

INDUSTRY ARTICLE

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Recycling concepts help save money

There is scarcely another topic that is grabbing the attention of the European packaging industry as much as the new German Packaging Law (VerpackG § 21) that goes into effect in 2019. This was also reflected by the significant interest in the presentations by the bdvi held at the TechBox Forum at FachPack 2018.

The opening presentation was by Jochen RÜth, Head of Disposal at the Central Packaging Registry (ZSVR). From January 2019, this foundation will be the new agency responsible for the control of packaging recycling. It has produced an initial how-to guide for assessing the recycling-compliant design of packaging. The specifications contained in the how-to guide will be mandatory as a minimum standard from 2019.

Assessing recyclability as a basis

Rüth explained that the minimum standard developed by the ZSVR would be updated annually and refers only to assessing recyclability. This covers the entire empty packaging including packaging components that typically occur together such as labels, sealing films, lids and closures. “The reusable material content available for recycling determines the recyclability according to the how-to guide and therefore determines the licence fees to be paid,” explained Rüth.

The minimum requirements include the existence of screening and infrastructure facilities for the respective materials and/or material categories, the sortability of the recyclable portion and material-specific incompatibilities that hinder or preclude recycling. For specific packaging compositions and properties, a precise measurement of the recyclable component will be necessary in future. Reasons necessitating a more precise measurement include e.g. large-scale labelling using non-reusable material, full-sleeve labelling, multilayer structures, dark colours using soot-based dyes and different types of plastic on front and back.

By publishing its how-to guide, the Central Packaging Registry and German Environmental Agency aim to give the dual systems the opportunity to

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develop financial incentives for recycling-friendly packaging at an early stage. In practice, this will be managed through licensing fees that will be incurred depending on the recyclability of the material. The draft of the document is currently undergoing a consultation process and the final how-to guide is expected to be ready at the end of October.

Design approaches for better recyclability

Companies like Pacoon, an agency for packaging design and sustainability, also provide support with implementing a high level of recyclability. Its CEO Peter Désilets talked about how packaging design can do its part. As well as material savings through the use of skin packaging and mono material, other possible strategies are to replace plastic with fibre and paper trays.

Désilets stressed that manufacturers should also make sure that different materials can be easily separated. Sealing films made from aluminium or paper sleeves around polypropylene cups can hinder the recycling process, as the systems are not able to recognise the plastic and transfer it for recycling. This undermines attempts to increase the recycling rate and the packaging is not categorised as recyclable. In the case of a well-known pot noodle-type product, this problem was solved by making the sealing film out of the same material as the cup.

The agency advises that consumers should also be made aware that recyclate is being used. These products should differ from “conventional” products in their form, material and design, and should also possibly look different from other product packaging.

The recyclate initiative by Werner & Mertz

As far as the use of recyclate is concerned, Werner & Mertz, a manufacturer of cleaning products, has done important pioneering work in recent years. Both the packaging and cleaning solutions produced by the Mainz-based family-run company are cradle-to-cradle certified. Werner & Mertz rigorously pursues the “design for recycling” approach that Immo Sanders described in more detail in his presentation. The company has systematically adhered to this principle. Nowadays, all transparent PET bottles from the company's Frosch brand contain 20% PET from post-consumer waste and 80% PET from the European collection system for PET bottles. 200 million of these bottles have been sold in total, saving 6,000 metric tons of virgin PET.

As well as the packaging for the bottles, the company also pursues the cradle-to-cradle principle with its coloured caps, print colours and labels for its products. In April 2017, for example, it presented the first flip-top cap from 100% recyclate made from post-consumer waste. By 2022, all caps and spray attachments are to be converted to cradle-to-cradle material which will also stop using certain pigments. These efforts give the Mainz-based company's products a satisfactory ecological footprint and put the manufacturer a few steps ahead of the market in terms of development.

Evaluation of recycling in life cycle assessments

Benedikt Kauertz from ifeu, the Institute for Energy and Environmental Research in Heidelberg, explained how complex the evaluation of recycling can be and which fundamental political issues need to be clarified in this context. “The political recycling targets are prescribed by the packaging regulations and packaging law as well as EU goals. But what ideal superstructure provides the framework for the circular economy?” the researcher asked. According to Kauertz, the answer is the transformation of production systems away from a “linear” model of material consumption towards a closed product and/or material loop, in which waste is considered a resource. The declared aims are higher raw material efficiency, reduced environmental impacts and the Europeanisation of the value creation chain.

Kauertz argued that the EU's plastics strategy is not really new, but an expansion of the general objectives of the circular economy to the material plastic. As the manufacture of primary material can be directly avoided, the use of recyclates is even better for the life cycle assessment result. The greater quality the substituted material, the better the ecological footprint, says Kauertz. In the subsequent presentation by Sven Sänglerlaub, Business Development Manager Packaging at the Fraunhofer Institute for Process Engineering and Packaging (IVV), the audience learned how this can be implemented in practice.

More efficient packaging processes for the circular economy

The Fraunhofer IVV in Freising provides practical support for creating the circular economy. Through its CreaSolv process, the institute offers companies a mature technology for re-using post-consumer waste, for example. In the course of research commissioned by Unilever, a recycling solution for plastic sachets was developed in Asia. Thanks to the process, IVV was able to make possible the recycling of composite waste and create

the basis for a commercial facility. As well as giving other examples of how the technology can be used to cost-effectively separate and recycle composite waste, Sangerlaub also addressed a frequent problem associated with post-consumer waste, the unpleasant smell. The IVV is undertaking intensive research into how to avoid off-odours and which substances are pivotal in this context. The research establishment is helping industrial users to develop concepts to prevent unpleasant odours and introduce measures for sensory optimisation.

Last but not least, the subsequent machinability plays an important role in the recycling of plastics. In this conjunction, the experts are advising equipment manufacturers with analyses and proposed solutions for packaging materials, packaging and processes. The all-in-one service is intended to give manufacturers practical and efficient options to allow them to do their part in achieving the recyclability demanded by the packaging law and in doing so help create a circular economy.

From 24 to 26 September, FachPack 2019 will once again address the issue of the circular economy under its main theme “Environmentally compliant packaging” and will provide information on the current progress made with the implementation of the packaging law.

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