HD FLEXOPRINT: THE NEXT NC-INK GENERATION

The next step to an even better ink performance has been taken with our newly developed NC-based concentrate system.

In HD flexoprint terms, this innovation achieves a substantial increase in color density and intensity compared with proven flexoprinting inks. Other benefits include excellent rheological properties, significantly improved print results and substantially higher efficiency.

The ink achieves optimum print results in terms of color intensity and subtle shading even at low pick-up volumes (< 3cm³/m²). Added to that – despite much thinner ink thicknesses on substrates – the new technology is distinguished by a low drying requirement and high color intensity.

Technical challenges

Just recently Siegwerk puts high-quality flexoprint on the interactive workshop agenda as part of its INKday experts’ forum in Siegburg, Germany. Customers and ink experts shared experiences and gained new inspiration during the INKtalks. What technical challenges are there? How can we meet them in order to fulfill higher standards in HD flexoprinting as well?

Markus Jansen, Department Manager Application Technology Flexible Packaging EMEA, described two actual cases. “Color intensity is a critical parameter because of low coating weight. If a standard ink is used for ‘High Definition’ flexoprint, this delivers lower, unsatisfactory color intensity. The consequence is that new master batches are required. This innovation’s excellent properties mean its actual strength lies in its HD print performance, despite thin ink films,” said Jansen.

The new NC-ink generation for HD flexoprint applications has already been tested many times on state-of-the-art presses at commercial partners. Siegwerk is expected to unveil its innovation to customers and to conduct trials in the fall.

THE NEW INK GENERATION

- Enhanced color intensity (+ 20 % compared to current system)
- Significantly improved printing results
- Excellent rheological properties
- Substantially higher productivity and efficiency

TECHNOLOGIES COMPARED

Current technology

New technology

Did we arise your interest? Get in touch!
TACTILE EFFECT LACQUERS

Relief, paper-touch, soft-, silk- and rubber-touch lacquers – they all feature functions that deliver product differentiation and customer loyalty. Brand owners especially are looking for this tactile appeal, which aims at promoting positive emotions about product content. That’s because the more the consumer believes the packaging has a premium-quality feel to it, and they associate a positive feeling with that, the likelier the consumer is to buy the product. Tactile effects can therefore effectively reinforce the impact of each brand promise as well as the perceived quality of the promoted product.

1. RELIEF LACQUERS

**IMPACT:**
- Provide tactile experience
- Raised coatings display high gloss levels

**TECHNICAL BACKGROUND:**
- Acts as a UV-curing, raised-coating lacquer to produce surface textures
- Applies defined textures
- Feasible in combination with high-gloss lacquer to achieve as high a degree of print-motif plasticity as possible
- Alternative to conventional blind embossing

**EXAMPLE:**
- 3D-textures on exclusive tobacco and cosmetics packaging
- Not suitable for subtle fonts, bleeds or within groove lines

2. RUBBER-TOUCH LACQUERS

**IMPACT:**
- Rubber-like, slip-resistant feel
- Specific matt effects, “aha experience”, because usually unexpected

**TECHNICAL BACKGROUND:**
- Soft, elastic microtextures on the surface produce this unique feel
- Rubber-touch lacquers are generally slightly opaque
- Print images can be partially refined (details, fonts, screens)

**EXAMPLE:**
- Tobacco packaging and products designed to feature a masculine touch

3. SILK- OR SOFT-TOUCH LACQUERS

**IMPACT:**
- Soft, pleasant feel
- Premium matt effect and silky surface (“silk feel”)

**TECHNICAL BACKGROUND:**
- Silk and velvet can be simulated by very fine particles in the matt lacquer in combination with the coatings on PP and PET films

**EXAMPLE:**
- Packaging for beauty and luxury products

4. PAPER-TOUCH LACQUERS

**IMPACT:**
- Conveys natural, paper-like feel
- Intensive matt effects and rough surface

**TECHNICAL BACKGROUND:**
- Kraft paper, parchment, wood surfaces or sand can be simulated by very coarse texturing agents in the matt lacquer in combination with the coatings on synthetic films
- For surface printing on synthetic packaging

**EXAMPLE:**
- Packaging for “natural foods” like granola, dried fruits, nuts etc.

You can read the continuation of this series in the next issue.
Packaging structures
All structures have one thing in common – smart material combinations achieve excellent barrier properties. This allows for convenient brewing of a large variety of coffees without any loss of aroma. In many cases, sturdy, tightly sealed pods are used that allow consumers to quickly select their desired coffee specialty based on color design.

The pods consist of a ground coffee or mechanically formed base part, which is filled with coffee and then tightly sealed with a flexible cover film. These cover films are multi-layer film materials, where the surface or an intermediate layer can be printed.

In addition to rigid capsules, where colored plastic materials or surface-printed, printed and coated aluminum are used, slightly more flexible, pillow-like pads are also available, made entirely of film laminates as used in the sandwich print.

Variety of requirements
Surface printing or lamination? Printing on aluminum or on plastic film? Which shape is best for deep drawing? How high does temperature resistance have to be? Which ink formulations are ideal for the application? All these requirements must be taken into account with regard to the respective application.

The following applies to all versions – when the hot water is pressed through the perforated pod during the brewing process in the machine, the hot drink may briefly come into contact with the colored or printed pod. Transfer of colorants or unacceptable migration of substances from the capsule material must be preempted at all costs. Dr. Sarah Theisen, Head of Product Safety and Regulation Business FP EMEA Siegwerk, explains: “By providing specific solutions, Siegwerk ensures the standard of product safety required for this sensitive application.”

Dr. Stefan Busse, Director Application Technology, Flexible Packaging EMEA, explains: “Surface printing on capsule substrates requires ink solutions with exceptionally high resistance and fastness properties. This is necessary to meet all packaging material and pod manufacturing requirements. These properties also play an important role for the filling process, including container forming and sealing process, as well as for the suitability of preparing drinks in coffee machines.” Siegwerk offers the right ink solution for each of these single-serve coffee capsules packaging structures. If required, our experts can develop specific solutions together with customers.

Product solutions offer maximum safety
To prevent non-compliant migration of ink/lacquer components, it is essential to select and qualify the entire printing structure and the required raw materials carefully. Siegwerk strongly recommends having legal compliance with applicable food contact material regulations verified by analysis laboratories (e.g. using migration tests).
Siegwerk informs its customers about potentially migratory substances in its inks in a Statement of Composition (SoC). This allows the packaging manufacturer to assess the migration potential of its specific printed packaging structure in advance. Furthermore, Siegwerk supports its customers by disclosing relevant information to the analysis laboratories.

Dr. Busse clarifies: “Siegwerk products intended for manufacturing disposable beverage pods are developed and produced in compliance with the ‘GMP Printing Inks for Food Contact Materials’ code issued by the EuPIA (European Printing Ink Association). That means that we conduct specific product tests, including chromatographic and spectroscopic trace analysis, to monitor and ensure quality and all functional characteristics.”

All products recommended by Siegwerk for manufacturing food contact materials are basically formulated in such a way as to enable the end products to meet the requirements of Regulation (EC) 1935/2004 and Swiss Ordinance No. 817.023.21.

**SAFE**

Siegwerk product solutions for single-serve containers
- Careful selection of printing structure
- Developed and produced in compliance with the EuPIA’s GMP code
- Specific quality and product tests using chromatographic and spectroscopic trace analysis
- Comply with current European legal requirements for food contact materials and items

**INDIVIDUAL**

Product requirements
- Exceptionally high resistance and fastness properties
- Deep-drawing flexibility
- Appropriate temperature resistance
- Surface printing or lamination

**VARIED**

Single-serve container structures
- Plastic pods with laminated film lids
- Pads made entirely of film laminate
- Surface-printed aluminum capsule with laminated lidding material
- Aluminum capsule and lids, both surface-printed

**SINGLE-SERVE CAPSULES**
Focused solely on the long term, this family business sponsors social projects that seek to improve the lives of needy and disadvantaged children and teenagers. Siegwerk has conducted joint aid projects with SOS Children's Villages International since 2010 – focusing this year in particular on SOS in Indonesia.

Part of the population in the world's largest archipelago continues to live below the poverty line, despite the latest economic boom. But to date the South East Asian island nation has still not managed to significantly improve the living conditions of all families. There is a lack of social assistance and access to the educational and vocational programs that are key to young people’s futures. Unemployment among Indonesian teenagers is very high.

Creating a future worth living
As part of the global SOS “YouthCan!” employment initiative, local Siegwerk employees personally support young participants to help them gain vocational qualifications. The Siegwerkers act as mentors and help the teenagers to write applications or acquire employment-relevant skills, for example. In the SOS Children’s Village Jakarta, this year’s lighthouse project, Siegwerk is mentoring the full digitization of the establishment, including a “digital library” with professional facilities. This is designed to give the young residents the opportunity to acquire Internet skills and to learn and work digitally. Every house in the Children’s Village will also get its own Internet connection. Maintenance will be handled by a dedicated project manager.

Siegwerk reaches out to a total of 2,300 children and young people in Indonesia via various SOS programs: 260 children in SOS Children’s Villages, 310 young adults in youth facilities and a further 1,740 in family strengthening programs.