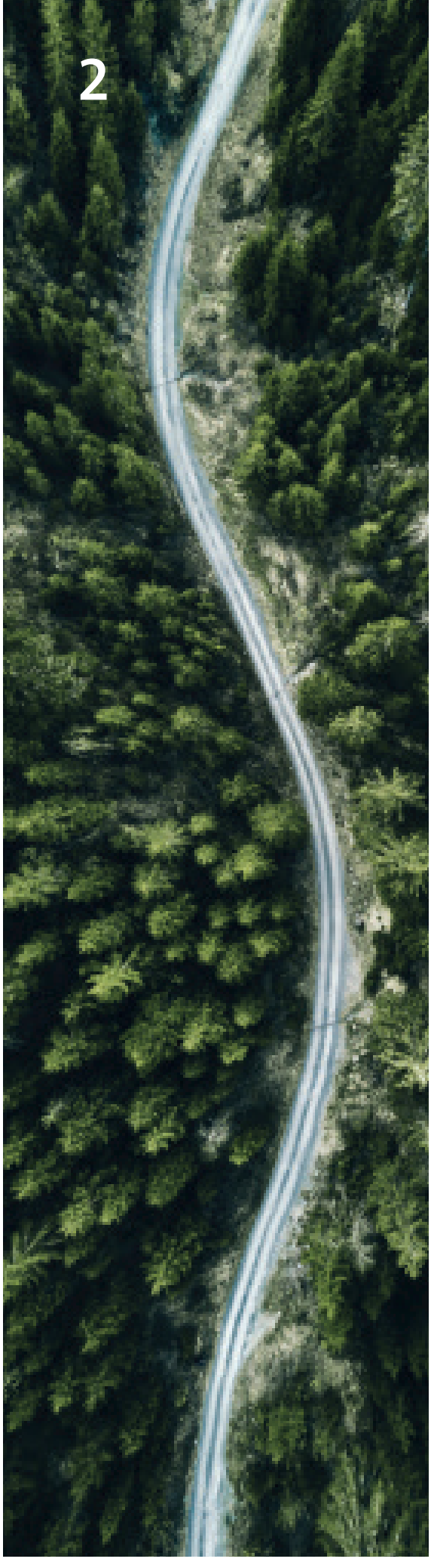
# YOUR PARTNER FOR SUSTAINABLE PACKAGING SOLUTIONS


SÜDPACK



# PLASTIC PACKAGING IS SUSTAINABLE

**Dear Readers,**

*As a leading manufacturer of high-performance films for packaging food, medical products, pharmaceuticals and technical products, we are convinced that it is necessary to take a holistic approach to sustainability.*

At the same time, our thoughts are always focused on product protection. Packaging provides protection and helps extend the shelf life of products. It reduces the waste of valuable resources caused, for example, by the spoilage of food, thereby also reducing the use of water, energy and farmland for food production and the related $CO_2$ emissions.

To ensure optimal product protection with minimal resource consumption, we at SÜDPACK are focusing on two fields of action: minimizing the use of materials in film production and optimizing the recyclability of our films. We also help our customers resolve conflicting goals. In the delicate balance between optimal product protection and minimal environmental discharge, it is essential to jointly develop packaging solutions that are sustainable along their entire life cycle, including their disposal and reuse.

At the same time, an optimal packaging concept must always take account of the product to be packaged, its desired use and the logistics chains that are used. Holistic views demonstrate that with its highly protective function with minimal use of materials, flexible packaging made from plastic can have considerable advantages compared to other packaging systems. Furthermore, plastic packaging is not waste, but rather a valuable resource.

# OUR ROADMAP FOR SUSTAINABLE FILM SOLUTIONS

## Flexible packaging made of plastic provides maximum product protection with minimal packaging weight

*Plastics bring together a variety of beneficial material properties, such as their low density, high barrier or resistance to mechanical factors. Flexible packaging made of plastic therefore exhibits a very high degree of material efficiency, which means optimal package functionality with minimal material input.*

By combining different polymer layers, plastic composites can be produced with a protective function designed to precisely meet the relevant requirements. Additional integrated features make it possible, for example, to repeatedly open and close a package – which in turn prevents premature spoilage and, ultimately, the wasting of valuable resources.

SÜDPACK has also been promoting the development of the films with the lowest possible thickness for many years. A ground-breaking example is Veraplex – a high-performance film that is 50% thinner than conventional films.

*For more than 50 years, we at SÜDPACK have been producing high-performance films for the packaging of food, non-food, medical products, pharmaceuticals and products for technical applications. Not only is product protection always of absolute priority, but also the consistent optimization of our solutions.*

As a leader in innovation and technology in our industry, we are also significantly advancing the development of sustainable film solutions and focus most particularly on minimizing material use in film production and on optimizing the recyclability of our films. Our roadmap for sustainable film solutions includes the four action areas material reduction, recyclability, renewable raw materials and a circular economy.

By developing customized packaging solutions, we help our customers resolve the conflict between optimum product protection and sustainability when packaging their products. Likewise, we assess our packaging concepts in terms of their recyclability and their carbon footprint. This makes it easy to measure the contribution our packaging solutions make to reaching the sustainability objectives of our customers.

It is our goal to generate **at least 50%** of our turnover **in 2025** with products from our Sustainability Roadmap – the share was already approximately **25%** at the end of **2020**.



**Carolin Grimbacher**

*"With this ambitious program, we have established a strategic framework for the expansion and improvement of our product portfolio with the aim of enhancing sustainability. At the same time, we are a pioneering partner in the market when it comes to developing packaging concepts that conserve resources and are also recyclable," explained Carolin Grimbacher, Managing Partner of SÜDPACK.*

# Material Reduction

## Reducing Resource Consumption

*For many years now, we at SÜDPACK have aimed to make our packaging solutions thinner and lighter while still maintaining their material properties, which in turn makes them more sustainable by design and reduces resource consumption during film production.*

### Material Reduction

The high-performance film Veraplex is up to 50% thinner than conventional structures. Moreover, we are also implementing down-gauging projects for other products. For example, it has been possible to also reduce the use of materials for our Multipeel products by up to 30%. Likewise, we are further reducing the thickness of our Multifol products while still maintaining their excellent thermoforming properties and puncture resistance.


In addition to optimal product protection and simple handling for end consumers, Veraplex offers simple and efficient processability on conventional packaging machines.

### Alternative Packaging Concepts

Despite their light weight, stand-up bags offer a multitude of features, which makes them a sustainable alternative to packaging made of glass or metal. Due to their versatility in terms of material, shape and closure systems, they can be designed to meet the individual requirements of products and their use. Moreover, stand-up bags made of monomaterials are easy to recycle.


The Ecocraft Skin concept combines maximum product protection with a high level of convenience. The bottom web is composed of printed paper and a functional layer of plastic, which can easily be separated after use and returned to the different waste streams.

# Renewable Raw Materials

## Reducing the Consumption of Fossil-Based Plastics

*By producing packaging solutions based on renewable raw materials, we are making a significant contribution to reducing the use of fossil-based raw materials. What's more, films made from renewable raw materials can meet material requirements for specific applications.*

Our xpect films are based on PE made from renewable resources. They provide the same product protection as conventional film composites and are used as top or bottom webs in tubular bag applications.

The Planova product family is made from PLA. Due to their specific characteristics, these materials offer added value in a range of applications.

The SÜDPACK Craft Line covers a portfolio of high-quality composites on the basis of paper fiber-based materials, which can be designed to meet the individual requirements of the products to be packaged.



The composite of Planova and paper is based on 100% renewable resources and stands out due to its efficient processing on standard packaging machines.

# Circular Economy

## Closing Loops Along the Entire Value Chain

*Establishing a circular economy in the packaging industry will make a substantial contribution to reducing the use of fossil-based raw materials and the related $CO_2$ emissions.*

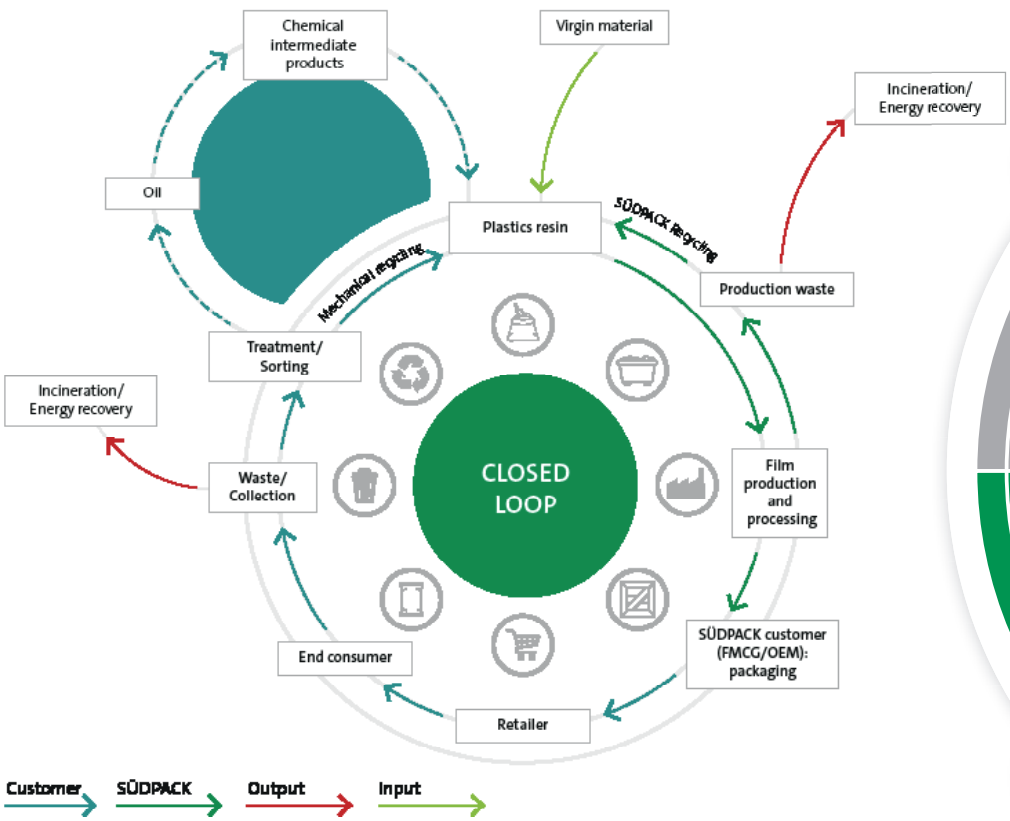
### Use of Plastic Recyclates

In addition to processing raw materials from mechanical recycling, we also view the processing of raw materials from chemical recycling as an additional, feasible alternative – particularly in the case of plastics or film composites that cannot currently be mechanically recycled. SÜDPACK is the first manufacturer in the market to have implemented pioneering projects in collaboration with select customers.

### Material Management

To recycle our production waste, we have implemented different processes for its sorted collection and subsequent processing into high-quality raw materials that flow into our film production.

## Closed loop





We are systematically working on closing our internal reusable material loops by processing valuable resources into high-quality films.

# Improved Recyclability

*With the development of recyclable packaging solutions, we are making a significant contribution to meeting the requirements of our customers, retailers and the respective legal framework conditions. Our portfolio covers a wide variety of different concepts.*

The xPEP Line includes film solutions based on polyolefins. With the Pure Line, we offer monomaterial solutions based on PP, PE and PET. All of the film ranges are distinguished by their high level of recyclability and optimal processability on conventional packaging machines. Because they are equipped with a barrier function, all of the materials provide optimal product protection.

The portfolio includes thermoforming bottom webs and lidding films as well as materials for producing tubular bag packaging. It also offers solutions with various supplementary features, such as a high level of peel performance or a convenient resealing system.


The recyclability of all of the films in the PurePP Line has been certified by the Institute cyclos-HTP.


PackTheFuture
Sustainable Plastic Packaging Award 2020

With Multipeel PurePP, SÜDPACK won the “PackTheFuture” Award in the “Save Food” category in early 2020.

DEUTSCHER VERPACKUNGS PREIS

Flow Pack PurePP received the German Packaging Award in the sustainability category in the fall of 2020.

# DESIGN FOR RECYCLING


## Requires a Holistic View of Packaging Concepts

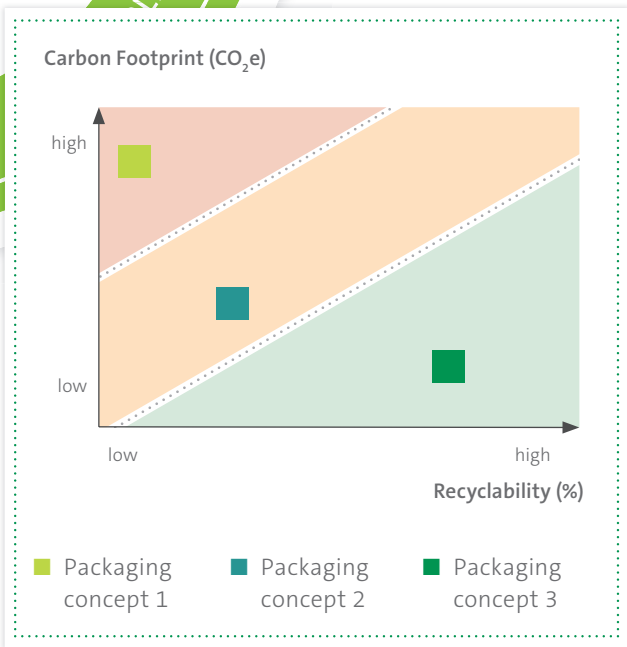
*Recycling packaging is one of the key elements for achieving a circular economy in the plastic packaging industry. This makes a significant contribution to reducing the use of fossil-based primary raw materials as well as the $CO_2$ emissions that are generated in the production of these raw materials. The longer these materials can be kept in the loop, the more positive the carbon balance becomes.*

Today in Germany, 75% of sales packaging made from plastic is already recyclable by design, which means it complies with the standards of the Packaging Register. Nevertheless, there is further potential for increasing this rate. The plastics processing industry has made a voluntary commitment to meet the goal of making 90% of household packaging recyclable by 2025.

SÜDPACK has also made striking advances in the market when it comes to recyclability. In order to meet the requirements of legislation, the European plastics strategy, retailers and customers in terms of the ambitious recycling rates worldwide, what are needed are innovative ideas, comprehensive expertise and, above all, concepts that are viable for the future. This makes the development of packaging materials that can be converted back into valuable materials after use as well as the implementation of closed loops for plastic packaging of absolute priority for SÜDPACK.

Our roadmap for sustainable film solutions includes an extensive portfolio of recyclable structures, such as Pure Line, which are already in use in many segments of the food industry. According to the definition in the German Packaging Act (VerpackG), recyclability means that the materials that are collected can be clearly sorted and processed into recyclate. This means packaging must be designed so it can efficiently pass through the after-life processes. In order to meet market requirements in the future as well, our roadmap for sustainable film solutions is continuously expanded. Moreover, SÜDPACK is also committed to establishing chemical recycling as a complementary technology to mechanical recycling.

When assessing the sustainability of packaging solutions, however, more than just their recyclability should be taken into account. SÜDPACK's goal is to instead take a holistic view of packaging concepts, which includes factors such as the carbon footprint of packaging during its entire service life. This allows us to help our customers resolve the conflict between the recyclability and the carbon footprint of a packaging concept and to define an optimal balance in terms of its environmental discharge.


When developing packaging concepts, we help our customers make a holistic assessment in terms of the recyclability and the carbon footprint of concepts.

Likewise, we pay special attention to ensuring maximum product protection. It is only when our packaging solutions protect the packaged products along the entire logistics chain, thus avoiding premature spoilage, that they are truly sustainable. This is why the development of sustainable packaging concepts must also take account of the product to be packaged as well as the protective function it requires.


The development of sustainable packaging concepts requires a holistic view that also includes the product to be packaged.

# GROUND-BREAKING FOR GROUND MEAT

## Recycling-Friendly Design Made by SÜDPACK

*With an unconventional packaging solution, SÜDPACK has further advanced the packaging of ground meat with a recycling-friendly design. The concept, which received the German Packaging Award in 2020, uses high-tech films from the Pure Line range and goes completely without the otherwise customary bottom tray. The film composites are based on polypropylene (PP) and ensure the same protection and convenience as composite materials composed of different polymers. Their high level of recyclability, which has already been verified by leading institutes, and significantly lower material consumption compared to standard packaging make them particularly resource-efficient solutions.*

With Flow Pack PurePP, a film is available for packaging products in tubular bags that can be processed quickly and efficiently on all conventional tubular bag machines, even at high speeds, thanks to its good sealing properties. The material savings compared to conventional tray packaging are approximately 60 percent – for one kilogram of ground meat, the packaging weight is a mere 9.5 grams. The highlight is that this packaging concept for ground meat is an absolute innovation, which makes it particularly appealing at the POS.

For the production of thermoformed packaging, the Pure Line portfolio offers the versatile flexible film Multifol as well as Multipeel, which has excellent resealing properties. Compared to tray packaging, material use can be reduced by up to 55 percent. The packaging weight for one kilogram of ground meat amounts to just 10.7 grams. Due to their excellent thermoforming and sealing properties, the films can be used on all conventional thermoforming machines. Depending on the requirements, manufacturers can choose MAP or vacuum packaging.

**Pure Line** is the result of intensive development work and is a good example of how established packaging concepts can be reimagined to achieve much higher sustainability.

Thanks to their high barrier properties, both film concepts provide the same excellent protective properties as standard packaging with a tray. The characteristic appearance and consistency of ground meat is maintained in both packages. The integrated antifog effect also keeps the packaging from steaming up and gives consumers a clear view of the product.

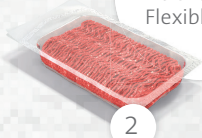
## Material Reduction Made Easy

To package **1 kg of ground meat**, you need

**24.77 g** Packaging Tray

1

**10.72 g** Packaging Flexible Film



2

**9.53 g** Packaging Flow Pack


3

## Packaging Concepts in Comparison

**1 kg packaging** protects

**40.37 kg** Ground meat

1

**93.21 kg** Ground meat

2

**104.91 kg** Ground meat


3

1 190 x 144 self-service tray with 420 µm PP // Top web Safe Peel Clear 52 AF 420 mm / pattern repeat 157 mm (twin-lane tray sealer)

2 Bottom web Multifol VB PurePP 150 // top web Lid Film xPEP Peel 60 AF
Basis: 420 thermoforming machine / pattern repeat 200mm // 3 packages per pattern repeat

3 OPP/PPVPP-FS LAF 60 or also FlowPack PurePP 60 AF
370 mm reel width / pattern repeat 230 mm


With tubular bags made of PurePP, up to 60% of the packaging weight can be saved compared to tray packaging. Moreover, the material is fully recyclable.

# CHEMICAL RECYCLING

## As a Complementary Technology to Mechanical Recycling, Chemical Recycling Contributes to a Sustainable, Circular Economy

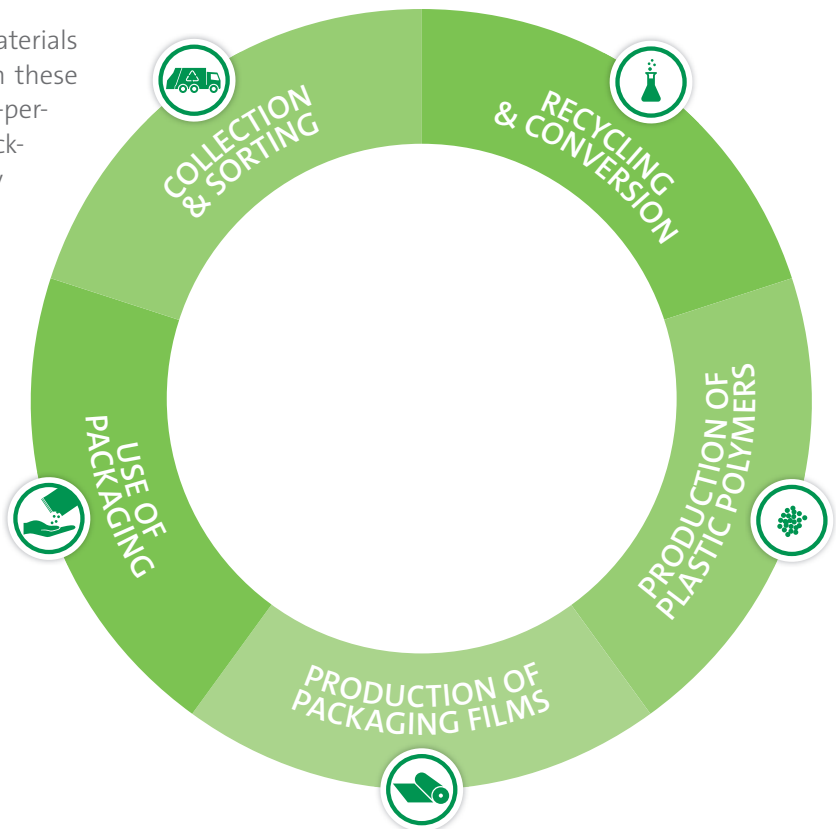
*In the food industry, highly functional multilayer films are often used, which are composed of different polymers that optimally protect the packaged goods with minimal input volumes.*

These materials are often not suitable for mechanical recycling due to their composition. They cannot be returned to the loop as basic material and go to waste as a valuable resource.

With chemical recycling, high-quality raw materials of virgin-grade quality can be recovered from these materials, which can be used to produce high-performance films that can also be utilized for packaging demanding products with high quality and hygiene standards. This aspect is essential to SÜDPACK, as product protection is our top priority.

Chemical recycling therefore makes it possible to reprocess a much larger quantity of plastic than previously possible. As a result, the consumption of crude oil for plastics production can also be reduced. Another advantage is that plastic products made from chemically recycled material can be recycled again after use without any loss of quality. This means the more often chemical recycling is performed (with material that has already been chemically recycled), the more crude oil and thus $CO_2$ are saved.

We at SÜDPACK view chemical recycling as an innovative solution that, in addition to mechanical recycling, can contribute to a sustainable, circular economy. Moreover, chemical recycling furthers decarbonization and the reduction of $CO_2$ emissions in the plastics industry.




With chemical recycling, valuable raw materials can be recovered from multilayer films. Chemical recycling therefore makes an important contribution to circularity in the packaging industry.

## Successful Customer Projects


### Zott – Zottarella

The packaging for the Zottarella-brand mozzarella balls and rolls made by the gourmet dairy Zott consists of a multilayer film that is produced with chemically recycled polyamide from BASF. This makes it possible to reduce the use of primary raw materials by approximately 25 percent.


### Gutfried – Chicken Meat Sausage

Developed in collaboration with Zur Mühlen Group (Gutfried), BASF, and SABIC, approximately two-thirds of the highly innovative packaging for the new product range from the poultry sausage brand Gutfried are made from chemically recycled plastic. The hygienic film composite packaging features properties identical to those of films made from virgin material.

Both projects are pioneering in the market, as the composite materials that are used to package the products are classified as only partially recyclable or not recyclable at all. With chemical recycling, however, it is possible to recycle these kinds of multilayer composites.

## Joint Project with RECENSO

SÜDPACK's collaboration with RECENSO, a specialist in resource recovery, marks an initial pioneering step for further establishment of closed loops. The joint venture aims to convert film waste that is generated during the production of SÜDPACK products into high-quality pyrolysis oil on an industrial scale in the future. The produced oil can be used by the plastics industry as a raw material for the production of high-quality plastic granules, which in turn can be processed into high-quality films. The material is available in virgin-grade quality, and can therefore also be used for producing product packaging in industries with high quality and hygiene standards, such as the food and medical product industries.

Dirk Hardow, Head of BU Functional Films and Compounds at SÜDPACK, is convinced that "the technology will also establish itself in the packaging industry as a supplementary component for sustainable waste management and a sustainable, circular economy. This is because the innovative process can make a significant contribution to meeting the ambitious recycling rates of the EU plastics strategy and the German Packaging Act."

# SÜDPACK – Your Development Partner for Sustainable Packaging Solutions

*As a leading manufacturer of high-tech films, we adjust the production of our products to suit the individual requirements of our customers, which makes an important contribution to their success.*

Our core technologies include extrusion, printing and lamination. When it comes to quality and our combination of technologies, our machinery is unparalleled and pioneering in our industry.

For the development of our packaging solutions, we draw on a wealth of expertise in the field of raw materials and process engineering provided by a team of development engineers. The goal of our development activities is to produce materials that feature the optimal combination of cost and efficiency.

Our application center is equipped with cutting-edge technology and provides the optimal conditions for performing individual packaging and production tests. Short production runs can also be implemented at the center. Moreover, we maintain close partnerships with the manufacturers of processing machines with the aim of developing materials that ensure maximum efficiency and process reliability when processed.

### » Development of Our Roadmap for Sustainable Film Solutions

In the development of our roadmap for sustainable film solutions, we concentrate not only on increasing their recyclability, but also on reducing the consumption of materials and resources in their production. In addition to continuous reduction of film thickness, it also includes the use of recyclates or regranulates, which are recovered in part from our own material streams. We also implement projects for the processing of alternative materials, such as bio-based plastics.

# multiXtrusion – an Elementary Component of Our Efficient Development Process

Our multiXtrusion pilot plant makes an important contribution to our speed of innovation. It is equipped with an interchangeable tool for blown and cast film extrusion and allows for testing on an industrial scale. This ensures that even new solutions always provide the highest level of reliability and quality. This makes the plant the perfect addition to the services provided by the SÜDPACK development center and technology center.

With multiXtrusion, which we use to perform tests and customer sampling, we have been able to significantly speed up the cycle time of our development projects. The quantities of waste and energy requirements that are usually generated in the production of small volumes with our industrial facilities have also been significantly reduced.

multiXtrusion

The EU Strategy for Plastics and the Green Deal have resulted in a need for innovation in terms of recyclable packaging concepts that conserve resources. The complexity of our customers' requirements is further increased by differing interpretations at the Federal State level. multiXtrusion offers the necessary flexibility and speed to provide a rapid and high-quality response to varying requirements, which is something that is also reflected in our pioneering roadmap for sustainable packaging solutions.

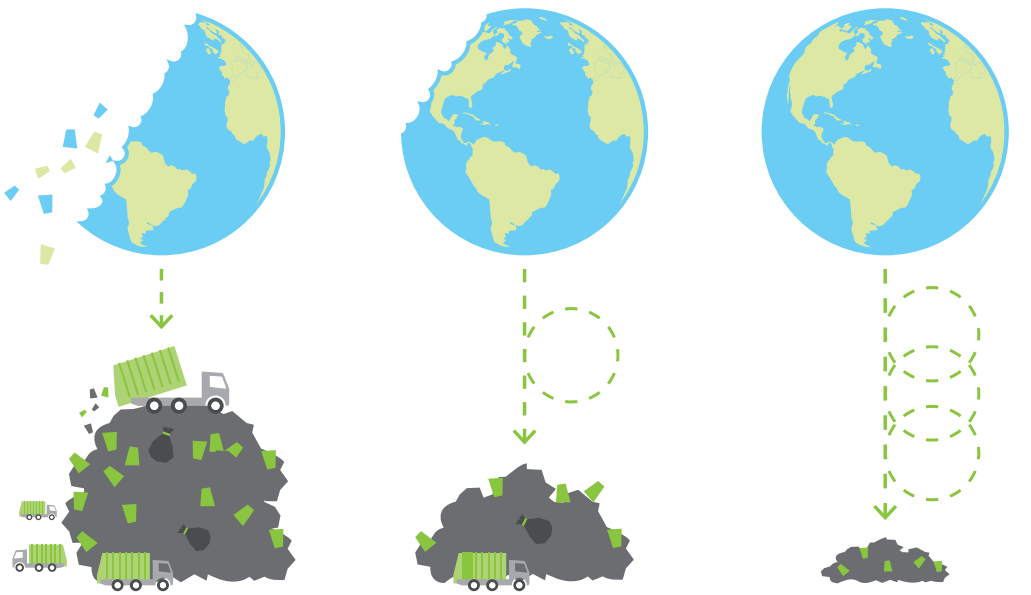
A catalyst for new product development: With the multiXtrusion pilot plant, SÜDPACK's film experts can develop new blown and cast films and test them for new applications on site.

# Material Management

## Reducing Resource Consumption and Closing Reusable Material Loops are Our Top Priority

With the consequent implementation of optimization projects, we have significantly reduced the consumption of resources in the production of our materials in recent years. A contribution has also been made by consistently reducing film thickness while still maintaining its performance.

In addition to reducing raw material consumption, we are continuously working on closing reusable material loops. In the production of our APET films, we are able to process recyclate from post-consumer material, which in turn reduces the consumption of virgin materials made from fossil-based raw materials. In our film production as well, inline scrap and start-up material are regranulated wherever possible and incorporated into our coextruded film composites. We also collect and sort the edge strips that are generated during the final conversion of our films, which we then use to produce high-quality regranulate.



Linear Economy | Recycling Economy | **Circular Economy**

To further optimize our waste management, we are working intensely on the regranulation and compounding of reusable materials at our Competence Center.

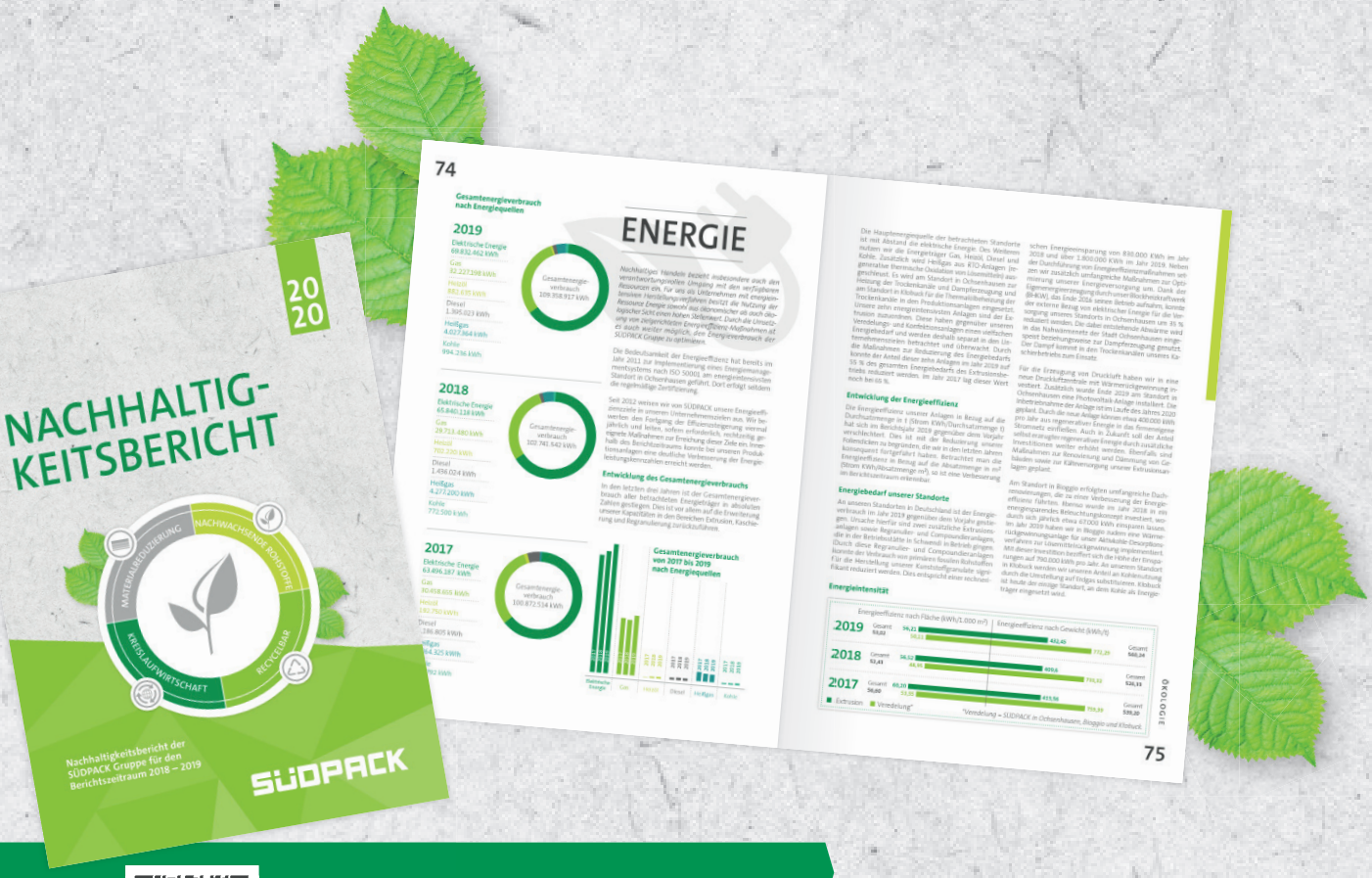
# Climate Neutrality as a Long-Term Goal

*Protecting our climate is of top priority for SÜDPACK. It is therefore our goal to further reduce the carbon footprint of our activities in order to actively contribute to reaching our long-term goal of climate neutrality for our company group. This is based on the definition of our climate strategy, from which we derive the corresponding initiatives.*

For us as a company with energy-intensive manufacturing processes, the use of energy as a resource is of great importance from both an environmental and from an economic point of view. This is why we have put targeted energy efficiency measures into practice to further optimize the energy consumption of the SÜDPACK Group. As far back as 2011, we implemented an energy management system at our site in Ochsenhausen and have since worked on its continuous improvement.

We are also expediting the use of renewable energies. Now that our photovoltaic system at the Ochsenhausen site has been commissioned, further investments are also being planned.

Furthermore, the optimization of our product portfolio in terms of carbon footprint is of high priority in our activities. We contribute to this by reducing resource and energy consumption during product production and also by using raw materials with a lower carbon balance. We also support our customers in assessing and optimizing different packaging concepts in terms of their carbon balance, which in turn contributes to meeting current market requirements.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SÜDPACK Holding GmbH
Ecoformstr. 1
88416 Erlenmoos | Germany
Phone +49 (0) 73 52 925-01
Fax +49 (0) 73 52 925-1100
info@suedpack.com
www.suedpack.com

SÜDPACK