

Press release

Theegarten-Pactec GmbH & Co. KG

Breitscheidstr. 46 – 01237 Dresden
Germany

Tel.: +49 351 2573-0

Fax: +49 351 2573-329

pactec@theegarten-pactec.de

www.theegarten-pactec.com

Eco-friendly packaging – meeting customer wishes and tackling challenges Theegarten-Pactec: innovative packaging machinery for industrial processing of sustainable packaging materials

Dresden. The trend towards greater sustainability continues unabated and has long since grown from a niche topic into a global movement. While political stakeholders – and, increasingly, consumers – attach significant value to more environmentally friendly packaging, the processing of these new materials continues to pose certain challenges. Theegarten-Pactec, a company from Dresden, Germany, is a key driver of innovation in this space: it is constantly refining its high-speed packaging machinery to enable producers and brand manufacturers to process sustainable packaging materials for confectionery and non-food items at industrial scale.

Despite various crises, rising costs and inflation, consumers still attach significant value to environmentally friendly packaging. According to the Sustainable Product Packaging study published in June 2023 by global consultancy Simon-Kucher & Partners, as many as 62% of consumers in Germany are prepared to pay more for sustainably packaging products, up to an additional 7%. Yet, despite this willingness on the part of consumers, confectionery brand manufacturers looking to adopt more environmentally friendly packaging face challenges in other areas. This is because more sustainable materials often present a challenge in the packaging process.

Sustainable materials: recyclable but demanding

Conventional packaging involves laminating different materials such as plastics, metals and papers together to achieve an optimal combination of strength, flexibility and a barrier function to protect the product. When it comes to sustainability, however, these laminated materials present a problem: they can be difficult or even impossible to separate and thus cannot be recycled. At present, mono-materials and paper-based packaging materials are among the most commonly used alternatives and are said to offer better recyclability. However, such materials pose greater challenges during the packaging process. They can tear more easily, are more difficult to seal and sometimes have inferior folding properties.

Theegarten-Pactec aims to support producers and brand manufacturers in their quest for improved sustainability. The specialist in small-sized confectionery packaging from Dresden, Germany, is constantly developing and refining its machines with a systematic focus on processing sustainable materials at industrial scale.

Patented pre-heating line for paper-based flow packs

Theegarten-Pactec has, for example, re-engineered the FPC5 – its high-speed packaging machine for chocolate bars – to such an extent that it can now process paper-based flow packs in the conventional cold-sealing process as well as in the far more complex heat-sealing

process. In fact, the machine is capable of producing flow pack packaging with integrated heat-seal capability and a pure paper content of at least 95%.

By pre-heating the seal area during the wrapping material unwinding process, the paper has a higher starting temperature, which significantly reduces the required duration of heat application by the sealing tools to the packaging in the sealing process itself. This avoids damaging the packaging and the product and allows them to pass gently through the machine. In addition, the reduced sealing time makes it possible to achieve high processing speeds of 100 m/min for paper-based packaging.

The specific characteristics of sustainable packaging materials have also been considered in another area: Theegarten-Pactec has modified the forming shoulder for flow packs processing on the FPC5 to support the production of paper-based flow packs. Due to the materials used and the adaptations to the component's geometry to accommodate the packaging, there is no risk of the paper crinkling or tearing during production of the flow pack.

Recyclable paper processed at high speed in double-twist wrap

Theegarten-Pactec has also addressed the issue of sustainability in relation to its high-speed EK4 machine. Capable of processing up to 2,300 products per minute, it can package hard candy in a double-twist wrap of recyclable, wax-free paper. Despite these high packaging speeds, the EK4 still processes the paper reliably and keeps pace with the processing speeds for conventional foil wraps.

It facilitates flexible processing of wax-free paper and other innovative packaging materials, including through infinitely variable adjustment of twist gripper oscillation. The twisting angle can also be adjusted. Furthermore, different models of twist gripper are available for efficient processing of different packaging materials. The EK4 also works with exceptionally high material efficiency, which further enhances its sustainable credentials. For instance, a servo-driven wrapping material feed roller ensures that precisely the right amount of material is pulled out, thereby minimising material consumption. With the EK4, the packaging specialist demonstrates that it is possible to use recyclable, wax-free paper without compromising either performance or product protection.

Suction-supported sealing for more environmentally friendly packaging of chocolate products

In relation to environmentally friendly mono-films, Theegarten-Pactec has developed a special process: suction-supported sealing. The idea behind this invention was inspired by the poor dead-fold characteristics of recyclable mono-materials, which means that packaging has to be closed after folding, either through sealing or using adhesives. However, such approaches risk damaging delicate chocolate products. With this in mind, Theegarten-Pactec developed a sealing station positioned immediately after the actual wrapping/packaging process. As soon as a product reaches the sealing station, the sealing tool moves to a distance of 0.5 mm to 1 mm from the product to be sealed before negative pressure is used to suck the packaging onto the sealing stamp. This process avoids direct contact between the packaging and the chocolate product during the sealing process, thereby eliminating the risk of pressure marks or other damage to the product. Active cooling of the ambient air provides additional product safety.

Markus Rustler, CEO of Theegarten-Pactec, says: "The examples above clearly demonstrate that there are many different areas in which we can take targeted action to improve sustainability. We are constantly striving to refine our machinery in the interests of both the environment and our customers. Ultimately, only by facilitating industrial processing of

sustainable packaging will it be possible for such materials to become established extensively and around the world.”

Producers and brand manufacturers interested in these new technologies are invited to meet Theegarten-Pactec representatives in person and gain more detailed insights at the upcoming ProSweets Cologne trade fair (Hall 10.1 | Stand F011).

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Images: Theegarten-Pactec GmbH



Image 1: Theegarten-Pactec has refined its FPC5 – a modular, high-speed packaging machine for wrapping chocolate bars in flow packs – to process paper-based packaging and recyclable mono-films.



Image 2: The EK4 efficiently wraps hard candy in recyclable, wax-free paper at packaging speeds of up to 2,300 products per minute.

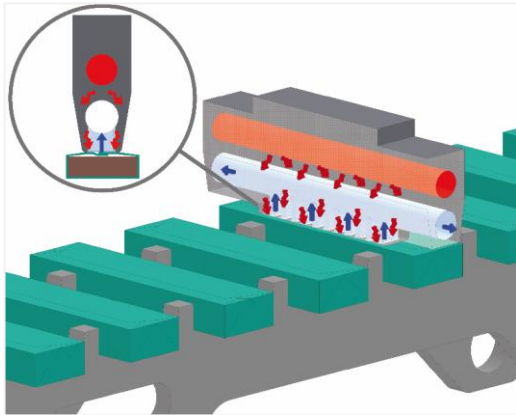


Image 3: Suction-supported sealing from Theegarten-Pactec: the packaging is sucked onto the sealing tool through the use of negative pressure. Consequently, there is no direct contact between the packaging and product during the sealing process, which prevents pressure marks and other damage to delicate chocolate products.



Image 4: Theegarten-Pactec's high-performance machines pack confectionery in recyclable paper-based packaging materials or monofilms.

For more information, please contact:
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Theegarten-Pactec specializes in the design and construction of packaging machines for small pieced confectionery items. The company combines more than 20 different types of packaging with a broad performance spectrum. Apart from individual machines, the company also offers complete packaging lines as a turnkey partner. The following products can be packed or wrapped: hard candies, toffees, chewy sweets, chewing gums, chocolate products, and various other food and non-food products. Theegarten-Pactec has its headquarters in Dresden, Germany. Markus Rustler and Dr Egbert Röhm manage the medium sized family business in its fourth generation. It has representatives in more than 100 countries around the world. The export share averages between 90 and 95 percent. Theegarten-Pactec supports two industry sustainability initiatives: SAVE FOOD (www.save-food.org) set up by the Messe Düsseldorf Group, and Blue Competence (www.bluecompetence.net) set up by the VDMA (Verband Deutscher Maschinen- und Anlagenbau, German Engineering Association), Frankfurt.