

PressRelease

EREMA at Chinaplas 2024

Experience meets quality: EREMA sets standards in PET recycling

When it comes to the efficient and safe processing of PET waste, EREMA can draw on valuable experience. The bottle systems made by the Austrian recycling machine manufacturer have 25 years of proven experience on the market. Almost half of the bottle systems shipped in the past three years have been installed in Asia. The production of food contact compliant rPET is becoming increasingly important there - also in the textile industry. EREMA impresses with the highest quality standards and not only easily undercuts the strict limit values of the European and North American authorities for food safety recognised worldwide, but also meets the specifications of global brands. At Chinaplas in Shanghai from 23 to 26 April, 2024, EREMA experts will be on hand to share their expertise with trade fair visitors interested in recycling.

Ansfelden, 12 March 2024 – The ongoing growth of the PET industry, especially in Asia and Africa, is boosting the demand for recycling solutions for PET waste. "We offer the right systems for specific requirements, including for direct food contact," says James Qiu, General Manager at EREMA Shanghai. The central element is the tried-and-tested VACUREMA[®] technology, which the international machine manufacturer launched 25 years ago and has been continuously developing ever since. Over 400 PET systems for food grade are in operation worldwide using various technologies such as VACUREMA[®] Basic, Advanced, Prime, MPR, and VACUNITE[®], notching up a total capacity of more than four million tonnes per year. In the last three years alone, EREMA has delivered 100 systems for the bottle market. Almost 60 percent of these are bottle-to-bottle solutions. The rest are divided between bottle-to-sheet, PET strapping and the bottle-to-fibre segment, which is going from strength to strength.

Decontamination already prior to extrusion

Reliable recycling performance is needed to produce food-safe, visually flawless rPET pellets from starting materials of widely varying quality. The main advantage of VACUREMA[®] machines is the SafeFlake technology in the vacuum reactor, which brings together decontamination, drying and IV treatment. Thanks to the pretreatment of the PET flakes in vacuum at the correct temperature, moisture and migration substances are effectively removed already prior to extrusion. This prevents any hydrolytic and oxidative decomposition of the melt in the extruder. The quality of the

rPET pellets remains consistently high even if the parameters of the input material - such as moisture, mixture or bulk density - vary.

In addition to the quality aspects, the financial factors are also a strong argument in favour of this recycling process. This is because both the total costs of acquisition and use (total costs of ownership) and the energy consumption are comparatively low. "The specific overall energy consumption of a VACUREMA® Prime system is only 0.295 kWh/kg, for example. This is a top energy efficiency value compared to conventional PET processing lines on the market," says Christoph Wöss, Business Development Manager for the Bottle segment at EREMA. VACUREMA® Prime is a version of the process where two crystallisation dryers immediately upstream from the vacuum reactor operate in batch mode alternately - also in vacuum - to decontaminate the material. The intrinsic viscosity (IV) is increased thanks to Solid State Polycondensation (SSP) on the flake.

Double safety with VACUNITE®

Legal requirements and the much publicised commitment of well-known brand owners are pointing the way towards a big increase in the proportion of recyclate used in products such as PET bottles. "Recycling machines have to produce better quality output material despite the decreasing quality of the input material," explains Christoph Wöss. "That is where VACUNITE® comes in, to meet these requirements." Together with Polymetrix, EREMA has developed the tried-and-tested VACUREMA® process to include vacuum-assisted SSP in a nitrogen atmosphere. All of the thermal process steps are performed in nitrogen and/or vacuum.

Decontamination carried out at the beginning and end of the processing sequence means double safety for users. "With VACUNITE® we offer our bottle-to-bottle customers a new technology which sets new standards at all levels from technical performance to recyclate quality," says Christoph Wöss. The nitrogen used in the SSP is purified and can be fed back into the processing stage upstream so that nitrogen consumption is reduced as a result. Another advantage of VACUNITE® is the improved colour values. "We can retain the transparency of the material even after several recycling cycles, which makes bottle-to-bottle recycling fit for the future - for a truly functional circular economy," says Christoph Wöss.

Food-safe rPET on the increase - also in the textile industry

As well as in the food sector, food-compliant rPET is also playing an increasingly important role in the textile industry. Well-known brands are relying more and more on recycled PET as a material that meets the requirements for food grade specifications in order to be able to offer their

customers textiles that are both sustainable and safe from a health perspective. This trend is reflected by the increase in sales of bottle-to-fibre applications at EREMA. Asia is an important market in this segment.

Ultimately, the textile industry is increasing the demand for PET recycling. Around two thirds of the total volume of PET flows into the production of synthetic fibres. EREMA has responded by setting up its own business application for fibres and textiles.

Gentle material preparation for fibre-to-fibre

The INTAREMA® FibrePro:IV machine was developed specifically for fibre-to-fibre recycling. Proven INTAREMA® technology combined with the new IV Optimiser succeeds in processing shredded PET fibre materials heavily contaminated by spinning oils in such a way that the finest fibres can be produced again from the recycled pellets. The system features active surface renewal of the melt in a vacuum atmosphere, which focuses on removing the spinning oils and other additives more efficiently than conventional PET recycling processes. Following extrusion, the intrinsic viscosity is increased in the new IV Optimiser by polycondensation of the PET melt to the level that is needed for fibre production. "With this recycling process, we achieve high-quality rPET pellets that are used for the production of fibres as fine as 2 dtex, even with an rPET content of 100 percent," emphasizes James Qiu.

To drive forward developments in PET fibre recycling, the EREMA Group has set up a fibre technical centre at its headquarters in Ansfelden, Austria. Here, a team of experts from a wide spectrum of disciplines operates a fully equipped and flexible industrial-scale recycling machine. It includes the peripheral technology required and is available to customers for trials.

Local subsidiary focuses on customers

Focusing on customers has always been a clear goal for EREMA. In order to be able to visit customers in person at short notice in China, the company opened a subsidiary in Shanghai in 2001. "Our experts in processing technology and start-up are available to meet our customers' special requirements in PET recycling and beyond," says James Qiu. The EREMA experts also help prepare for the approval procedures required for the production of food contact compliant rPET. In many other regions in Asia, EREMA works together with local representatives and has its own in-country sales and service teams.

Visit EREMA at Chinaplas: [Hall 2.1, Stand: 2.1C55](#)

Date for your diary:

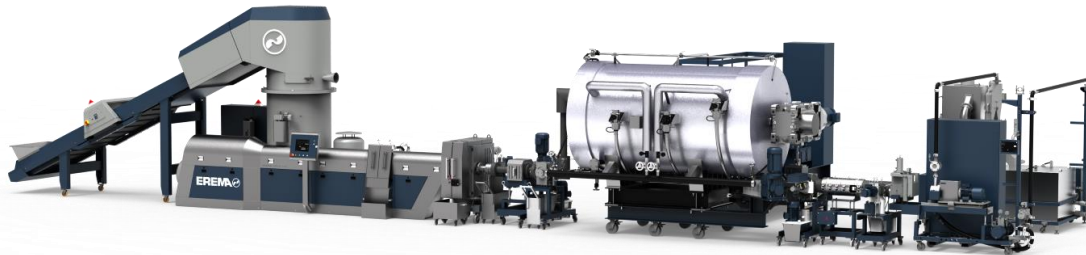
Conference "*World Trends and Plastics and Rubber Technology Summit*" hosted by Adsale with support from the VDMA at the National Convention Centre on the trade fair site:

- **24 April 2024, 9:30 - 12:30** (Digitalisation for industrial transformation and sustainability)
- **Presentation by Robin Roth**, Managing Director at EREMA, Topic: "Digitalisation in mechanical recycling - Ensuring profitability through smart technology"
- Followed by a panel discussion

Pictures:



VACUNITE® systems see EREMA combine proven VACUREMA® technology with the vacuum-assisted nitrogen SSP from Polymetrix.



EREMA has developed INTAREMA® FibrePro:IV specifically for fibre-to-fibre recycling to meet the requirements of the textile industry.



At Chinaplas 2024, the EREMA expert teams will once again be on hand to share their expertise with visitors. (Photo from Chinaplas 2023)

Photo credits: EREMA GmbH

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