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Closed material cycle for sustainable packaging

The introduction of the European Packaging and Packaging Waste Regulation (PPWR) in January 2025 means that the issue of reconditioning, recycling and the use of plastic recyclates will become even more critical for all those involved in the packaging value chain. As well as being functional and economical, solutions that aim to be truly future-proof must also comply with the highest ecological standards. With its Green Lifecycle Management, Schütz demonstrates how the entire packaging life cycle can be optimised to be as green and eco-friendly as possible.

Ambitious targets and standards, such as the European PPWR, are increasing the pressure on companies to find innovative ways of recycling materials and developing sustainable packaging solutions. For example, from 2030 on the regulation stipulates recycling quotas for various types of plastic packaging. This requires businesses to rethink all processes in the packaging life cycle.

A cleverly designed circular system

It takes an efficient recycling system to conserve resources and minimize CO₂ footprints. As a pioneer in the circular economy, packaging manufacturer Schütz has developed a sophisticated system to minimise material and energy consumption in the production process. Through technical innovations and continuous research, the company has succeeded in making its products, which include IBCs, plastic drums and plastic jerrycans, lighter and more efficient. Another key aspect is the worldwide collection of emptied industrial packaging through the Schütz Ticket Service for subsequent reconditioning in accordance with the highest environmental and safety standards.

Last but not least, the system includes comprehensive plastic recycling. Schütz processes the recovered HDPE in the company's own recycling centres to make high-quality regranulate. This material is used to produce new packaging, such as the Schütz Green Layer series. As a result, Green Lifecycle Management not only offers ecological benefits by conserving resources and reducing CO₂ emissions, but also significant economic advantages, for example through the reduction of disposal costs. And because the material cycle is closed, Schütz retains full control over the quality of the packaging collected for recycling.

Resource efficiency thanks to innovative technologies

The packaging specialist consistently utilises technological innovations to minimize the carbon footprint of its packaging. The focus is on optimising the use of materials and the energy needed to produce a unit. Schütz shows that even the smallest material savings can have a major impact on the environment. To achieve this goal, the company vets all its processes in a comprehensive process analysis, harnesses the benefits of its high level of vertical integration and employs modern production methods. One key step to conserving resources is to reduce the weight of the packaging without compromising on quality and functionality.

An example of the successful combination of resource efficiency and performance is Schütz's Ecobulk product family – the most widely used intermediate bulk container (IBC) in the world. Through continuous further development of the components, in particular the HDPE inner bottles and steel grids, the company has succeeded in reducing the amount of material used while at the same time improving performance even further. The company saves around 120,000 tons of CO₂ every year thanks to the reduction of raw materials in production.

Collection and reconditioning

A central element in Schütz's recycling system is the collection and reconditioning of used packaging. With a global logistics network of 61 production and service locations, the company has the ideal infrastructure for the efficient collection of emptied packaging. This dense network not only ensures short transport routes, it also lends itself to software-supported route optimisation, which minimises CO₂ emissions and ensures the wide availability of the collection service.

After collection, a state-of-the-art reconditioning process based on advanced technology starts. Each packaging item is first analysed using AI and 3D scanning technology. Condition and any residues in the container are precisely recorded. An extensive internal database with over 400,000 different filling products is used to plan the optimum reconditioning steps. Based on these analyses, the system determines the next process steps. As part of the reconditioning process, the inner bottle of the IBC is replaced, while the steel grid and pallet are cleaned, checked and repaired if necessary. These components are designed in such a way that they can be used for several packaging cycles, which significantly increases the service life of the packaging and reduces the need for new raw materials.

Up to 100 kilogrammes of CO₂ can be saved per packaging cycle by reconditioning IBCs in line with the Recobulk programme. Customers benefit from the easy, customer-centric Schütz Ticket Service and the efficient disposal of used packaging. Even the smallest quantities or IBCs from compatible third-party brands are collected.

Plastics recycling: circular economy in perfection

As part of the overall recycling concept, Schütz operates state-of-the-art recycling centres that process the HDPE material after shredding and cleaning in various mechanical preliminary stages to produce high-quality,

odourless and homogeneous pellets. This flows into the production of new packaging components. In this way, recycled material is turned into high-performance pallets, corner guards and other components such as flaps or acid protection inserts.

In the Green Layer series packaging, the recycled pellets are used for the middle layer. By using state-of-the-art 3- and 6-layer extrusion systems, Schütz is able to significantly increase the proportion of recycled material in the products: the middle layer of the IBC inner bottles, jerrycans and plastic drums in this product range consists of high-quality, natural-coloured regranulate. The inner and outer layers are made of HDPE virgin material meaning that the contents only come into contact with new material.

This process guarantees the highest safety and quality standards, especially for hazardous goods packaging. Together with the pallets and corner guards made of recycled plastic, the total proportion of recycled material in the Green Layer IBCs can be increased to up to 70 per cent. The increased use of recyclate significantly reduces CO₂ emissions per packaging. The use of recycled pellets in green layer packaging enables additional savings of up to 6.8 kilogrammes of CO₂ per IBC and up to 3.8 kilogrammes per plastic drum.

Advantages of Green Layer packaging by Schütz

- Exclusive use of Schütz Green Layer regranulate obtained from meticulously controlled, in-house production
- State-of-the-art multi-layer extrusion ensures that this material is used only in the middle packaging layer
- The recyclate has a uniform colour and is practically odourless thanks to several successive processing steps
- Guaranteed conformity for the packaging application
- Same standard specification and same level of hazardous goods approval as the corresponding Schütz packaging made from 100% HDPE virgin material
- Hazardous goods packaging undergoes regular, randomised testing

Sustainability through joint action

Sustainability can only be achieved effectively if everyone involved along the value chain actively works together. This is why customers and users play a decisive role in Schütz's Green Lifecycle Management. Their responsibility begins with the return of empty packaging through the Schütz Ticket Service. The more used IBCs, drums and jerrycans that are returned to the cycle, the more effectively Schütz can produce high-quality recyclate and use it in new packaging. This participation is essential in order to close the material cycle and ensure the long-term availability of recycled material. Looking ahead, it is clear that the systematic expansion of the circular economy will continue to become increasingly important.

Images and captions:



Caption: With the Schütz Ticket Service, Schütz not only offers the global collection and reconditioning of emptied packaging, it also offers customers the opportunity to make a contribution to protecting the environment.

Photo: SCHÜTZ



Caption: At its recycling centre in Selters, Schütz processes used material to obtain regranulate which is used to make new packaging components.

Photo: SCHÜTZ



Caption: The Schütz Green Layer product line uses high-quality recycled material for the production of IBC inner bottles, jerrycans and drum bodies.
Photo: SCHÜTZ



Caption: The Schütz plastic frame pallet is exceptionally resource-friendly as it can be reused and is also made from HDPE recycle.
Photo: SCHÜTZ

About SCHÜTZ

Schütz GmbH & Co. KGaA is a leading international producer of high-quality transport packaging (Intermediate Bulk Containers, PE and steel drums, and jerrycans). The Group's headquarters are in Selters, Germany. Founded in 1958, SCHÜTZ employs over 7000 people at more than 61 production and service sites around the world. The four SCHÜTZ business units, ENERGY SYSTEMS, PACKAGING SYSTEMS, INDUSTRIAL SERVICES and COMPOSITES, each hold leading positions in their respective markets. The Group's turnover in 2023 was 2.3 billion euros. The company offers its customers full system solutions that are tailored to their individual supply chain. With the SCHÜTZ TICKET SERVICE, a closed-loop cycle of speedy collection and reconditioning for used SCHÜTZ IBCs, Schütz provides all of the world's major industrial nations with a service that fully complies with the Group's sustainability philosophy.

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