



Company News

Indaver Chooses Coperion Twin Screw Extruder for Plastics2chemicals Plant

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Stuttgart, Germany -

Coperion will deliver a ZSK Mc¹⁸ twin screw extruder and corresponding peripherals for a Plastics2chemicals (P2C) plant that Belgian waste management company Indaver is building to chemically recycle plastic waste. The P2C plant is currently under construction in Antwerp, Belgium and is expected to annually transform 30,000 tons of so-called end-of-life plastics into high-quality basic chemicals.

Indaver decided upon Coperion's twin screw extruder technology to ensure energy-efficient, continuous reactor loading in the chemical plastics recycling process. Along with the ZSK extruder, the order includes Coperion K-Tron gravimetric feeders, a vacuum unit, a closing valve, and the melt line to the reactor.

Added Value from End-Of-Life Plastics



ZSK twin screw extruders from Coperion ensure especially energy-efficient, continuous reactor loading in chemical plastics recycling.
(Photo: Coperion, Stuttgart Germany)

Where mechanical plastics recycling reaches its limits, Indaver picks up with its innovative Plastics2chemicals depolymerization process. The company reclaims materials from mixed polyolefin and polystyrene streams, closing the loop for these plastics with no loss in quality.

In the P2C recycling process, plastics are broken down into shorter carbon chains or monomers. Base products such as naphtha (raw benzine) and wax result from polyolefins (PE and PP). Polystyrenes are split into monomers that can be reused as raw material.

The Coperion ZSK Mc¹⁸ twin screw extruder assumes a central function in Indaver's innovative P2C process. Before plastic waste can be fed into the reactor, it must pass through the ZSK extruder's process section at throughputs of up to 3.7 tons per hour. Using intensive shearing and dispersion, the ZSK extruder's twin screws introduce a large amount of mechanical energy into the material stream in a very short period of time. In just 30 seconds, the agglomerated post-consumer waste is transformed into a homogeneous, up to 350°C (660°F) hot melt in an energy-efficient process.

A Coperion K-Tron gravimetric feeder continuously feeds agglomerated plastic waste into the twin screw extruder. The melt exits the ZSK extruder just as uniformly, ensuring constant loading of the likewise continuously operating P2C plant's reactor.

An additional Coperion K-Tron gravimetric feeder regulates the addition of additives into the ZSK extruder's process section, where they are homogeneously mixed in. At the same time, the remaining moisture in the agglomerated plastic is reduced via the ZSK extruder's devolatilization.

The high added value of the ZSK extruder in Indaver's Plastics2chemicals depolymerization process has been proven in comprehensive tests at Coperion's Test Center. According to Frank Lechner, General Manager Process Technology and Research & Development at Coperion: "ZSK twin screw extruders possess numerous advantages that are especially beneficial in chemical recycling. Thanks to the twin screws' effective operation, plastic energy dissipation takes place in no time – one core advantage for energy efficiency. In chemical recycling, ZSK technology covers a very wide throughput range of 1 kg to 20 tons per hour, allowing high-capacity product streams to be processed, even those anticipated

in the future.

Paul De Bruycker, CEO of Indaver, explained: “Our innovative Plastics2chemicals project positions us to recycle plastics and successfully transform them into basic chemicals for industry. In so doing, we will achieve our goal as a waste removal company of playing an important role in the circular economy. We will reclaim valuable raw materials from plastics which will generate added value for society and for our customers.”