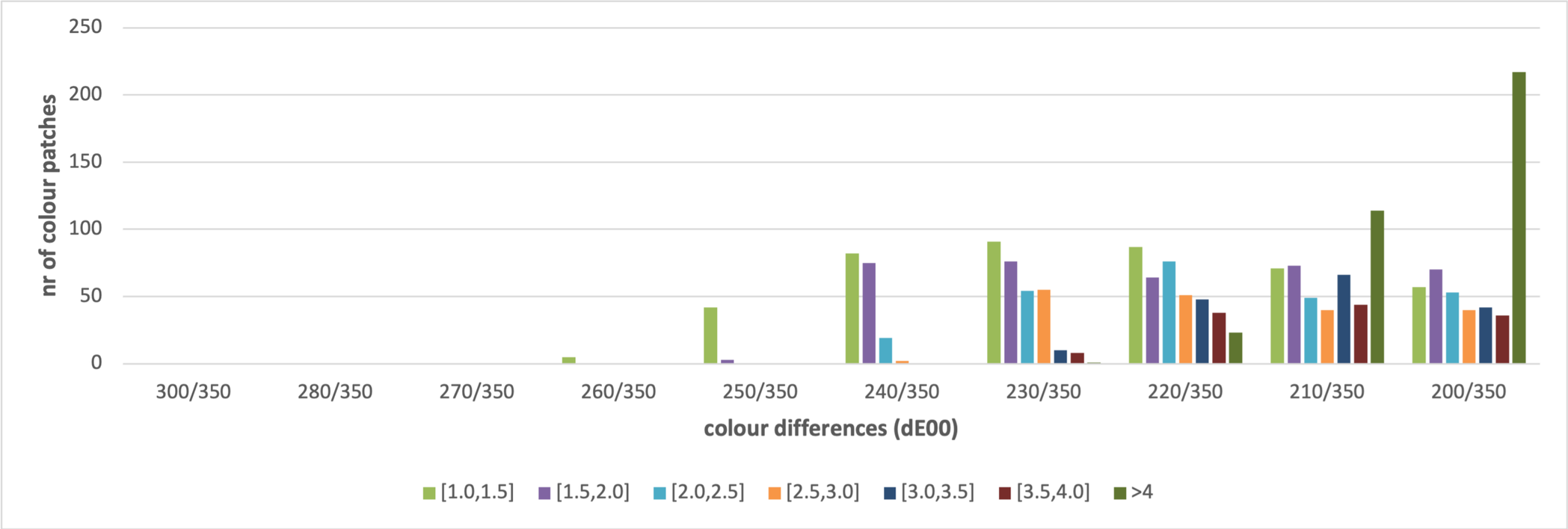


Comparing different maximum ink coverages (ex. perceptual rendering)

Impact on color quality (dark colors)?

Profiles digital printing

Testing color rendering

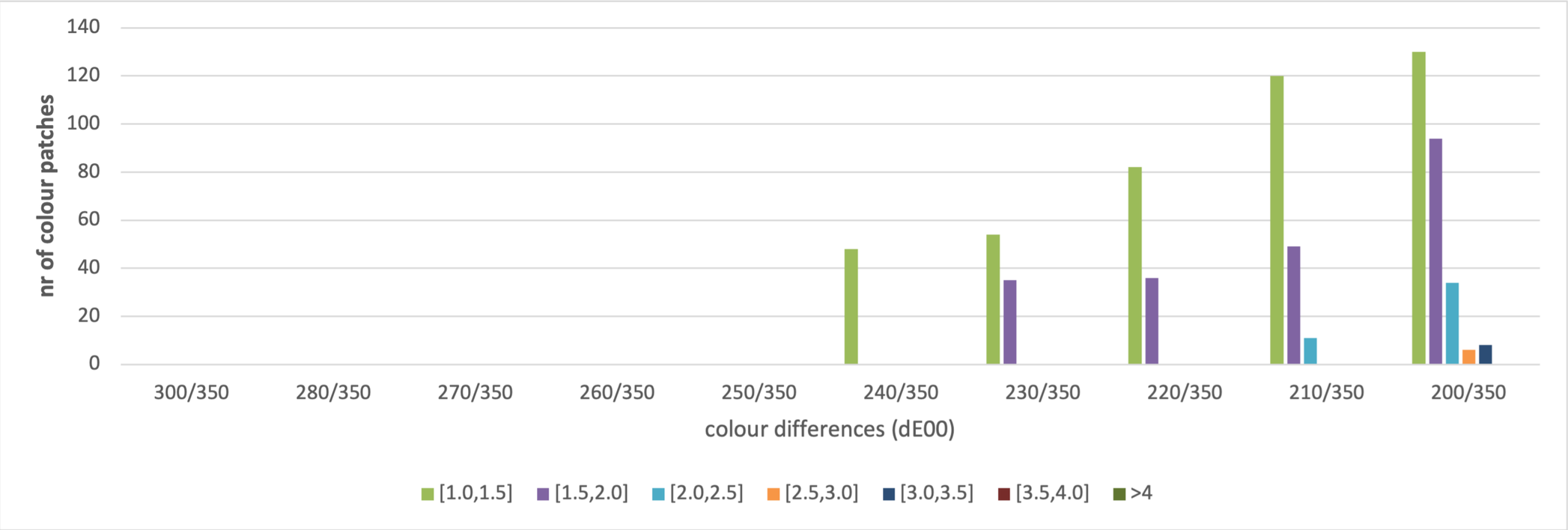


Comparing different maximum ink coverages (ex. Colorimetric rendering)

Impact on color quality (dark colors)?

Profiles digital printing

Testing color rendering

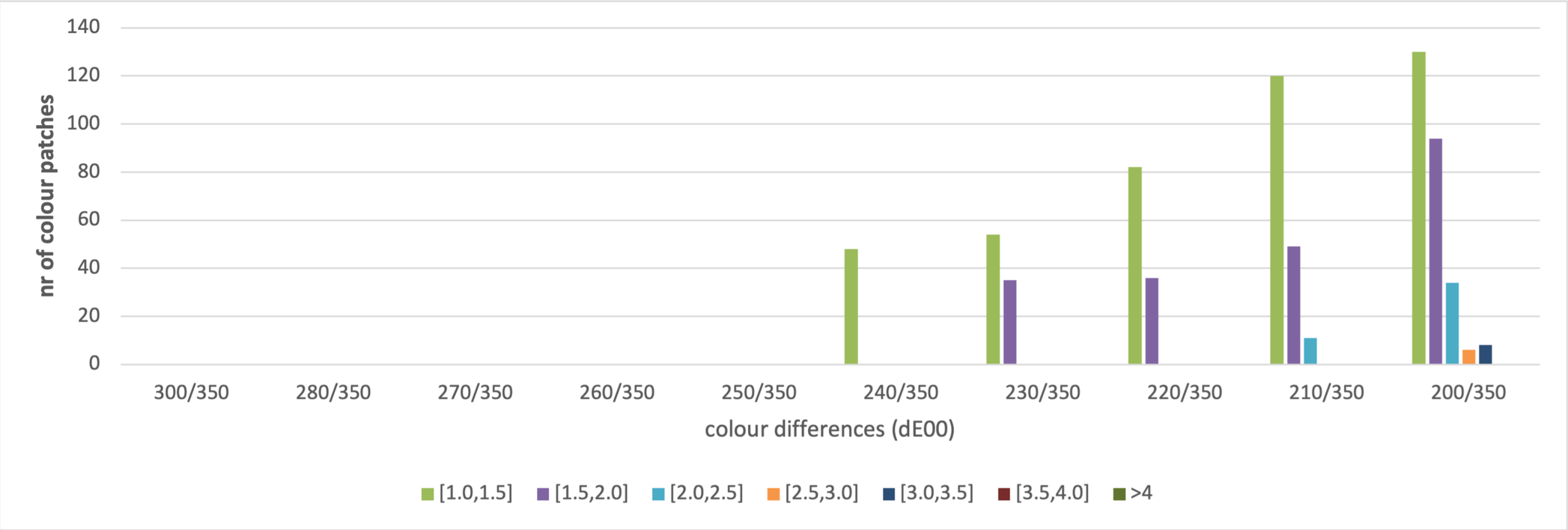


Comparing different maximum ink coverages (ex. Colorimetric rendering + BPC)

Impact on color quality (dark colors)?

Profiles digital printing

Testing color rendering



Comparing different maximum ink coverages (ex. Colorimetric rendering + BPC)

Impact on color quality (dark colors)?

Profiles digital printing

Testing color rendering

Conversion method	C	M	Y	K
‘Perceptual’	Reference (100%)	Reference (100%)	Reference (100%)	Reference (100%)
‘Relative Colorimetric’	131.5%	108.6%	138.2%	109.0%
‘Relative Colorimetric’ + ‘Black Point Compensation’	108.9%	103.1%	111.7%	101.9%

Impact on ink consumption?

In practise

Testing ink optimised profiles

Workshop at swissQprint (Ghent)

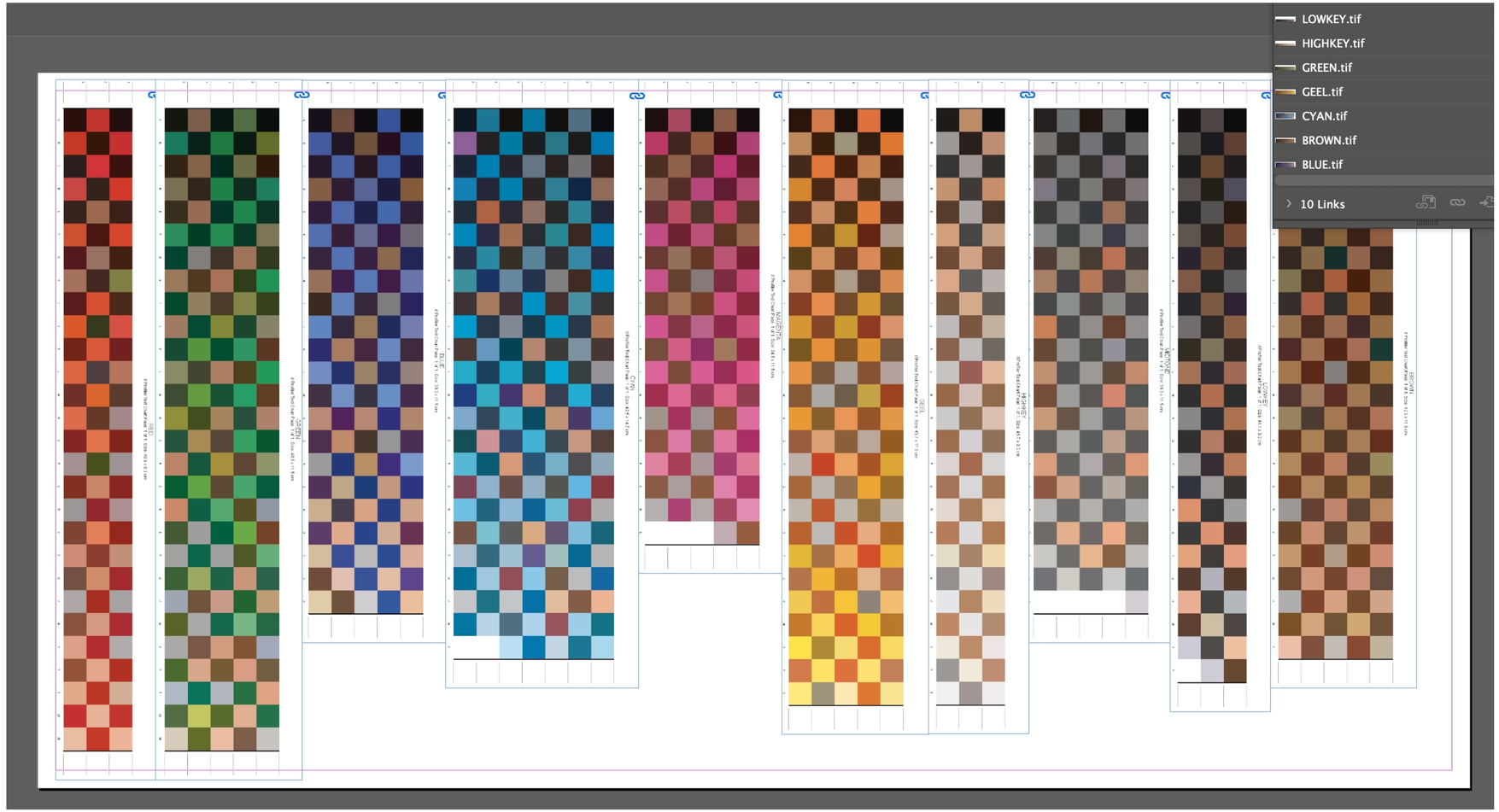
In practise

Testing ink optimised profiles

Test Pages - ROMAN16 pictures

In practise

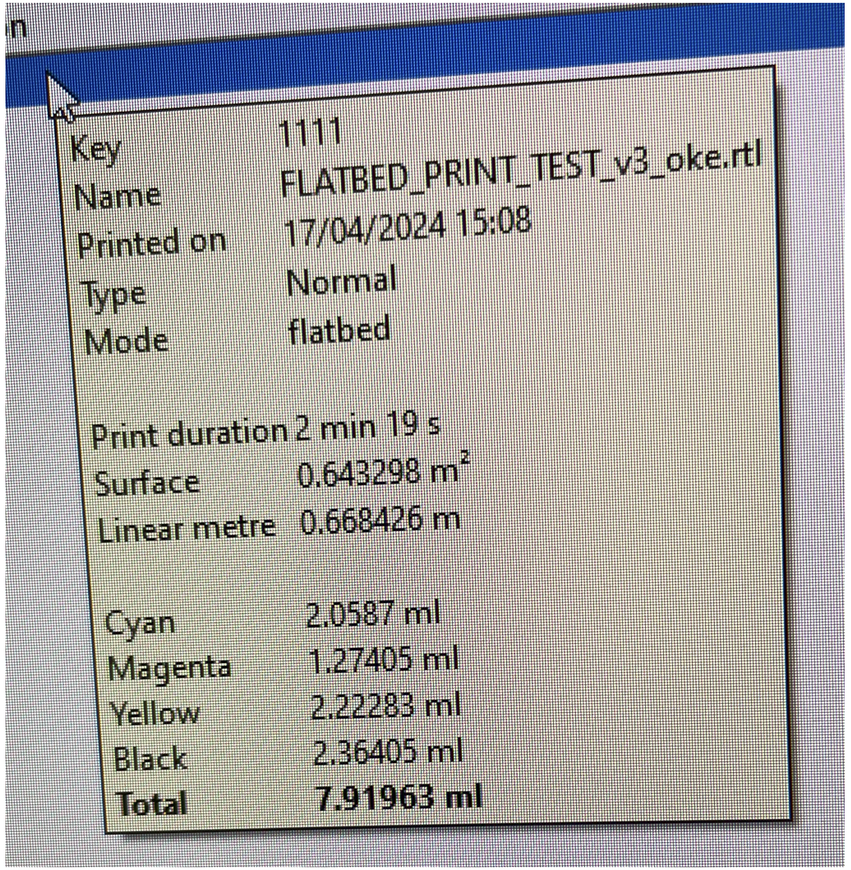
Testing ink optimised profiles



Test Pages - ROMAN16 test charts

In practise

Testing ink optimised profiles



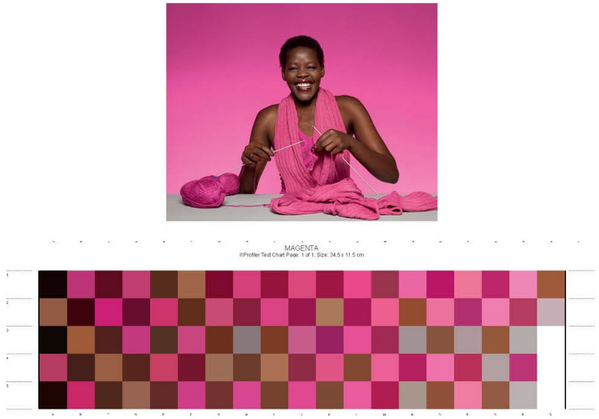
Hoeveel inkt kan je besparen?

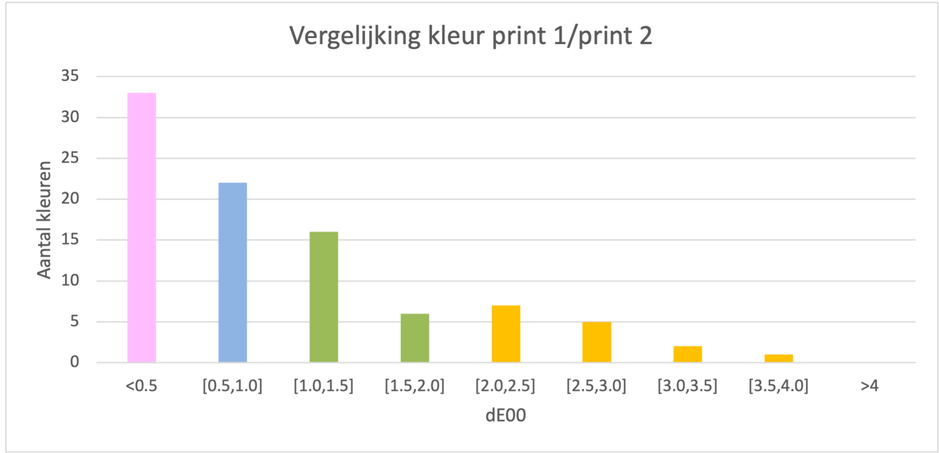
	standaard afdruk		inkt-geoptimaliseerd	
Kleurprofiel printjob	Coated FOGRA39 (ISO 12647-2:2004)			
Maximum inktdekking (print)	350%		220%	
Grijsvervanging (print)	laag		maximaal	
	0.30ml	100%	0.28ml	93%
	0.61ml	100%	0.44ml	73%
	0.84ml	100%	0.54ml	64%
	0.47ml	100%	0.68ml	146%
	0.73ml	100%	0.52ml	71%
	0.80ml	100%	0.59ml	73%
	0.35ml	100%	0.34ml	97%
TOTAAL	4.09ml	100%	3.39ml	83%

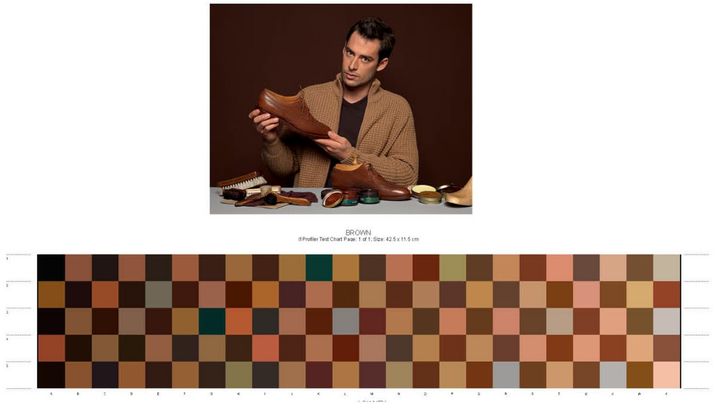
Ink consumption - comparison

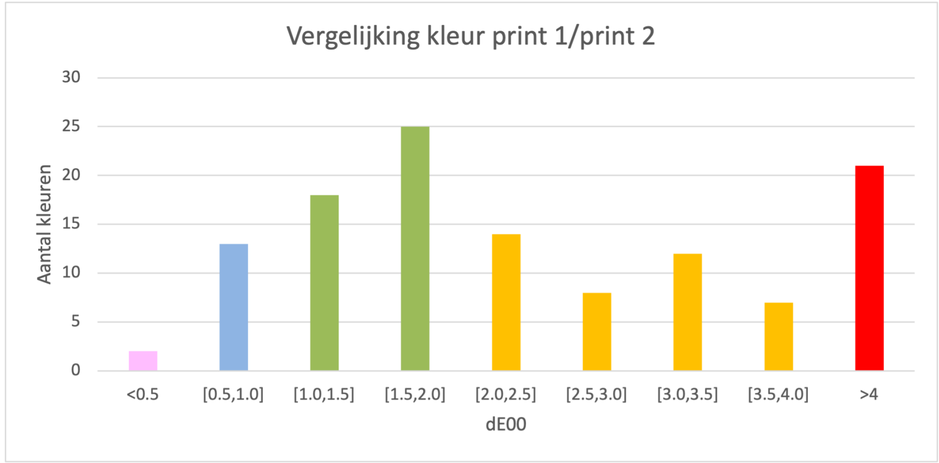
In practise

Testing ink optimised profiles





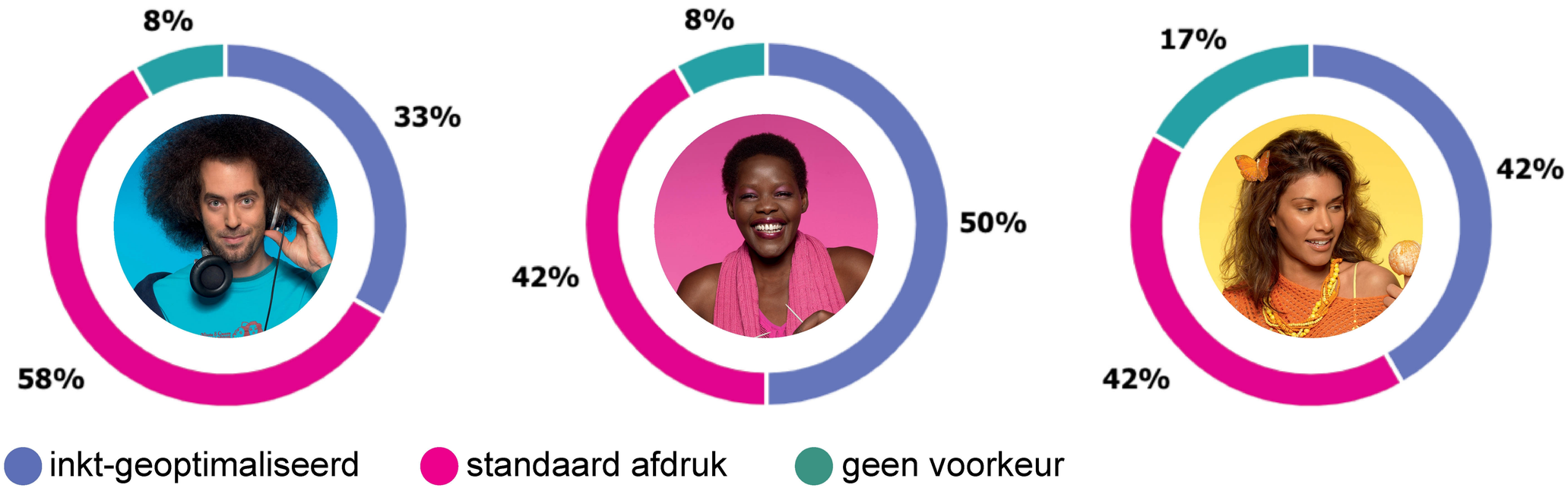




Color Quality - comparison

In practise

Testing ink optimised profiles



Customer feedback

New connections

Toner printing

Wall decoration

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XEIKON

Home | I want to print | Knowledge base

Wall Deco | Overview | Solutions | End-use applications | Advise me on | Approaches | Contact us | Solution Wizard

The Walldeco of wonders

Digital printing is increasingly exciting for the client looking to amplify a presence in the wall decoration world; the printer who is ready to experiment, the customer simply looking to complement conventional presses with the latest tech or even a younger business setting foot into the wallpaper industry. Whatever your aspiration for wall decoration printing is, let us support your unique requirements.

Not sure where to start?

Try our solution wizard

Xeikon

Spray coating

Sustainable event building

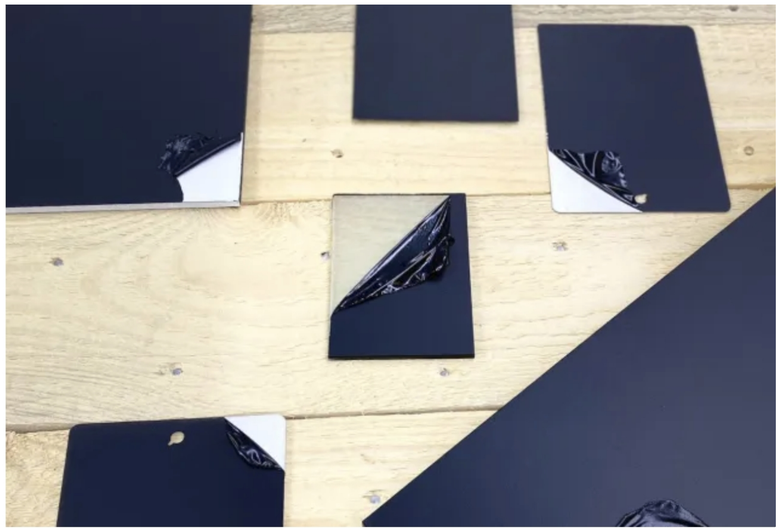
Ongoing - Research

PEELDESIGN | Innovative removable coatings designed for product lifetime extension

Region: Europe & Federal

Financed by

BELGIUM BUILDS BACK CIRCULAR



The PEELDESIGN project marks a significant step forward in the interior design industry with its focus on the development of innovative, removable coatings that have the potential to significantly extend the lifespan of interior products. This initiative aims to reduce the consumption of new raw materials and contributes to a substantial reduction in environmental impact by promoting the reuse and refurbishing of interior products. Through the development and optimisation of these coatings, the project offers the opportunity for interior applications to go through multiple life cycles, not only reducing waste but also providing the opportunity to extend this technology to other sectors.

The innovation is made possible by the expertise and facilities of the Sirris coating lab in Heverlee, which is committed to the formulation, application, and evaluation of the coatings. This commitment is essential for ensuring a high-quality solution and highlights the importance of knowledge transfer and skill in achieving the project objectives.

Timing

Jan 2024 - Jun 2026

Our experts

Patrick Cosemans

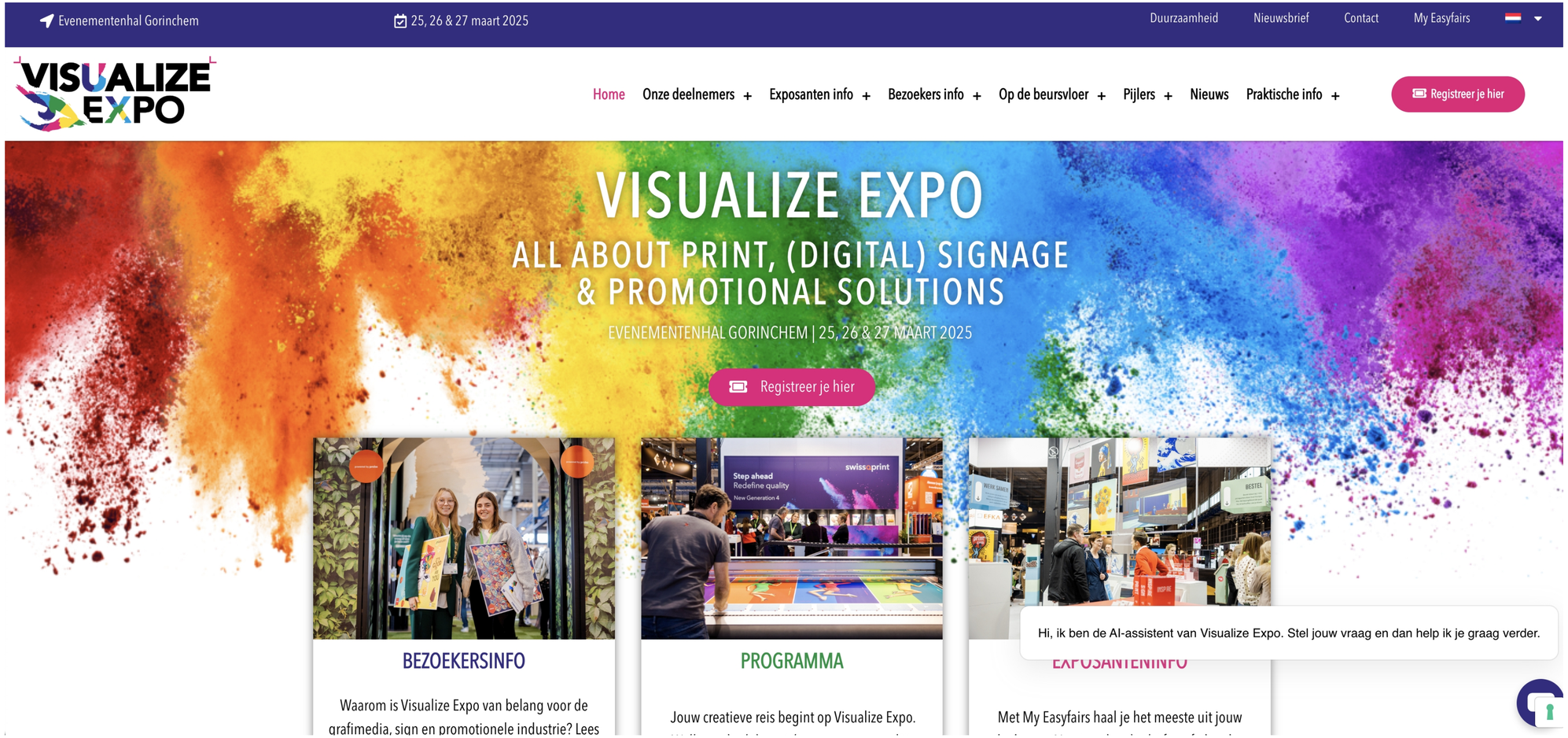
Contact

Sirris

Dissiminatie

Dissiminatie

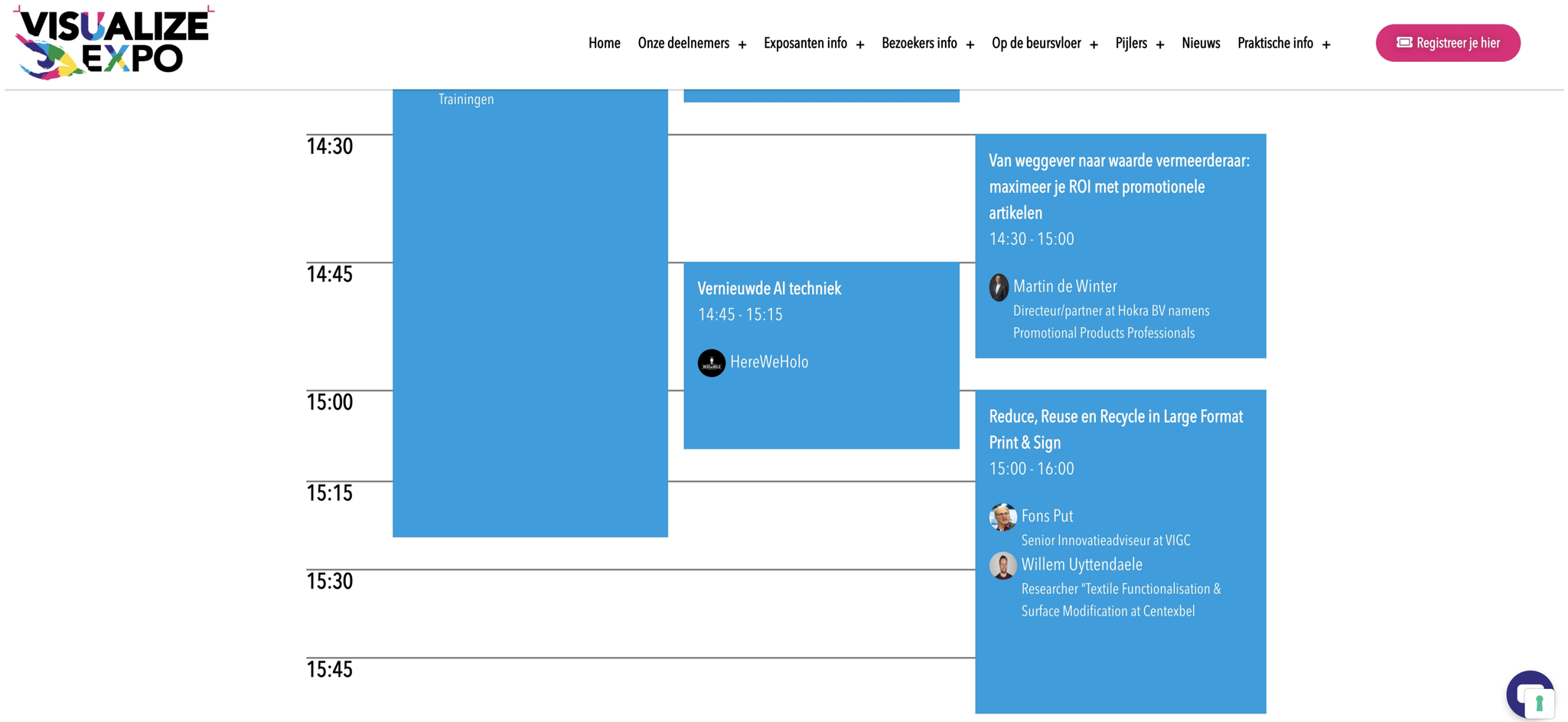
Presentatie



Visualize EXPO

Dissiminatie

Presentatie



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