

rPET SCHOOL MILK CUP

WINS 2022 WORLDSTAR SUSTAINABLE PACKAGING SPECIAL AWARD



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SUSTAINABLE PACKAGING
SPECIAL AWARD ★
GOLD WINNER



rPET school milk cup

PET-MAN, Starlinger viscotec, Greiner Packaging, Schulmilchbauern Oberösterreich

KEY FEATURES

- ★ Closed Loop Collection program
- ★ Unique solution for fresh milk for schools
- ★ Recycled PET that is Food Safety Approved
- ★ Can be recycled over and over again into more school milk cups
- ★ Mono Material Recyclable Design
- ★ Minimises Food & Product Waste
- ★ Minimises the use of single use plastics
- ★ Collaborative solution for the wider industry



Starlinger



PET-MAN
PET-MANUFACTURING

greiner
PACKAGING

The packaging solution and recycling loop have been realised in a cooperation between three companies (recycling technology producer, sheet producer, packaging producer) and Austrian school milk producers, who established a closed recycling loop for yoghurt cups:

Starlinger viscotec is an Austrian technology and machinery provider, that produces machines and plants for the refinement of recycled PET for food contact and extrusion lines for PET sheet made from up to 100 % rPET. www.viscotec.at

PET-MAN is a converter who supplies food grade and environmentally friendly PET sheet made from post-consumer material. www.petman.at

Greiner Packaging is a leading European manufacturer of plastic packaging in the food and non-food sectors. www.greiner-gpi.com

The clients (and project partners) are the **Upper Austrian school milk producers**, who provide children with fresh products ordered directly to schools and kindergartens.



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In the context of your award-winning packaging innovation, what do you see as Sustainable Packaging? How does this pack stand out?

The three-way partnership is fully-convicted of the advantages of PET as packaging material since recycled PET (rPET) is a sustainable material choice with a low carbon footprint. PET is ideal for mechanical recycling because its material properties (for example, intrinsic viscosity) can be restored in the recycling process. Unlike other plastics, PET has the advantage that collected PET bottles and trays can be recycled back into new rPET packaging that is approved for food contact, e.g. by the European Food Safety Authority.

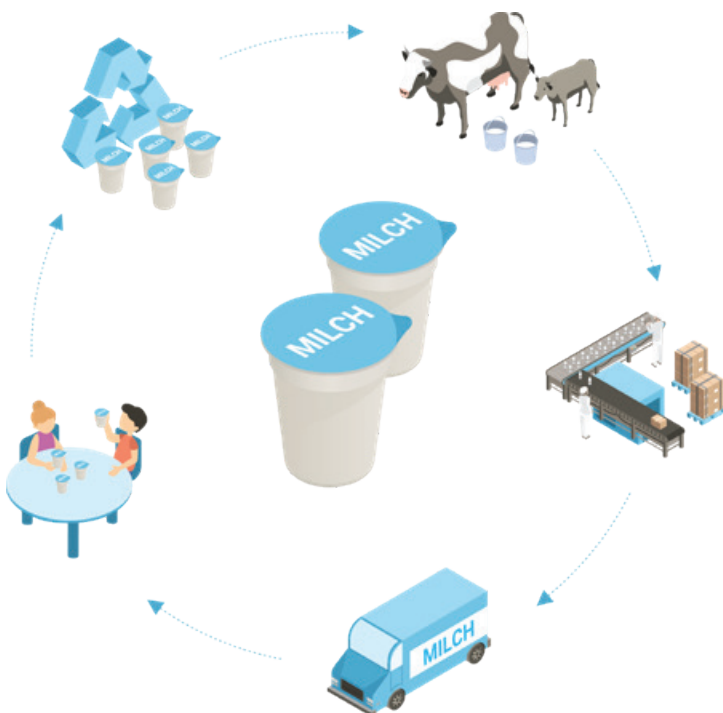
The PET beverage bottle was the blueprint for the development of the rPET school milk cup. A beverage bottle can be turned into a beverage bottle again after recycling. For food packaging, PET/rPET currently meets the requirement of a closed loop. A beverage bottle, however, which after recycling becomes, for example, a car interior trim, goes into a so-called 'end-of-life' application and thus is lost for the food packaging recycling loop. The rPET school milk cups consist of 100% recycled, unprinted rPET mono material and can be recycled over and over again into 100% food-grade cups.

What would you say were the decision-making drivers (Internal and External) influencing this award-winning packaging design? Did your client or the consumers request the changes?

The producers of the school milk were actively searching for a more sustainable packaging solution for their dairy products. In the past, they sold their yoghurts in glass containers or cups made from PS or PP. Glass containers are heavy, the washing is time-consuming and requires a lot of water and detergents – nothing that lands well with an organic farmers' values. In their search for sustainable packaging, the school milk producers tried different packaging solutions, such as cups made of compostable plastic, which did not live up to their sustainability claim.

The school milk producers' requirements towards the packaging were: it should be environmentally friendly, stable, and lightweight. It has to be recyclable and ideally white, since dairy products must be protected from UV light.

In spring 2020, the school milk producers got in touch with Starlinger viscotec, who proposed to develop an unprinted cup, made from 100% recycled PET. The second objective of the project was, to create a closed-loop recycling system for this new packaging to avoid waste. To achieve this goal, the cooperation of other players in the value chain was also necessary. The companies PET-MAN and Greiner Packaging became part of the project and implementation as cooperation partners.



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What benefits does this new design offer your business/your client's business and the end consumers? Why is the pack more sustainable?

The cups are recyclable, are unprinted, do not contain plasticisers, are 100% safe for food contact, and thanks to the reduced material use they have a smaller CO₂ footprint than previous cups, meaning they have an even better CO₂ balance than glass. Plastics do not have a good reputation in the public eye. With recycled plastics, however, high packaging quality meets an excellent eco-balance. The rPET cup is a local product that is 100% recyclable. In comparison to glass bottles, rPET cups need less energy throughout production, they are lighter and require less energy to be cleaned. Overall, the new rPET cups cause one-third less CO₂ emissions than glass bottles. In addition, no 'new plastics' are being used. Not only the material choice and the design of the packaging make the rPET cups the more sustainable alternative, but also the recycling loop which has been established to bring back the used cups and recycle them back into new rPET cups. This recycling loop is economical, as it creates added value in the region and makes efficient use of resources. The social aspect of recycling education and the promotion of regional agriculture complements the sustainable model.



What volumes of materials, packaging and waste have you saved by designing this new packaging? Did you do this through changing materials, light weighting, recycled content, making the packs recyclable, compostable or reusable?

First and foremost is **material choice** and **Design for Recycling**.

The school milk rPET cups avoid waste, since the packaging is recycled in a closed recycling loop. The low CO₂ footprint is achieved by reducing material use and weight. The cups are made from recycled material AND they are designed to be recycled over and over again.

As part of the project, a carbon footprint analysis was carried out to determine the savings potential of the new rPET cup in terms of emissions. The carbon footprint provides information on how many greenhouse gas emissions (including C, methane, nitrous oxide) are produced in kilograms of C equivalents over the entire life cycle of a product or service. It is calculated for a defined, functional unit - in this case the four school milk packages. c7-consult determined the climate footprint of the school milk rPET cup and compared it with previous school milk packaging. In the analysis, the rPET cup performs significantly better with 21 g C equiv./cup. The use of recycled material, the short distances and the lower weight make the collection of the cups particularly CO₂ efficient.

At 34 g CO₂ equiv./packaging unit, the PP plastic cups cause 21% higher CO₂ emissions than the rPET cup. The PS cup and the returnable glass even cause 50% more CO₂ emissions compared to the rPET cup, with 42 g CO₂-equiv./packaging unit each. rPET is thus clearly the more environmentally friendly alternative.



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How much on-pack and off-pack information do you provide the consumers? e.g.: QR/2d codes, recycling logos, certifications, links to websites, labelling on pack, how to correctly dispose of the packaging/components?

On-pack information

The rPET cup itself is unprinted, to enable recycling in food grade quality standards. Direct printing on the cup would impede recycling and would stain the 'whiteness' material in the following recycling cycle. The product information and recycling information is provided on the sealing lid.

Off-pack information

The introduction of the new packaging solution was accompanied by an information campaign for the consumers (pupils and parents). The project has also helped to raise awareness for recycling and correct disposal of packaging. Children should be made aware of the sustainable use of nature as early as kindergarten and school age. By using the 100% recycled rPET cups, they learn at an early age that plastic is not just plastic and that it makes a big difference whether packaging is simply thrown away or can be used to make new packaging over and over again.

What do you feel will be needed to further improve packaging design in your country and also globally in the future? (e.g. education, investment, policy/legislation, technology, etc?)

Markus Fellingner, General Manager of Starlinger viscotec, frames the broader vision and objective: *"We have to achieve high recycling rates, such as those already established for beverage bottles, also for other food packaging such as yogurt pots and trays. Packaging made from recycled PET is sustainable because this material can be recycled virtually infinitely and to a high quality."*

The three key ingredients required to achieve these high recycling rates are: cooperation along the value chain, 'Design for Recycling' taken seriously, and communication. It is key to convey the value of any used packaging to the consumers. Sustainable packaging is not just black-and-white with simple answers and ready-made solutions. It requires dialogue between the stakeholders, and dedicated people with a clear vision, to implement many successful examples of sustainable packaging that are 'circular by nature'. A legal framework which fosters investments into collection and sorting, plus recycling infrastructure, is what we will require not only in Austria but for all European countries.

What does your company have planned in the future? Any new innovations on the horizon?

Since the projects start and the introduction of the closed rPET cup recycling loop (in 2021), school milk producers of other regions have followed the example and introduced the new packaging.

Every project partner has continued their efforts to promote the idea of closed recycling loops. Starlinger viscotec has introduced the rPET100 sheet material, a heat-resistant and fully recyclable sheet material for thermoformed packaging, designed for hot-fill applications and dairy products.

Greiner Packaging has introduced the K3® r100 design, a sustainable packaging solution whose cardboard wrap separates from the plastic cup all by itself en route to the recycling plant.





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What does winning global WorldStar Packaging Award mean to you and your team?

“The fact that the World Packaging Organisation has awarded the golden sustainability award to our recyclable and recycled plastic packaging, among all products, makes us very proud,” says Markus Fellinger, General Manager of Starlinger viscotec.

We feel encouraged by the award in our path and our vision. By implementing the closed-loop school milk cup, the project team also wanted to show that it is possible to establish a closed loop for dairy packaging made of rPET in the future.” Markus Neudorfer, Managing Director of PET-MAN, puts it like this: *“Food packaging made from white PET/rPET is a valuable secondary raw material. Our vision is to establish the collection and recycling of white rPET.”*

Johannes Strobl, who represents the Upper Austrian school milk producers, has expressed his pleasure on behalf of all school milk producers about the great recognition and appreciation of the efforts to pack their products as sustainably as possible. He shares with us that the schools are excited about the project. *“They appreciate the fact that the used rPET cups really are made into new cups.”*



WorldStar Packaging Awards

Owned & Operated by the World Packaging Organisation the WorldStar Packaging Awards is the preeminent awards program in the world.

Only packaging that has won recognition in a recognised national or regional competition, either in the present year or the previous year is eligible to apply for WorldStar Competition. Currently, 73 competitions from 39 countries and regions are recognised by WPO as qualifying for entry to the WorldStar Packaging Awards program.

There are 18 General award categories and 5 special awards including Accessible Packaging Design, Marketing, Sustainable Packaging Design, Packaging that Saves Food and the President's Award.

WorldStar Special Award - Sustainability

The **WorldStar Sustainable Packaging Design Special Award** is designed to recognise companies that have developed innovative packaging solutions that incorporate sustainability considerations. All entries are judged on Sustainable Packaging Design considerations such as social impact, material, source reduction, energy and recovery.
www.worldstar.org

About The World Packaging Organisation

The World Packaging Organisation is a non-profit, non-governmental, international federation of national packaging institutes and associations, regional packaging federations and other interested parties including corporations and trade associations.

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