

VETROTIME

**A welcome comeback!
Milk is in returnable
bottles again**



**High-tech site
Nearing the finish line
in northern Italy**

**Technology
More precision
and faster
set-up times**

**Gostomel
Vetropack resumes
production in Ukraine**

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Echovai lightweight glass bottle sweeps the board at the Swiss Packaging Award 2023

Vetropack's returnable bottle manufactured from thermally tempered lightweight glass using the Echovai process was honoured with the prestigious Swiss Packaging Award in several categories. As compared to standard bottles, this product is proven to be more stable – and, above all, more environment-friendly. These advantages convinced the jury: as well as winning honours in the "Technology" category, Echovai also won the jury's special prize.



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Dear Readers,



After a construction period lasting over one and a half years, we have now begun to heat up the furnaces at our new plant in Boffalora sopra Ticino. Following its official opening in October 2023, this facility will enable us to boost our glass production by as much as 70 percent – with maximum flexibility and sustainability.

We are also making good progress at our Gostomel plant in Ukraine. Despite the severe damage caused by acts of war in February 2022, we have resumed operation of one furnace. We are also providing support for our Ukrainian colleagues through a foundation we have set up specifically for this purpose.

Together with our partners, we are broadening our portfolio and developing relationships in the spirit of partnership. One outstanding example of this is our 'pool solution', which opens the way for us to tap a new market in collaboration with our partners. Another example is the 'shocklogger', developed as a solution for a specific customer problem. And with our Holistic Pallet and Pads Management (HPPM) solution, we are leveraging digitalisation to make our processes leaner and more efficient. In all these ways, we are offering our customers tailor-made solutions that generate added value for them. We are committed to partnership. Partnership opens the way to innovative developments and shared successes.

Promoting the circular economy is one of our heartfelt concerns – and we are fully aware that this is something we can't do on our own. We support the target set by FEVE (the European Container Glass Federation): a recycling rate of 90 percent should be attained by 2030. We firmly believe that raising awareness about this issue has to begin with youngsters. That's why we've launched our "Vetro Challenge" project to make young people aware of the importance of a circular economy.

Why not join in? By taking action together, we can play a critical part in achieving our environmental goals. If we all join forces, we can drive the circular economy ahead and bring about positive change for our environment.

Best regards,

Johann Reiter
CEO, Vetropack Group

NEARING THE FINISH LINE

Starting up the furnaces at our new plant in northern Italy



In May 2023, after a construction period of over one and a half years, Vetropack began the process of heating up the two melting furnaces at its new Boffalora sopra Ticino plant in Italy. The furnaces were brought up to temperature and filled over the course of several days in preparation for the start of production. Following its official inauguration in October 2023, Vetropack's new high-tech plant will be producing up to 70 percent more glass than the previous plant, while ensuring maximum flexibility and sustainability.



site is designed to make production significantly more resource-efficient and sustainable: as far as possible, water used for production and exhaust heat from the melting furnaces are recycled through recirculation systems, and emissions are greatly reduced thanks to state-of-the-art filter systems.

Until now, Vetropack Italia S.r.l. has produced glass packaging at Trezzano sul Naviglio in northern Italy. We are currently relocating production to our new state-of-the-art facility in Boffalora sopra Ticino, located 25 kilometres away. Vetropack has invested more than CHF 400 million in the new production site in order to stay ahead of rising demand in the Italian market and meet increased quality requirements. "The Italian market, with its many global brands, plays a major role in our strategy," says Johann Reiter, CEO of the Vetropack Group.

Flexible and sustainable production

According to Vetropack, the new plant will not only boost production capacity by up to 70 percent compared to the Trezzano plant: at the same time, investments in smart technologies for the Boffalora project will also allow more production flexibility for items such as "semi-specials" – containers that differ from the norm, in smaller batches. Furthermore, the new

"The Italian market, with its many global brands, plays a major role in our strategy."

Johann Reiter

As the new site opens, the existing plant in Trezzano sul Naviglio is facing closure. Once the Boffalora sopra Ticino plant begins operating, it will become the sole Vetropack site in Italy. However, the company's 301 employees will not have to fear for their jobs, because all staff members at the existing site have been offered a transfer. Despite a significant increase in production volume per employee, the current workforce will actually continue to grow due to the higher capacity: training on the new production systems for both new and existing employees began back in 2020.



Using energy with precision

Prior to heat-up, Vetropack conducted a “cold” acceptance inspection of the new furnaces in Boffalora, both outside and inside. The subsequent 24-hour test, also carried out “cold”, confirmed that the equipment on and around the furnaces is functioning optimally. The first furnace was fired up on 22 May, with the second furnace following a few weeks later. Initially, external burners are firing the furnaces. This process takes a total of 14 days: “The furnaces must be heated up from room temperature to 1,550 degrees Celsius in a precise and controlled manner. We follow a previously calculated heating curve to prevent the furnaces from sustaining any damage,” says Christoph Burgermeister, project manager at Vetropack. “Also, the refractory material expands due to the heating, so we have to continuously adjust the pressure pins in the steel structure during this step of the process.”

Once a temperature of approximately 1,050 degrees Celsius has been reached, the furnaces’ own burners are activated to raise their internal temperature to 1,550 degrees Celsius. Filling begins with waste glass cullet, which not only saves valuable resources but can also be melted down with less energy input than raw material. After two to three days, the cullet is supplemented by a mixture of primary raw materials and, finally, is heated for about 24 hours. Following this,

Inauguration party

We are pleased to announce that the official opening ceremony will take place in autumn. This significant event marks an important milestone for our company. Stay tuned and visit our website regularly for the latest news. We also share news on LinkedIn so you don't miss anything.

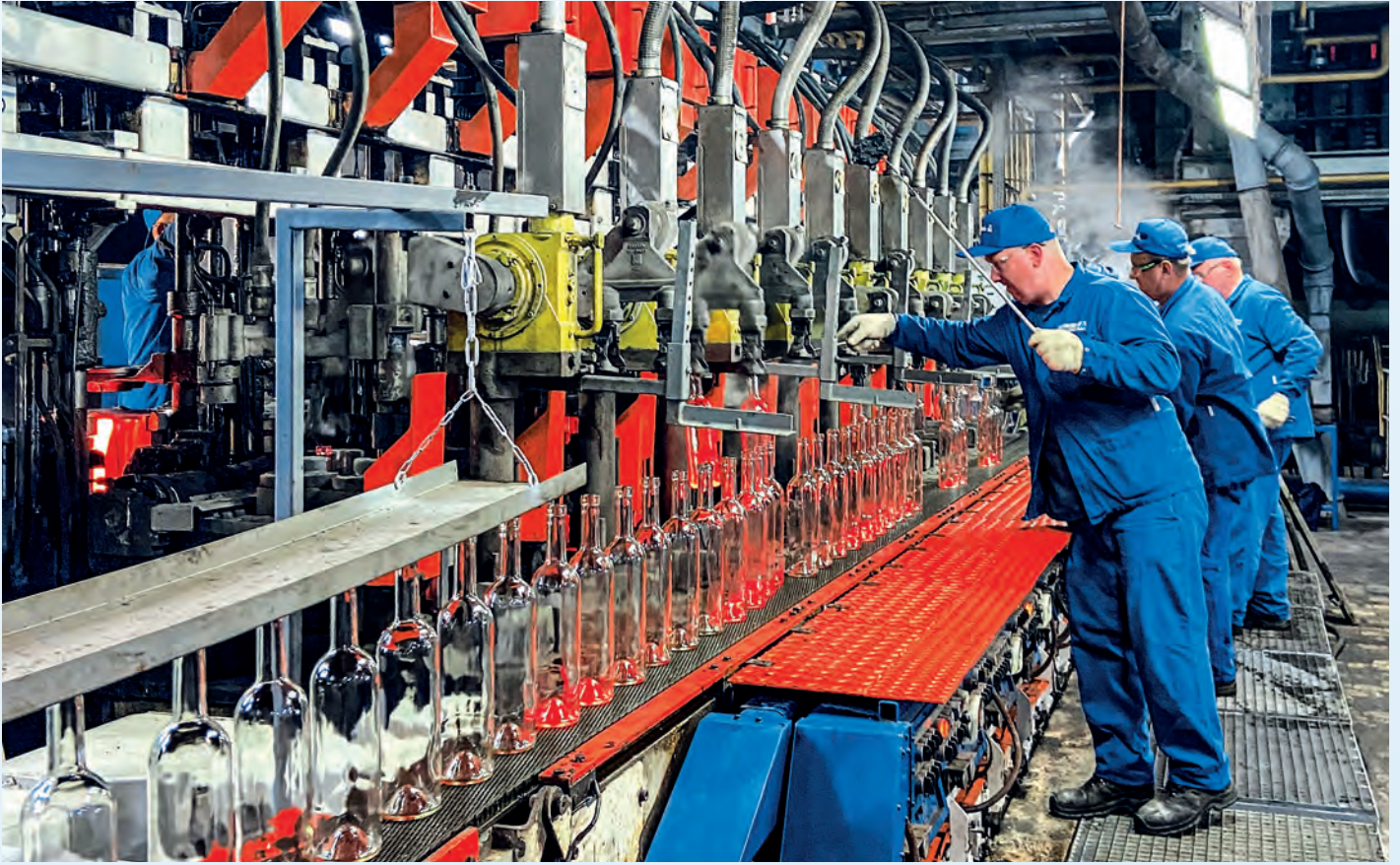


the molten glass passes via the forehearth into the feeders; it is then cut into glass gobs and fed in sequence to the automatic glass container forming machines, which shape the gobs into containers.



GOSTOMEL

Vetropack resumes production in Ukraine



Vetropack is cautiously ramping up operations again at our Gostomel plant in Ukraine. We began heating up one of the site's two remaining furnaces at the end of May. The production facility in Gostomel was severely damaged during a Russian military attack at the end of February 2022. Now, as production resumes, the site is prepared for potential new crisis scenarios.

After an interruption of just over a year, production of glass packaging is starting up again at Vetropack's Ukrainian site, PrJSC Gostomel near Kyiv. From 25 May onwards, the first melting furnace was brought up to temperature and filled.

Vetropack is initially resuming the production of white glass for food and beverages, as this is where we see the greatest demand. "The domestic market has slowly been recovering, and many companies are restarting production," says Pavel Prinko, General Manager of the Business Unit Ukraine/Republic of Moldova. "We expect a year-on-year increase of around seven percent in demand for glass packaging for food and soft drinks in 2023, which is in line with our production capacity." The second furnace will start operating in the near future.

The priority in resuming operations is to protect the workforce, and the site is also prepared for all possible emergency scenarios. Vetropack has developed various engineering scenarios so the energy supply can be guaranteed in case of blackouts. We have remodelled the electrical distribution system and installed additional generators. Appropriate contingency plans have also been put in place for potential disruptions to the supply of natural gas or oil.

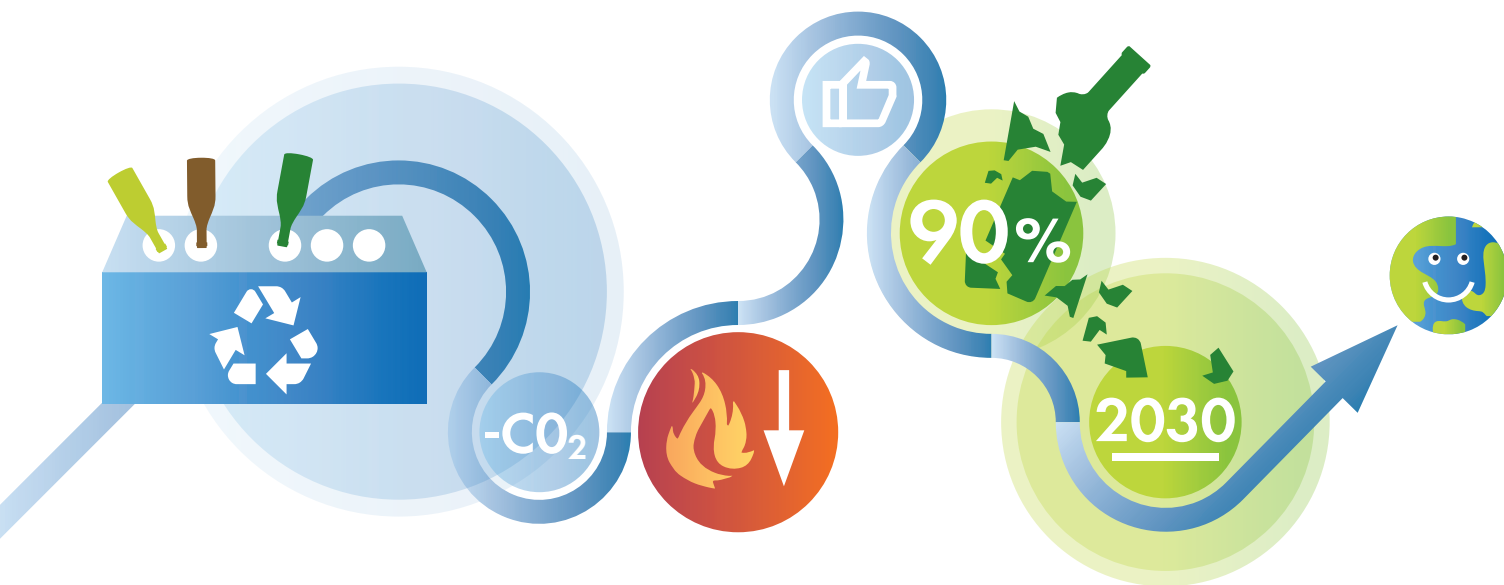
In summer 2022, Vetropack set up a foundation to support employees whose house or apartment was destroyed, or who were seriously injured in the hostilities. The Vetropack Gostomel Foundation began paying out the first relief funds at the start of 2023.



CIRCULAR ECONOMY

Closing the gap

90 percent! That's the glass collection and recycling rate the European Container Glass Federation (FEVE) aims to achieve by 2030 – an ambitious goal, and an appeal for the glass recycling economy to reach its full potential. Vetropack pioneered glass recycling in Switzerland from the outset, and we are now investing in modernisation measures to continue significantly increasing the proportion of used glass in new glass production.



Many cultures regard broken glass as a sign of good luck – and in terms of sustainability, that's certainly true. First and foremost, broken glass (or cullet) improves resource efficiency because glass is a natural material that is 100 percent recyclable. This means that glass can be formed into new bottles and jars an infinite number of times without any loss of quality, provided it is collected and recycled properly.

However, these conditions have only been met in fairly recent times. While archaeological findings show that used glass was already being utilised to manufacture new containers in the ancient world, the systematic, large-scale collection and recycling of glass did not begin until the second half of the 20th century. The GDR made the first advances here in the 1960s, followed by the Federal Republic of Germany, Austria and the Netherlands.

It started 50 years ago

In Switzerland, glass recycling took off in the 1970s – with Vetropack as the pioneer. Our company began setting up the first glass collection points in Swiss municipalities and founded Vetro-Recycling Ltd. to operate them. In 2009, this company merged with Vetropack and has since functioned as an independent division. But fifty years ago, the collection points operated in ways we would consider unconventional today:

for example, a report published in the 'Zürcher Unterländer' newspaper at the beginning of 2023 states that in 1975, people in the Milchbuck district of Zurich simply left their collected glass in front of a grocery store until it was picked up several hours later and taken to the Saint-Prex and Bülach glassworks.

This development took place against the backdrop of the energy crisis, as European importers exerted increasing cost pressure. While supermarkets and discount stores engaged in a fierce price war and disposable packaging became ever more popular, Vetropack recognised the signs of the times early on. Long before government regulations and financial incentives were in place, Vetropack's nationwide collection scheme for used glass became a sustainable social and environmental project that served as a model for other countries.

Recycling saves energy and improves the environmental footprint

Glass recycling delivers many different benefits. In Europe alone, it saves several million tons of primary raw materials every year. Also, it takes less energy to melt down used glass than primary raw materials – a particularly important aspect at present. The higher the proportion of recycled glass, the greater the energy-saving effect will be. According to FEVE

data, every ten percent of cullet added to the volume of a batch cuts energy consumption by around three percent and reduces the CO₂ emissions by about five percent.

This also means that recycling of used glass has greatly improved the environmental footprint of glass production. Over the past 25 years, the European packaging glass industry has reduced industry-wide CO₂ emissions and waste by 70 percent. Recycled products are also very popular with consumers, given that sustainability is an increasingly important factor in purchasing decisions.

This makes it even more remarkable that by no means all waste glass is collected. To bring the collection and recycling rate for used glass up to 90 percent by 2030, FEVE has launched Close the Glass Loop, a multi-stakeholder platform that brings together all the players along the value chain. This initiative's overall aims are to close the collection gap and increase the quality of recycled glass.

Recycling record set in 2021

In 2021, the average collection and recycling rate for glass packaging in the EU and the UK reached a new record of 80 percent – up one percentage point from the previous year. That is according to the latest data from the Close the Glass Loop campaign platform, which confirms progress toward the 90 percent target. The platform is pursuing a European action plan to address structural challenges in glass collection. As key objectives, it promotes a coordinated approach at European level and encourages information exchange on examples of best practices.

Pioneer and trendsetter

Vetropack supports the 90-percent target and continues to drive innovation ahead as a recycling pioneer and trendsetter. We have set ourselves the goal of achieving a 30-percent reduction in CO₂ emissions per metric ton of glass produced by 2030 as compared to 2019 levels. "Our particular focus here is on continuously increasing the percentage of used glass in production," according to Technical Performance Director Dubravko Stuhne. "The level is already as much as 80 percent in some of our plants. At the Nemšová site in Slovakia, the line for recycling broken glass was recently modified to increase the yield of used white glass." White glass is particularly unforgiving towards the admixture of differently coloured glass, while green glass has the greatest tolerance in this regard. This modification has increased the line's capacity by 50 percent; Vetropack expects the plant to save about 4,100 metric tons of original raw material and reduce CO₂ emissions by 550 metric tons.

"What's more, Vetropack invested EUR 12 million to modernise the recycling plant in the Czech Republic a few years ago, followed in 2022 by another EUR 4.5 million in Pöchlarn (Austria). With each of these measures, we are increasing the quantity and quality of recycled material in our glass products," Stuhne points out. "To this end, the sorting speed and storage capacities have also been increased."

"Our particular focus here is on continuously increasing the percentage of used glass in production."

Dubravko Stuhne

Since the availability of cullet still poses a challenge at many locations, Vetropack supports all measures to increase collection rates, make the production process more resource-efficient in a true glass recycling economy, and ensure that high-quality cullet can be used reliably to produce new glass bottles.





FIRST SERVO-DRIVEN NIS GLASS FORMING MACHINE

New technologies from Bucher Emhart Glass

Vetropack has collaborated with Bucher Emhart Glass to invest in state-of-the-art technology. In the third quarter, we will start operating the first servo-driven electric glass forming machine at our plant in Kyjov. And at the same time, we will begin production on several new semi-servo glass forming machines: six AIS machines and two IS machines installed in our Boffalora sopra Ticino facility. By leveraging the advantages of these different technologies, we can cater to varying market needs.

Bucher Emhart Glass (BEG) is the market leader in glass manufacturing technology. Almost 100 years ago, the company then known as Hartford-Empire patented the IS ('individual section') machine for automatic glass container manufacturing. This machine soon displaced competing technologies to become an industry standard, and the technology was continuously developed and refined over the following decades. Emhart Glass became part of Bucher Industries in the late 1990s and soon afterwards, the company introduced NIS – the world's first completely servo-electric glassmaking technology.

Our first servo-driven glass manufacturing machine – which BEG calls "the ultimate servo forming solution" – is now starting operation in Kyjov. Vetropack has clearly passed

a milestone this year by acquiring one of the world's most advanced glass container technologies for the technical upgrade of one of this plant's two melting furnaces. As well as being the most flexible high-performance machine available



on today's market, the NIS substantially reduces energy consumption because its servo motors use electricity directly – without the intermediate stage of a compressor. Thanks to this feature, the NIS can cut energy consumption.

Further advantages of the NIS include higher precision and faster set-up times. Servo-electric driven forming technology delivers precise and repeatable motions that ensure extremely accurate control of the glass-forming process, so both efficiency and throughput are improved. Furthermore, servo-controlled motions are not influenced by ambient temperatures, and the technology also makes it easy to adjust machine parameters such as speed, force, and position – leading to enhanced flexibility.

Throughout its lifespan of at least 12 years, the machine can be adapted to changing seasonal or market conditions. Operator safety is enhanced because the NIS requires less human interaction than pneumatic equipment, and the new machine improves the working environment by reducing the noise level to about 95 decibels. "The advantages of servo-driven technology are many, and we are proud to inaugurate this machine in Kyjov," says Boris Sluka, Managing Director of Vetropack's Business Unit Czech Republic and Slovakia. "The technology is an excellent fit for our product portfolio in Kyjov. The highly experienced engineering and production team at our site has all the skills needed to make a superb job of

this technological upgrade." Vetropack's next servo-driven machine will be installed at Hum na Sutli in 2024.

Playing a key part in Vetropack Italia's manufacturing capabilities

BEG is also a significant contributor to "Project Future" in Boffalora. In 2022, the company manufactured six AIS machines and two IS machines at its production facility in Malaysia. Following their installation last September, these machines allow Vetropack Italia to continue its tradition of producing intricate container designs that enable smaller brands to stand out from their market competitors. And thanks to a special mould design – also developed by BEG – existing moulds from the old plant can be reused, making it easier to relocate production.

"The NIS is an efficient, high-precision machine that is a good solution for large-scale production. But at the same time, Vetropack is continuing to invest in cutting-edge semi-servo glass forming machines that are equally well suited to plants offering a wide range of products for multiple customers. We need both of these technologies," CTO Guido Stebner explains.



CHIȘINĂU

Integration moves forward

Another exciting milestone is coming up: we will successfully complete the integration of our catalogue in late summer. At the same time, the content of our website (vetropack.com) will also be made available in Romanian.

And as a further step forward, we are putting up a new building to expand our administrative capacity. The new construction project comprises one new conference room as well as a smaller conference room and a training room. Adequate space will be provided for various departments – including the sales force, where we are planning to recruit more staff.



TOP-QUALITY DAIRY PRODUCTS IN SUSTAINABLE PACKAGING

Berglandmilch forges ahead with pioneering glass packaging from Vetropack

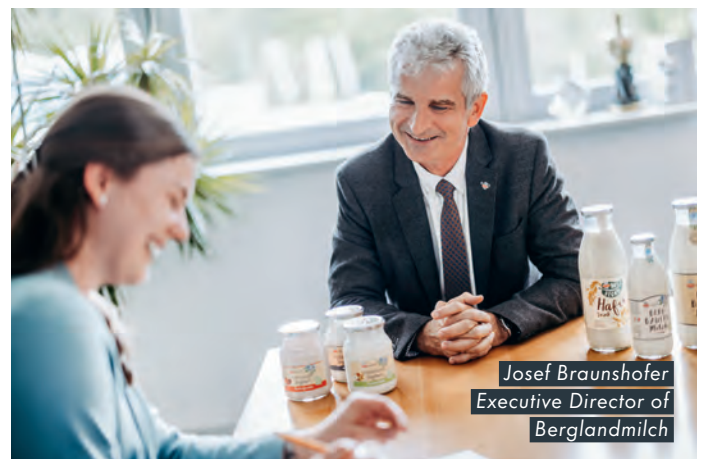


Berglandmilch eGen, Austria's largest dairy company, showed that it was truly moving with the times when it decided to reintroduce glass bottles for milk in 2018. After starting out with one-way containers, Berglandmilch now supplies 1-litre and 0.5-litre returnable bottles – as well as a range of other glass containers for dairy products in various sizes, including some with foil lids.

Austria is home to one of the largest dairy cooperatives in Central Europe. Berglandmilch has grown steadily since its foundation in 1995, and now incorporates over 8,800 farmers. What's unique about it? All of them are direct owners of the registered cooperative society (eGen) – although each farmer only looks after about 20 cows on average. With a turnover of around EUR 1.2 billion (2022), a portfolio of brands known throughout the country including Schärddinger, Tirol Milch, Latella and Stainzer, and around 1,500 employees, Berglandmilch supplies milk and dairy products such as cheese, butter and yoghurt to Austria and beyond, including countries such as Germany and Italy. It processes around 1.3 billion kilograms of milk across its eight plants each year.

The issue of sustainability is, of course, crucial for a company like Berglandmilch that prides itself on its close-to-nature

credentials. "As an industry leader, we want to be pioneers here," says Josef Braunshofer, Executive Director of Berglandmilch, who has been with the company for 21 years. "This includes GMO-free products, concern for animal welfare, and ensuring that our dairy farmers do not use feed from overseas. It goes without saying that packaging also plays a major role within the value chain."



Milk is back in an environment-friendly returnable bottle

These factors prompted Berglandmilch to return to glass for its packaging back in 2017. Glass packaging manufacturer Vetropack was awarded the contract for the collaboration. The first containers the two companies developed and launched on the market were a 1-litre one-way bottle for milk and a 450-gram yoghurt jar. "It was more successful than we had expected," Braunshofer continues. "Many customers were particularly impressed with the taste. Since glass is inert, it does not react with the contents at all. Some customers have returned to drinking milk simply because of this bottle."

The first yoghurt jar produced as part of the collaboration between Vetropack and Berglandmilch was also very well received – just two years on from its launch, a total of more than 25 million glass containers were being produced annually. But that was only the first step in a remarkable success story: "Glass is, of course, even more sustainable in terms of recycling. Although we were sceptical at first due to factors such as the more intensive cleaning required for dairy products, we finally made the switch and have no regrets – sales have even increased," Braunshofer is delighted to report. The glass containers are produced, cleaned and refilled (at least 12 times) at three locations in Austria (Wörgl, Aschbach and Voitsberg) so they never have to travel further than 250 kilometres – another advantage in terms of resource efficiency.

"It was more successful than we had expected. Many customers were particularly impressed with the taste."

Josef Braunshofer

Good cooperation ensures success with glass

Today, just five years into the collaboration, a total of more than 50 different products with glass packaging are currently in production. A particular highlight for Elisabeth Eckmayr, Product Manager at Vetropack, was the development of the snack-sized yoghurt jars: "The jars are not closed with a traditional twist-off cap, but with a foil lid. The product is still securely sealed, but the overall packaging weight is reduced significantly." The project was even nominated for the Austrian State Prize for Smart Packaging in 2022.

"The benefits of glass are obvious," Braunshofer adds, "and the younger generations in particular see it as the highest-quality packaging that best protects and shows off the contents." Berglandmilch wants to continue moving ahead with glass

packaging and aims to expand both the range of items and the markets where they are used. As Braunshofer sums up: "Our aim now is to do even more to highlight the advantages of glass and optimise our existing product range. I also see further potential in continuing to develop our partnership with Vetropack. The cooperation with our colleagues there is very flexible, straightforward and customer-oriented. If we succeed in coordinating the processes between Berglandmilch and Vetropack even more closely and plan ahead, further gains in efficiency and sustainability are certainly possible. Although glass is a niche in our portfolio, it is a big one, and we are very satisfied with it. And going forward, we will continue to put our trust in glass."

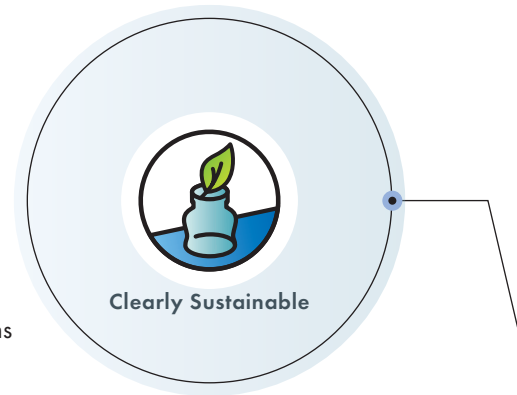


SCIENCE BASED TARGETS INITIATIVE (SBTI)

Vetropack is participating in the Science Based Targets initiative

Back in 2019, we began working to reduce the ecological footprint of all our business activities. By joining the SBTi in November 2022, we took another step to emphasise the high priority we assign to the defined targets: this move shows our commitment to make every possible effort to achieve the ambitious emission reduction goals that have been set.

A start was made on reviewing our greenhouse gas emissions in March 2023: this confirmed that our baseline value is correct. In the coming months, we will calculate the carbon emissions from our value chain (Scope 3 emissions), and we will define a target and a timetable for decarbonisation. We will then be able to submit our target for validation by the end of the year.



VETROCADEMY

Strengthening leadership qualities



In today's fast-paced, ever-changing business world, effective leadership is more important than ever for the success of a company. Vetropack recognised this need by launching the Vetroademy Leadership Development Programme in 2021. This is our first step towards development of managers on a Group-wide basis.

Vetroademy addresses the key target groups within our company. It offers interactive and modern learning experiences that unleash the potential of our teams, empowering them to drive their own

development while contributing to Vetropack's sustainable growth. The Vetroademy vision focused originally on leadership, and the aim now is to expand the offering to other important topics such as glass, sales and more. We are currently concentrating on developing our managers' skills so they can effectively implement our strategy, build high-performing teams, manage change, work efficiently, and stay informed about global trends for a more sustainable future.

We reached a major milestone in June 2023 when over 30 senior leaders from all locations successfully completed all the modules and the two-year programme. This achievement underlines the dedication and commitment of our leaders. The Vetroademy Leadership Development Programme comprises a comprehensive training syllabus of six modules covering various aspects of leadership and business management.



The target group for the programme is all employees with personnel responsibility, from managers to shift supervisors.

Over 400 managers in eight countries are currently taking part in this transformative programme. It ensures that our future leaders will remain strong and dynamic.

The Vetroademy Leadership Development Programme is designed to provide emerging leaders with critical skills and knowledge, and acts as a catalyst for success. By empowering leaders to navigate challenges, inspire their teams, and drive success, Vetropack demonstrates its commitment to fostering a learning organisation and becoming an Employer of Choice. Vetroademy's Leadership Development Programme is the starting block for a sustainable future where Vetropack's sustainable growth will be maintained by continuously developing exceptional leaders.



PERFORMANCE IMPROVEMENT PROGRAMME

Continuing to drive optimisation ahead



The Vetropack Group has launched its Performance Improvement Programme (PIP) to address increasing competition, customer demands, and the impact of inflation on financial performance. The programme's goal is to drive our organisation's growth by sharing knowledge and optimising processes.



The PIP takes a structured approach aimed at reducing costs, improving overall performance and implementing best practices across the Group. Opportunities for improvement are carefully identified; ongoing projects are described in detail and prioritised according to their potential financial benefit relative to the effort and expenditure they require.

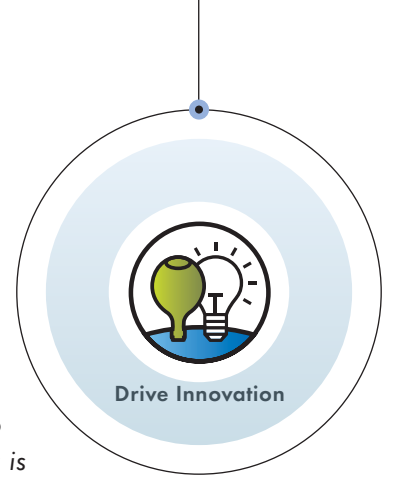
The PIP is live at Vetropack Straža and Vetropack Austria and the intention is to extend it to all Vetropack Group plants.



MEMBERSHIPS

Partnerships for progressive glass research and innovation

The Vetropack Group is committed to various international research projects that aim to make glass production more sustainable, more efficient and more innovative. Vetropack is collaborating with renowned institutions and partners on a number of groundbreaking projects: an emission-free melting furnace and a carbonate-free production process for glass bottles are just two examples.



Rhine-Westphalia Technical University of Aachen (RWTH). The goal: to reduce the emissions generated by the melting process for container glass to the minimum. Many laboratory experiments on this topic have already been conducted. The next step is to upscale the laboratory results to industrial process conditions. To achieve this, IPGR is constructing a pilot plant near RWTH Aachen that simulates the production process for container glass. Various experiments will be performed on this pilot plant starting in the second half of 2024. These include tests with different raw materials and process gases to open the process window for the melting process towards CO₂-free melting.

Global research and development network for the glass industry

International Partners in Glass Research (IPGR) is a global research organisation devoted to promoting glass science and technology through collaboration between the industry, colleges and universities, and public authorities. As a member of IPGR – which is chaired by Vetropack's CEO Johann Reiter – our company works with glass manufacturers, research institutes and universities across the globe to drive projects ahead and share specialist knowledge.

CO₂-free melting furnace technology and sustainable glass bottle production

In the Zero CO₂ project – supported by Germany's Federal Ministry for Economic Affairs and Climate Action – IPGR is working to develop the melting process of the future in collaboration with the Chair of Glass and Glass-Ceramic and the Department for Industrial Furnaces and Heat Engineering at the

Large-scale industrial trial for glass production without the addition of soda

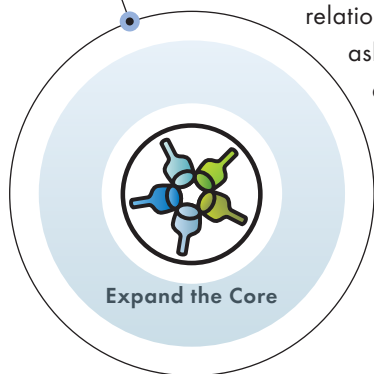
In preparation for the Zero CO₂ project, trials aimed at changing the raw material input were carried out on one of the Vetropack Group's melting furnaces. As part of this test programme – known as the 'No Soda Trials' – the raw material input mix was modified so that it was no longer necessary to add soda. Soda is one of the main sources of CO₂ emissions in the mix of raw materials used in the process. In this large-scale trial lasting 10 days, the melting behaviour of a mix of this type was investigated under industrial conditions. The formability of bottles from the soda-free melt was also proven successfully. As well as demonstrating the feasibility of this type of melt composition, the trial yielded valuable findings for the design of plant technology in the Zero CO₂ project.

2023 CUSTOMER BENEFIT ANALYSIS

In dialogue with our customers

Good and stable relationships with satisfied customers are the basis for continuing the Vetropack Group's successful development. Active exchange and dialogue with customers is essential to give us the best possible understanding of their requirements and needs – the key to delivering maximum benefit for them. This knowledge prompted Vetropack's decision to commission another comprehensive customer benefit analysis.

The objective: to gain an in-depth understanding of customers' problems and expectations across all dimensions of quality (product, service and relationship quality). We also wanted to ask how our customers view future expectations, new issues, and new scope for service and performance. The customer survey was conducted in summer, and the results are expected in autumn 2023.



NEMŠOVÁ

Green Week

Earth Day was celebrated at Vetropack this year. At Vetropack Moravia Glass and Vetropack Nemšová, a Green Week was organised for our employees featuring presentations, workshops and tree-planting campaigns. The Green Week was intended to inspire our employees to adopt a more sustainable lifestyle – because all waste that is avoided counts towards the goal!

Our employees listened to presentations about photovoltaic systems for home use, ecological cleaning methods and 'slow fashion' as well as new trends in wine-growing, bee-keeping

and fruit cultivation. Two insect hotels were built during the workshop. Trees and herb beds were planted at the Nemšová site – and in the nearby forest, colleagues from Vetropack Moravia Glass joined in a project to plant 3,200 saplings.

Sustainability has long been a key issue for the Vetropack Group, and we are working continuously to reduce our ecological footprint. We hope that our approach to sustainability will serve as inspiration not only to our employees, but also to the people around us.



INNOVATIVE 0.33-LITRE RETURNABLE BOTTLE

Pool solution for the brewing industry

The Vetropack Group is collaborating with Brau Union Österreich to introduce a new 0.33-litre returnable bottle. It will be launched on the market next year as a standard solution for the brewing industry. Produced with the help of innovative technology, this bottle is one third lighter in weight than conventional returnable bottles – so it contributes to the refill quota.

Returnable packaging pools offer many economic and ecological advantages: they reduce logistics effort and outlay, shorten transportation distances, and save valuable resources – so they help to lower CO₂ emissions. To play its part in meeting the refill quota that will be a binding requirement in Austria from 2024 onwards, Vetropack has developed a 0.33-litre bottle which is available to the entire brewing industry as a pool solution. The scheme will get under way in autumn and roll out through 2024.

"With the bottle developed by our partner Vetropack, we are now presenting an ecologically sensible and economically attractive alternative for all those who previously saw shape, size or weight as an argument against returnables."

Gabriela Maria Straka

Convincing advantages in terms of sustainability, convenience, stability and simpler logistics make the bottle produced by Vetropack ideal for use as returnable packaging. At present, cullet accounts for over two thirds of the input materials used to produce raw glass. With the help of an innovative new process, Vetropack is introducing tension into the glass bottles to make them exceptionally resilient – while also reducing their weight.

Pool solution reduces logistics effort and cuts CO₂ emissions

"This bottle is about 30 percent lighter than a conventional returnable bottle – and in terms of strength, its values are

at least the same – if not better," according to Erich Jaquemar, Strategic Account Manager for Vetropack in Austria. Extensive tests have proven the lightweight glass bottle's stability. "Because wear on the contact surfaces is reduced, the re-usage rate is about 20 percent higher than for conventional containers." At the same time, this bottle offers extra "food safety" thanks to its stability, Jaquemar points out.

Vetropack developed the shape of the bottle in collaboration with relevant stakeholders such as the Austrian Reuse Alliance, the Austrian Brewers Association and its members such as the Stiegl, Egger and Ottakringer breweries under the lead management of Brau Union. It is a compact version of the





classic Vichy shape, with a height of 212 mm. This new standard means that six crates can be stacked on one pallet; the low bottle weight of 210 grams also allows more rows of crates per pallet, so transportation outlay and CO₂ emissions are substantially

reduced. "Our basic principle is to consider reusable packaging as a complete system – we don't just focus on the individual bottle. In liaison with the stakeholders involved, and thanks to their know-how, we've coordinated the bottle and crate designs while taking account of the logistics involved," Jaquemar comments. Important tests on stackability, storage and refill capabilities were carried out in Brau Union's Wieselburg brewery.

"Anyone who buys returnable bottles instead of non-returnables will save valuable resources and cut CO₂ emissions by up to 75%," according to Gabriela Maria Straka, Director Corporate Affairs & ESG Sustainability at Brau Union Österreich. "With the bottle developed by our partner Vetropack, we are now presenting an ecologically sensible and economically attractive alternative for all those who previously saw shape, size or weight as an argument against returnables."

EU Packaging and Packaging Waste Regulation (PPWR)

The Packaging and Packaging Waste Regulation (PPWR) is a proposed revision of the EU Directive that governs packaging and packaging waste. It is mainly aimed at driving the circular economy ahead by considering all the sustainability impacts of packaging in relation to ecological, social and economic factors. Intensive discussions about this regulation are currently under way in the European Parliament and the Council in Brussels.

The PPWR proposals will also have major implications for the glass industry. European container glass manufacturers are giving their full support to the EU's objective of promoting packaging that is suitable for the circular economy. Glass is regarded as a permanent packaging material that

people have used time after time throughout history – and as one that will continue to be a preferred choice in the future.

The PPWR aims to create a more ambitious framework for packaging and packaging waste within the circular economy. The glass industry supports measures that promote effective recyclability and that acknowledge the long-term value of glass packaging.





GLASS CONTAINERS: ON THE VERGE OF A REVOLUTION

Reusable packaging adds value

They always were sustainable – and they're on the advance again: reusable glass bottles rank high among the most environment-friendly types of packaging. Now, a new process that allows thermal hardening of glass bottles could help trigger a revolution in the market. Bottles produced with Vetropack's Echovai process prove to be stronger, lighter and significantly more environment-friendly than standard bottles – and what's more, they cut logistics costs.

Tempered glass is nothing new. Thermal tempering of glass greatly reduces the likelihood of breakages as well as the risk of injuries. These are just some of the reasons why thermally tempered glass has been most commonly used over the years in car windscreens, where it sometimes proves to be a life-saver. For glass packaging, however, this process had reached its limits – until now.

Controlled thermal treatment of a glass container consists essentially of rapid heating and cooling. The glass is first heated homogeneously (i.e. evenly over the cross-section) to a temperature of between 600 and 700 degrees Celsius. It is then shock-cooled by blowing air onto its surface. Because the glass surface cools first and contracts as it does so, the hardening causes compressive stress on the outer layers and tensile stress in the inner layer of the container's cross-section.

Thermal hardening of glass containers could not be implemented in practice until now. Bottle design and quality imposed physical limits that made it impossible to produce tempered container glass profitably. But now, a solution is at hand:

a new technology pioneered by the Vetropack Group. For almost ten years, research at the company's Innovation Centre has focused on a process for hardened lightweight glass bottles. The result: the Echovai technology – which, for the first time, enables thermally controlled hardening of glass bottles and makes their production economically viable.

The Echovai process places particularly high demands not only on the quality of the bottles but also on the production process and equipment. "Only high-quality, uniform bottles can be tempered successfully, because they are thermally treated to build up inner tension," according to Daniel Egger, Head of Innovation at Vetropack. "What's more, we adjust the entire curing process very precisely to the individual container and its shape. So this is a sophisticated, technologically demanding process – which is why we've opted for a phased rollout."

30 percent less weight

The first phase began in 2019. Since then, several million of the bottles hardened with the new process have been sold to Mohrenbrauerei, the Austrian pilot customer, and subsequently

refilled. The bottles produced by Vetropack for this Vorarlberg brewery deliver a decisive benefit: in the 0.33-litre returnables segment, the use of Echovai bottles (210 grams) saves around one third of the weight of the existing standard bottles (300 grams).

“We don't just look at the individual bottle; we consider – and optimise – returnables as a system,” Erich Jaquemar, Strategic Account Manager at Vetropack Austria explains. “That means we coordinate the bottle and crate design as well as the pallets and logistics. Only then can we generate maximum benefits for brand owners in terms of sustainability and total cost of ownership.”

Lower total cost of ownership, CO₂ emissions fall to a quarter

With these goals in mind, the lightweight glass bottles were designed with less height than the standard – a factor that significantly impacts the logistics effort as well as the carbon footprint. Food retailing in Austria accepts pallets with a maximum height of 1.6 metres. With standard bottles, this allows a maximum of five crates to be stacked, whereas the Echovai crates can be stacked in six tiers.

“This vastly reduces costs for logistics,” Jaquemar points out. “Customers save about one fifth of their costs per use cycle.” In the meantime, pilot customer Mohrenbrauerei has presented

a life cycle assessment that illustrates the effects on logistics outlay. For the Echovai-bottled beer varieties, the CO₂ savings were around 1,000 metric tons per year– so CO₂ emissions per bottle dropped to just one quarter of the volume for the conventional 0.33-litre returnable bottle.

Alternative for manufacturers in the non-returnable segment

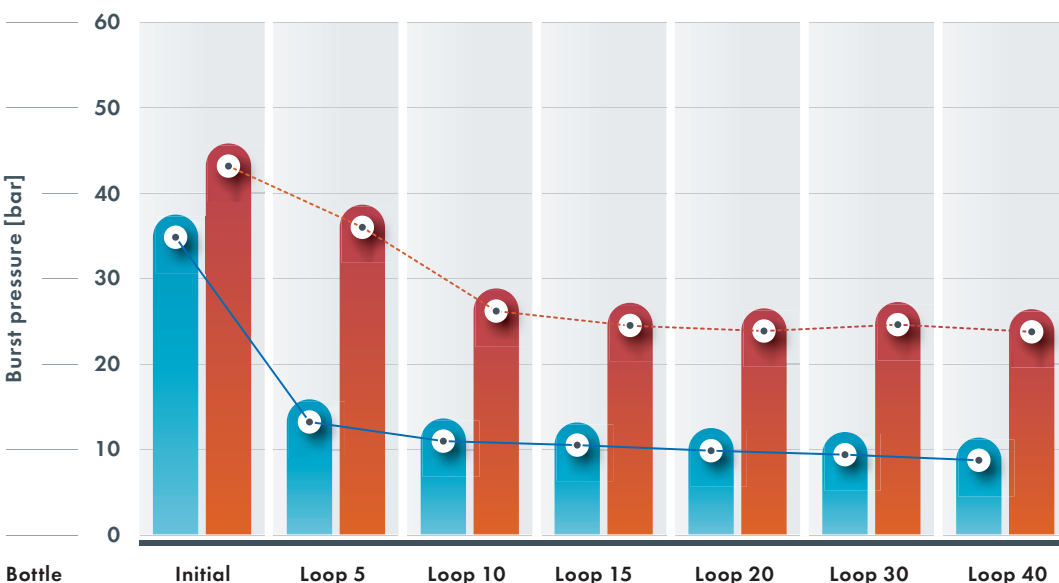
This innovative process is set to pave the way for a radical change in the market, because it is likely to promote the switch from non-returnable to returnable containers going forward. Echovai is not only an alternative for beverage producers who already sell their products in returnable containers. Especially for manufacturers in the non-returnable segment, the bottle weight is a deciding factor. Since returnable bottles have to last longer and are exposed to repeated stress, they previously had to be sturdier and heavier, and thus had to respect certain limitations in terms of design. Brand owners, however, usually want to keep the unique features of their bottle.

More robust – less abrasion

Another important attribute of these lightweight glass bottles is their robustness, which has now been proven. Extensive laboratory tests have verified the performance of the Echovai containers (as regards internal pressure resistance, impact resistance and other parameters). The results point to a significantly longer life span. In industrial use, too, the bottles

Internal pressure test result

Evaluation of Echovai glass compared to conventional glass (CONV)



95% CI for the mean
Individual standard deviations were used to calculate the intervals. Values for Echovai loop 15 and CONV loop 30 are calculated, not measured.

---●--- Echovai
---●--- CONV

break far less frequently: the reject rate during filling, at 0.14 percent, is significantly lower than the typical reject rate of between one and two percent for standard bottles. As an added benefit, the Echovai containers show hardly any wear on the contact surfaces (scuffing) after three years and up to twelve use cycles. "The bottle is robust, which is also a plus in terms of food safety," Jaquemar comments.

After ten to twelve use cycles, the internal pressure values for the bottles correspond to the specification for new glass – which is not the case with standard bottles. The Echovai bottles also scored better results on the pendulum impact test than heavier conventional bottles. "Based on the test results and Echovai's strong performance in the pilot project, we expect demand to rise sharply," Jaquemar notes. Currently, Vetropack is still producing these stable lightweight glass containers exclusively at Pöchlarn, Austria. In the second phase, we are exploring the possibilities for installing Echovai technology at other locations. And for the third phase, Vetropack plans a wide-scale market launch with licensing of technologies and know-how to third parties as appropriate.

"In the long term, we're aiming for a more user-friendly return and refill system with 100 per cent bottle reuse," says Daniel Egger. "Also, we're already working on a solution to optimise traceability of the Echovai bottles." Thanks to a specific data matrix code on each bottle, any desired data will be linked to



the product unit in future. This will make it possible to interlink different parts of the value chain that are currently viewed separately, and to track them along the entire supply chain – from production to bottling, all the way through to the end customer. Seen in this light, therefore, Echovai also heralds the dawn of a new era of digital interconnection.



KREMSMÜNSTER

New apprentices' workshop

Trying things out, testing and learning

This is exactly what our apprentices will be able to do in the small training workshop that we are currently setting up for them at our Kremsmünster plant. Following the example of the workshop at Pöchlarn, it will provide one room for theoretical instruction and another space for practical training on milling machines, lathes and other equipment. This gives our apprentices a chance to try out their skills on the "practice" machines before they move on to the large-scale machines in our various departments.





BÜLACH

Promoting mental health: teaming up with the Wisli Foundation to promote wellbeing at the workplace

As a company, our employees' mental health is one of our most heartfelt concerns. We are aware that it has an impact not only on individual wellbeing, but also on the performance, creativity and productivity of our teams. These facts prompted us to launch a cooperation alliance with the Wisli Foundation this year, aimed at taking targeted practical steps to promote mental health.

The curtain went up on our collaboration with the Wisli Foundation this February. To symbolise the idea of "changing places", our CEO Johann Reiter swapped his suit for a black "Bike Workshop" T-shirt and spent a morning in the newly-opened cycle repair shop operated by the Wisli Foundation. Based in Bülach, this foundation has a 35-year track record of advocating social and vocational integration for people with mental impairments.

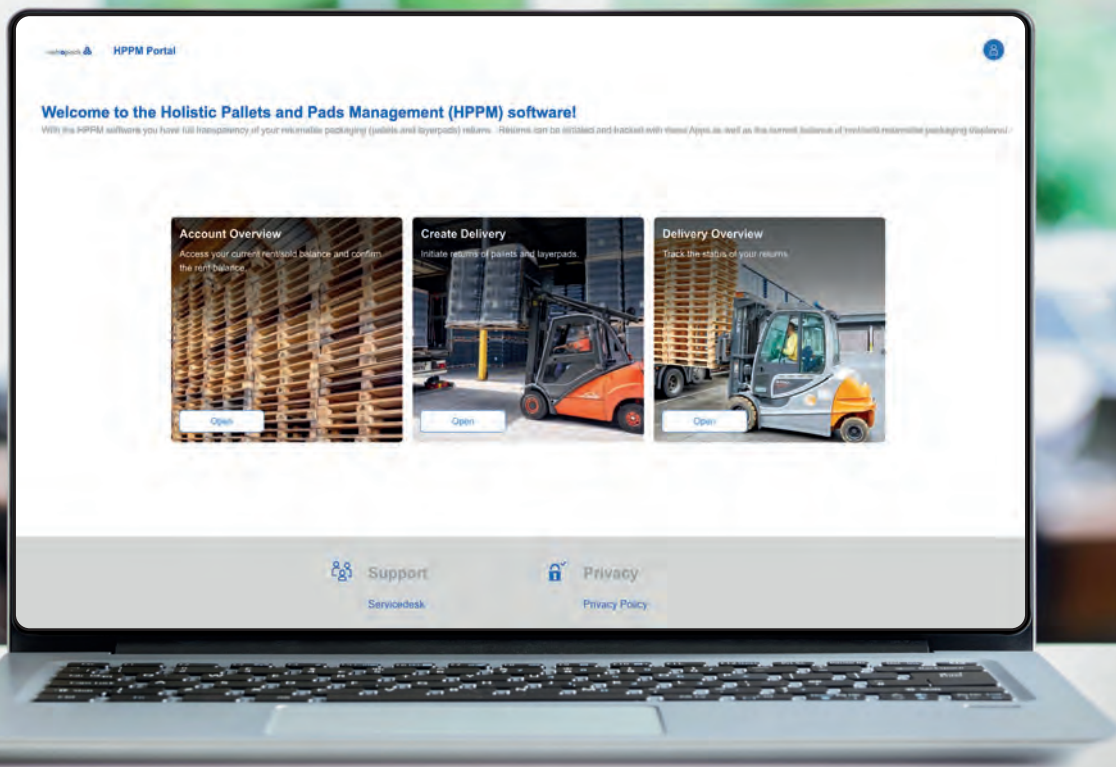
As part of our collaboration, we organised an 'info lunch' in March focusing on the topic of mental health. The Wisli Foundation has proven to be an expert partner; they have given us wide-ranging insights into their organisation and the services they offer. We learned about some important early warning signs to watch out for, and we tested out strategies to address them.

Mental hygiene and decluttering

Good mental hygiene also includes clearing out physical and psychological baggage. In mid-April, our employees had the opportunity to hand in used goods that they no longer needed at the Wisli stand during their lunch break. As part of the Wisli Foundation's "Residual Value" project, participants sell these items via online platforms – and as they do so, they gain hands-on knowledge about commercial processes. As well as preparing the participants for their re-entry into working life, this activity generates a win-win situation for everyone involved.



In August, we are offering our employees in Bülach the chance to see things from a different perspective. They will have the opportunity to join people supported by the Wisli Foundation for half a day in the bike repair shop, the garden and house maintenance teams, or the workshop. There will also be a workshop in the afternoon to take another look at the topic of mental health. These activities are intended to foster an understanding of the challenges presented by mental impairments, and to raise awareness about the importance of mental health.



DIGITALISATION

Simplifying logistics and improving transparency: introducing HPPM

Pallet and pad management has been streamlined and digitalised to ensure transparency and efficient use of resources. Holistic Pallet and Pads Management (HPPM) is the name of Vetropack's project to launch a software platform that allows better control and coordination across our sites.

At any given time, an average of over one million pallets and six million pallet pads are in circulation to ensure that our glass products are transported safely to our customers. They can opt to borrow or buy these reusable packaging materials from us and return them so they can be reused. The quality of the returned transport packaging is carefully checked before it is recycled to maximise resource efficiency.

To simplify, digitalise and standardise this process across our sites, Vetropack launched the Holistic Pallet and Pads Management (HPPM) project. HPPM, a software platform developed specifically for the Vetropack Group, has now

been introduced. Instead of managing information about returns and the quality of pallets and pads on separate Excel spreadsheets, our colleagues in the supply chain, sales and finance departments now enter their data on one single online platform.

This allows customers and logistics providers (such as pallet repairers) to access and manage their data themselves. The first customers are already able to access the HPPM platform so they can track deliveries, initiate returns and interact comfortably with us via a digital cloud channel. This will speed up digital recording and processing of return orders and complaints.

Once all the Vetropack sites – and also our customers – are using the HPPM platform, our logistics processes will be greatly simplified. This approach will continue to ensure the quality standards for pallets and pads, as well as strengthening our commitment to sustainability. The introduction of HPPM is a major milestone along our path towards more transparency, improved resource efficiency, and higher customer satisfaction.



ZAGREB

New modern offices



Office space at Hum na Sutli has become too cramped in recent years. This prompted the decision by Vetropack Straža d.d. in autumn 2022 to rent additional office accommodation in Zagreb so as to create new workstations. The office premises have enough space for about two dozen workstations, and they also include a meeting room with full technical equipment where workshops can be staged in the centre of Zagreb.

"The new office is also an opportunity for us to become more attractive as an employer to candidates who want to live in the urban areas around Zagreb, from where most of the Vetropack sites are easy to reach," according to Nuno Cunha, Chief HR Officer of the Vetropack Group.

TECHNICAL CUSTOMER SERVICE

Sensor locates danger points with maximum precision

What can fillers and bottlers in the food and beverage sector do when they have to combat glass splinters or even breakages in the filling line? In cases such as these, our customer service can now offer support with a new service and a sensor that measures precisely where glass containers are exposed to impact loads. In this way, we supply our customers with exactly the information they need to arrive at a fit-for-purpose solution to their problem.

Glass is a packaging material that offers many clear advantages. It is pollutant-free, it can be recycled, and it provides excellent protection for its contents. However, glass has one intrinsic disadvantage that cannot be overlooked: if you grip it too hard, it can break or splinter. This often presents a dilemma for bottlers and filling plant operators in the food and beverage industry: reduce the belt speed on the bottling line so as to protect the containers, but reduce the filling rate? Or: operate at a higher belt speed with the risk of losing products that have to be separated out? Michael Walzl, Technical Customer Service Manager at Vetropack points out: "Technical optimisations on the line can solve the problem – but before you start, you must know which changes have to be made and where they are needed." One Swiss food manufacturer – a Vetropack customer – recently had to confront these issues. Small splinters of glass were noticed on the line of one filling plant, but there was no obvious glass breakage. So where and why were the jars getting damaged?

To shed light on the matter, our customer service team used the new addition to our toolbox for the first time: the ShockQC in-line sensor from Masitek of Canada. It measures the forces and loads acting on a glass



container with maximum precision. As part of our service, we produced an exact replica of the glass container to be tested for our customer: in this case, a 390-ml European jar.



This dummy made of highly resilient plastic was fitted with a ShockQC sensor calibrated by the manufacturer. It then began its journey along the filling line together with a batch of other jars. A total of four tests were performed, each at different belt speeds. The dummy and sensor passed through the entire line, starting with unpacking of the jars all the way to the final conveyor belt that carries the jars away in their finished

cartons. The measured datasets were transmitted no less than 100,000 times per second to a tablet PC for visualisation on an easy-to-understand dashboard.

The result: the jars are conveyed along the line from the unpacking station to the filler and from the cooling tower to the cartoning and outbound transport stations at a rather leisurely pace, with sufficient minimum clearance. However, there is an impact zone between the filler and sealing station where the jars are subject to shocks that exceed Vetropack's guaranteed minimum impact strength by as much as 60 percent. This stress does not necessarily cause defects in a jar that has been processed without faults. But even if very minor faults or inclusions are present, an impact of this magnitude usually causes glass fragments to chip off. In this way, the cause of the problem was found and the basis for a targeted approach to eliminating it was established. Our customer is now able to optimise their filling line exactly where improvement is really needed. Michael Waltl is also satisfied: "Following on from the success of the first assignment, we have since used this service for several other interested parties – and we were able to provide rapid assistance every time. Now we're looking forward to helping the next customers optimise their lines – quickly and easily, with a results-oriented method that involves no unnecessary effort or expense."

3D PRINTING LABORATORY

Glass design you can feel

Thanks to the 3D printing service from Vetropack, customers as well as our own in-house staff can now experience the physical feel of new glass containers. The Vetropack Group has set up a 3D printing laboratory for glass models so that our customers can literally get to know glass packaging "hands-on" prior to series production. The prototypes, which are made from a special resin, precisely replicate the geometry of the containers to convey a sense of their look and feel.

Customers and internal stakeholders of the Vetropack Group have been able to take advantage of a new service since summer 2022. Mould Designer Christian Bruckner and his team are responsible for this innovation at our Pöchlarn site in Austria: "With the help of a 3D printer, we can produce realistic

3D models of new glass bottles and jars in small quantities. In fact, this isn't an entirely new service – we used to outsource it in the past. But the internal solution has given us far more flexibility."

People are already keen to make use of the service, and they are using the online form to send in requests from all over the Vetropack Group. The 3D printed models are created from a special resin that allows the entire geometry of the desired glass container to be replicated – including details such as alignment notches, handles and engravings. Bruckner continues: "The only thing that isn't possible, for technical reasons, is reproduction of 2D elements such as labels. That's because the model is built up layer by layer."

Look and feel from the 3D printer

The digital light synthesis (DLS) printer delivers a layer thickness of 75 micrometres with platform dimensions of 189x118x326 millimetres. "So depending on the size of the glass container, several models can be printed simultaneously – or, in the case of a litre bottle, for example, just one model. The limiting factor is the height. And the larger the container, the longer it will take to print it: the speed is around 30 millimetres per hour, and then the support structure is removed." But before the model can be handled, it has to be washed twice in isopropyl alcohol (once mechanically and once manually), followed by drying and then curing with UV light.

Together with the project planning, this adds up to a lead time of one to two days for each print order. "Of course, a 3D model like this is a great way to give Vetropack customers a feel for their new glass packaging before everything goes into series production. But since our capacities are limited, people should only place orders when it really makes sense," Bruckner emphasises.

Wide variety of potential applications

Apart from the obvious benefit for customers, who can use the 3D model to optimise their packaging design, these transparent containers are also used in house: on the one hand as illustrative specimens for training purposes, and on the other as samples of faults in automation. Bruckner is also involved in the design for our second Austrian site at Kremsmünster and for St-Prex in Switzerland. He explains: "You can also make very good use of the models to teach machines – automatic detection of defects and separation in production are just two examples."

"Of course, a 3D model like this is a great way to give Vetropack customers a feel for their new glass packaging before everything goes into series production."

Christian Bruckner

The consumption of transparent resin is approximately equal to the amount of glass that would be needed for the desired container. Unused resin is filtered after printing so it can be reutilised. The 3D printing lab in Pöchlarn is also equipped with a state-of-the-art extraction system to make sure that all residues – especially highly volatile isopropyl alcohol – are entirely removed.



PERENNIAL FAVOURITE ON THE HERB AND SPICE SHELF

Kotányi's innovative herb and spice mill: a story of constant evolution – in partnership with Vetropack

By introducing its ergonomically shaped herb and spice mill with an integrated grinder, Austrian herb and spice manufacturer Kotányi tapped into the spirit of the times. The grinding mechanism has been improved over the years – and, thanks to Vetropack, the glass packaging manufacturer, the weight of the mill itself has been continuously reduced to make it more sustainable.



More or less everyone in Austria is familiar with Kotányi's iconic herb and spice mill. With its distinctive shape – reminiscent of an hourglass – and its built-in grinder, it is a perfect match for 21st-century cooking habits. The Kotányi mill makes both everyday and exotic herbs and spices accessible in a special way. The mills are produced by Kotányi, an Austrian company that can look back on a long tradition; and since 2003, the glass containers for them have been supplied by the Swiss Vetropack group of companies. The beginnings of the family-owned Kotányi company date back much further. Originally founded in 1881 as a paprika factory at Szeged (Hungary), the enterprise soon expanded to Vienna.

CEO Erwin Kotányi joined the company exactly 100 years later in 1981 – when he was still only 24 years old. As a member of the fourth generation of his family, he has headed Kotányi for over 40 years. He recalls: "The acquisition of a fellow market player placed us in a very good position to expand internationally in the mid-1980s. Then, the fall of the

Iron Curtain opened up another window of opportunity for us: driven by our pioneering spirit and innovative mindset, we were soon able to gain a foothold – especially in Eastern and South-Eastern Europe, regions where we still maintain high market shares to this day."

Tradition combined with diversity and sustainability

With 450 seasoning mixes, over 5,000 products (including country-specific lines) and more than 650 employees, Kotányi is a brand that now enjoys worldwide renown. Production takes place exclusively at Wolkersdorf near Vienna, but Kotányi currently supplies its products to 32 countries across the globe. "Even after 20 years, the herb and spice mill is still proving to be a door-opener into new markets – which is what's happening right now in Brazil, for example," Erwin Kotányi continues. "We view ourselves as an innovation leader, and we invest continuously in products and technologies. Most recently, in 2022, we invested EUR 11 million to expand our production in Wolkersdorf so we can achieve higher quantities." Of course, he adds, changes in cooking and eating habits also need to be considered: these include health-conscious nutrition or meat-free diets, as well as more spicy foods and trends such as smoky flavours. Kotányi has responded by including a wide range of chili variations in its offering; snacks such as apple chips with mint or cinnamon flavours have also been added recently.

**"We view ourselves
as an innovation leader, and
we invest continuously
in products and technologies."**

Erwin Kotányi

The herb and spice mill is celebrating its 20th anniversary in 2023. The mill is available with over 70 product variants at present, ranging from "Himalayan Salt" to "Chipotle Smoked Chili". The offering varies from country to country, according to local tradition and taste; in Poland, for example, pimento



Erwin Kotányi
CEO Kotányi

(allspice) is very prominent, although it actually originates from Central America. Elisabeth Eckmayr, Product Manager at Vetropack Austria, joined the company over 20 years ago. She recounts: "I still have clear memories of the development of the mill in September 2002. Its distinctive shape is not the only feature that makes it so special – it's also extremely practical: you can use it for cooking, of course, and also for seasoning food on the table – or even for refining your coffee." Since production began in 2003, the volume has multiplied to such an extent that a dedicated production line to manufacture the herb and spice mills was set up at Vetropack's glassworks in Pöchlarn (Austria).

More capacity – but the packaging weighs less

Initially, the container had a capacity of 97 ml and the glass weighed 127 g. Over the years, the product's weight has been continuously reduced while its capacity has increased. "We review our packaging about once every six to eight years. This is important for two reasons: first, to maintain our edge over competitors on the shelf and in the catering industry. But – equally important – there's an increasing focus on sustainability: each gram of reduced weight means more energy saved and fewer emissions across the entire value chain," Erwin Kotányi emphasises. The way the mill functions has also continued to evolve: "The mouth was adapted in 2011 and then in 2012, we collaborated with Kotányi on the changeover to a dual grinder with coarse or fine options," Eckmayr explains. "The mill currently holds 101 ml and still weighs 108 grams at present, but this will be reduced to 106 grams in the future. That will correspond to a weight reduction of 16.5 percent over the last 20 years."

Vetropack and Kotányi have enjoyed a long and fruitful business relationship which really gained momentum in 2002 with the development of the mill. Vetropack also supplies two other spice jars, each with capacity of 110 ml and weight of 95 g. "We regard Vetropack as a valuable partner not only because of their proximity to us, the reliability of their deliveries and their flexibility when quantities fluctuate – but above all because of their innovative strength and their professional field service," according to Alexander Eidelpes, Head of Purchasing

at Kotányi. "Going forward, we intend to collaborate even more closely to optimise our joint processes – including aspects such as CO₂ reduction, energy sourcing and sustainability communication – especially as regards disposal of the glass containers. Also, of course, innovations in packaging are possible at any time. When it comes to product variety and innovation, we can always count on Vetropack."

The herb and spice mill is also set to play a crucial role for Kotányi in the future: the company is currently in talks with distributors to prepare for the market launch in the UK. Final words from Erwin Kotányi: "The mill is very successful all over the world – and it often achieves that success without much marketing effort. It stands out on the shelf and combines appealing design with high quality and functionality. Vetropack has played a major part in this."



Alexander Eidelpes,
Head of Purchasing, Kotányi





KYJOV

An anniversary year packed with new developments

Several new developments are in store at Vetropack Moravia Glass this year: reconstruction of the coloured glass furnace, installation of new NIS machines on the company's two production lines (see page 10), and installation of new control units for the cold end. No better set of gifts could be imagined to mark the 140th anniversary of the Moravian glassworks!

Commissioning of the new melting furnace (no. 52) to produce coloured glass

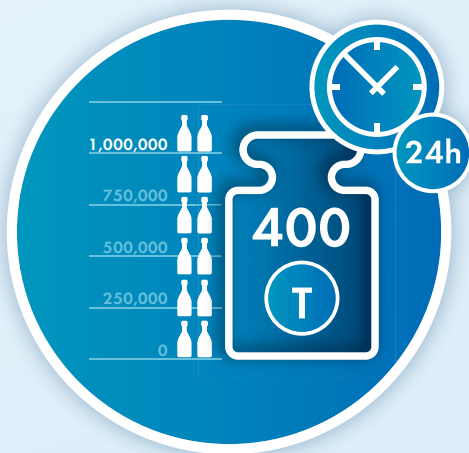
Our glassworks is thrilled to be commissioning the new no. 52 furnace, which has been specifically developed to produce coloured glass. It offers increased capacity per day of 50 metric tons.

The process begins with draining and demolishing the old furnace. The steel structure will then be rebuilt, followed by construction of the new furnace and installation of the necessary technology. After the inspection, the furnace will be heated up and filled with glass mixture according to the specified process. It will take 62 days to replace the old furnace with the new one.

Overall, these investments will enable us to meet demand from our customers for high-quality products more effectively and more sustainably.



Daily production of coloured glass corresponds to about one million wine bottles



Anniversary activities

This autumn, Moravia Glass will celebrate a remarkable anniversary: 140 years will have passed since the company was founded. We want to celebrate this important milestone in a suitable manner, so we are planning a grand anniversary gala.

During this event, we also intend to present the innovations and improvements in production to our customers and suppliers. These investments will yield considerable increases in efficiency and improvements in quality.

Changes at the cold end

As well as affecting the furnace and the hot end, the upcoming reconstruction of our plant will also have consequences for the cold end. These include new belt cooling and lamination systems as well as centrally controlled lines with modern inspection equipment to detect faults and minimise downtime. The rebuild also includes installing conveyors for empty and full pallets, as well as a pallet sorting station. These changes will boost production capacity and improve product quality – and at the same time, they will create a safe and ergonomic workplace for our employees.

We will provide information about the exact date and programme for the celebrations in good time. We are looking forward to celebrating this milestone together, and to shaping our company's future evolution.

140 VETROPACK
MORAVIA GLASS
1883–2023



ECO-BALANCE CALCULATOR

Calculating sustainability

Sustainable business management and an improved carbon footprint: these number among the main objectives of packaging manufacturers and their customers nowadays. This is why the Vetropack Group offers eco-balance calculations that map the entire life cycle of a glass packaging product. The scope of these calculations goes far beyond glass itself.

Glass numbers among the most environment-friendly of all materials for packaging. But even so, Vetropack continuously endeavours to minimise the environmental impact of glass production. We pursue a holistic approach to sustainability underpinned by two initiatives: first, to reduce the ecological footprint of all our business activities, and second, to improve recycling consistently throughout the value chain. Consequently, we focus on resource-saving production and optimise all parameters that impact our energy balance. Eco-balance calculations provide an important instrument in this context.

Calculating the eco-balance is a method that can be used to determine all the environmental impacts throughout the life cycle of a packaging product. To be more specific: informative

environmental indicators consolidate all resources consumed and all emissions generated across all phases of production, transport, filling and usage – all the way through to recycling. Life cycle analyses can help packaging manufacturers such as Vetropack to identify the best points for starting to implement further reductions in environmental impact.

Keeping track of the entire value chain

Elisabeth Haimberger, Communications Specialist at Vetropack Austria, explains: "For a few years now, we've been using a tool developed by a platform at FEVE (the European Container Glass Federation)." This tool can provide an overview of the entire value chain for a bottle. "There's an important difference between this method and other types of eco-balance calculation

that combine individual analyses with different parameters," Haimberger continues. Vetropack combines its own data with customers' data to obtain a consistent overall picture of the packaging's carbon footprint – so customers benefit from transparency that's as clear as glass itself.

The data input for the calculation includes (for example) the energy consumption of the specific furnace for the product. "We can also take account of data from label and closure manufacturers. The calculation includes content of recycled material, weight and transport distances for the individual packaging components, as well as the manufacturers' own bottling and filling data," Haimberger points out. The major effort in an analysis of this sort is caused by collecting the data. Haimberger and her colleagues regularly update the tool with the latest real data from Vetropack's own plants. Life cycle analyses can be carried out at any time. "There are many situations where an analysis of this sort makes sense: if we are asked to develop a new model for a customer, for example, or if a customer wants to switch to a different container," according to Erich Jaquemar, Strategic Account Manager for Vetropack in Austria. "We can then run through the proposed process on a cradle-to-cradle basis, with changing parameters; we can compare various scenarios and recommend the most environment-friendly solution."

Vetropack has launched Echovai on the market – the world's first returnable bottle made of lightweight glass – a genuine innovation that promotes sustainability.

One example: Vöslauer

Vetropack can provide eco-balances for all its customers – a highly appreciated offer that is being taken up more and more often. One example: Vöslauer, the Austrian producer of mineral water. In this case, Vetropack collected data on the primary and secondary materials used, the transport packaging and the energy consumed for production and transportation; this data was combined with information on the closures, paper labels and crates used, the energy consumed in bottling, the emissions from transport packaging and the distances covered during transportation. Multi-trip use together with the high rate of glass recycling in Austria result in a bonus that is offset here.

The result: one 0.5-litre returnable Vöslauer glass bottle causes about 25 grams of CO₂ each time it is filled. Production of the

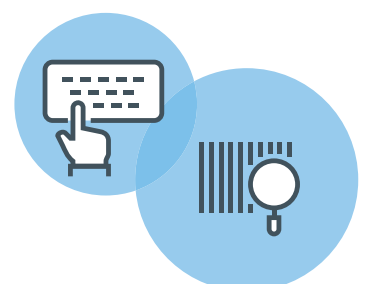
glass bottle by Vetropack accounts for a total of 12.7 grams; this figure includes distances covered during transportation and transport packaging. Finally, 19.7 grams are caused by the bottling plant or by additional packaging materials that are required such as crates, closures or paper labels. The end-of-life bonus per bottle still amounts to 7.2 grams that can be deducted from the total.

Industry-wide pioneer

Life-cycle analyses such as these help us to operate at the forefront of the industry as regards environment-friendly production. "We achieve this goal by continuously improving our production processes", Jaquemar notes. "And in this context, our focus is not only on energy consumption during production and transportation. Minimising the use of materials is also a key factor when it comes to reducing the carbon footprint."



On the one hand, the melting process harbours huge potential for savings: used glass can be melted with significantly less energy than primary raw materials. So the high recycling rate in Austria makes a positive contribution to the eco-balance for glass. But on the other hand, reducing the weight of glass packaging also plays a vital part. Vetropack has launched Echovai on the market – the world's first returnable bottle made of lightweight glass – a genuine innovation that promotes sustainability.





HUM NA SUTLI

Vetro Challenge: school pupils come up with sustainable and innovative solutions



Waste management has a key part to play in the circular economy. This prompted Vetropack Straža to launch the "Vetro Challenge" project. Its aim: to make primary school pupils aware of how important this issue is.

The Eco Birds team came in second place. Their project - 'Curious Containers' - is a simple and entertaining way for everyone to recycle: the students themselves devised this solution from various used materials.

In December 2022, six primary schools took part in the competition, which was aimed at pupils in classes 5 to 8 in Krapina-Zagorje county. The teams each comprised four pupils and one teacher. Each team chose their own innovation challenge, focusing on the increasing use and recycling of glass packaging. They began by working out a solution in concept form and went on to develop it, step by step, into a complete project. They had just four minutes to present their project to a jury of three judges who chose the three best solutions.

First prize was awarded to the Green Hum Team, which designed an interactive container named Recipro (derived from RECYcle and PROfit) that includes a loyalty programme.

**"This competition was great fun!
We learned a lot about
recycling and glass. Now I
know how we can improve recycling
with little effort."**

Luka Tušek

Third place went to the Little Green team. They developed a water bottle with a design based on the Croatian regions of Panona, Goranka and Primorka. They also designed matching jute bags that make it easier and safer to transport the bottles.

This container also comes with a little companion - a light-hearted junior version of the container that inspires children to recycle, no matter how young they are.

This approach encourages the school pupils to recognise challenges as opportunities and act on their own initiative to bring about positive changes in society. As well as educating children about the problems involved in the circular economy, this project helps them to develop an innovative and systematic mindset, teaches them project management skills, and shows them how to present their ideas convincingly.

A SPECIAL PARTNERSHIP FOR SPECIAL WINES

Glass packaging from Vetropack has helped Château Purcari's wines to win many prizes all over the world

As exclusive supplier and strategic partner to the listed Purcari Wineries Group, Vetropack provides premium bottles for the renowned Negru de Purcari vintages and lightweight glass packaging for the new 'Native' organic wines – along with an extensive range of additional containers for the Group's growing spirits portfolio.



Wine has been grown in Moldova for almost five thousand years. Vineyards were already flourishing in many areas of the country by the end of the 12th century, and viticulture was established as an important sector of the economy. The mild climate, influenced by the nearby Black Sea, often evokes comparisons with France's famous Bordeaux region; Moldova also has a very diverse range of fertile soils – Purcari alone has over 25 types on its terrain. Negru de Purcari, one of the Group's red wines, found particular favour with Europe's elites in the 19th century and was awarded its first gold medal at the Paris International Exposition in 1878. This wine won a high accolade again in the 21st century, when Decanter selected

"Negru de Purcari 2019" as one of its Top Classic Wines of 2021. In the same year, Château Purcari won more awards than any other winery in the world, and this producer continues to attract attention from global wine experts – for example, because many of its products contain indigenous grape varieties such as Rara Neagră or Viorica.

The Purcari Wineries Group currently operates five production platforms in Moldova, Romania, and (most recently) Bulgaria, comprising four wineries and one brandy distillery. The Group's annual sales increased by 22% in 2022 and it now has more than 800 employees, seven production sites and an area under cultivation of over 1,450 hectares. Vetropack supplies over 40 different types of glass container for Purcari's various product lines, reaching an overall volume of 17 to 25 million units per year.

Catalina Turcanu, Senior Brand Manager at Purcari Wineries Group, takes up the story: "We are proud of our Group's continuous growth. Although Romania is our main market with 53% of our sales, followed by Moldova with 21%, we also sell our wines and spirits to over 40 markets across the globe including Norway, the UK, the USA, Germany, France, Poland, and China – to name but a few."

"Thanks to local support from Vetropack, our logistics are more sustainable, we have access to packaging know-how, and we benefit from a shared understanding of our company's growth."

Catalina Turcanu

Local, innovative, and sustainable

Château Purcari, with its magnificent castle set amid the green hills of southern Moldova, is the flagship company of the Purcari Wineries Group. Its wines are produced in accordance

Catalina Turcanu
Senior Brand Manager
Purcari Wineries Group



with the strictest requirements of French viniculture. They are made exclusively from hand-picked grapes, using traditional processing methods under the special supervision of Italian oenologist Federico Giotto. The young wine passes through various stages of work in the cellar such as cooling, filtering and fermentation before it is matured in French oak barrels for at least 18 months.

Vetropack supplies 90 percent of the glass for the Purcari Wineries Group. Château Purcari alone purchases glass packaging for a total of 22 product lines, including different bottles for the four main wine categories: Reserve, Limited Edition, 1827 Collection, and Sparkling. When Vetropack acquired the nearby glassworks at Chişinău in 2020, the partnership was broadened to embrace a truly European perspective focusing on innovation and sustainability. With its two glass furnaces, Vetropack Chişinău offers the flexibility to produce a diverse range of glass packaging in two different colours.

"The move from Italy (where our bottles were produced before) to Moldova opened up opportunities for us to collaborate much more closely." Thanks to local support from Vetropack, our logistics are more sustainable, we have access to packaging know-how, and we benefit from a shared understanding of our company's growth," Turcanu adds. "New bottles embossed with '1827', the year of our foundation, were created in 2020 for the Reserve, Main and Limited Edition series – and they have definitely helped us to reach the very top of the rankings. The bottles play a crucial role in the premium segment because they underscore the complexity of the wine."

Glass packaging benefits premium and organic wines

The Purcari Wineries Group is continuing its growth trajectory, with new products launched almost every year. "Vetropack is supplying us with a unique bottle for the latest addition to our 'Wine Crime' brand portfolio: the Wine Crime sparkling wine we introduced in 2023. Having such a flexible partner is a superb asset – not least when it comes to sustainability. We generally aim to make the bottles lighter so as to reduce

the impact on the environment. We're one of only a handful of companies in Moldova with a dedicated sustainability department. We're investing in solar energy, modern resource-efficient equipment and – last but not least – organic and biodynamic wines," Turcanu explains.

Purcari 'Native' is a new limited-edition collection of wines produced from grapes that are currently in transition to organic cultivation: they will soon become biodynamic wines. To carry out a product test in the region, Vetropack began by supplying a provisional glass packaging. 'Native' has already won a Grand Gold medal at Mundus Vini 2023; now that sales are expanding into the EU and beyond, these wines will be presented in a new lighter bottle which is also supplied by Vetropack. Thanks to an improved production process, the new lighter glass from Vetropack saves resources throughout the value chain without compromising on quality or robustness. For a typical 750-ml wine bottle weighing 400 grams, the weight reduction is 50 grams – so materials are saved and the process generates fewer CO₂ emissions. And as an added benefit, Purcari Native is delivered in sustainable transport boxes.

Final words from Victor Bostan, Founder and General Manager of Château Purcari: "We are proud to have achieved such magnificent results! As our strategic partner for packaging, Vetropack has played a major part in this remarkable success story. We will continue our joint efforts to promote Moldova and its rich wine culture throughout the world – showing that these quality wines are created with great care and passion, by people who are absolutely devoted to their work."



EXPERIENCE VETROPACK!

Trade fairs · Exhibitions and events

Which trends and challenges are shaping the industry's future? How are technologies continuing to develop? And which innovations are transforming glass packaging? Learn more at one of our events!

Take advantage of the opportunity for a face-to-face discussion so you can get to know Vetropack better: broaden your industry

expertise by attending our presentations and exhibitions, or visit us at a trade fair to see our innovations for yourself. Our experts are keen to strike up a dialogue with you so we can share ideas about new developments. We would be delighted to welcome you at one of the many events staged by the Vetropack Group, either this year or next year!

	LOCATION	COUNTRY	DATE
Circular Innovation Ecosystem Session	Biel/Bienne	Switzerland	28.08.2023
Kyjev Anniversary	Kyjev	Czech Republic	Autumn 2023
The 25th Annual International Beer Strategies Conference 2023	Berlin	Germany	10.10. - 12.10.2023
Opening Ceremony	Boffalora	Italy	25.10.2023
BrauBeviale	Nuremberg	Germany	28.11. - 30.11.2023
Agrovina	Martigny	Switzerland	23.01. - 25.01.2024
International Triennial of Glass and Jewellery (Exhibition)	Jablonec nad Nisou	Czech Republic	16.06.2023 - 07.04.2024
Save the Date: Drinktec	Munich	Germany	15.09. - 19.09.2025

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Check out our LinkedIn channel each week! You'll find Success Stories, posts from our company and glimpses into Vetropack's history. Can you imagine what it's like to work at the hot end? Do you know what makes our Sales & Marketing Team tick, or what our Technical Performance Team is working on? "Meet our Team" is our video format where different teams introduce themselves and explain what their work is all about. Our LinkedIn channel is also your source for first-hand information about our employees and new recruits, details of our events – and much more besides.

Follow Vetropack – and never miss out on the latest news!