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Story

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## **PE film: all-rounder ready for packaging transition**

**This year, Polifilm's innovative self-laminating film won over the jury of the German Packaging Award. The product is a welcome addition to the range of sustainable and cost-effective film solutions from the Cologne-based manufacturer. However, when it comes to the transition in packaging, the company is pursuing an even broader approach.**

With its customised solutions for every conceivable film application, Polifilm has considerable experience in a remarkably diverse range of industries. From agricultural and construction films to protective films, shrink wrap and films for consumer goods, the manufacturer can draw on its broad product range or develop tailored applications in partnership with its customers. At Polifilm, Alexander Schulte-Derne is responsible for the protective film segment.

"In my role I am often faced with new requirements from customers." says the 44-year-old. "It is our job to find solutions to these challenges. In this context, we consider it important to stand out from the crowd of suppliers with our modern and cost-effective solutions." According to Schulte-Derne, there is a more cordial atmosphere at the family company: "The constructive interaction with colleagues and business partners, based on a spirit of partnership, is the basis for enduring customer relationships and the success of our company."

Understanding the needs of its customers is therefore an absolute priority for the film manufacturer. In consultations with customers, Schulte-Derne has noticed a significant shift in recent years: "In the past, customers tended to be looking for films that were inexpensive. They would therefore opt for

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thinner films, for example, to save costs. But I am now noticing that they are increasingly asking for a reduced thickness for reasons of sustainability. Because the thinner the film, the less material is needed for the packaging.” Schulte-Derne says that the need to reduce packaging volumes and make films more sustainable means that customers have become more open to optimising their processes to allow the handling of thinner films. This mainly involves adaptations to packaging systems. “Meanwhile, companies are prepared to make the investment if a product genuinely offers sustainability benefits.”

### **Closing the gaps in the recycling loop**

But even without the pressure of demand, the film manufacturer is striving to make its products more environmentally friendly: “We aim to offer sustainable solutions for each of our product ranges.” For example, the company is working systematically to recover raw materials from recycling that can satisfy the stringent requirements. “The obstacles to using HDPE in thin-walled films are much greater, for example, than for thicker-walled bottles,” explains Schulte-Derne. The film specialists are therefore pushing the boundaries of recycled raw materials to be able to make optimum use of them in products.

Polifilm is also seizing the initiative itself and wants to offer customers the opportunity to close the loop in future. “The objective of our Policycle Initiative is to establish closed recycling loops for and with customers. This includes accepting used films as well as their subsequent regranulation and downstream processing.” Ideally, film waste should be returned once to its original application to achieve what the company calls “equal cycling”. In pilot projects, Polifilm is already offering to incorporate customers’ used films into other products.

However, the mechanical recycling process causes many products to lose their food-safe properties. “It is a pity that there are no regulations to date in Europe covering this valuable resource. This is why at the moment, there is almost no opportunity to obtain food-safe approval for mechanically recycled

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material,” Schulte-Derne bemoans. “As a result, we are missing out on a very large proportion of potential raw materials.” He believes there is also ground to make up when it comes to the pre-sorting and proper collection of packaging materials and their associated processing. This is the only way to enable all raw materials to be returned to the cycle. At present, there is not yet enough high-quality recycled material available – above all from post-consumer waste. Moreover, the quality of the raw materials is anything but suitable for the film segment, says Schulte-Derne: “Consumers are not yet entirely ready to accept the compromised visual quality of the recycled material.”

### **Material without adhesives better for recycling**

Polifilm’s response focuses more than ever on new developments that ensure greater sustainability. As a highly specialised company, it responds to customer requirements while keeping sight of the recycling loop. One example of better recycling capability that still offers a high-quality product is the new self-laminating film that won Polifilm this year’s German Packaging Award, which will be presented to the company at a ceremony at FACHPACK on 27 September. The specific advantage of this development is that the recyclability of the composite material is much improved by dispensing with adhesive layers. As is so often the case, the product is a result of a requirement that could not be optimally satisfied with existing solutions. Until now, layers of film have had to be bonded with adhesive to achieve the desired result, which is why conventional thermo-laminated films are seldom capable of being recycled. “If you want to switch from PET to single-component PE, that’s very hard to achieve with thermo-laminated film,” Schulte-Derne adds. Out of this problem the idea was born to find a more sustainable solution that would also work without thermo-reactive processes.

“We invested several years of development work in this innovation and in the process overcame many challenges,” the team leader recalls. “We first had to find the right combination for the process to work optimally and to get the right result.” Food contact compatibility is another important aspect that must be met. But as a result, many raw materials cannot be considered at all. The

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company's endeavours have paid off and resulted in a polyethylene film solution that is activated solely by a corona treatment – an electrochemical process that bonds the materials with one another. The film is now designed so that it satisfies a wide range of requirements and can be processed on all conventional printing and cutting systems. “The film is multi-layered and can consist of single-material components for optimum recyclability. In addition, our co-extruded bonding layer is also much more suitable for recycling,” says Schulte-Derne, summing up the benefits.

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