

Recyclable Materials Management Is the Way to the Goal

Zero Waste – Utopia or Reality?

The film manufacturer Südpack sees it as its responsibility to contribute towards the circular economy. The family-owned business is going one step further in its efforts here and aims to develop into a zero-waste company in the medium term. How can this be achieved?



Sustainability can have many faces: mechanical and chemical recycling, design for recycling, reduction of the CO₂ footprint, etc.

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The circular economy is a fundamental goal for the packaging industry. The demands of legislators and stakeholders and ultimately also the sustainability goals of the companies themselves are increasingly requiring it. The motto is: less plastic, closed cycles. Südpack is aware of this. However, the film manufacturer is also aware that a large part of its products become waste after a single use.

In order to produce reusable raw materials from this waste, mechanical recycling plays a key role at the company.

The challenge: for a variety of reasons, mechanical recycling alone cannot be used to recirculate plastics; further approaches are needed. A successful circular economy for production-related as well as post-industrial and post-consumer plastics waste is based on a heterogeneous mix of different recycling technologies. They are all united by the goal of sensibly processing existing plastics on the market at the end of life and so keeping them in circulation. In other words, chemical and mechanical

recycling not only complement each other but in combination also deliver the greatest CO₂ savings. Through a system change, the quantity of virgin materials produced and fossil raw materials consumed can in turn be lessened and waste reduced.

ISCC Plus Certified since 2021

In addition to the development of structures that are as material-efficient as possible, the main prerequisites

necessary are massive expansion of existing recycling capacities, further development of existing recycling processes and, last but not least, development of new technologies. But the commitment of each individual company and each individual consumer is also required.

When it comes to the circular economy, Südpack focuses on four key approaches:

- recovery of recyclable materials through chemical and mechanical recycling,
- compounding for recyclable materials processing (upcycling),
- coextrusion for the production of mechanically recyclable products, and
- use of recyclates.

An important element here is the ISCC Plus certification (International Sustainability and Carbon Certification), which the company was one of the first film manufacturers to successfully complete for all German sites at the end of 2021. Südpack employs the certification, among other things, to prove the use of



Competence center for compounding: in Schwendi, the packaging specialist manufactures plastic pellets itself and continually enhances their properties.

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recycled material – and so has created an important basis for continuing development of processes and products that will further drive the transformation from a linear to a circular economy.

Specifically, the ISCC Plus certification confirms the traceability of the products with regard to their use and the proportion of chemically or mechanically recycled raw materials. This proportion may be shown separately. This is necessary to ensure the traceability of

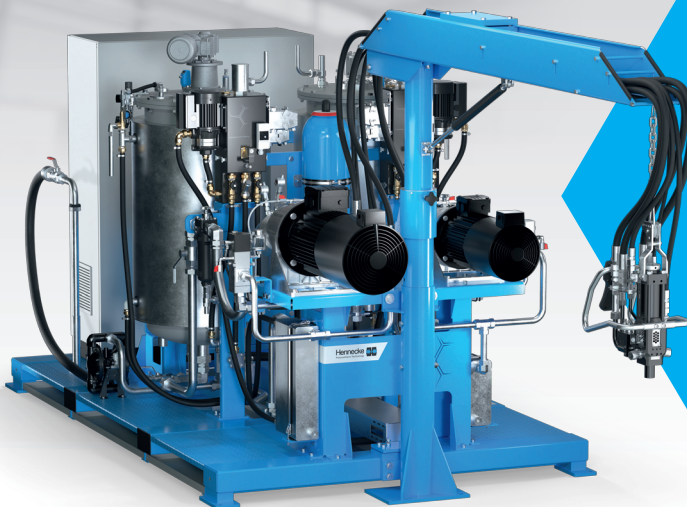
sustainable input materials throughout the supply chain.

Chemical Recycling as a Complementary Technology

Südpack has implemented various material recycling processes at the German production sites for the waste of varying quality that is generated in the production processes. The aim is for the fraction of materials recycled »

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to gradually increase in relation to the quantities of waste.

This is achieved through the continuous optimization of processes and recycling technologies – and the gradual expansion of capacities: Südpack now operates its own competence center for compounding and pelletization in Schwendi, Germany. Here, all production scrap such as edge strips and start-up material generated at the German sites in Erlenmoos, Ochsenhausen, and Erolzheim is systematically collected in a separate area, sorted by polymer, and processed into pellets on state-of-the-art facilities. These are then available again for the manufacture of new products. Other material fractions are in turn processed into high-quality compounds that are suitable, for example, for injection molding applications.

At the same time, the company is investing in chemical recycling (more precisely, in Carbolig's technology for the



Cleaning is fun this way: in the new Kobold VK7 modular cleaning system, PIR compounds are used in the housing.

© Vorwerk

liquefaction of used plastics) and, together with partners, is accelerating the establishment of this process as an additional and complementary technology for materials that cannot be mechanically recycled due to their structure or degree of contamination. Around half of all polymer waste is still incinerated. The aim is to create a closed and efficient system in line with industry standards and so also to keep these waste materials in circulation.

Specifically, the process enables the regeneration of a high-quality liquid resource that can be used for the production of new polymers. In this way, chemically recycled plastics waste can also be recycled indefinitely without any loss of quality. In addition to handling a wide range of input materials, this process offers competitive advantages in terms of energy efficiency and low emission loads. The liquid resource obtained is available in virgin quality and, like fossil raw materials, can be used to produce a wide variety of plastic pellets. These, in turn, can be processed into high-performance films for demanding packaging applications, such as are required especially in the food industry.

Practical Examples

Closed cycles already exist. The plastics waste from film production, for example, is collected, sorted and processed in modern plants into high-quality compounds that can be individually tailored and used for the manufacture of new products.

Thanks, in particular, to their reduced CO₂ footprint, these compounds are increasingly becoming indispensable for the production of injection-molded

parts, such as for technical products or consumer goods. Specific examples are household appliances and components for the automotive industry. The reduced CO₂ footprint is shown separately and helps customers optimize their life cycle assessment.

The production of process packaging for the cheese industry generates recyclable materials which, depending on their composition and degree of contamination, can be processed either by mechanical or chemical recycling and so kept in circulation. The pellets can then be used again in the production of films for a wide variety of applications.

The Overall Goal

With these efforts, Südpack demonstrates its "zero waste" claim. However, this is only one aspect of the sustainability roadmap. The central goal is: net zero. By 2025, the globally active group aims to reduce direct greenhouse gas emissions and those caused through energy needs by 95% and indirect greenhouse gas emissions along the value chain by 15%.

Further measures to improve the CO₂ balance include the increased use of renewable energy and additional investments in photovoltaic systems.

In order to ensure that all climate protection efforts are actually in line with the ambition level of the Paris Climate Agreement, the film manufacturer has also joined the Science Based Targets initiative (SBTi). SBTi helps companies to align their climate-change-mitigation activities with the 1.5 °C target. It does this by evaluating the companies' own targets. Südpack is simultaneously undertaking to comply with its greenhouse gas accounting standards. ■

Info

Text

Vera Sebastian works as a freelance journalist in Munich, Germany.

Vorwerk Relies on Südpack Compounds

At K 2022, Südpack and Coperion presented an example of a technical application for specialty compounds based on PIR recyclates. The compounds are produced on a ZSK 45 Mc18 twin-screw extruder and are used in the new Kobold VK7 modular cleaning system from Vorwerk.

Sustainability Report

Südpack documents all initiatives and progress in the ecological, economic, and social fields in a comprehensive sustainability report, which is published every two years on a voluntary basis. The current report covering the years 2020 and 2021 is available on the homepage under Sustainability Report 2022 (suedpack.com).

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