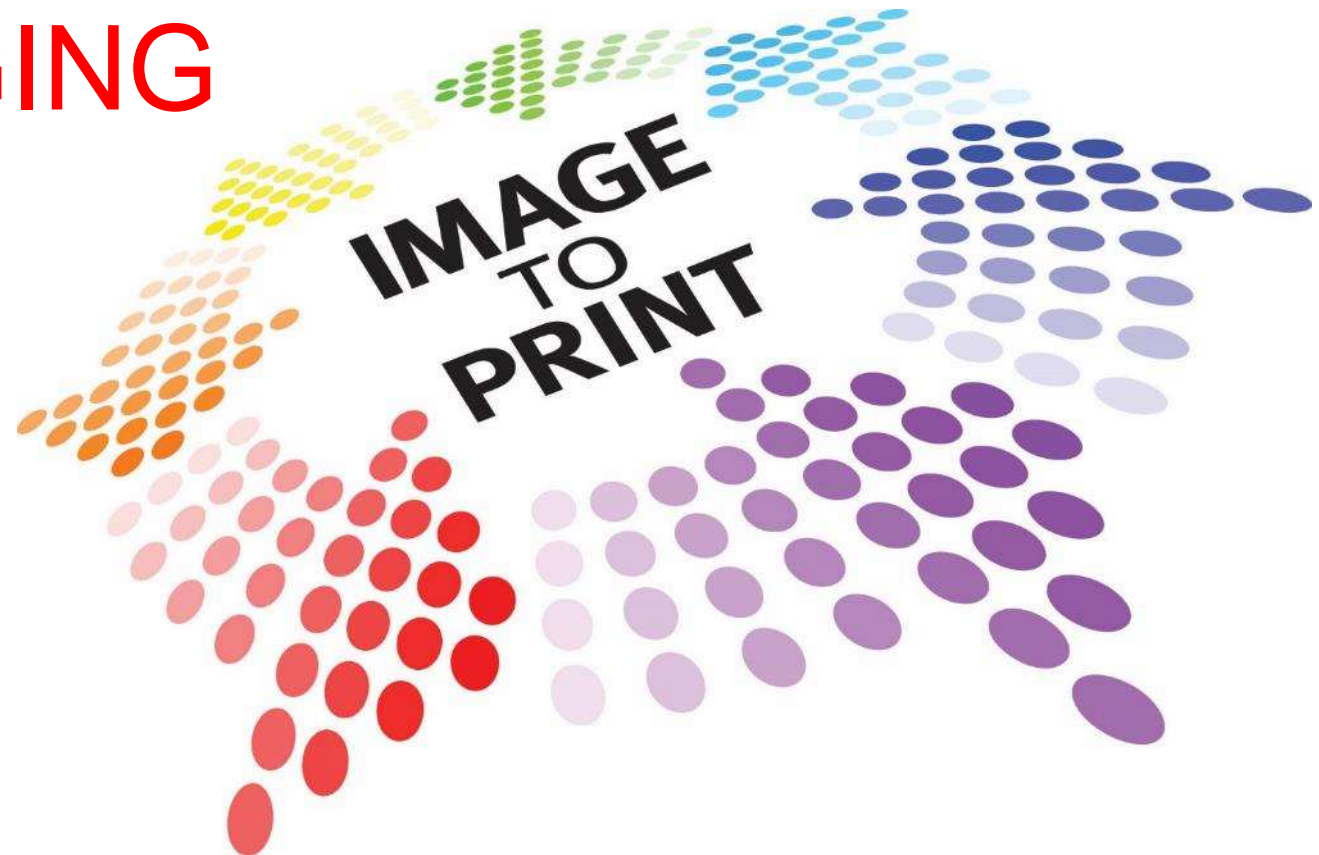


PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

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Jakarta, Indonesia



PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

HOSTED BY:

janoschka



PRINTING TECHNOLOGY & INNOVATION

DAYS FOR FLEXIBLE PACKAGING

High Quality Flexo Printing and Expanded Color Gamut

Thomas Haas

Head of Asia Support, Flexible Packaging,
Siegwerk



Agenda

- HD flexo printing – what is it about?
- Changing requirements for printing inks
- Siegwerk's latest developments for flexo printing
- Expanded Color Gamut (ECG) – Advantages and Requirements



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

Standard
Flexo

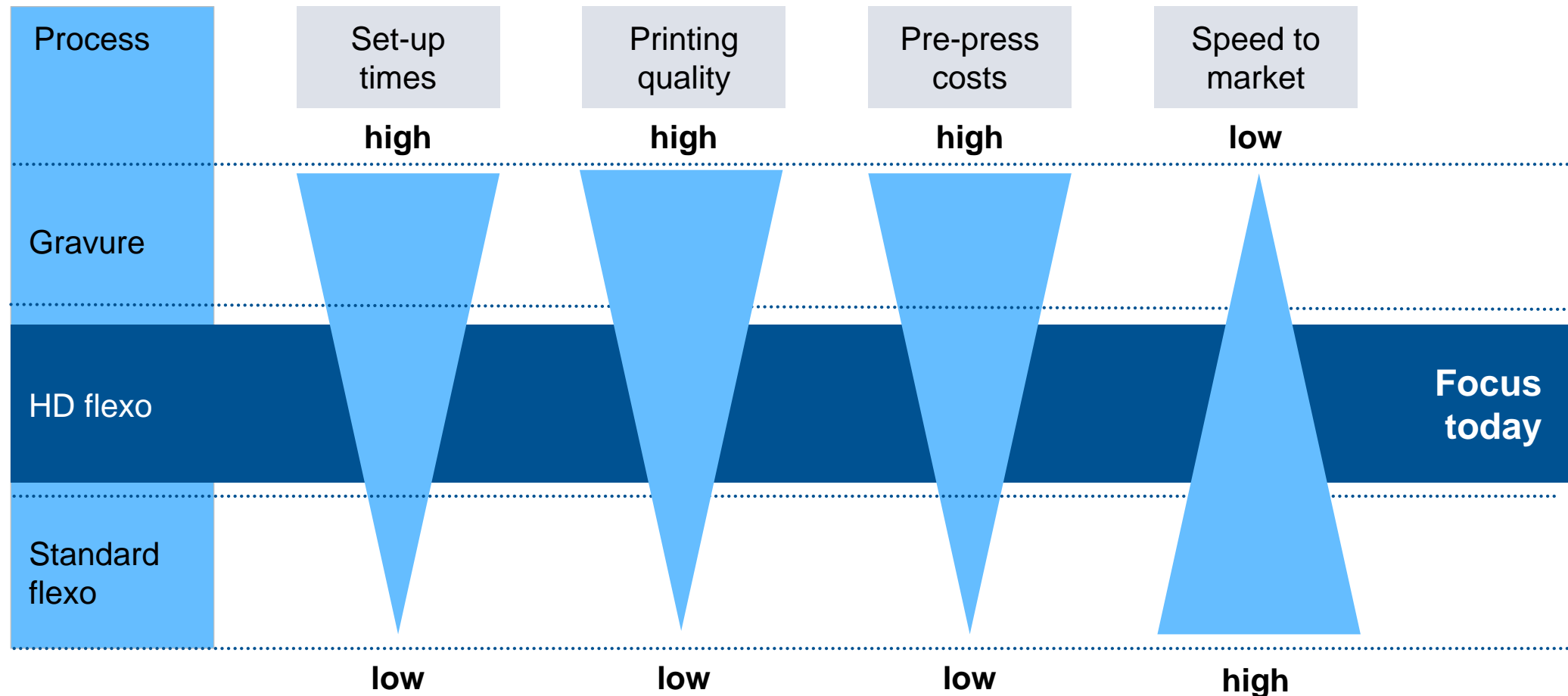


HD
Flexo

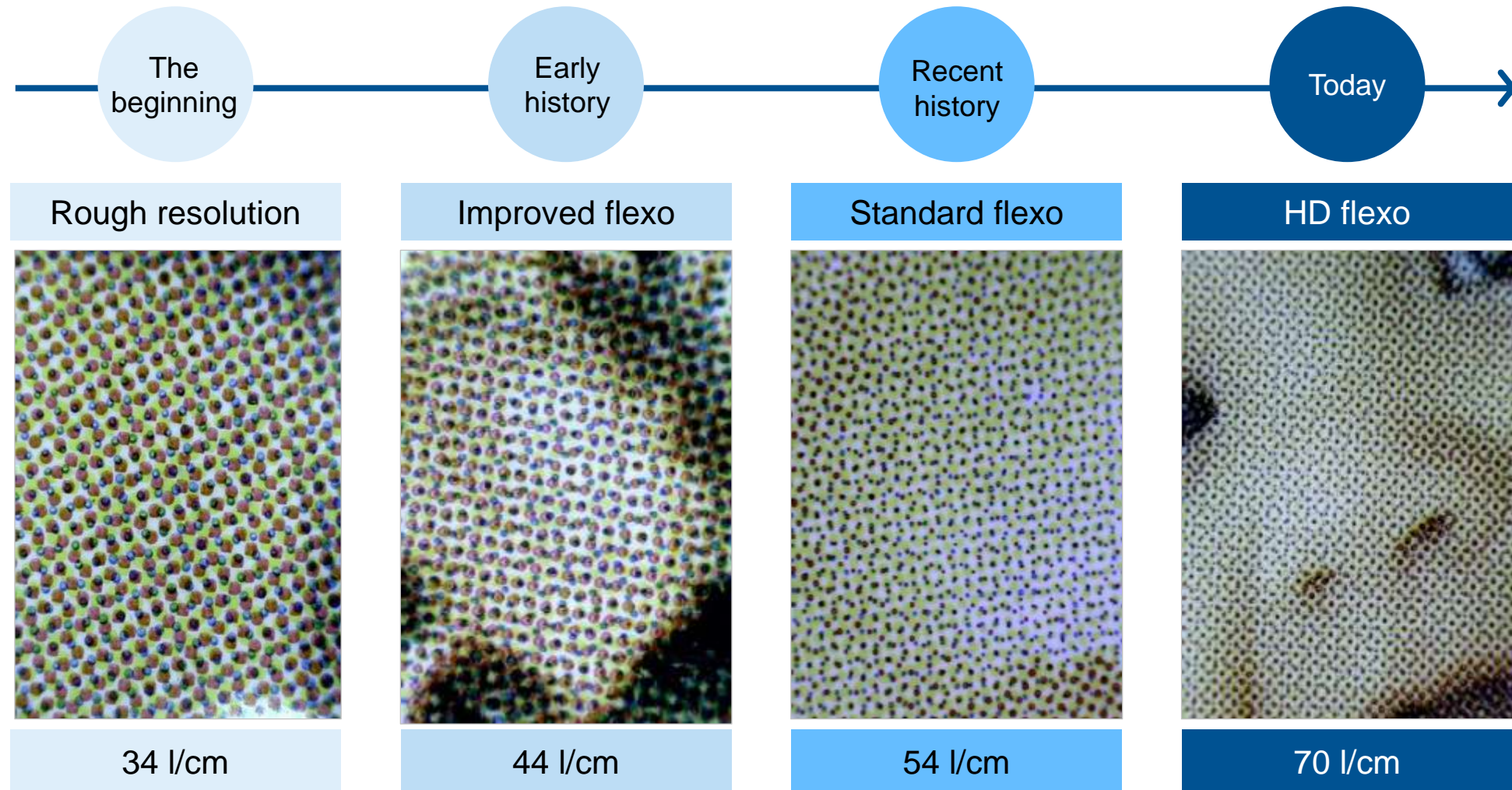


Why is the flexible packaging market looking for modern HD flexo printing technology?

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



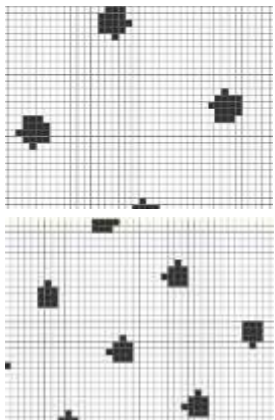
HD flexo printing requires the printer to balance several machine, material and process elements

When going high-definition flexo printing ...

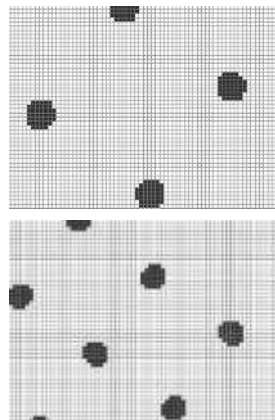
Common technical description:

- 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

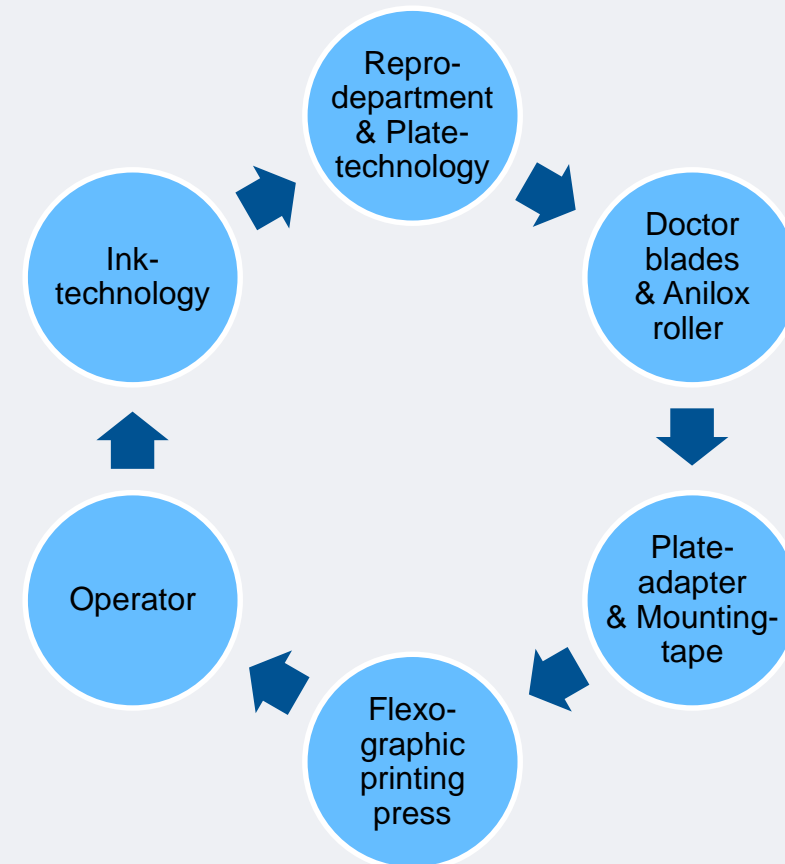
2540 dpi



4000 dpi



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



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- Expanded Color Gamut (ECG) – Advantages and Requirements



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



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Siegwerk offering high performance solutions for HD flexo printing



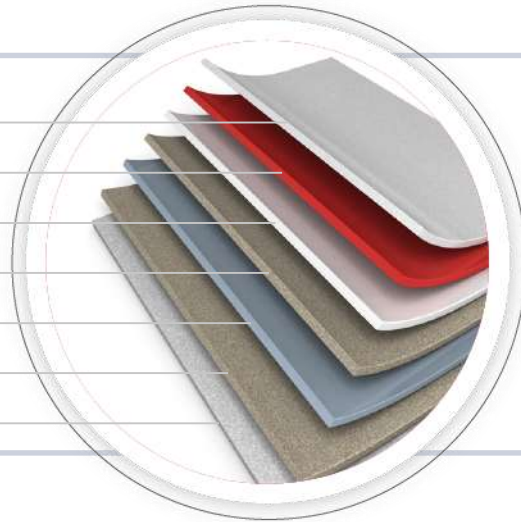
- ✓ Siegwerk HD flexo solutions with
 - High color strength
 - Good half-tone printability
 - Excellent drying speed
 - Clean printing performance
 - Low dot gain
- ✓ Broad range of fit-for-purpose solutions available for different applications
- ✓ Dedicated product toolbox developed for HD flexo printing



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

Filling goods
Key functionality

- Soups, ready meals, snacks, etc.
- Achieve lamination bond strengths and high resistance to retort conditions

Siegwerk solution

Color ink
White ink

- PU
- PU

Printing

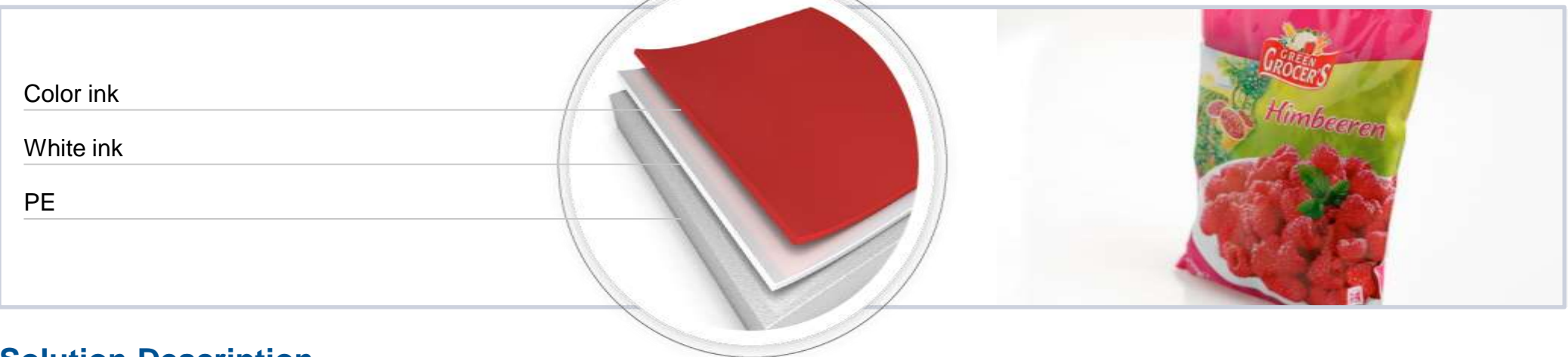
Process
Type

- Flexographic
- Reverse print



Solution example: Surface printed frozen food bag

Packaging Structure



Solution Description

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



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- **Expanded Color Gamut (ECG) – Advantages and Requirements**



ECG offers efficiency gains, using fixed color shade sets

Using fixed color shade sets of 5,6 or 7 inks instead of process inks + spot colors offers

- Reduced wash-ups & less set-up time
- Reduced material waste
- Less inventory of spot color inks
- Press capacity gains
- Enhanced gaphic images (CMYK gamut = 54% of color space
→ CMYKOGV gamut = 89% of color space



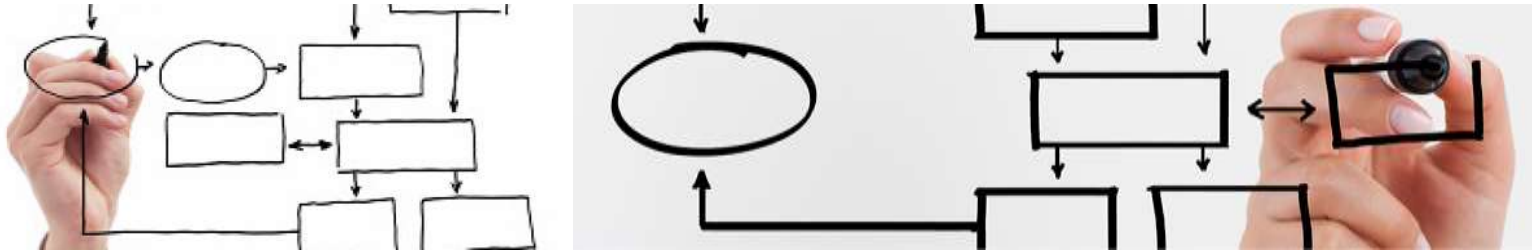
CMYK



CMYK + O'G'V'



ECG requires suitable job profile and high level standardisation



- Comprehensive implementation, testing and validation required
- Tighter process control is required:
 - Press
 - Anilox roller
 - Plate
 - Ink
 - Environment (air condition)
- Highest efficiency only with fully loaded press of
 - one specific print structure and/or
 - one type of jobs of brand



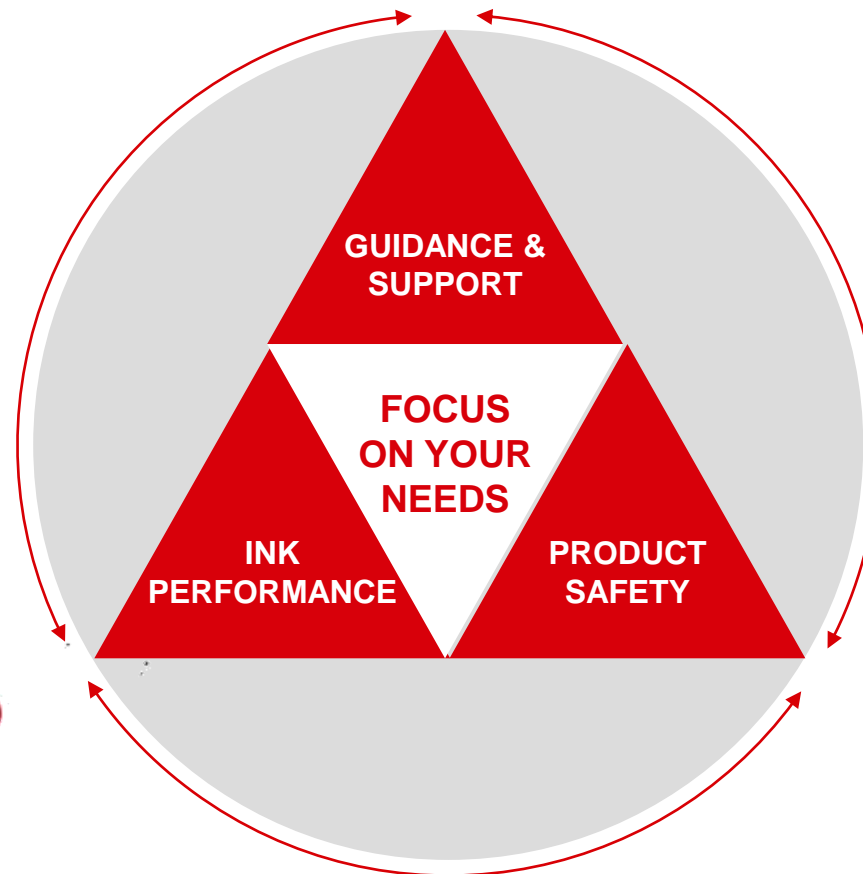
ECG: what needs to be further considered?

- Higher ink coverage depending on color shade and repro
- Limitations for fine text printing and metallic
- Currently no international standard for ECG (work in progress)



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INK, HEART & SOUL



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