



The Focus is on Sustainable Labels, Pouch Materials and Printing Ink

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The Frosch Recyclate Initiative has set goals for effective plastic recycling in 2016. Werner & Mertz is encouraging its partners to work together on HDPE recyclates.

For some time now the Mainz-based Werner & Mertz has manufactured its bottles for cleaning products from 100% PET recyclates. It's the source, however, that makes the difference. The company uses deposit bottles of PET and non-deposit bottles and trays from the Yellow Bag collection system for household packaging waste. "We adhere to a genuine recycling principle with the goal of doing without crude oil in the production of plastic packaging. In its place we obtain reusable material from a previously untapped source and reprocess it into a high-quality material that can even be used in foodstuff packaging," says Werner & Mertz CEO Reinhard Schneider about his idea of an effective packaging cycle. Werner & Mertz has offered proof by successfully bringing to market more than three million FROSCHE cleaning product bottles, some of which are made from secondary raw materials from the Yellow Bag (rPET) and others of used plastic from the deposit bottle collection system. The mixture's ratio is about 20% rPET to 80% used plastic. More PET, however, could be used as 1.2 million tons of plastic now end up in the Yellow Bag, about 10% of which is discarded PET. While 50,000 tons of used plastic are reprocessed into low-quality textiles, another 70,000 tons are used as auxiliary fuel in incinerators. The latter use has far-reaching consequences for the environment. Not only is the material irretrievably lost to the circular economy, but emission levels and the amount of carbon dioxide in the atmosphere also are increased.

Participation from competitors is desired for the benefit of economic efficiency

Both PET bottles and PET trays (e.g., containers for fruit and vegetables) from the Yellow Bag can be used in the production of rPET material to serve as a resource-preserving basis for transparent packaging. After use the packaging can be fed back into a technical cycle. The emphasis here is on the word "transparent". With the help of high-performance sensor laser technology, the PET flakes are separated, washed and processed into a flawless reusable material which can completely replace new PET made from fresh crude oil (virgin material) in packaging. Since 2012 the ground-breaking system has been developed within the scope of the sustainability project known as the FROSCHE Recyclate Initiative. In this unique cooperative effort, partners from many different industries bundle their know-how to create a sustainable circular economy and to make the manufacturing process more economical along the entire value chain. In addition to the Dual System Deutschland (DSD), the Mainz-based eco pioneer and initiator Werner & Mertz has signed on the sensor technology firm UNISENSOR of Karlsruhe, the Austrian packaging company ALPLA, the trading, travel and tourism company REWE Group, and NABU Deutschland. Other participants, including private label bottlers BEROMIN and DALLI and the Hamburg-based health and cosmetics chain Budnikowsky, will soon use rPET from the Yellow Bag in the manufacture of their packaging too. The initiator is pleased that the competition has heard about the Recyclate Initiative. "The more companies



involved, the greater the chance for a genuine circular economy of packaging waste," says Schneider.



Bottle manufacturing by ALPLA on Werner & Mertz premises, where bottles also are filled. The development departments for bottle-filling at ALPLA and packaging at Werner & Mertz work closely together.

Soluble adhesive and no use of critical substances

The Cradle-to-Cradle® principle, which calls for the return of all a product's components to a closed technical or biological cycle, requires the recyclability of the packaging's components. Werner & Mertz has committed to following this principle. In other projects, harmless ingredients are replacing critical substances in pigments (masterbatch) for bottle caps and developers are working on a recyclable label solution. The challenge lies in developing a label which provides the consumer with all required information and remains on the packaging while the detergent is in use, but can be completely removed in the hot wash during recycling of PET flakes so that it cannot contaminate the reusable material flow. "A plastic flake is valuable to the recycling process when the label adhesive and the entire label can be completely washed off," explains Immo Sander, Head of Packaging Development at Werner & Mertz. "The economical efficiency of all plastic recyclates can be improved significantly when the yield from the raw material source Yellow Bag increases."



Cooperation with ALPLA intensifies

Development of a recyclable label solution is just one of the advanced goals of the Recyclate Initiative for 2016. In collaboration with DSD and the recycling division of ALPLA, the Initiative partners want to establish an efficient supply chain that guarantees consistent quality of rPET and a continuous supply of this waste product. Werner & Mertz intends to continue and expand its close and trusting cooperation with ALPLA in 2016. For its part ALPLA will use the company's recycling site for manufacturing and expand its silo capacity.

Together with DSD and the development department at ALPLA, Werner & Mertz has identified an HDPE recyclate that can be used in the manufacture of bottles and canisters. HDPE recyclates with a share of up to 30% are already used in packaging for the industrial consumer line green care PROFESSIONAL. With the material from the Yellow Bag provided by DSD, HDPE bottles can be manufactured with a much higher proportion of recyclates. The Initiative is pursuing the declared goal of using the packaging waste from the Yellow Bag, which it considers the right source for rHDPE.

Other goals and sustainability planned for the future include the development of a demonstrably sustainable and recyclable packaging film material for pouches and sustainable printing ink systems for labels and films. Some applications for patents have already been submitted and preliminary talks with printing ink manufacturers have been conducted.



The still-hot preforms are blown into bottles, which go into the cooling tunnel in the next production step. At the end of the processing chain, the recyclate PET bottle is used domestically and internationally.



The Frosch Recyclate Initiative

The Recyclate Initiative brought to life in 2012 by Werner & Mertz CEO Schneider is based on Open Innovation. Several awards, including the Federal Ecodesign Award, German Packaging Award, ECR Award and most recently the Cradle-to-Cradle™ Innovator Award, verify the benefit of this flagship Initiative for effective plastic recycling. More about the Recyclate Initiative and the awards it has won can be found at www.werner-mertz.de, www.ganzheitlich-nachhaltig.de and www.wmprof.com

Photos: Werner & Mertz

Recyclate Initiative members:

FROSCH, the trusted brand from Erdal-Rex GmbH in Mainz, subsidiary of Werner & Mertz GmbH, is the initiator, driving force, filler and implementer of the innovation.

REWE Group supports the Initiative as the interface to consumers and helps to raise consumers' awareness of sustainability in packaging.

Green Dot – Duales System Deutschland GmbH (DSD) is the collection system (Yellow Bag) for consumer packaging waste; provides access to sorting and recycling capacities.

UNISENSOR Sensorsysteme GmbH ensures fine sorting for PET flakes from Yellow Bag by means of high-speed laser spectroscopy (Powersort 200).

ALPLA Werke Alwin Lehner GmbH & Co KG manufactures high-quality PET bottles from recovered material with up to 40% recyclates from the Yellow Bag.

NABU – Naturschutzbund Deutschland e.V. supports value-adding development with its expertise.

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