



Hall A6 – Stand A6-6302

Press release

Fully equipped for the use of recycled material

Nuremberg, September 6, 2021 Leistritz Extrusion Technology will be demonstrating its expertise in the processing of recycled plastics at the Fakuma trade fair taking place from October 12 to 16. Drawing on many years of experience in designing systems for recycling plastics, the company assists its customers in achieving greater economic efficiency and sustainability, as well as an improved CO2 balance. In Friedrichshafen, visitors to the trade show can virtually experience the latest in PET processing at the Leistritz booth.

At booth A6-6302 in Friedrichshafen, Leistritz will be showcasing a line that has only recently been commissioned in Russia and that cleans, shreds, granulates and converts post-consumer PET bottles into food-grade film. Using augmented reality, trade fair visitors will be able to experience in detail what puts this line in the “extra class” category. As Sven Wolf, Managing Director at Leistritz for many years and now Senior Advisor, explains: “The Leistritz extrusion line employed here brings together several process engineering aspects that arguably have never been used in this combination before - starting with the conceptual solution that enables independent processing of the recycled material used, to the actual process for producing a special food-grade film, all the way to the flexibility in terms of the type of film produced, with pellet production also possible in the bypass. Not only is it versatile in terms of the end product, but also concerning the degree of processing of the raw material used. We would especially like to thank our technology partners in this project, including Next Generation Recycling Machines (NGR), the Kuhne Group and HydroDyn Systems.”

In order to ensure that products made from post-consumer recycled material (PCR) are approved for food contact, impurities must also be removed from the PET material at the molecular level. The necessary technology for this comes from NGR, an Austrian specialist in the field of recycling technology. Decontamination of the PET additive mixture from the main extruder is done using Liquid State Polycondensation (LSP), called P:REACT at NGR. P:REACT makes use of PET’s inherent tendency

to condense under vacuum in the melt phase. This condensation leads to a continuously controllable increase in the IV value. The high-performance vacuum decontaminates the material from harmful chemicals to well below the levels required for food contact certification. As a result, the further use of the material for direct food contact is ensured in the long term. Thanks to the high flexibility of the line, it is possible to produce not only multilayer and striped films, but also food-grade films with the line in Russia. In this process, up to 100 percent recycled material is used with the help of P:REACT.

A powerful duo for high-quality recycled material

At the heart of the line is a ZSE 87 MAXX as the main extruder, with a throughput of about 1,200 kg/h. A ZSE 60 MAXX, which has a throughput volume of about 300 kg/h, is used as a co-extruder. Due to the high specific torque (up to 15.0 Nm/cm³) combined with an increased volume in the screw (OD/ID ratio = 1.66), the ZSE MAXX machines are among the world's most powerful twin-screw extruders. The material is mixed very well, but is subjected to minimal stress. The high degassing capacity of the twin-screw extruders is also an advantage for recycling. The surface renewal, which is significantly better than in single-screw extruders, allows for efficient odor reduction and dehumidification of the melt. The result is that twin-screw extruders reduce hydrolytic degradation of the polymer, increase the efficiency of the downstream polycondensation stage, and have a much lower carbon footprint compared to conventional processes. "In addition, both extruders were equipped with one rheometer each for the monitoring and control of the melt quality. With our Leistritz elongational rheometer, the melt quality can be measured in-line - i.e., during the process - for the top coating that is relevant for the end product," Wolf explains. "Adjustments can be made immediately even at the slightest deviations."

A fine-washing and a fine-sorting line are installed upstream of the extruders to wash the PET flakes efficiently and gently. A wind sifter is used for removing fine particles. The material and/or color sorting is carried out by sorters that are integrated into the line.

Alongside multilayer and striped films, operators of the line also use it to produce food-grade films, using up to 100 percent recycled material.

The commissioning process was as unusual as the line itself. “Strict contact and travel restrictions were in place during the pandemic. So it was not possible for our team to be on site. Therefore, we carried out both the set-up and the start-up virtually,” Sven Wolf explains. “We managed the commissioning without complications and the customer is successfully producing their products. We are now very much looking forward to Fakuma and the opportunity to meet customers, partners and colleagues in person again finally, and to plan and implement new projects together.”

Photo material:



Caption: Visitors to the Fakuma trade show in Friedrichshafen, Germany, from October 12 to 16, will experience the ins and outs of a line that represents the very latest in recycled material processing.

Graphics: Leistritz Extrusion Technik

About Leistritz Extrusionstechnik GmbH

For more than 80 years, Leistritz Extrusionstechnik GmbH, headquartered in Nuremberg, has been manufacturing twin screws for compounding technology. Leistritz customers benefit from the know-how in various areas of material processing such as masterbatch, compounding, direct extrusion as well as laboratory and pharmaceutical extrusion. The company employs about 240 people worldwide and has three branch offices: in the US (American Leistritz Extruder Corp.), in China (Leistritz Machinery (Taicang) Co. Ltd.) and Singapore (Leistritz SEA Pte Ltd.), as well as a sales office in France.

Leistritz
EXTRUSION TECHNOLOGY



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