06/09/2022 Press release

Siegwerk's deinking primer technologies for labels and sleeves improve packaging recyclability and foster circularity

With its UV- and water-based deinking primers for labels and sleeves, Siegwerk offers validated solutions for a safe and economic deinking of energy cured ink systems that have been so far considered as non-deinkable. This sets new norms to drive deinking as industry standard and further improve recyclability & circularity of plastic packaging.



Siegwerk, one of the leading global providers of printing inks and coatings for packaging applications and labels, today announced its most recent development for an improved deinking especially for rigid plastic packaging which is adding a substantial value to industrial mechanical recycling.

Beside the already existing water-based deinking primer (officially approved by The Association of Plastic Recyclers (APR)) Siegwerk is now offering an UV-curing deinking primer that is suitable for pressure sensitive and wrap around labels, and

shrink sleeves made of Polyolefin- and Polyester-based materials. This development closes a gap as it now allows an inline printing of deinkable materials in a 100% UV-Flexo press setup.

Today, consumers expect higher recycling levels of plastic packaging where a meaningful reuse of the recycled material is mandatory instead of wasting the material into downcycling streams. This sustainability-conscious demand has driven brand owners to rethink their packaging to switch to 100% recyclable packaging in the near future. “Achieving this 100% packaging circularity requires a sufficient and consistent quality of recyclates,” explains Ralf Leineweber, Head of Global Technology Development at Siegwerk. In mechanical recycling as the today’s only established industrial recycling process, deinking of printed packaging material is one - if not the most - viable technology to meet this requirement. Only deinking can bring here clean and clear recyclates with a suitable quality back into the packaging stream to consequently reduce the need of more virgin plastic material. “That’s why we are committed to support customers with innovative solutions facilitating deinking and thus contribute to establish deinking as industry standard further improving packaging recyclability and circularity,” adds Guido Lander, Vice President Narrow Web EMEA at Siegwerk.

To integrate deinking into the recycling process, recyclers need to implement a hot washing step first, if not already existing. Here, it is critical that the deinking does not negatively impact the recycling process for example by contaminating the wash water. Besides, the lower the needed washing temperature for deinking the better - because this not only saves energy but also costs. More and more recyclers focusing on rigid plastic packaging such as trays, cups and plastic containers are implementing hot washing processes to improve the quality of their recyclates which enables an easy and seamless integration of a deinking step for a broad range of packaging materials. “We consider deinking primers as a key lever for smart deinking of crosslinked ink systems especially at low washing

temperatures for sleeves, labels and other printed decoration for rigid plastic packaging," explains Leineweber.

Siegwerk's deinking primers enable a smooth and reliable deinking at any hot washing condition currently used in the recycling industry. They are compliant with different film materials like cPET, PE or PP and do not require the use of a dedicated ink series to keep complexity for users rather low. Besides, any printing process can be used in combination with our deinking primer portfolio – from flexo, offset and screen printing to foiling, metallic and other decorative embellishments. With its UV-curing deinking primer, the company especially offers a solution for converters who are using a pure UV flexo press and are not able to process a water-based primer. This primer shows best compatibility with UV-curing inks facilitating quantitative deinking according to the washing protocols of EPBP and APR. Applied under bleeding resistant UV-cured ink layers, the primer layer dissolves in the hot washing process and thus enables the generation of high-quality colorless recyclates, while the non-bleeding ink formulations ensure a clean and reusable washing solution.

Siegwerk is currently engaged in various deinking projects for all kind of rigid packaging solutions with in-mold and pressure sensitive labels as well as for direct printed rigid containers. "The greatest opportunities to improve plastic recycling in line with a circular economy obviously lay in areas where hot washing already became a standard step within the recycling process, such as in the PET bottle 2 bottle recycling," adds Ralf Leineweber. Siegwerk has for example developed deinking technologies for shrink sleeves allowing a 100% recyclability of bottle and sleeve in food contact grade quality. Furthermore, the ink expert sees excellent opportunities to recover high-quality recyclates from postindustrial flexible packaging waste via deinking. Post-consumer waste is supposed to follow as well at a certain time due to its volume related importance.

Next to deinking primers, printing inks and coatings, Siegwerk also offers its customers technical services along the value chain to support an optimized and consistent deinking process. The company can also provide optimized deinking chemistry based on a systematic development to ensure fast deinking resulting in clean flakes with almost virgin quality of the recyclate. “Deinking is not a product for us, it is a “Full Service Offering” where everything needs tie together,” says Lander. “That’s why we follow a holistic approach and also offer the execution of deinking tests according to the most common washing protocols in our specialized laboratories.” Based on its deinking expertise, Siegwerk can guide customers through the entire process, from the unprinted substrate to the deinked and recycled packaging material, finally helping to optimize plastic packaging recycling in line with a circular economy.

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