



Hall 14 Booth B19
Pavilion at the Circular Economy Forum in the open-air fairgrounds
(CE09)

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Press Release

Coperion and Coperion K-Tron at K 2022

High-Efficiency Technologies for Processing and Recycling Plastics

Stuttgart, July 2022 – At K 2022 (19-26 October 2022, Dusseldorf), Coperion and Coperion K-Tron will be presenting a variety of new and ongoing developments at their Booth B19 in Hall 14 that will markedly increase the efficiency of plastics compounding processes, help boost conscientious resource handling while at the same time achieving very high product quality. Moreover, the company is creating a space dedicated to the forward-looking topic of “Plastics Recycling”. Coperion will be exhibiting an entire production line for recycling polyethylene terephthalate (PET) at their booth within the VDMA's Circular Economy Forum, a pavilion on the open-air fairgrounds (CE09). Exhibits will encompass bulk solids handling, feeding, extrusion, and pelletizing, all representing Coperion's advanced expertise in numerous plastics recycling processes such as chemical recycling, multilayer film recycling, and upcycling. Trailblazing new developments from Coperion, such as the ZS-B MEGAfeed side feeder that enables plastic film and flake recycling in very high throughput dimensions, will be center stage at the Coperion Recycling Pavilion.

Smart Solutions for More Efficiency in Classic Compounding Tasks

One eye catcher at the Coperion Booth B19 in Hall 14 will be the high performance ZSK Mc¹⁸ extruder with a 70 mm screw diameter. With its high specific torque of 18 Nm/cm³, it is especially suited for efficient compounding of plastics at very high throughput rates and with comparatively low energy consumption. The ZSK extruder is equipped with a ZS-B easy side

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feeder as well as a ZS-EG side devolatilization unit. Both the ZS-B as well as the ZS-EG – thanks to their simple design – significantly reduce the time needed for recipe changes or maintenance tasks, since they can easily be removed from the process section in just a few steps. A K3-ML-D5-V200 vibratory feeder from Coperion K-Tron will be on display at the main intake of the ZSK 70 Mc¹⁸. The ZS-B easy will be equipped with a K-ML-SFS-BSP-100 Bulk Solids Pump™ (BSP) feeder.

Another highlight at the Coperion booth will be the STS Mc¹¹ series laboratory extruder with a 25 mm screw diameter. It stands out with its simple design, user friendliness and easy cleaning. Its D_o/D_i of 1.55 and specific torque M_d/a^3 of 11.3 Nm/cm³ allow for safe scale-up across the entire STS Mc¹¹ series. The STS 25 Mc¹¹ will be exhibited with a Coperion K-Tron K-ML-SFS-KT20 twin screw feeder.

Moreover, the new, preconfigured ProRate PLUS feeder line will be available to view in all three available sizes: small, medium, and large. This continuous gravimetric feeder from Coperion K-Tron is very robust, and thanks to its good price-performance ratio is an economical solution for reliable feeding of free-flowing bulk materials.

The SP series dual bearing strand pelletizers have been given a comprehensive facelift; Coperion's SP340 model will represent this development at the K booth. In comparison to the previous model, the new SP strand pelletizer allows even faster recipe and color changes. The cutting chamber works with absolutely no dead space; thanks to its quick-release function, the cutting unit can be swapped out quickly and easily. The pelletizer's interior has improved accessibility and is very easy to clean.

One further highlight of Coperion's showing at K 2022 will be the ZXQ 800 rotary valve. This high performance valve, which works with especially low gas leakage, was developed by Coperion especially for powder intake into pneumatic conveying lines at up to 3.5 bar. Thanks to its enormous capacity, it is very well suited for systems planned for polyolefin manufacturing in the future.

Plastics Recycling: a Second Life for a Valuable Raw Material

As a raw material, plastic can make a valuable contribution to environmental protection and to the energy revolution. Key to both is the efficient recycling of plastics. For this reason, plastics recycling is the focus of comprehensive development projects at Coperion. The company will

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show the results of these projects at K 2022 in its pavilion on the open-air fairgrounds (CE09) within the VDMA Circular Economy Forum. There, Coperion will present its combined process solutions and technologies for the economical recycling of various plastics while achieving the highest levels of product quality. At the center will be a system built around a ZSK 58 Mc¹⁸ twin screw extruder configured for manufacturing high-quality PET using recycled materials.

For feeding voluminous flakes and fibers (PET and other plastics) efficiently into the ZSK twin screw extruder, Coperion will show the SWB-300 Smart Weigh Belt Feeder with a S100 single screw pre-feeder, as well as the new ZS-B 70 MEGAfeed side feeder. The SWB is an extremely reliable gravimetric feeder from Coperion K-Tron that can process large volumes of bulk materials with a wide variety of flow properties at very high accuracy. Using the innovative, newly developed Coperion ZS-B MEGAfeed, plastic recyclate with a bulk density under 200 kg/m³, long considered intake-limited and thus not worth recycling, can be reliably fed in large quantities into smaller sizes of Coperion's ZSK twin screw extruders and be concurrently recycled and compounded.

Melting, intensive devolatilization, and complete homogenization take place in the process section of the ZSK 58 Mc¹⁸, before the material stream is transferred via a gear pump and filter with an automatic screen pack changer to an underwater pelletizer for pellet production. Finally, the pellets are condensed in the SSP (Solid State Polycondensation) reactor and can then be processed again into bottles, fibers, or films. The high quality of recycled PET manufactured using this innovative Coperion process was approved by the U.S. Food and Drug Administration (FDA) for direct contact with food (letter of non-objection).

Conventional technologies for recycling PET require pre-drying and crystallization of flakes and fibers before they can be re-processed. Using Coperion's technological process solution, PET recyclate can be introduced directly into the ZSK extruder. Recyclers profit particularly from the very high end product quality. Thanks to the ZSK's very good devolatilization properties, volatile components such as monomers, oligomers and water are reliably removed. Savings in operating and logistics costs as well as reduced energy consumption are further advantages of Coperion systems for recycling PET.

If the plastic pellets produced create undesirable odors, these can be reliably removed using deodorization equipment from Coperion. In order to optimize such deodorizing equipment's specification and to individually determine its operational parameters, Coperion now provides

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onsite tests using a mobile unit for reducing plastic pellet and recyclate odor at customers' production facilities. Using this solution with freshly produced product and under actual production conditions, the possibilities for reducing recyclate odor can be thoroughly investigated, and system parameters to achieve desired product quality can be defined on location. Coperion will exhibit this mobile deodorization unit in its Recycling Pavilion (CE09).

Marina Matta, Team Leader of Process Technology Engineering Plastics at Coperion, said: "Plastics recycling is one of the core topics that we are emphatically promoting in order to better support the plastics industry on its path to a circular economy. We are very proud of our newly developed technologies and processes that achieve first-class product quality and make plastics recycling significantly more efficient. The innovative ZS-B MEGAfeed makes recycling of some plastic film and flake even possible in the first place. With our new Recycling Innovation Center, we will soon have the optimal environment for developing further technologies and working together with our customers to optimize recycling processes. We're awaiting completion of the Recycling Innovation Center with excitement and great anticipation."

About Coperion

Coperion is the international market and technology leader in compounding and extrusion systems, feeding and weighing technology, bulk materials handling systems and services. Coperion designs, develops, manufactures and maintains systems, machines and components for the plastics, chemicals, pharmaceutical, food and minerals industries. Within its two divisions – Polymer and Strategic Markets / Aftermarket Sales and Service – Coperion has 2,500 employees and nearly 30 sales and service companies worldwide. Coperion K-Tron is a brand of Coperion. For more information visit www.coperion.com or email info@coperion.com.



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The ZSK 70 Mc¹⁸ twin screw extruder that Coperion is presenting at K 2022 has a 70 mm screw diameter and is equipped with numerous features that improve handling and enable increased efficiency in compounding and recycling.

Photo: Coperion, Stuttgart

The Coperion STS 25 Mc¹¹ laboratory extruder impresses users with the same advantages as the STS Mc¹¹ series, demonstrates a simple design, is user friendly and can be cleaned easily.

Photo: Coperion, Stuttgart

Thanks to its high intake potential, the recycling of plastic fiber and flake using the newly developed ZS-B MEGAfeed side feeder from Coperion becomes much more economical or even possible in the first place.

Photo: Coperion, Stuttgart Germany

The SWB-300 weight belt feeder from Coperion K-Tron is an extremely reliable gravimetric feeder offering high accuracy and efficient process control.

Photo: Coperion K-Tron, Niederlenz, Switzerland