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EREMA presents new series of recycling machines

CHEMAREMA[®] processes input streams mechanically for optimal chemical recycling

EREMA presents its new CHEMAREMA[®] series for the first time at K 2022. This new series sees the Austrian recycling machine manufacturer entering its recycling systems into the chemical recycling process chain. CHEMAREMA[®] products have been specially developed for the mechanical preparation of the input stream. They ensure that material is fed into the downstream chemical process reliably, continuously, and energy-efficiently even at high throughputs.

"Mechanical processes are often at the beginning of the process chain to prepare input streams for subsequent chemical recycling processes. CHEMAREMA[®] is the name of our extrusion technology that can be adapted to specific requirements and is designed precisely for processes such as pyrolysis," explains Klaus Lederer, Business Development Manager Chemical Recycling, EREMA Group. The new series allows highly contaminated post-consumer input streams, such as packaging films with low bulk densities from 50 kilograms per cubic metre and moisture levels of four to twelve percent, to be prepared for chemical recycling in just one process step at throughputs of up to five tonnes per hour.

Mechanical preparation upstream of the pyrolytic process is a key success factor, because feeding material consistently and energy-efficiently into the reactor is quite a challenge. That is why EREMA single-screw melting systems with preconditioning units (PCU) adapted to the respective requirements are already being used for this purpose at existing plants worldwide because their technological advantages have also been proven for this application," says Michael Heitzinger, Managing Director EREMA GmbH. The patented Counter Current technology in the PCU handles all the necessary processes - i.e. cutting, homogenising, heating, drying, compacting, buffering and dosing - in one efficient process step. This saves energy. Compared to conventional systems, the process window is three times wider for handling the input variability that typically occurs with material flows for chemical recycling due to strong fluctuations in composition, impurities and moisture.

In addition to these single-screw melt systems, the CHEMAREMA® range also includes cascade solutions with single and twin-screw extrusion. For special applications, there are also shredder-extruder combinations and vacuum-assisted extrusion solutions available. "This bandwidth is possible because we can call on the expertise of EREMA Group company PURE LOOP whenever required. This means we can work together with the operators of chemical recycling plants to select the most suitable system for their application. Then we can drive forward technological developments to meet specific input stream preparation requirements," says Klaus Lederer, confirming the EREMA Group's commitment to making an active contribution also to the further development of chemical recycling. The focus is on the preparation of input streams that are not suitable for mechanical recycling.

Customers benefit not only from the technological know-how of the whole group of companies, but also from the experience of EREMA Group subsidiary KEYCYCLE in integrating recycling solutions into existing plants. For Klaus Lederer, the advantages of expertise from a single source are clear: "In the EREMA Group, we can offer customers everything they need from bales to the melt in terms of implementing complete input material preparation upstream of chemical recycling."



The CHEMAREMA® series was developed for mechanical input material preparation upstream of subsequent chemical recycling processes. Photo: EREMA GmbH

EREMA Engineering Recycling Maschinen und Anlagen GmbH

Since its founding in 1983, EREMA Engineering Recycling Maschinen und Anlagen Ges.m.b.H has specialised in the development and production of plastics recycling systems and technologies for the plastics processing industry and is regarded as the global market and innovation leader in these sectors. The company is part of the Austrian group of companies EREMA Group GmbH based in Ansfelden/Linz, which employs around 840 people worldwide and whose machines recycle around 19.5 million tonnes of plastic a year in 108 countries.

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