

# PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

3/4 July 2019  
İstanbul, Turkey



# PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

HOSTED BY:

**Janoschka**



PRINTING TECHNOLOGY & INNOVATION  
DAYS FOR FLEXIBLE PACKAGING

# HOW TO SUPPORT PERFORMANCE OF LAMINATES WITH TAILOR-MADE INK SOLUTIONS

Nilgün Örnek

Head of Technology, Siegwerk

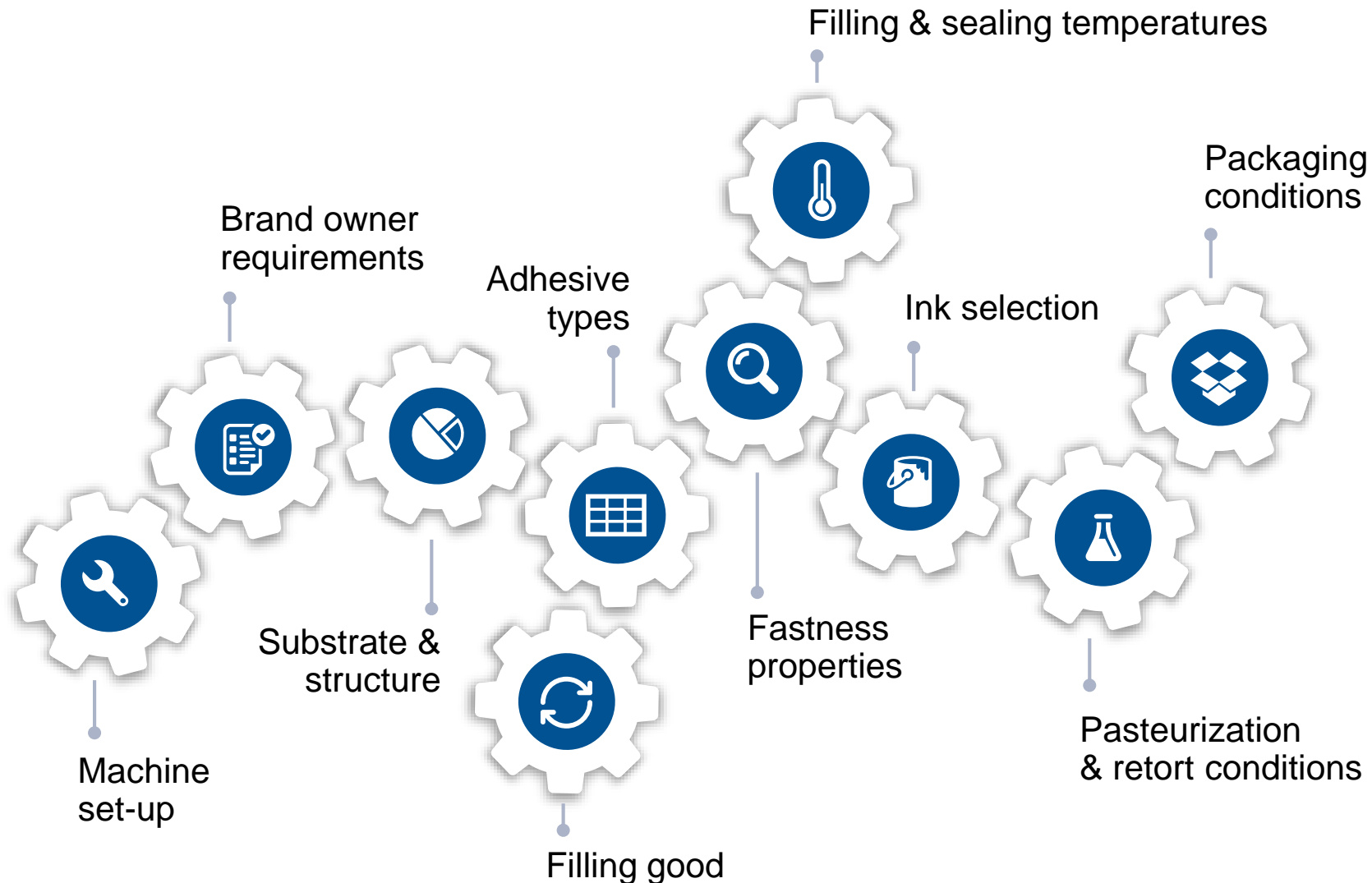


# Agenda

- Introduction to lamination inks
- Solution examples from the market
- Good collaboration leads to higher performance



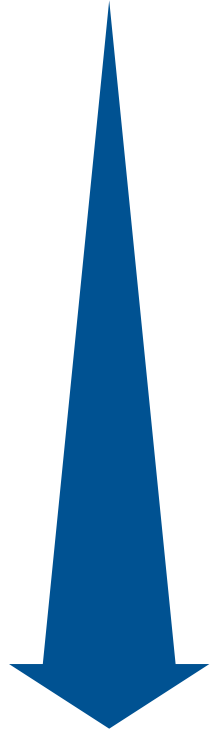
# To yield great performance in laminate structures requires reflection of many different conditions and aspects








# In order to serve customers with fit-for-purpose solutions, Siegwerk developed a broad lamination ink portfolio



Increasing performance





Requirements	Ink binder system	Adhesive type	Application example
Heat sealing	NC	SF	
Good BSVs and flexibility	NC-PUR	SF	
Higher BSVs and lower quality substrate	PVB	SF/SB	
Pasteurization (~ 90°C) and sterilization (> 120°C)	PVC	(SF)/SB	
PVC-free and suitable for barrier plus	PUR	SB	

Today, most common lamination ink systems are NC/PUR, PVC, and PUR



# Technology selection for lamination ink relies on the intrinsic strengths and limits of the specific binder system

Ink System	NC/PUR ink systems	PVC ink systems	PUR ink systems
Typical substrate scope	<ul style="list-style-type: none"><li>▪ OPP</li><li>▪ PE</li><li>▪ PET</li><li>▪ Paper</li></ul>	<ul style="list-style-type: none"><li>▪ PET (plain, chem.,cor.)</li></ul>	<ul style="list-style-type: none"><li>▪ PET(cor., barr.,chem.)</li><li>▪ OPP</li><li>▪ PE</li></ul>
Strengths 	<ul style="list-style-type: none"><li>▪ Heat-seal resistance</li><li>▪ Deep-freeze resistance</li><li>▪ Printability</li><li>▪ Fit-for-purpose, economical</li><li>▪ MB system possible</li></ul>	<ul style="list-style-type: none"><li>▪ High flexibility</li><li>▪ Excellent fast-run properties</li><li>▪ Hot-filling, pasteurization and retort-stable</li><li>▪ Highest performance BSVs</li></ul>	<ul style="list-style-type: none"><li>▪ PVC-free</li><li>▪ Best-in-class flexibility</li><li>▪ Excellent BSVs</li><li>▪ Hot-filling, pasteurization and retort-stable</li><li>▪ MB system possible</li></ul>
Limits 	<ul style="list-style-type: none"><li>▪ Limited adhesion on certain substrates</li><li>▪ Limitli laminasyon kuvveti</li><li>▪ Certain smearing tendency</li></ul>	<ul style="list-style-type: none"><li>▪ Adhesion on olefinic films</li><li>▪ Not suitable for flexo printing</li><li>▪ Increasing requests from brand owner to become PVC free</li></ul>	<ul style="list-style-type: none"><li>▪ Soft grinding binder</li><li>▪ Batch production leads to higher costs vs. PVC</li></ul>



# Agenda

- Introduction to lamination inks
- **Solution examples from the market**
- Good collaboration leads to higher performance

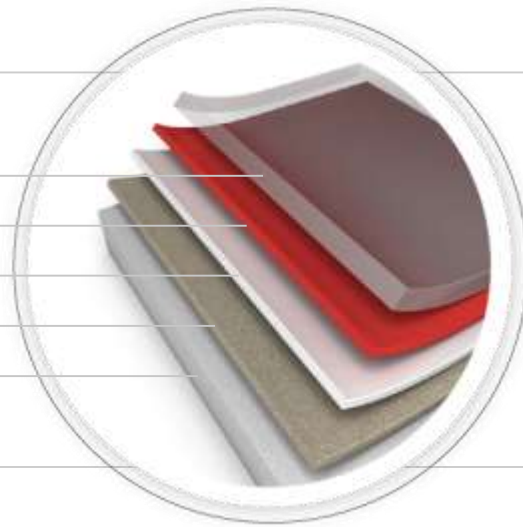




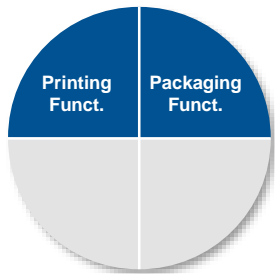
# PET/PE lamination for dry pet food

## Packaging Structure

PET  
Color ink – NC/PU  
White ink – PU  
Adhesive  
PE

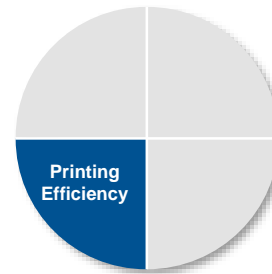


## Solution Benefits



### Printing & Packaging Functionality

- + Strong color intensity for great print results
- + Excellent flexographic printability to achieve close to gravure quality
- + Sufficient lamination bond strengths



### Printing Efficiency

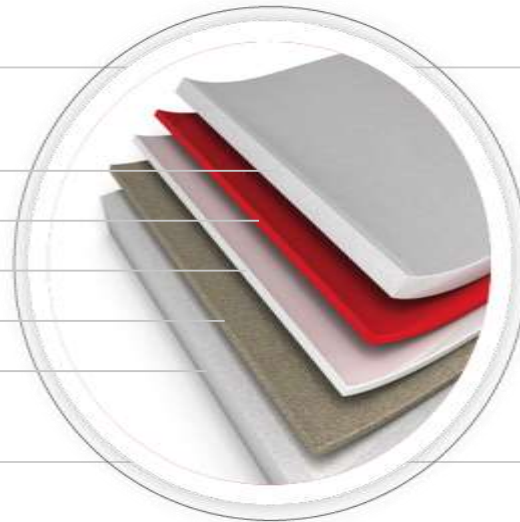
- + High speed print performance (600m/min) due to special ink formulation
- + Savings in production time and costs



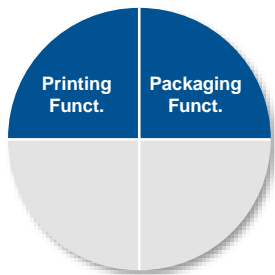
# PET/PE laminate for wet wipe packaging

## Packaging Structure

PET  
Color ink – PV  
White ink – PV  
Adhesive  
LD-PE



## Solution Benefits



### Printing & Packaging Functionality

- + High chemical resistance of ink against ingredients
- + Maintenance of high bond strengths in direct contact with detergents and fragrances
- + Support for durable easy-open & easy-close mechanisms
- + Excellent color stability upon migration of chemicals into laminate
- + Superior print results (e.g., brilliance, color strengths)
- + Very low solvent retention levels



### Printing Efficiency

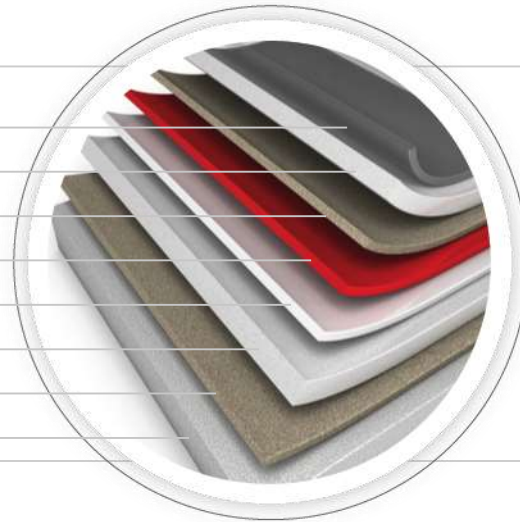
- + Excellent heat sealing stability at high temperatures



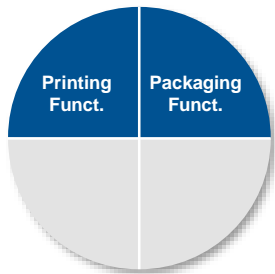
# Retortable stand-up pouch

## Packaging Structure

Overprint varnish  
Barrier PET  
Color ink - PU  
White ink – PU  
Adhesive  
Nylon  
Adhesive  
CPP



## Solution Benefits



### Printing & Packaging Functionality

- + Very good heat sealing resistance to allow high bond strengths in extreme retort conditions
- + Excellent retort and hot filling stability (sterilization up to 139°C/282° F in steam or 50 min at 127°C/261° F in water)
- + Highly durable matt effect with strong abrasion resistance
- + Very low solvent retention levels



# Agenda

- Introduction to lamination inks
- Solution examples from the market
- **Good collaboration leads to higher performance**



# Joint forces and close collaboration is crucial to achieve best performance at costs

Combination of your needs with Siegwerk experience

## What we need to understand

- Detailed information on printing, lamination and further converting (e.g., heat-seal or retort conditions)
- Deep understanding on structure and application requirements (e.g., filling good)
- Insight into brand owner requirements (e.g., shelf-life, PSR policy)

## What Siegwerk can offer

- Extensive knowledge on laminate structures and corresponding application requirements
- Broad portfolio of robust and innovative lamination inks
- Ca. 300 flexible packaging ink technicians developing new solutions
- PSR know-how for sensitive packaging market

Together  
great results  
are achieved  
further



# Pitfalls and risks can be avoided when extensive information is shared in a partnership

## Case examples

### Choice of pigments



Before retort

After retort

- Bleeding effects obscured
- Packaging structure qualified for non-retort application
- Pigment selection not retort suitable due to lack of information

### Ink smearing at solvent-free lamination



- Certain combination of inks and adhesives are prone to show ink smearing
- Knowledge about critical combinations
- Possibility to evaluate combinations with dedicated test equipment





# Why work with Siegwerk in lamination inks?



## DEVELOPMENT CAPABILITIES

Our pilot lamination to test ink developments under industrial conditions



## SOLUTIONS

Broad range of performance solutions and outstanding application know-how



## ONE-STOP-SHOP

Siegwerk offers all binder solutions for laminates in SB (NC, NC/PU, PUB, PV, PU, etc.) as well as WB, UV, and EB technology



## MARKET PARTNERSHIPS

Dedicated lamination expert building know-how bridge to all leading adhesive suppliers



## SW-LAMINATION-DATABASE

Siegwerk carries a database with numerous combinations of different ink-adhesive combinations



THANK YOU

**janoschka**



**SIEGWERK**



**ROSSINI**



**WINDMÖLLER & HÖLSCHER**

