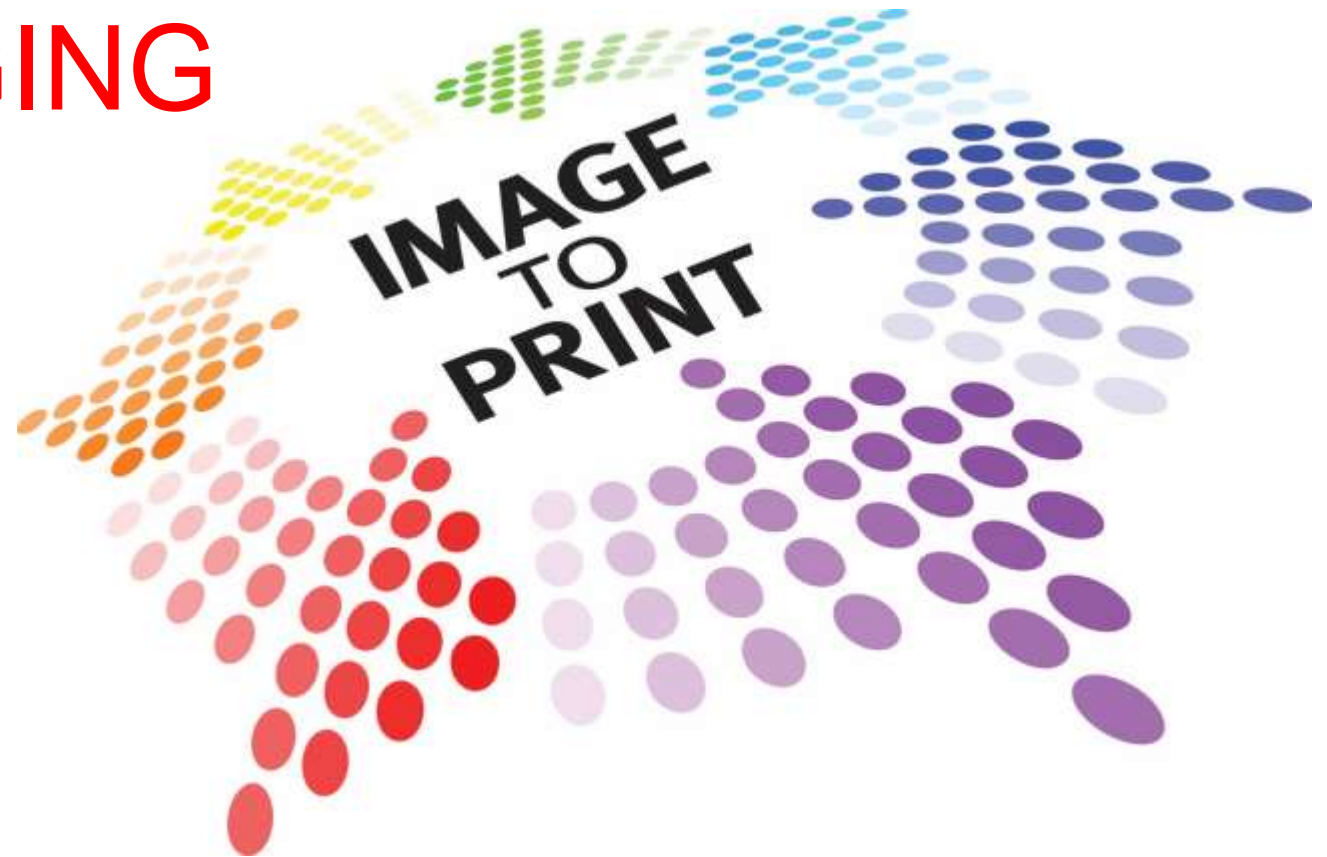


PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

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Istanbul, Turkey



PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

HOSTED BY:

Janoschka



PRINTING TECHNOLOGY & INNOVATION
DAYS FOR FLEXIBLE PACKAGING

FROM IMAGE TO IMAGINATION –
LATEST INK DEVELOPMENTS
FOR HD FLEXO PRINTING

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Regional Director Technology Flexible
Packaging, Siegwerk



From image to imagination – latest ink developments for HD flexo printing

Standard
Flexo



HD
Flexo



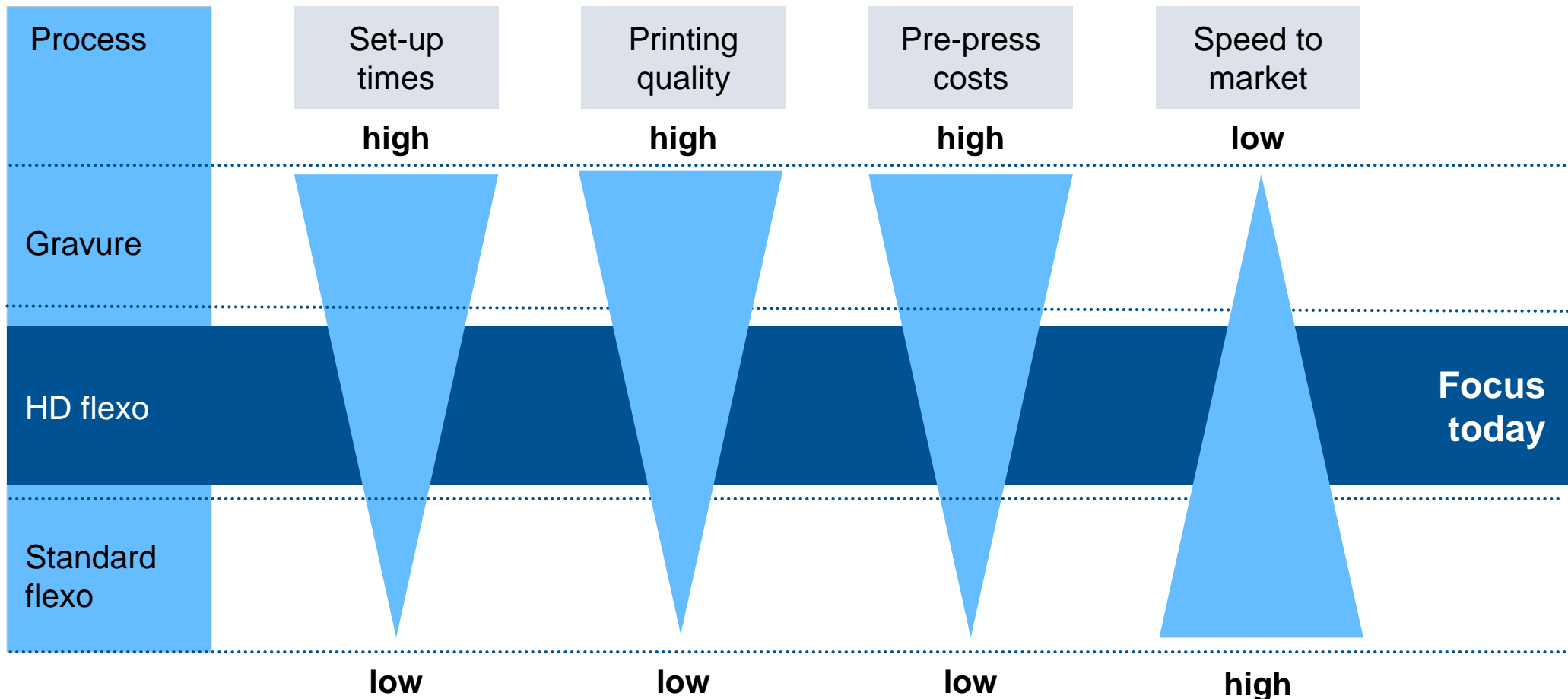
Agenda

- HD flexo printing – what is it about?
- Changing requirements for printing inks
- Siegwerk's latest developments for flexo printing

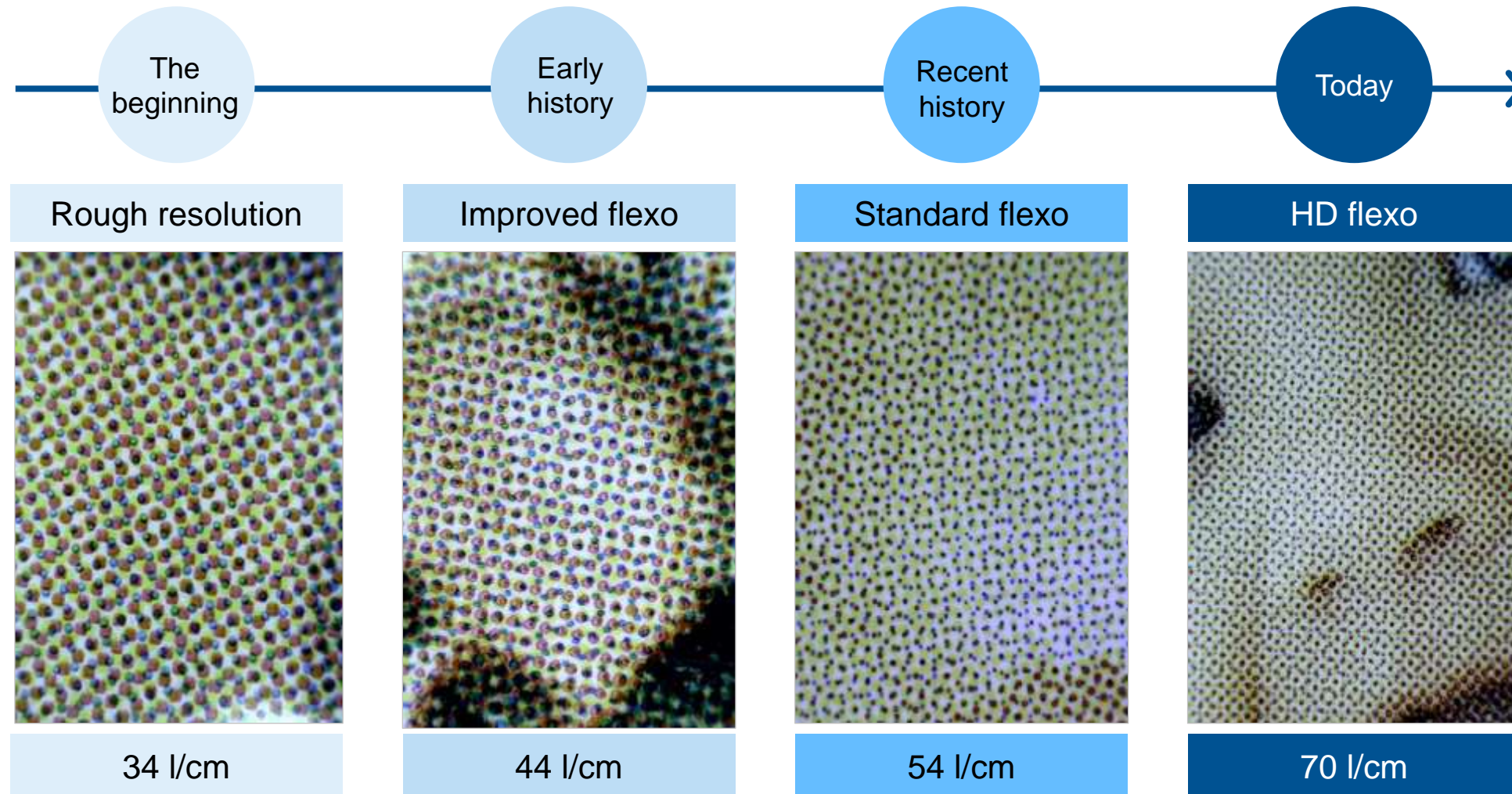


Why is the flexible packaging market looking for modern HD flexo printing technology?

Comparison of printing technologies



Over the last decades flexo printing evolved in quality SIEGWERK



Today, HD flexo printing can reach qualities equal or similar as gravure technology



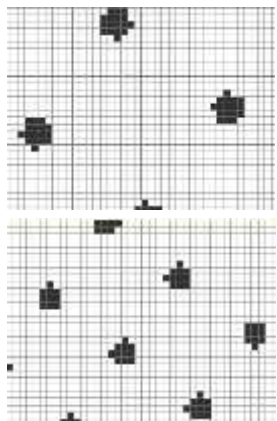
HD flexo printing requires the printer to balance several machine, material and process elements

When going high-definition flexo printing ...

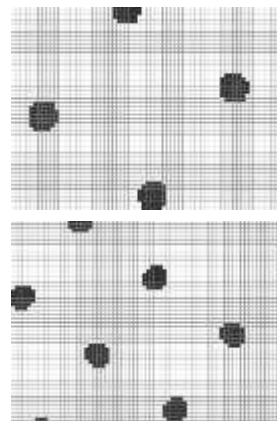
Common technical description:

- Line screen of 320 to 600 l/cm in anilox roller
- High resolutions up to 4000 dpi on printing plate
- Plate technology either round-top or flat-top dot
- Micro-celling in solid areas

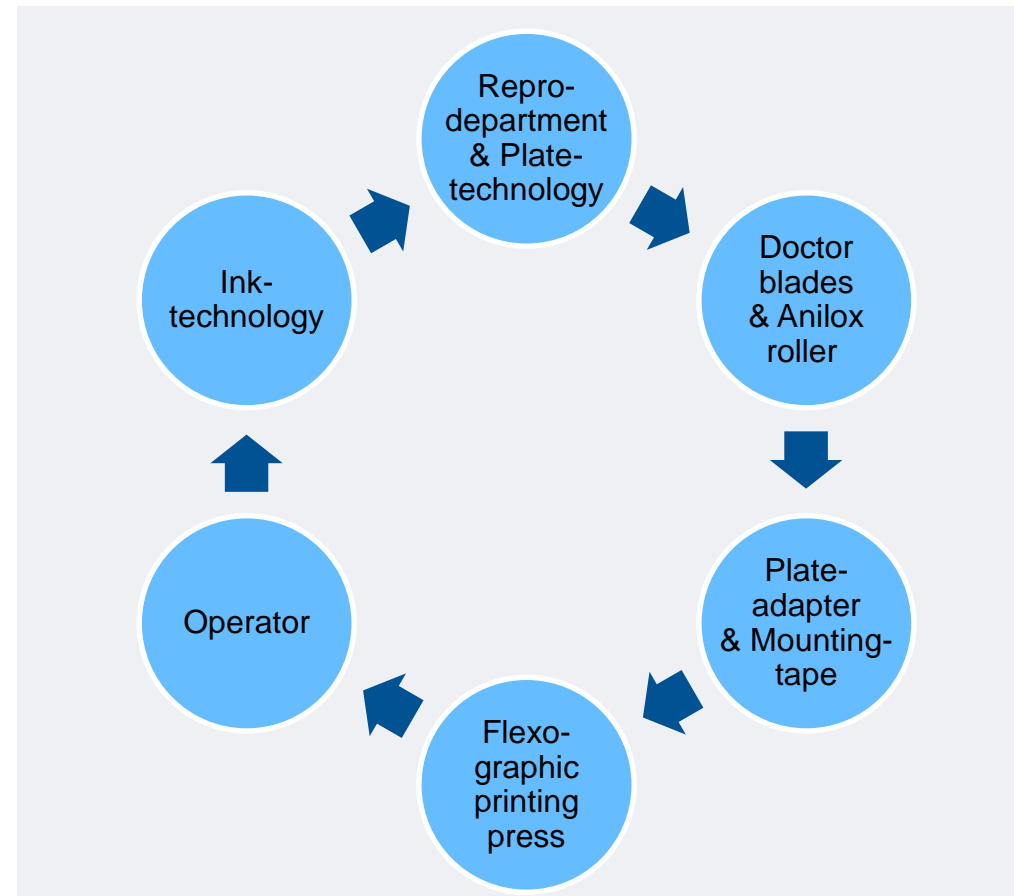
2540 dpi



4000 dpi



... many different set-up factors need to be well controlled



Agenda

- HD flexo printing – what is it about?
- **Changing requirements for printing inks**
- Siegwerk's latest developments for flexo printing



The new HD flexo process changes expectations on appropriate printing inks



What drives ink adoption for HD flexo printing?

- Plate dots become very small in HD flexo
- Therefore, significantly smaller anilox cells required
- Leading to very small ink volume per cell ($< 3 \text{ ccm/m}^2$)
- Resulting in thinner ink film on substrates
- Still, equally high printing speed demanded







Ink formula needs change to achieve

- Higher color strength
- Adjusted rheology
- Sufficient rub resistance
- Slower drying speed



Low ink transfer impacts color strength and rub resistance

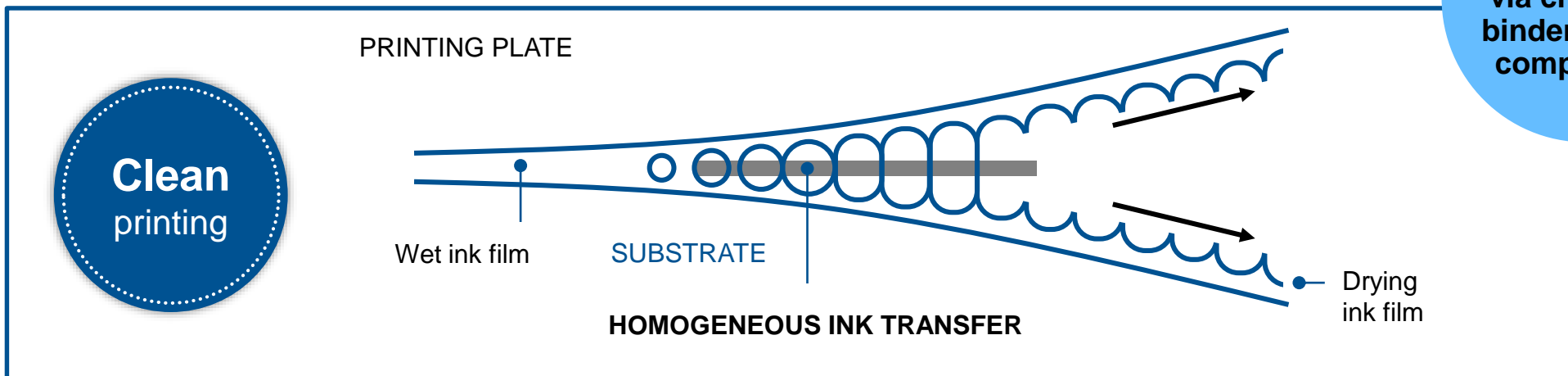
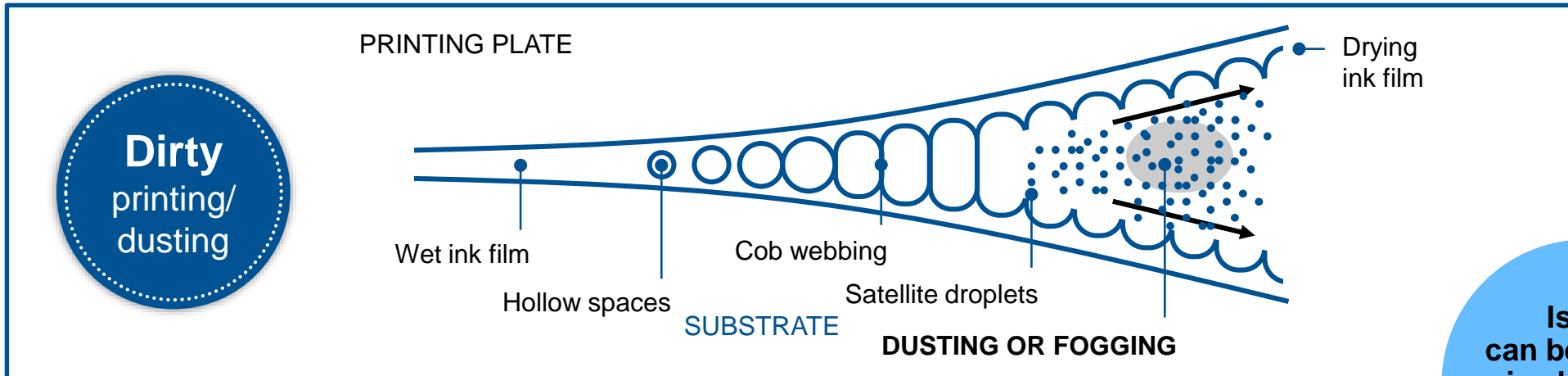
Printing results by ink volume transfer

Dry ink film on substrate [g/m ²]	1.2	0.9	0.7	0.5	0.3	1.2
Printed Example						
Process	Rough/ solid colors		Standard flexo		HD flexo	Gravure (to compare)



As ink formulations have to be adjusted, ink splitting at elevated speed needs to be controlled

Ink split mechanisms



Issue can be solved via change in binder/solvent composition



Agenda

- HD flexo printing – what is it about?
- Changing requirements for printing inks
- **Siegwerk's latest developments for flexo printing**



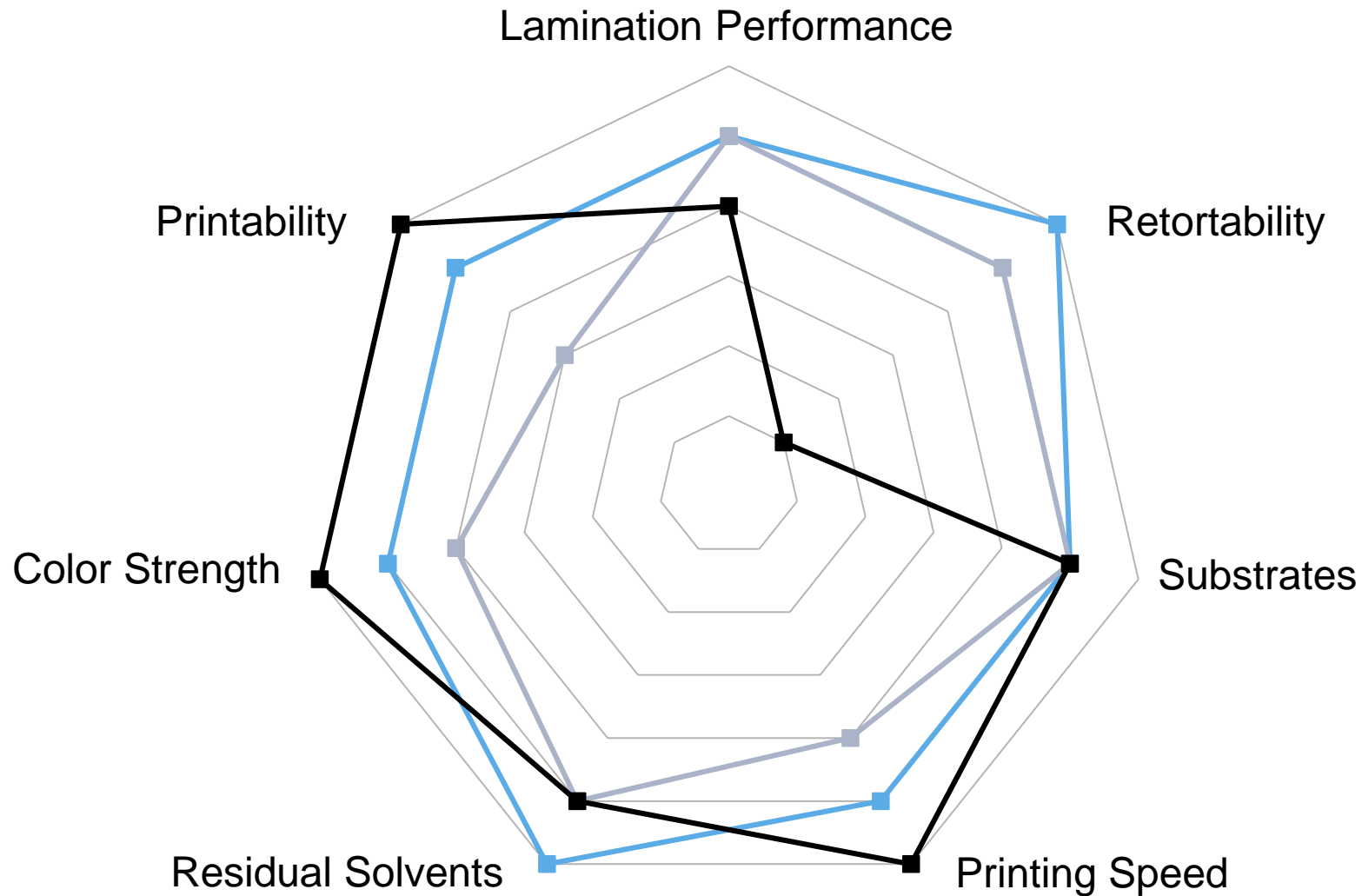
Siegwerk offering high performance solutions for HD flexo printing



- ✓ Siegwerk HD flexo solutions with
 - High color strength
 - Good half-tone printability
 - Excellent drying speed
 - Clean printing performance
 - Low dot gain
- ✓ Broad range of fit-for-purpose solutions available
- ✓ Dedicated product toolbox developed for HD flexo printing



Siegwerk recommends flexo inks based on your individual application requirements



- PU (Standard/HD)
- PVB (Standard)
- NC (Standard/HD)

HD FLEXO
EXAMPLES ON
FOLLOWING
PAGES



New SW flexo NC technology shows superior HD printing performance (70 l/cm)

today's SW technology

new SW technology



HD
Flexo

- Low color strength
- Dry in effect causes various printing errors
- High viscosity and thixotropy cause handling issues

- Improved color strength (+ 20 % vs. current system)
- Superior printing result in HD flexo
- Significantly improved rheology
- Significantly reduced process times



New SW flexo NC lamination inks have less tack and provide better fine tone print quality

Old version



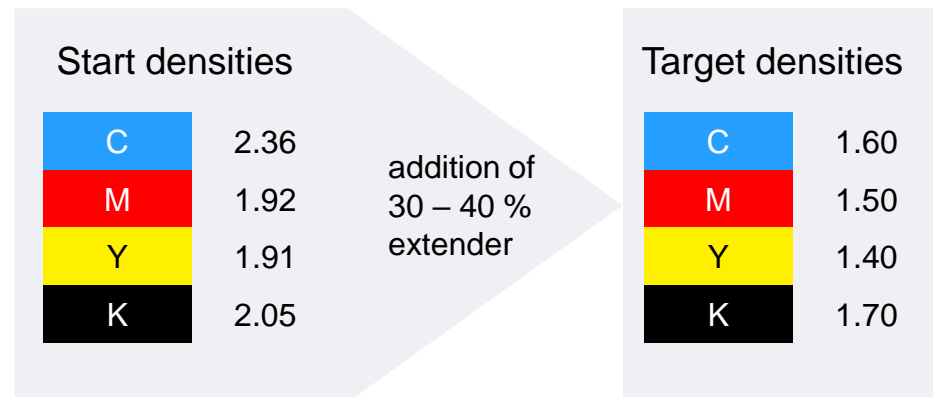
New version



High color density level of new SW flexo inks allows extender addition up to 40 % to achieve target densities



Exp: Color density level new NC/PU lam inks



High amount of extender can be added to new NC/PU lamination inks (up to 40 %) to achieve reference color densities

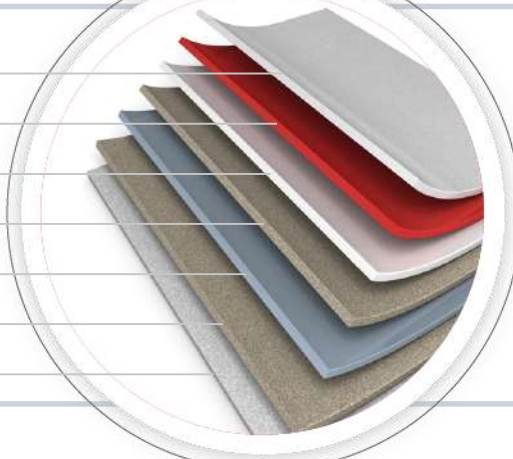

Print setup

System:	new NC flexo lamination
Substrate:	corona PET
White:	full PU
Printing speed:	320 m/min
Print viscosity:	19 "/4 mm
Dilution:	ethanol
Laminate structures:	cPET//PE (SF) cPET//Al/PE (SB)
Resolution (cliche):	70 l/cm flat dot plate
(anilox):	460 l/cm / 3.7 cm ³
Printing machine:	W&H Miraflex CL



Solution example: Stand-up pouch with full PUR HD flexo inks

Packaging Structure

PET-AIOx		
Color ink		
White ink		
Adhesive		
OPA		
Adhesive		
CPP		

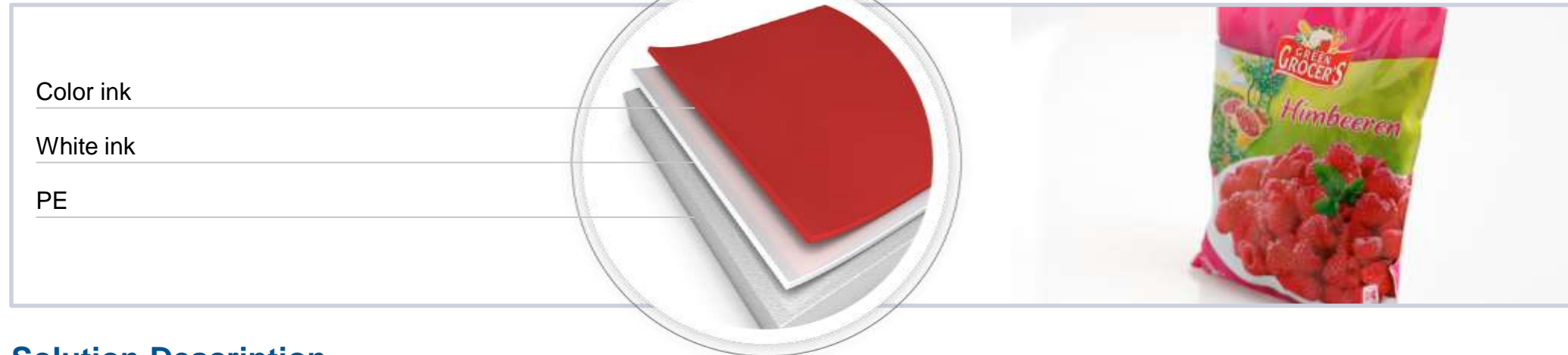
Solution Description

Application	<p>Filling goods</p> <p>Key functionality</p>	<ul style="list-style-type: none"> ▪ Soups, ready meals, snacks, etc. ▪ Achieve lamination bond strengths and high resistance to retort conditions
Siegwerk solution	<p>Color ink</p> <p>White ink</p>	<ul style="list-style-type: none"> ▪ PU ▪ PU
Printing	<p>Process</p> <p>Type</p>	<ul style="list-style-type: none"> ▪ Flexographic ▪ Reverse print



Solution example: Surface printed frozen food bag

Packaging Structure



Solution Description

Application	<p>Filling goods</p> <p>Key functionality</p>	<ul style="list-style-type: none"> ▪ Vegetables, fruits, fish, convenience food, etc. ▪ Achieve high crinkle resistance under wet and frozen conditions
Siegwerk solution	<p>Color ink</p> <p>White ink</p>	<ul style="list-style-type: none"> ▪ NC ▪ NC
Printing	<p>Process</p> <p>Type</p>	<ul style="list-style-type: none"> ▪ Flexographic ▪ Surface print



Why work with Siegwerk in HD flexo printing?



EXPERTISE

Long-lasting experience in flexo printing for packaging and dedicated expert teams



SOLUTIONS

Broad range of performance solutions for your applications



INK TECHNOLOGY

Market-proven solutions and products for many years



MARKET PARTNERSHIPS

Excellent collaboration with market partners: machines, plates, anilox, etc.



PRODUCT SAFETY

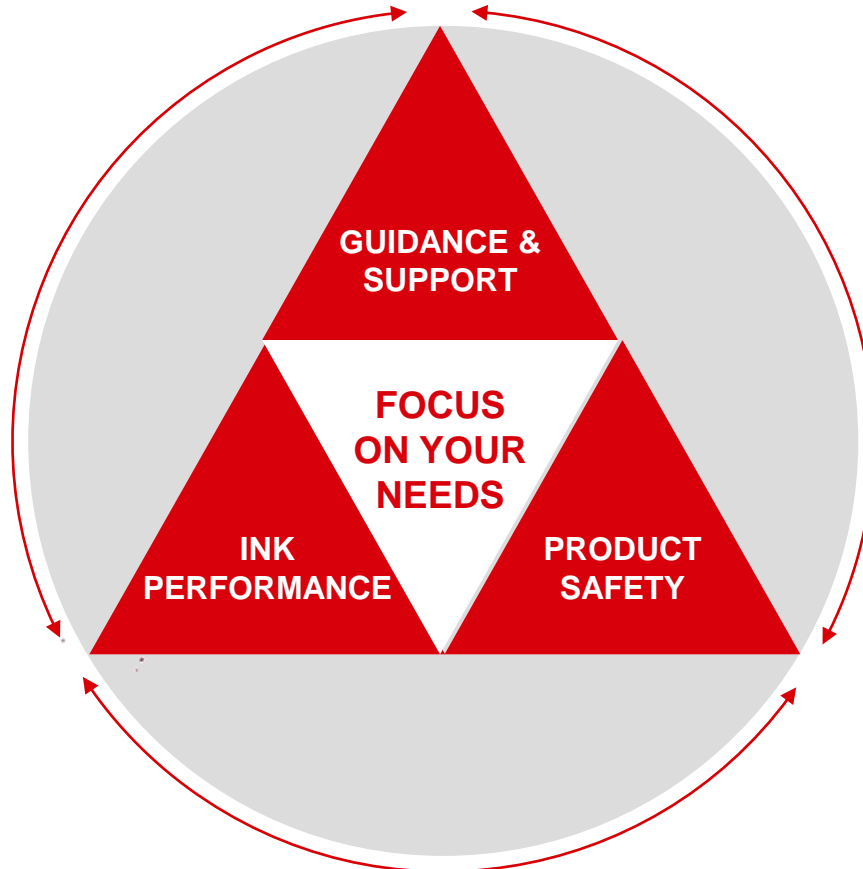
Outstanding solution in all ink technologies for flexo printing: SB, WB, and UV



We guide you to efficient & safe performance



INK, HEART & SOUL



THANK YOU FOR YOUR ATTENTION.

janoschka

