

PRESS RELEASE

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battenfeld-cincinnati, Illig and "Green Dot" cooperate in sustainability project

Cups to cups, trays to trays: three-partner project proves feasibility

Cups and trays manufactured from 100 % recycled plastic? This is precisely what the companies battenfeld-cincinnati Germany GmbH, Bad Oeynhausen, Illig Maschinenbau GmbH & Co. KG, Heilbronn, and Der Grüne Punkt, Cologne, are producing in a joint project. The aim was to close the reusable material cycle for disposable packaging made of PP and PET. At their K 2019 booths, the three companies provide information about their latest contribution to sustainability and the conservation of resources, showing a viable way to reach the higher recycling rates demanded by the new German packaging law.

The materials used to produce the sheet were supplied by "Der Grüne Punkt" ("the Green Dot"). Both the PP and the PET regrind come exclusively from dual system waste collections (Yellow Bin, Yellow Bag). To recover the material, the plastic packaging waste first had pass through several steps of an elaborate sorting process (NIR, swim-sink and hydro cyclone separation). The PET fraction was cleaned by conventional washing. The PP fraction was prepared by additional optimized sorting and washing processes as well as regranulation as Systalen PRIMUS PP, which is white in color and virtually odorless. While reclaim of the PP fraction has already been practiced for some time, the monolayer PET packages were previously not separated from multilayer packaging, but the whole sorting fraction was passed on to thermal utilization. Der Grüne Punkt has now embarked on a new course by separating the various packaging products according to individual articles in several sorting cascades, thus producing a high-quality fraction of PET trays. This fraction, ground into flakes and sorted again, has served as the raw material for this joint project.

The sheet used as the initial product for making PP cups or PET trays was produced on the ultra-modern three-layer sheet line in the

technical lab of battenfeld-cincinnati. This line is equipped with a 75 T6.1 high-speed extruder, which is ideally suited for PP processing, as well as a 120-40 Star extruder for PET. While the compact PP extruder offers the advantage of low energy consumption combined with high output rates and optimal melt attributes, the PET extruder recommends itself by its special process technology combination of a single screw with a central planetary roller section, where the melt is subjected to a high level of degassing and decontamination. Both these extruders are designed for perfect plasticizing and homogenization of the plastic melt even when 100% regrind is used, as in this case. The ideal thermoforming sheet is then produced by the Multi-Touch roll stack, which is also part of the equipment. With its large number of roll gaps in the recalibration section, it produces tension-free sheet with a high degree of flatness and a transparency which depends on that of the raw material. A two-roll stack takes care of precalibration. In this case, it is arranged in a 45° position to suit both PP and PET sheet.

Finally, ILLIG produced cups and trays from the extruded sheet in various test runs at its technical lab. All manufactured end products have proved completely on a par with comparable packaging solutions made from virgin material in their profile of attributes. While the monolayer sheet made of PP regrind was processed on an RDM-73K thermoforming line (a compressed air former) with a cup mold, a RD-74-d (also a compressed air former) with a tray mold was used to process the sheet made of PET regrind. In this case, Illig tested three different monolayer sheets and a composite sheet with outer layers made of PET regrind in food grade quality. Excellent results were achieved in each case.

With this project, the cooperation partners have proved the basic feasibility of re-processing 100 % recycling material from domestic waste collection systems into packaging products with the necessary profile of attributes. Now the next step will be to test the renewed food grade quality of the packaging thus produced, and to optimize the entire process.

Dr. Markus Helftewes, CEO of Der Grüne Punkt, comments: "The cooperation with battenfeld-cincinnati and Illig is a pioneering effort in several respects. This project points to a first-class recovery option for PET trays, a fraction for which no practical recycling possibility has previously existed. And we are now able to demonstrate how plastic waste from the Yellow Bag can be transformed again into food-grade plastic packaging. This is groundbreaking, and I am very glad that we, together with our partners, are once more able to set benchmarks."

www.battenfeld-cincinnati.com

www.gruener-punkt.de

www.illig-group.com

About battenfeld-cincinnati:

battenfeld-cincinnati has production facilities in Bad Oeynhausen and Kempen (Germany), Vienna (Austria), Shunde (China) and McPherson, KS (USA) and is a leading manufacturer of energy-efficient, high-performance extruders and complete extrusion lines according to customers' specifications. Our customers' end products can be found in infrastructure and construction (pipe, profile, sheet), packaging (thermoforming sheet), pelletizing, as well as calandering and lamination equipment. battenfeld-cincinnati's customers benefit from an extensive global sales and service network.

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Hall 16, Booth 19

Pictures:

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PR_2019_10_View new lab line.jpg