glass machinery world plants&accessories

BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

YEAR 36 • ISSUE NO. 4/2023

Support service spotlights **BUCHER EMHART GLASS** for customer-centricity

TIAMA ECO-system maximizes glass production and efficiency

Leading Algeria lab opts for **OCMI-OTG** precision excellence

Science-based targets: **VIDRALA**'s ambitious journey towards net-zero

Exquisite glass bottles demonstrate leading **SAVERGLASS** craftsmanship

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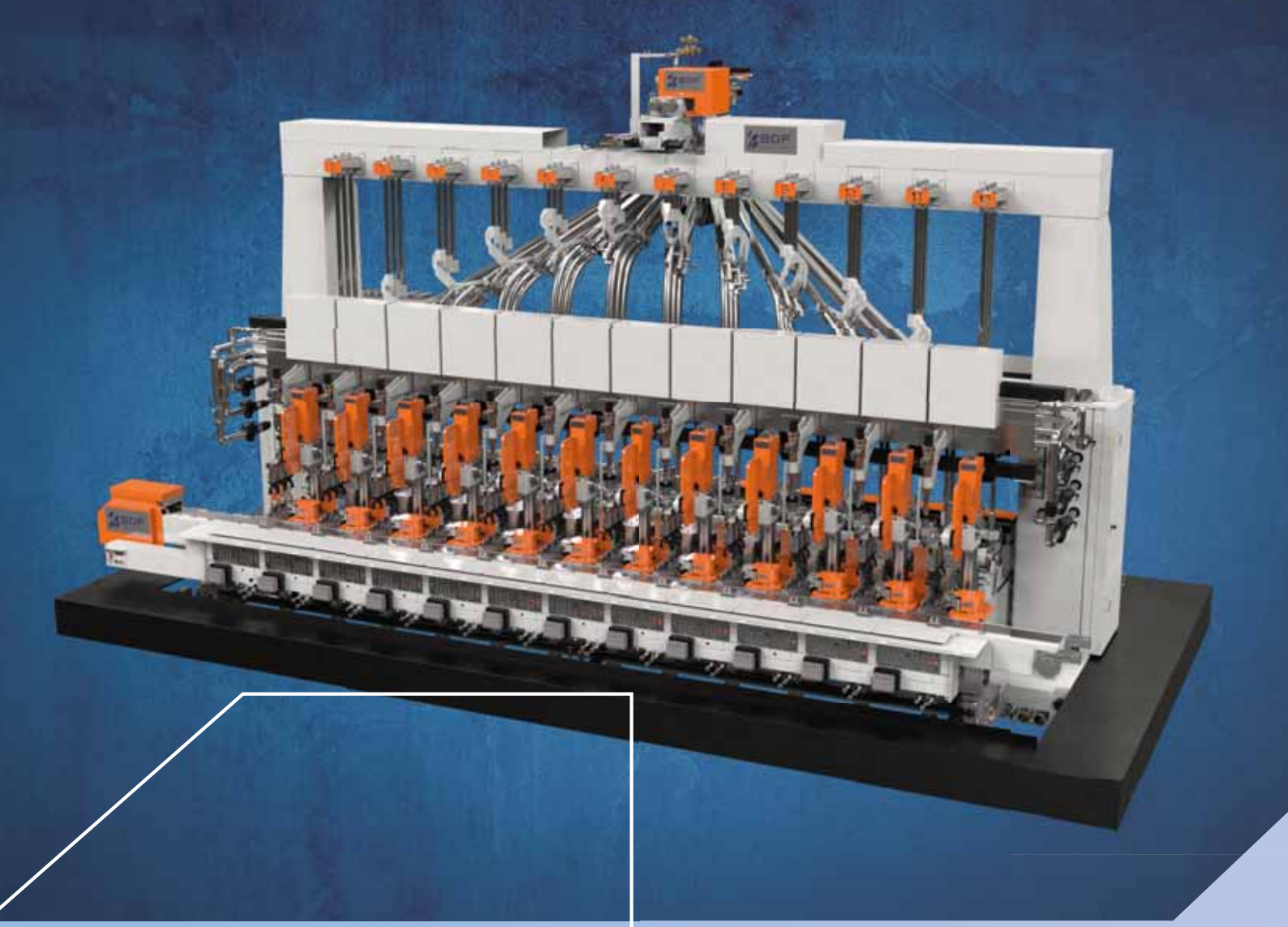

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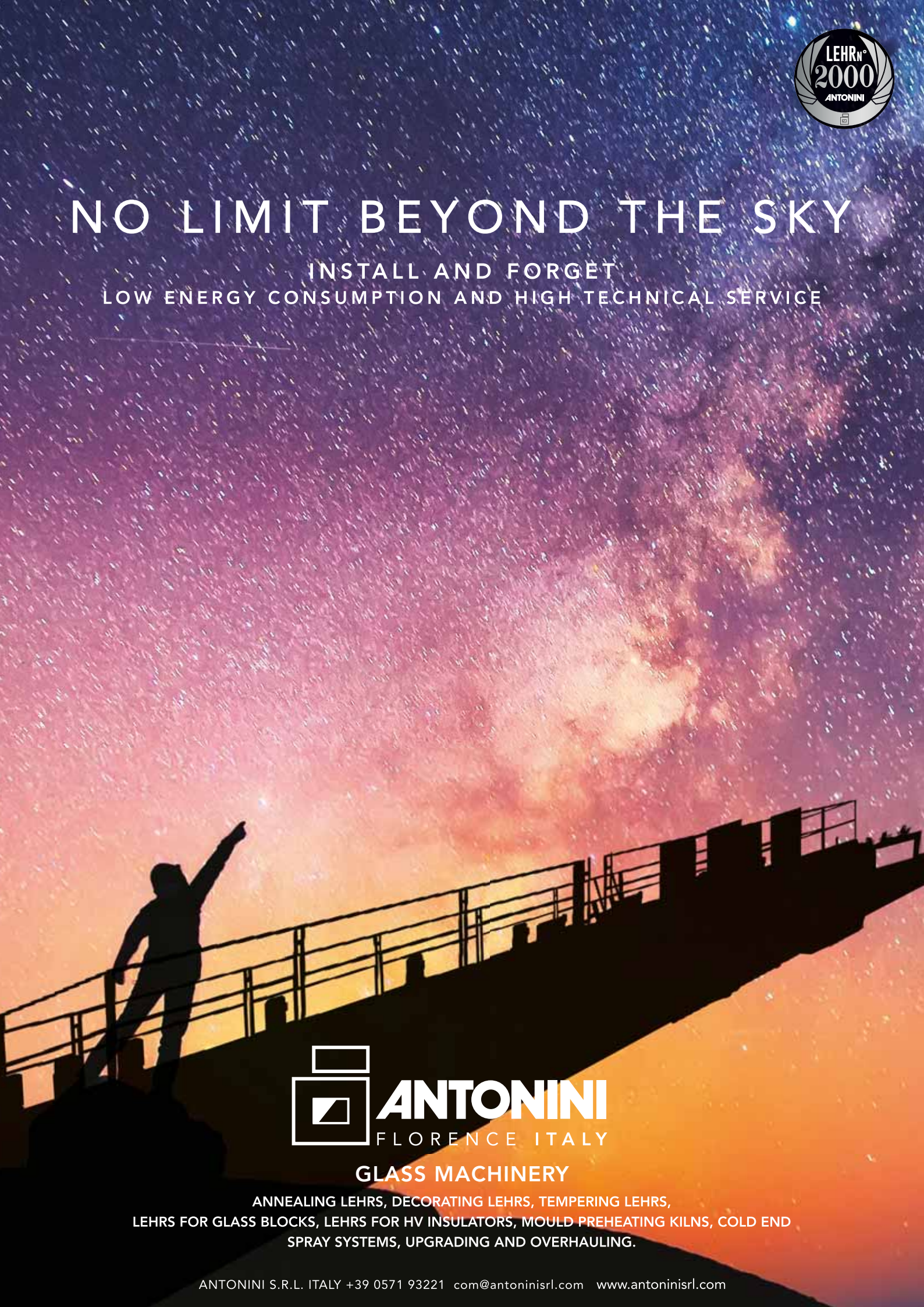
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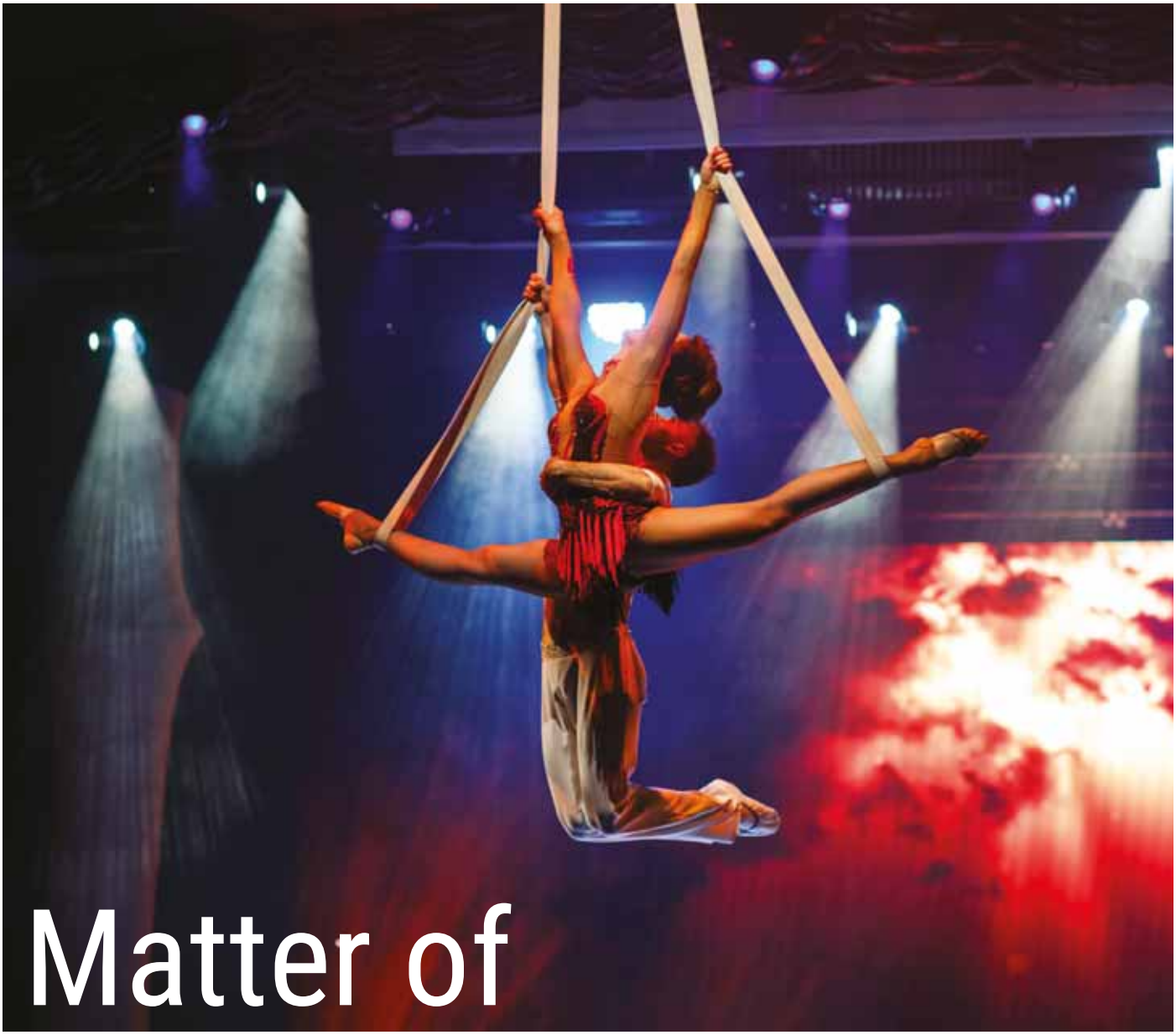

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BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

2023 TRADE FAIRS CALENDAR

The magazine will be distributed at the following Events

issue	exhibition/conference	date	venue	deadlines
2023 1	GLASSMAN EUROPE	8-9 February	ISTANBUL Turkey	Editorial files: 13-01-2023
	COSMOPACK	16-18 March	BOLOGNA Italy	Deadline Adv files: 17-01-2023
2023 2	GLASSPRINT	25-26 April	DÜSSELDORF Germany	
	INTERPACK	4-10 May	DÜSSELDORF Germany	Editorial files: 20-03-2022
	CHINA GLASS	6-9 May	SHANGHAI China	Deadline Adv files: 30-03-2023
2023 3	GLASSMAN USA	6-7 June	CLEVELAND (OH) USA	
	FURNACE SOLUTIONS CONFERENCE	7-8 June	ST HELENS UK	Editorial files: 26-04-2023
	16TH SEMINAR ON FURNACE DESIGN	21-22 June	VELKE KARLOVICE Czech Republic	Deadline Adv files: 05-05-2023
	FEATURED CONTENT: FURNACE DEVELOPMENTS			
2023	Glass Industry Directory 			Editorial files: 05-06-2023 Deadline Adv files: 19-06-2023
2023 4	VITRUM	5-8 September	MILAN Italy	
	GLASSPEX INDIA	14-16 September	MUMBAI India	Editorial files: 21-07-2023
	GLASSMAN ASIA	20-21 September	SEOUL South Korea	Deadline Adv files: 28-07-2023
2023 5	AFGM	Date to be announced	South East Asia	
	LUXPACK	3-5 October	MONACO	Editorial files: 04-09-2023
	CONFERENCE ON GLASS PROBLEMS	30 October 2 November	COLUMBUS (OH) USA	Deadline Adv files: 11-09-2023
	FEATURED CONTENT: VISION & COLD-END			
2023 6	ICG ANNUAL MEETING	12-15 November	HANGZHOU China	Editorial files: 09-10-2023
	GULF GLASS	4-7 December	DUBAI UAE	Deadline Adv files: 16-10-2023

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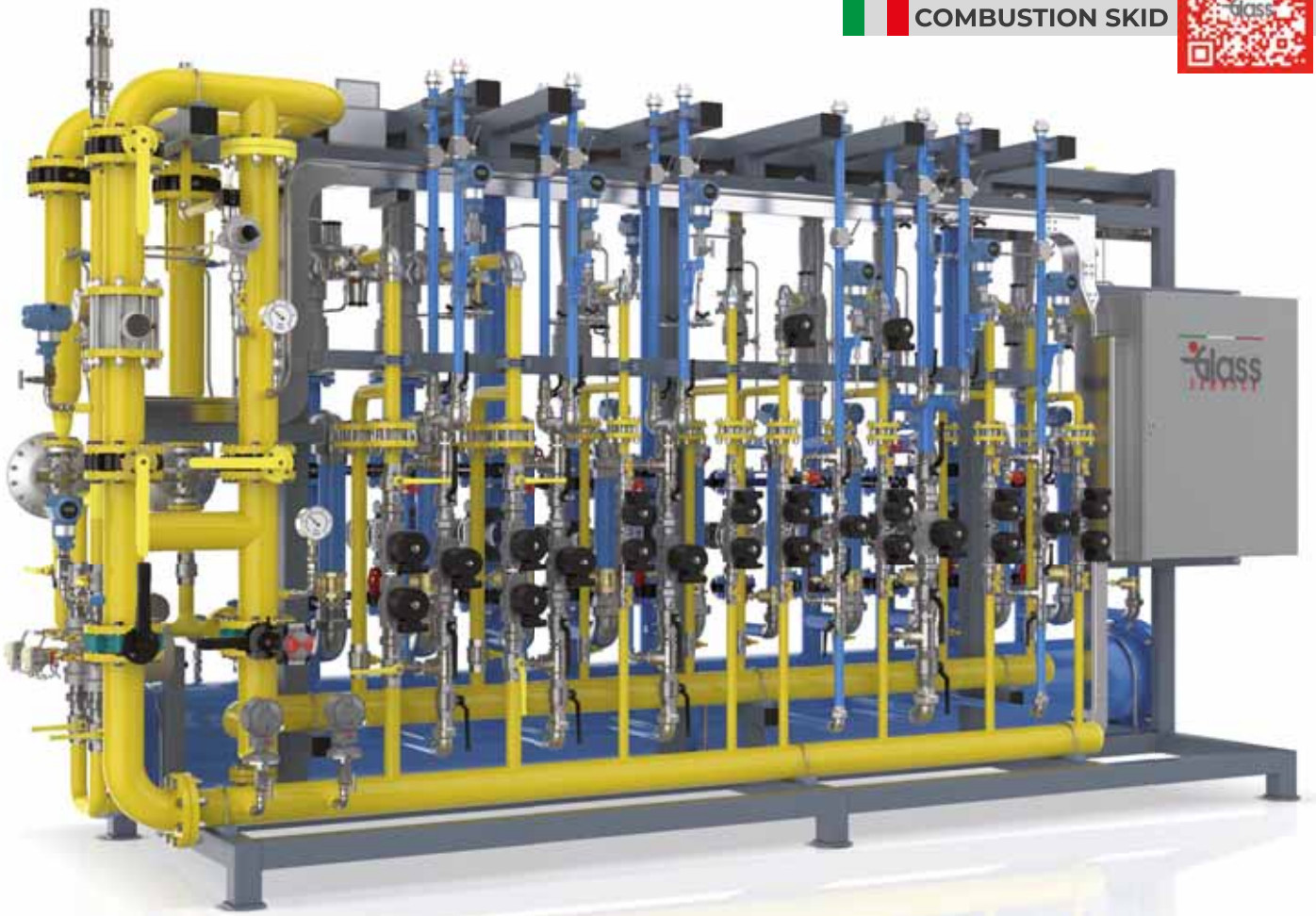

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FISC

Driving low carbon innovation for UK's vital materials

Global leaders in innovation, research and technology from across the cement, metal, glass, ceramic, paper, polymer and chemical industries have come together to form the Foundation Industries Sustainability Consortium (FISC). **FISC** brings together the CPI, Glass Futures, Lucideon, Materials Processing Institute and the Henry Royce Institute. These essential materials are an invisible part of everyday life: everything from the cement and metal in buildings, the glass in mobile phones to the ceramic cups we drink from, the shampoo we wash our hair with and the greeting cards we send only exist because of the foundation industries.

The products made from these materials are essential to our everyday lives, but together, they are responsible for 10 percent of the world's CO2 emissions. We cannot do without the products of the foundation industries, so it is essential that we work to make the products more sustainable and reduce their carbon footprint.

It's time for change: FISC is delivering global innovation in low carbon resource efficient sustainable solutions that will help to transform these essential industries.

FISC's first project is known as EconoMISER (Economic Materials Innovation for the Sustainable and Efficient Use of Resources). It is funded by Innovate UK as part of the Transforming Foundation Industries (TFI) Challenge and builds on the existing innovation capability of the partners. The EconoMISER programme is developing a network of scale-up centres across the FISC partnership to align with the consortium's themes. The programme provides dedicated support for the foundation industries through experienced teams of industry fellows and application scientists who are now initiating projects across the FI innovation network.

Graham Hillier, FISC and EconoMISER Project Chair, said, "By working together FISC can leverage the deep understanding and capabilities of its partners to help the companies operating in the foundation industries and the supply chains that use their materials improve.

"All the centres are well established in their own right and support innovation in their own industries. We felt that by working together on cross cutting themes that affect the whole of the foundation industries there was an opportunity to combine our capabilities in ways that can identify and transfer best practice between the centres and, more importantly, into manufacturing plants and supply chains to enhance the UK's position economically, environmentally and socially."

The UK foundation industries face a set of challenges that are common to all FI manufacturers across the globe, these major challenges are to:

- Use more scrap materials as feedstocks to reduce virgin raw material demand through a more circular approach to manufacturing,
- Develop more sustainable, lower carbon and more resource efficient manufacturing routes for the future of the world,
- Develop more innovative products making materials in the integrated supply chain more efficient thereby increasing the economic and social value of these supply chains,
- Continuously improve the efficiency of manufacturing to reduce costs, increase yields and reduce emissions,
- Develop a new generation of low carbon sustainable and resource efficient processes, products and manufacturing plants to ensure the UK has manufacturing assets and products that are fit for the future,
- Increase UK production so it's less reliant on imports.

Dr Ben Walsh, Deputy Director – Transforming Foundation Industries at Innovate UK, said, "FISC is open to all in the industry, and we welcome them to engage and plan projects that will drive the foundation industries forward. FISC will provide support through access to the equipment and services of its members.

"The depth of expertise across a wide range of innovation activities means that FISC can bring together unparalleled expertise that can help its partners reach practical solutions more quickly and at lower cost than if each partner worked independently."

The consortium will lead projects based on six themes: alternative fuels, digital sensing, process optimisation, sustainable materials, circular economy and training and skills.

WWW.UKFISC.ORG

GCA

Glass packaging choice for health-conscious consumers

The Glass Packaging Usage Study conducted by **GCA**, a leading player in Turkey's glass packaging industry and a subsidiary of Gürok Group since 2015, shows how the perception of "health and safety" plays a decisive role in glass packaging usage. According to the results, 77 percent of bottled water and mineral water consumers prefer glass because it is considered healthy, 49 percent because it does not affect the taste and odour of food items, 48 percent because it is reliable and 32 percent because it offers a longer shelf life.

Glass consistently stands out as a healthy material among consumers in terms of packaging materials. GCA's Glass Packaging Usage Study dated May 2023 supports this approach.

Glass perceived as best packaging material by consumers

Commenting on the research results, Dr Abdullah Gayret, General Manager of GCA, said, "As GCA we consider our customers as our business partners by focusing on innovative customer relationship approaches and management. We strive to analyze their needs as if they were our own business and solve them. By centering customer experience we listen to our customers' voices through modern methods, rather than traditional measurement techniques, and incorporate their feedback into our business model. "Based on the results of our latest research with this vision, glass is perceived by consumers as the best material that protects people and the planet. For bottled water and mineral water consumers, the most important advantages of glass packaging they choose glass for are: 77 percent for being healthy, 49 percent for not affecting the taste and odour of food items, 48 percent for being reliable, and 32 percent for offering a longer shelf life. The shelf-stable qualities of glass allow people to preserve their favourite products for longer, reducing food waste as well."

We conduct all processes through automation

Gayret emphasized that product safety and hygiene is prioritized and that the company continues to invest in a fully automated system in GCA facilities. He continued, "We carry out all processes from the formation of glass gobs to the storage process without any manual intervention, through automation. With the special monitoring systems and sensors we utilize at every process point, we have the capabilities for data and statistical analysis to maximize both the efficiency of the production process and the quality. Since the establishment of our factory, we have been using the most advanced ERP system. Our IT and warehouse teams make improvements to the software every year. This enables us to accelerate the processes and ensure integration by closely following the digital age."

WWW.GCA.COM

SCHOTT GROUP

Successful laboratory tests with 100 percent hydrogen

As a pioneer in climate-friendly glass production using hydrogen as an energy source, the **SCHOTT GROUP** has achieved another important success: The company was able to produce a test melt with 100 percent hydrogen in the laboratory without using natural gas. The specialty glass experts from Mainz, Germany, had already started the first industrial-scale tests with the participation of local partners late in 2022. In these tests, 35 percent hydrogen was added to a melting tank that had previously been operated exclusively with natural gas. The results showed that a change in melting technology away from using fossil fuels is indeed possible. This was confirmed with the new 100 percent hydrogen trial.

"The current laboratory tests were conducted under conditions that were much closer to production than in 2020 when we conducted preliminary tests in a research project. Thanks to the expanded hydrogen supply at the plant in Mainz in the meantime, we were now able to melt and test for a significantly longer period of time," explained Dr Matthias Kaffenberger, Melting Technology Manager at Schott, in describing the most recent progress. "For the first time, we succeeded in completely using hydrogen for a holding time of ten days on a laboratory scale. This success represents an important milestone for the technology Group to be able to perform corresponding tests in production reality and the results in large-scale technology in the future."

WWW.SCHOTT.COM

O-I GLASS

Partnership with FX Matt Beverage Company announced

O-I GLASS and FX Matt Beverage Company have announced a new partnership that introduces glass packaging innovation and accelerates the speed to market for the Drinktainer®. As beverage industry leaders, O-I and FX Matt provide insight and expertise to overcome challenges faced when trying to develop impactful products in an overwhelming space. The co-packing partnership offers brands the opportunity to innovate with Drinktainer® through a streamlined co-packing process.

"FX Matt is the ideal co-packing partner, bringing experience, know-how and speed to market for brands seeking to leverage the superior design and sensory benefits of Drinktainer® for their beverages," said Sarah Brennan, North America Marketing & NPD Director for O-I.

Drinktainer features a wide-mouth opening, closing the gap on the optimal drinking experience when enjoying a beverage from glassware. Recent market research demonstrated that 61 percent of consumers likened the Drinktainer® to drinking from a glass and enjoyed the premium appeal and consumption experience of the container. And the 42 millimetre RipCap® offers a unique opening ritual that's suitable for most carbonated beverages and creates a satisfying pop of freshness. The differentiation Drinktainer® offers allows brands to stand out on the shelf among today's increasing commoditized packaging.

"In our 135-year history, we have thrived by going to market with new and innovative beverages and packages that delight our customers and our consumers," said Fred Matt, President & CEO for FX Matt Beverage Company. "We look forward to building Drinktainer® into a premium 'must have' beverage container with O-I."

WWW.O-I.COM

WECK

Jar manufacturer files for bankruptcy

German glass jars producer J. **Weck GmbH** & Co. KG, based in Wehr, and its subsidiary Weck Glaswerk Gesellschaft, based in Bonn, filed for insolvency with the Karlsruhe District Court. The company has not provided any further information about the reasons for the bankruptcy.

At the beginning of the last century, J. WECK was founded in Oflingen when the company developed and introduced the home-canning method for glass jars. Since then, WECK has made this method popular not only in Germany and Europe, but worldwide.

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BA GLASS

Continuing growth after acquisition of Vidrio Formas

BA Glass has taken a significant step forward in its international expansion through the signing of an agreement to acquire a majority stake in the Mexican glass packaging producer Vidrio Formas. This strategic move allows **BA GLASS** to expand its presence into a new country and continent and opens exciting opportunities and challenges for the years ahead.

With this acquisition, BA Glass strengthens its position in the glass packaging industry, increasing its international presence and leveraging the industrial and commercial capabilities of the Group to develop and enhance Vidrio Formas industrial platform. The transaction is expected to close by year-end once the required authorizations are obtained.

Sandra Santos, BA Glass Group CEO, expressed the enthusiasm of both teams in being part of a common project, joining the best knowledge and experience of both companies.

"The most relevant assets of any company are its people and customers, and we found many of those in Vidrio Formas," she said.

This movement is a strong step on BA Glass' commitment to its growth roadmap and its determination to increase its successful operations on a global scale. After this acquisition, BA Glass will overcome EUR 1,8 billion of turnover and EUR 600M of EBITDA enlarging its team to 4,800 employees with more than 15 nationalities.

BA Glass is the fourth largest glass packaging producer in the world, serving the food and beverage markets with 12 plants located in Europe, an annual production of over 10 billion of glass and jars and sales over EUR 1,5 billion in 2022.

Vidrio Formas is a relevant Mexican player, focused on the spirits and food segments with 2 plants located in Mexico and EUR 125M turnover in 2022.

WWW.BAGLASS.COM

CORNING

New Viridian™ Vials reduce waste and carbon emissions

Corning Incorporated has launched Corning® Viridian™ Vials, the latest innovation in its expanding pharmaceutical glass-packaging portfolio. Viridian Vials bring performance and sustainability together. The new technology can ➜

improve filling-line efficiency by up to 50 percent while reducing vial-manufacturing carbon-dioxide-equivalent (CO_2e) emissions by up to 30 percent.

"Corning continues to push the boundaries of glass technology to help our customers tackle their most complex challenges," said Ron Verkleeren, senior vice president and general manager of Corning Life Sciences. "'Viridian Vials' cutting-edge coating technology allows our customers to deliver medications safely and efficiently - for both patients and the planet."

Injectable medicines play an increasingly important role in global health. As demand for these medicines rises, pharmaceutical manufacturers are looking to increase production efficiency while reducing the environmental impact of their supply chain. Viridian Vials use 20 percent less glass material than conventional glass vials, with no impact on the quality or safety of the vial. This reduction in glass material lowers manufacturing and transportation-related emissions by up to 30 percent and decreases the total amount of glass entering the waste stream. In addition, Viridian's low-friction external coating minimizes cracks, breaks, and cosmetic rejects while improving filling-line efficiency by up to 50 percent.

"With Viridian we've created a drop-in solution that's compatible with today's equipment and standards - and that helps our customers achieve their sustainability goals," continued Verkleeren.

West Pharmaceutical Services will be the exclusive distributor of Viridian Vial Technology. Corning's ongoing collaboration with West brings together two industry leaders with a shared commitment to using resources responsibly to help create a healthier, more sustainable world.

WWW.CORNING.COM

FUTRONIC

Bucher Automation now joined in a team up with Jetter

The control and automation specialists have already been part of Bucher Industries for ten years and are part of the Bucher Specials division. On July 1, 2023, the companies will complete a further integration step by renaming themselves and adopting the group layout. Nevertheless, **Bucher Automation** will retain its independence.

Decentralized group structure

Bucher Industries combines strong brands and global market leaders under one roof, for example the Kuhn Group as a manufacturer of agricultural machinery, Bucher Municipal in the municipal vehicle sector, and Bucher Hydraulics as a specialist in electronic and hydraulic components. “Bucher Industries has a clear group strategy of decentralized management – that’s one of their recipes for success,” said Christian Benz, CEO of Jetter. “So we will maintain our independence. Besides, we as a company are important to the group: we supply a large part of the group with automation solutions.”

The best of everything

In the future, Jetter would like to profit even more from possible synergies within the group. “It is a great advantage for us to be able to rely on Bucher’s expertise. For example, in the areas of IT security and HR, we have already worked together successfully in the past,” explained Benz. Jetter sees the new name as an opportunity. “In the markets in which we operate, Bucher is well known and has a very good image. For us, the new name can be a real door opener.”

Closer together

All companies of the Jetter group which, apart from Jetter AG and **FUTRONIC**, also includes Jetter China and Jetter Hungary, will in future operate jointly as Bucher Automation. In this way, the solution portfolio will grow: The glass segment will be strengthened, and, from Jetter’s point of view, the recycling segment will be added. The production sites in Ludwigsburg and Tettnang on Lake Constance as well as in Hungary will remain.

Advantages in view

All in all, Benz sees a great opportunity for Jetter in the new company name and the new brand, “For us, this means that hardly anything will change in our work -we will continue to do our thing- but we will be able to profit even more from the strong group behind us.”

How does the rebranding affect Jetter Group companies?

The Bucher Automation brand incorporates all companies of the Jetter Group. This means, Jetter and futronic are closing ranks with their products being marketed under one brand name. The product portfolio of Bucher Automation is becoming more diverse. To form a Jetter point of view, solutions for the recycling industry will be a new addition. Customers of Bucher Automation will benefit from an even wider range of products and solutions. All production locations of the Jetter Group will continue to operate.

WWW.FUTRONIC.DE

SOCAVER

Furnace 1 renovated to boost glass production

The Société Camerounaise de Verrerie (Socaver), part of the Boissons du Cameroun group, recently decided to invest in efficient and modern tools to increase productivity and to meet new requirements in terms of performance and innovation. This major project, which required the complete shut-down of furnace 1, was carried out from March 2021 to July 5, 2023. This furnace comes in addition to furnace 2 inaugurated in 2019.

XAF 3.5 billion (EUR 5.5M) is the investment in this state-of-the-art industrial equipment that will increase **SOCAVER**'s production capacity by 50 percent, to approximately 100,000 bottles per day, a production intended to meet the needs of Cameroon and the sub-region, which has a deficit estimated at around 10,000 tonnes of glass.

More than fifteen local companies were involved in this project, supported by experts from Sorg, Bucher Emhart Glass, Tiama and All Glass.

With an annual melting capacity of 15,000 tonnes, the start-up of this new furnace will contribute to reducing the glass imports of companies established on the territory.

Furthermore, the Société Camerounaise de Verrerie, the only glass factory in Central Africa, is more than 90 percent part of the circular economy - an objective of the energy and ecological transition and one of the commitments for sustainable development.

WWW.BOISSONSDUCAMEROUN.COM

BUCHER EMHART

Groundbreaking new manufacturing facility in Malaysia

Integrated industrial space solutions provider AME Elite Consortium Berhad has broken ground for the MYR 108M (EUR 22.8M) manufacturing facility for Bucher **BUCHER EMHART** at i-Park@Senai Airport City, Johor, Malaysia, three months after signing the initial agreement.

The ground-breaking signifies the start of the construction phase for the new manufacturing facility, which is scheduled to be completed in 2024. With a built-up area of about 300,000 square feet the facility represents a substantial investment by Bucher Emhart Glass to expand its manufacturing capabilities in Southeast Asia.

Attendees at the ceremony included Johor State Investment, Trade and Consumer Affairs Committee chairman Lee Ting Han, Bucher Emhart Glass president Matthias Kümmerle and vice-president Logistics & Manufacturing Juan P. Montes, as well as AME Group managing director Kelvin Lee Chai and executive director Simon Lee.

Kelvin Lee said, "Being entrusted by a global leader like Bucher Emhart Glass for the development of their manufacturing facility at i-Park@Senai Airport City is a privilege for AME. This substantial investment validates our efforts to provide world-class facilities and foster a thriving industrial ecosystem that empowers the growth of international-scale organizations."

WWW.EMHARTGLASS.COM

GLASS FUTURES

GBP 18M in government funding

GLASS FUTURES has secured GBP 18M in funding from the UK government, comprising GBP 7M for the organization and GBP 11M for its members - all part of efforts to decarbonize energy-intensive industries. The not-for-profit recently established its GBP 54M Global Centre of Excellence in St Helens and will undertake three projects to lead the glass and ceramic industries towards significant carbon emissions reduction.

The first project, R&D-Electric, focuses on optimizing electric melting techniques for glass furnaces - potentially cutting UK CO2 emissions by 56 percent annually. It will explore super boosted electric furnaces with the goal of achieving 40-50 percent boost capability for conventional glass furnaces by 2040. The organization will install an electric-boost system on its pilot plant to assess melting efficiency and other factors. Founding members Guardian Glass and Encirc will also be involved in running models to understand the best electrode positioning for up to 60 percent electric-boost. E.ON and National Grid will participate to assess the feasibility of upgrading UK grid networks for electric-hybrid furnaces.

The second project will demonstrate the feasibility of low-cost bio-fuels for glass and ceramic furnace sites, with O-I, Ardagh, Encirc, Pilkington UK, and DSF refractory manufacturer taking part in trials. This project will explore the economic and sustainable aspects of using bio-fuels and their compatibility with Carbon Capture, Usage, and Storage (CCUS) technologies.

The third initiative aims to showcase hydrogen's potential in the ceramics sector, with Glass Futures working alongside the British Ceramic Confederation and partners across various ceramic industry sectors. Hydrogen-firing technologies will be demonstrated in over 150 manufacturing sites, aiming to reduce UK emissions by up to 780 kt CO2 per year.

Richard Katz, CEO of Glass Futures, expressed gratitude for the government funding and highlighted the importance of these projects in advancing decarbonization efforts. He emphasized that the organization's purpose is to bring together industries and academia to trial innovative technologies and solutions on an industrial scale to tackle climate change challenges. Additionally, demonstrating the viability of low-cost bio-fuels will offer solutions for off-cluster manufacturing sites worldwide, where developing infrastructure for low-carbon fuels may be cost-prohibitive but where abundant local bio-derived waste streams are available.

WWW.GLASS-FUTURES.ORG

GIOTTO DUO

Innovative Zignago Vetro patent

Zignago Vetro's range dedicated to Cosmetics & Perfumery has been expanded - this time with an innovative product patented by GIOTTO DUE. The result of continuous experimentation and the search for new solutions that can satisfy an ever more demanding market, Giotto Duo offers an integrated and functional glass separator: a new feature that makes the product very competitively sustainable compared to alternatives that use multi-materials.

Its characteristics

Thanks to the separator, this glass packaging can contain two products in one: a feature that not only provides a benefit in economic terms but also great efficiency for consumers, who will conveniently be able to have two perfectly separate products in a single container, that they can then mix directly at the time of application. Giotto Duo is totally made of glass. This, apart from constituting an advantage from the point of view of sustainability, allows one to avoid having to test for compatibility between the contents and the container. Indeed glass, which by its very nature is chemically inert, never interferes with what it contains; on the contrary, it preserves it better.

Customization

Like all of Zignago Vetro's packs, Giotto Duo may also be adapted to the specific requirements of a given project. For example, the new feature could be applied to shapes other than the standard round one. To complete this offer, numerous accessories will also be available: capsules with different aesthetic characteristics to customize the product even more.

WWW.ZIGNAGOVETRO.COM

STOELZLE

High pressure glass bottles

Stoelzle Glass Group has published a new page on high pressure glass bottles for the sparkling water business and enhances customers' sparkling water experience with glass bottles.

When making glass bottles that are to hold carbonated drinks, **STOELZLE** ensures the bottles can withstand the overpressure created during this process.

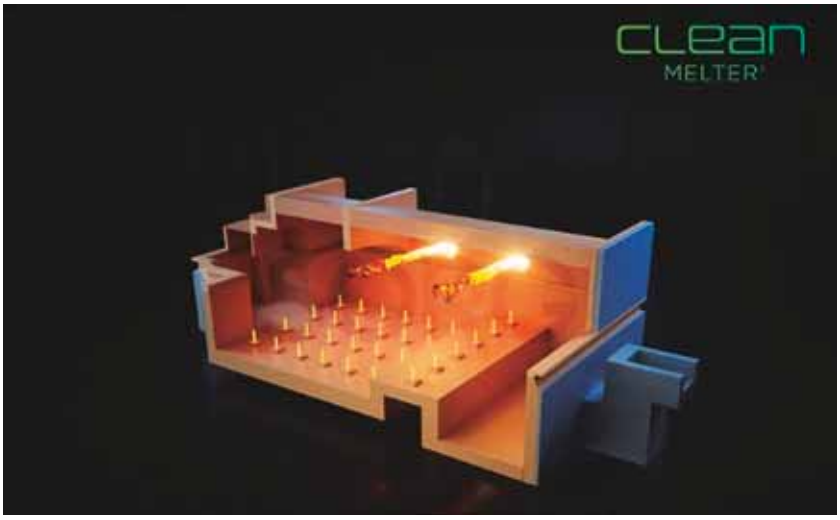
Carbonated drinks are created by adding carbon dioxide gas to the liquid, under high pressure, which causes tiny bubbles to form. Stoelzle uses premium-grade glass in the manufacture of high-pressure bottles so they won't burst when under pressure. And, like all Stoelzle products, they can be customized to meet the unique specifications of a sparkling water maker.

WWW.STOELZLE.COM

SORG

First SORG CLEAN Melter® to be installed

Nikolaus **SORG** is very proud to begin construction of the first SORG CLEAN Melter® at ARDAGH Glass Packaging's facility in Obernkirchen, Germany. To be known as Ardagh's NextGen Furnace this will be the first hybrid furnace with a melting energy share of up to 80 percent electricity and 20 percent gas. The furnace will produce up to 350 tonnes per day of amber glass bottles, with a high level of cullet.



The CLEAN Melter® is based on intensive mathematical modeling, applying and combining established SORG technologies and components, such as the refining shelf, separation wall, gas and oxygen combustion and electrical heating system.

As already reported, SORG was chosen by Ardagh to supply all the furnace technology, including a full supply package, at the Obernkirchen facility - consisting of design, engineering, equipment supply, installation and commissioning.

Matthias Haas, Associate Sales Director at Nikolaus SORG, said: "Today, SORG CLEAN Melter® technology is the most sustainable solution on the market for a higher tonnage container glass furnace with a strongly reduced carbon footprint.

"We are looking forward to working together with Ardagh to realize a significantly decarbonised glass manufacturing process.

"With the success of this project, we are well positioned to fulfill our customers' requirements for CO2 reduction by using 'low carbon technology'."

WWW.SORG.DE

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ŞIŞECAM

Investment in furnace renovation in Georgia

For 26 years, Şişecam has been adding value to Georgia by its investments, employment opportunities and production. The company renewed its second furnace at its glass packaging production facility in Mina with an investment of approximately EUR 20M and equipped the facility with the latest technologies. The first products were taken from the furnace on June 20, 2023, with a ceremony to mark the occasion.

The ceremony, hosted by **ŞIŞECAM** CEO Görkem Elverici, was attended by Levan Davitashvili, Deputy Prime Minister and Georgian Minister of Economy and Sustainable Development; Ali Kaan Orbay, Turkish Ambassador to Georgia and Davit Nozadze, Regional Governor of Mtskheta-Mtianeti.

Görkem Elverici delivered a speech at the ceremony, "Georgia is a very special country for Şişecam. We chose Georgia for our first investment outside Türkiye, where we were the founders of the domestic glass industry 26 years ago. This was a highly strategic first step for our extensive global production network. Today, Şişecam operates 45 facilities in 14 countries on four continents. Since 1997, our business operations in Georgia have been contributing to the country's economy via ongoing investments, production activities and employment opportunities. We have come together today to collect our first products from our second glass packaging furnace, which is equipped with cutting-edge technologies."

Mr Elverici pointed out that the cold repair process for Şişecam's second furnace at the Mina glass packaging facility was initiated this year in accordance with the repair schedule. "We renovated our second furnace with a nearly EUR 20M investment and equipped it with new production capabilities. As a result, we boosted the furnace's capacity by 50 percent and expanded our total glass packaging production capacity in Georgia by 25 percent. This development investment bolsters Şişecam's global supply capability. We will now respond to the intensive glass packaging demands of the country and the region even faster."

Şişecam is the sole glass manufacturer in Georgia

In 1997, Şişecam made its first investment outside of Türkiye in Georgia. production in the country started in 1998 with an annual capacity of 18,000 tonnes. At present, Şişecam in Georgia has an annual production capacity of 75,000 tonnes with two furnaces. At a facility in Mina, Şişecam produces glass packaging in various volumes and three colours (green, flint and light blue) for water, mineral water, alcoholic and non-alcoholic beverages and the food industry. Currently, Şişecam is the sole glass manufacturer in Georgia.

Ranking among Georgia's top 100 industrial companies in terms of both production and exports, Şişecam also offers employment opportunities for 250 people.

WWW.SISECAM.COM.TR

AMETEK LAND

Flameproof housing for temperature measuring instruments

The new **AMETEK LAND**'s EXSH1 flame-proof housings have been developed for use with the EX SPOT pyrometer range and LWIR-640 thermal imager and are approved for operation in hazardous areas.

Manufactured from 316/316L stainless steel and highly resistant to corrosion, both enclosures have a certified temperature range of -40 to +70 degrees Celsius (-40 to 158 degrees Fahrenheit).

Ingress protection to IP66 and IP68 means that they can be exposed to dust, water immersion and high-pressure water jets, making them suitable for use in almost any application in the harshest of environmental conditions, including those where explosive mixtures are present.

The housing has a gridless design, allowing an unobstructed field of view, and is certified for use in areas with dust and gas hazards. Additionally, the enclosure does not require purging air for safety.

The EXSH1 EX SPOT housing is designed for use with the EX SPOT range, a family of fully-featured, high-performance pyrometers for fixed, non-contact, infrared spot temperature measurements.

EX SPOT pyrometers are available in a range of operating wavelengths, temperatures, and process requirements, and the new housing will enhance their capabilities in continuous annealing lines, semiconductor growth and applications in the hydrocarbon processing and chemical industries.

The EXSH1 LWIR housing has been created specifically for the LWIR-640 thermal imager, a long-wavelength instrument providing measurements between -20 and 1000 degrees Celsius (-4 and 1832 degrees Fahrenheit) in three ranges with a choice of different optics and lenses.

The LWIR-640 measures and streams live true-temperature images at up to 60 frames per second - providing high-precision temperature measurements and thermal profiles to continuously control, document and visualize industrial processes.

The new housing protects the LWIR-640 in applications including flare stack monitoring, critical vessel monitoring, storage pile monitoring and operations within the hydrocarbon processing and chemical industries.

With ATEX, IECEx and UKEX certifications the housings comply with multiple international standards. This means that a common specification can be used for worldwide applications - greatly simplifying the task of specifying and quoting the product.

A range of accessories is available for the housings - including various mounting brackets with pan and tilt adjustment, a sun shield for outdoor applications and a spool piece adaptor. An environmental protection tube is offered for the LWIR housing, for flare stack applications, while further accessories for the EX SPOT housing include purges and a vertical mounting stand.

Derek Stuart, Product Manager at Ametek Land, said: "The EXSH1 housing allows customers in many new industries, including hydrocarbons and semiconductors, to benefit from the accuracy and reliability of Ametek Land's thermometers and thermal imagers."

WWW.AMALEK-LAND.COM

ARDAGH GLASS PACKAGING

North America to partially close two plants in July

ARDAGH GLASS PACKAGING - North America has closed two plants over mid July: one in Simsboro, Louisiana, and the other in Wilson, North Carolina.

Ardagh said it's closing the two plants at least partially because of decreased demand.

"Our multi-year performance optimization programme, involving targeted investments in enhanced capacity and ongoing cost optimization, underpins our ability to continue to provide existing and prospective customers with high quality, American-made sustainable glass packaging," a statement from the company said.

Existing customers of both plants will continue to be supplied from alternative locations in the network, the statement said.

The plant in Simsboro employs about 245 people, the facility in Wilson around 390.

WWW.ARDAGHGROUP.COM

CORNING & SGD PHARMA

Joint opening of new glass tubing facility in India

Corning Incorporated and SGD Pharma have announced a joint venture that includes the opening of a new glass tubing facility to expand pharmaceutical manufacturing in India and allows **SGD PHARMA** to adopt Corning's Velocity® Vial technology platform.

Combining SGD Pharma's vial-converting expertise with **CORNING**'s proprietary glass-coating technology, the collaboration will enhance vial quality, improve filling-line productivity and speed the global delivery of injectable treatments. SGD Pharma and Corning have broken ground on a new pharmaceutical glass tubing facility in Telangana, India. Together, the two companies will help drug makers respond to increasingly complex capacity and quality issues while meeting global demand for critical medicines.

"The partnership with Corning represents yet another step in our strategy to advance converting technology in the pharmaceutical industry and secure our supply chain. The introduction of Velocity Vials will contribute to the ongoing evolution of our offerings and services and will expand our portfolio of high-quality tubular glass packaging," said Olivier Rousseau, CEO SGD Pharma. "We see an opportunity for the industry to improve drug filling quality and performance capabilities by transitioning to Corning's coated vial technology."

SGD Pharma joins a growing network of leading primary-packaging manufacturers adopting Corning's cutting-edge coating technology. The joint venture expands Velocity Vials' manufacturing footprint, localizes its supply chains in India and enables easier adoption of the technology by customers.

"Corning is advancing pharmaceutical glass technology to help our customers address their most pressing challenges - globally and locally," said Ron Verkleeren, senior vice president and general manager of Corning's Life Sciences Market Access Platform. "The joint venture with SGD Pharma supports our continued global expansion as we localize manufacturing for our customers. The collaboration also strengthens our leadership position in the industry and underscores our commitment to India's high-growth market."

Manufacturing of Velocity Vials at SGD Pharma's facility in Vemula, India, is expected to begin in 2024. Pharmaceutical tubing production is expected to begin in 2025.

WWW.SGD-PHARMA.COM - WWW.CORNING.COM

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O-I

High-tech sand plant in Zipaquirá, Colombia

After 180 days of continuous work and an investment of USD 3.5M, the high-tech **O-I** sand plant in Zipaquirá, Colombia, is now ready.

Aiming at the objective of meeting a growing demand for raw materials, O-I proudly shares the result of the efforts of many, which today allows the company to have state-of-the-art technology and innovation in its processes.

This project gives O-I a 60 percent increase in productivity, 460,000 tonnes of sand per year ready for the company operation. In addition, O-I works in tune with the responsible use of natural resources such as water, reducing its use by 50 percent thanks to a closed circuit. This is one more step to build a sustainable future hand in hand with glass - a most pure and infinitely recyclable material.

WWW.O-I.COM

SORG

Conquering the trust of Nanjing Electric Insulators

Nanjing Electric Insulator Co., Ltd. is the largest producer of electrical insulators for high-voltage transmission lines in China. In 2014, **SORG** received the first order for the delivery of a regenerative end-port furnace with a working end and two forehearths for the manufacture of such insulators.

The insulators produced by Nanjing are subject to a very tight glass chemistry specification, which is different for direct current (DC) and alternating current (AC) insulators. With an article weight of up to 12 kilograms, extreme demands are placed on the glass in terms of glass homogeneity, melting relics and inclusions from unmolten batch particles and seeds. Later failures of the insulators are not permitted.

The first furnace delivered by SORG exceeded the requirements regarding the factors mentioned above and the operating time. Nanjing Electric Insulator has commissioned SORG to deliver a further system.

In addition to the technical factors, it's especially noteworthy that excellent know-how, advice and service from SORG all contributed to this decision.

To comply with the Chinese government's new emission regulations, a SORG VSM® type all-electric melter was supplied. This new VSM®, with a melting surface of around 20 square metres, a STW working end and a forehearth STF 340S+®, is specially designed for the production of soda lime flint glass for the production of the insulators. Insulators suitable for AC and DC are produced with this furnace.

The VSM® is charged with the batch via the well-proven rotating crown, while SORG Top electrodes ensure the energy input into the melt. A filter cleans the superstructure atmosphere.

To meet the high demand of glass quality, the facility has SORG CONTI-DRAIN® systems installed on both the throat of the furnace and in the forehearth channel. Furthermore, a SORG universal stirrer unit is installed in the forehearth.

The customer was very satisfied with the SORG technology and emphasized the outstanding service and support. In a gracious ceremony, some of the SORG employees were made honorary members of the Nanjing Electric company.

WWW.SORG.DE

Textiles for the glass industry

Textiles for the glass industry used to cover and line rollers and ovens for tempering flat glass and for covering bending moulds and pliers for transferring hot glass.

1204T Tenack square packing

Tenack square packing is made by braiding wires of AISI 316 L stainless steel. The packing, which withstands high temperatures and has excellent mechanical properties, is suitable for the glass industry as protection for parts that may come into contact with hot glass that is still soft to prevent thermal shock and microcracks. The packing is very flexible, elastic and easy to handle. It is an excellent substitute for Aramtex products when temperatures exceed 350°C.

1204CM Tenack knitted sleeve

Tenack sleeves are made by braiding AISI 316 L stainless steel wires. This sleeve, which withstands high temperatures and has excellent mechanical properties, is suitable for the glass industry as protection for parts that may come into contact with hot glass that is still soft to prevent thermal shock and microcracks. They are an excellent substitute for Aramtex products when temperatures exceed 350°C.

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Support service spotlights BUCHER EMHART GLASS for customer-centricity

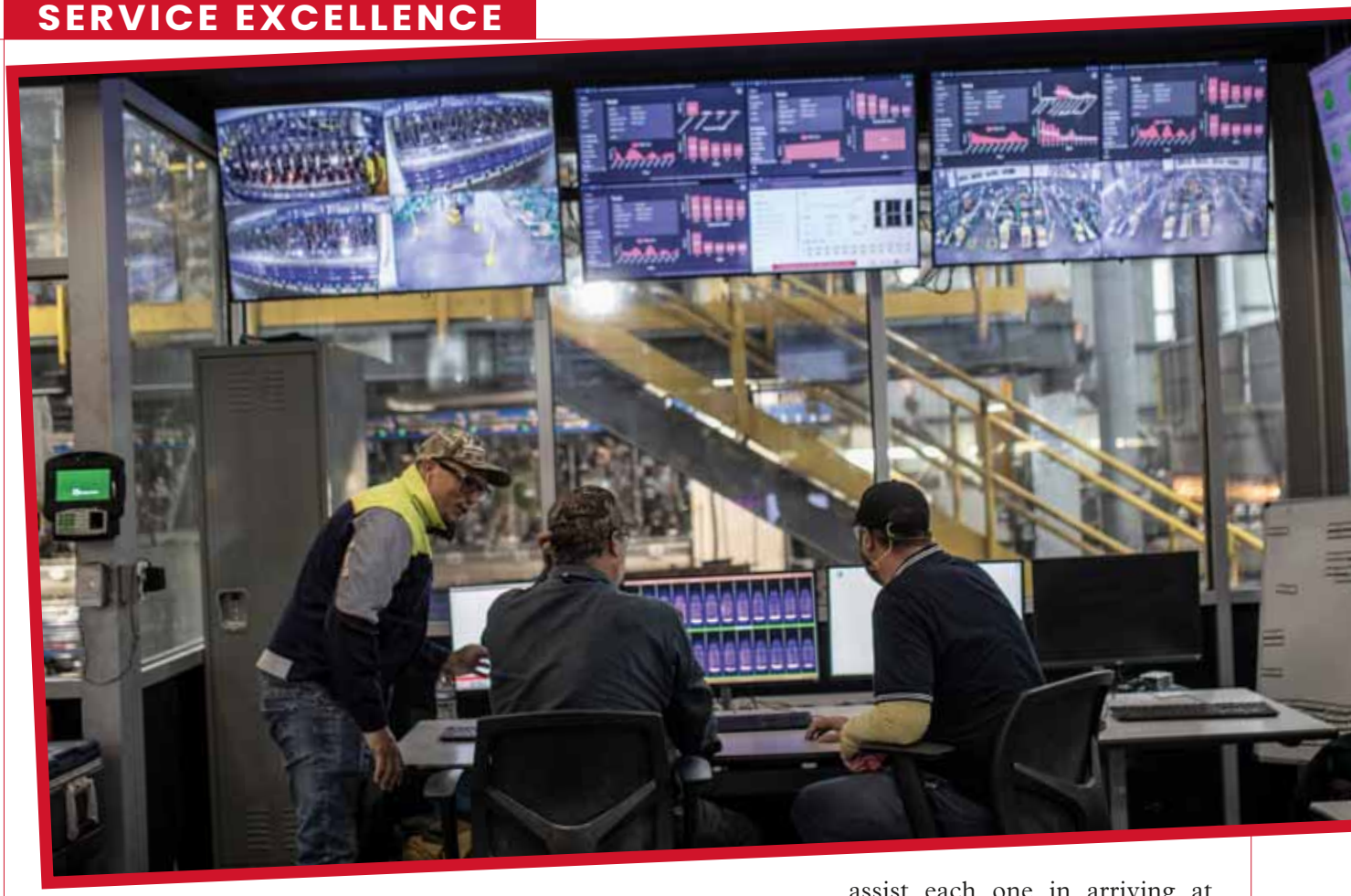
BUCHER EMHART GLASS, leading provider of equipment for the glass container industry, has launched a new specialist support channel dedicated to automation equipment.

As an increasing number of measurement systems are integrated into glass forming machines, the task of monitoring every readout and optimising each setting becomes progressively challenging for human operators. Moreover, when finer adjustments, greater cavity numbers per forming machine and frequent job changes are taken into account, it's no surprise that operators sometimes struggle to stay on top of everything. Consequently, when operator attention is spread too thin, product quality inevitably suffers.

LEADING IN AUTOMATION

It's here that automation comes into play. Automated systems enable the forming process to be adjusted and optimised automatically, eliminating the need for operator intervention. Not only does this enhance quality - it also liberates operator time, allowing for a greater focus on higher-level monitoring, troubleshooting and quality control. It's no wonder, therefore, that automation is assuming an increasingly pivotal role in the operation of numerous glass plants worldwide.

Here, for its esteemed clientele, Bucher Emhart Glass has been at the forefront of developing automation solutions. The company's closed-loop technical solutions employ sophisticated sensors to automatically optimise crucial processes, including gob control, plunger movement and cooling, blank cooling, and bottle spacing on the conveyor. Additionally, FlexRobot diligently swabs blank moulds and neck-rings, thus augmenting both consistency and safety.



RAISING THE BAR WITH SERVICE

Together with these technical advancements, Bucher Emhart Glass has also strived to improve and expand its customer support, transforming its offering from mere machinery to a comprehensive "product plus service" solution. Rather than only construct and install equipment, the company aspires to be a genuine production partner for its customers, assisting them in making ongoing enhancements in terms of both efficiency and quality. To this end, Bucher Emhart Glass production specialists collaborate closely with a customer's personnel, providing guidance, testing, training, as well as hands-on support - right from installation onward.

Pursuing this mission, the company recently introduced a dedicated specialist support channel exclusively for automation equipment. Here customers can benefit from of expert support via email, phone or remote access as desired. Bucher Emhart Glass' team of automation specialists is available during European office hours from Monday to Friday with the aim of responding to every inquiry within a 24-hour timeframe. In the event that in-house experts are unable to resolve a situation, the matter can be escalated to specialised expertise.

GOING THE EXTRA MILE

Specific company technologies cover FlexIS, plunger process control (PPC), temperature control system (TCS), GobRadar, BlankRadar, FlexRadar, SMARTFEEDER, FlexRobot and ID Mark/ID Read - along with all closed-loop systems and the Control Centre.

"We're not just interested in merely selling our customers a machine. Instead we strive to assist each one in arriving at the very best value," affirms Bucher Emhart Glass President Matthias Kümmerle. "Having developed some of the most robust automation solutions out there, we acknowledge the significance of ensuring their uninterrupted operation - all the while maximising uptime in the industry. Through this new service offering, we can provide customers with the support they require - exactly when they need it." ■

BUCHER
emhart glass

BUCHER EMHART GLASS

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#detailsmatter

ADVANCED
CONTAINER
HANDLING

info.suport@achandling.it

Introducing ADVANCED CONTAINER HANDLING's Totem Glass Supervision System

Available for indoor applications in 43" and 55" configurations, the Totem Glass Supervision System is elegant and robust. An important design element, it adds value to the cold-end, which in many cases is the gateway through which customers will simultaneously enter the reality of production as well as the tool for modular supervision and management. Here the base can be collaboratively developed by the end user as owner and project management administrator.

FEATURES

On the front it features a touch LCD screen, a concentration of technologies available for visualization and daily Supervision System operational use. This ensures proper functioning of

A new unique design solution introduced to the market just recently, ADVANCED CONTAINER HANDLING's Totem Glass Supervision System facilitates and coordinates management and handling operations and has both customized graphics and visualization for the cold-end.

the different installed applications. Here the heart of the system is the latest generation hardware - complete with Intel Tiger Lake-U processors, dual channel SO-DIMM DDR4 memory and other specific primary configuration features.

ADVANTAGES

Designed for easy installation, the system connects to a power outlet and, through an Ethernet cable, interacts as 'master system' with the network - thanks to a development that's been especially attentive to address required programming, management, visualization, information and interaction with the different systems in the cold-end. Here the real innovation comes with the appropriate interface for the cold-end. When compared to traditional systems -which are limited in size and features- this one offers an intuitive management graphic and optimum visualization capabilities.

EMPOWERING THE END USER

Through its innovation and potential the functionality and features of an existing system are projected to a new dimension - thereby allowing the end user, as project administrator, to independently manage, integrate and display data according to current characteristics, needs, or changes over time. In sum, the Totem Glass Supervision System marks an advanced container handling product development for the cold-end - just when innovation and attention to detail have become ever more crucial. ■

ADVANCED CONTAINER HANDLING

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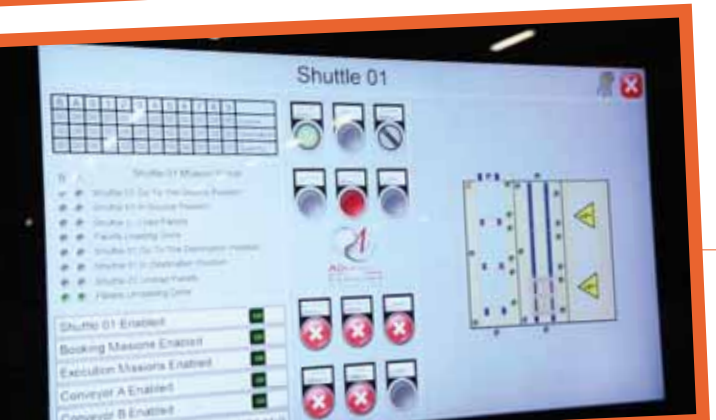
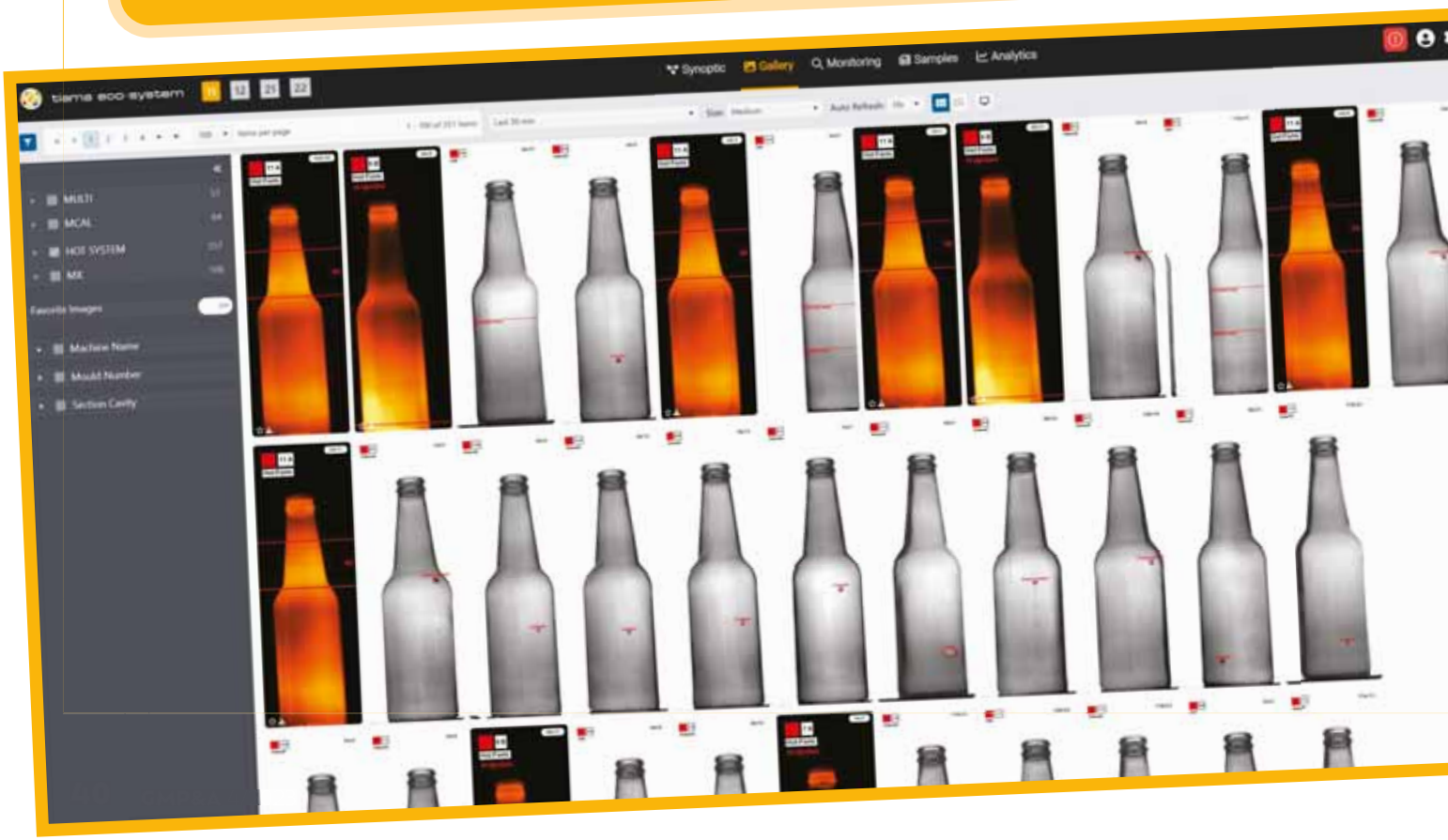


TIAMA ECO-system maximizes glass production and efficiency

For hot- and cold-end machines, TIAMA's ECO-system revolutionizes glass manufacturing with real-time monitoring and data synchronization. It enhances communication, efficiency and quality - all while bringing the company's YOUniverse concept abreast of the smart factory and in full alignment with Industry 4.0.



Victor Bidegain
Product Owner Data
TIAMA

Tiama ECO-system offers many features about production monitoring, quality, maintenance, reporting and support in order to improve the global productivity and usage of Tiama machines.

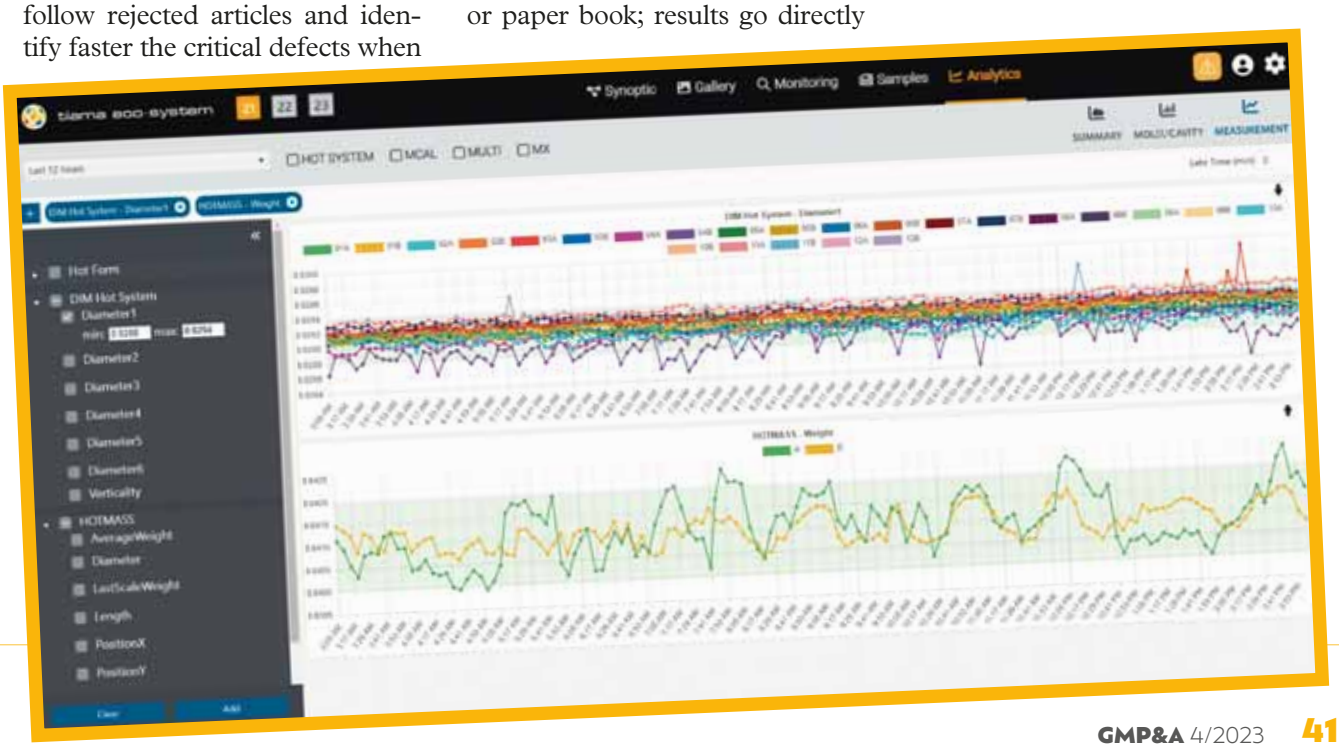
One of the key features of Tiama solution is its ability to provide real-time production monitoring. It gives access to all Tiama machines by remote control and offers important information about the productivity of each machine. All data is available on a single webpage accessible on the plant network. The system provides productivity and predictive maintenance KPIs for monitoring Tiama machines, optimizing their global maintenance, and ultimately improving their efficiency.

DRIVING EFFICIENCY

Tiama ECO-system offers many features to improve the quality of production. By collecting images of rejected containers and managing sample challenge reports, it gives an overview of current production rejects to the quality team. With this real time collection, inspection machine operators or quality teams can follow rejected articles and identify faster the critical defects when it appears on production. One of the latest features, called 'supervised samples,' allows operators to manage physical samples with automatic control and compare the results with an expected list of defects defined by the quality team. With this feature, they know exactly when the sample challenge was made, whether samples were rejected or not for a specific defect, and no need to enter results into another system or paper book; results go directly and automatically from inspection machines to Tiama ECO-system, and then to customer MES.

TRACEABLE DATA

All critical data such as rejected images, samples reports or machine events, are saved into the Tiama ECO-system database. In case of a customer claim, glass makers can search into the Tiama ECO-system database for some information about this claim. With



this data Tiama customers can prove to their customer that all requirements were met or find the events which caused the claim and take internal corrective actions.

With its specific IT architecture, Tiama ECO-system simplifies the support from Tiama Hotline to inspection machines. Indeed, a secured connection is established between Tiama ECO-system and Tiama headquarters with the aim of ensuring an access to the machines for Tiama support and to keep the traceability of requests for assistance and historical connections to the machines. For operators a program called "TiamaHelp" is available on the Tiama ECO-system solution and directly on inspection machines to operate a request for assistance in their own language.

DATA SYNCHING

One of the advantages of Tiama ECO-system is its ability to synchronize Hot End and Cold End data such as counters, measurements, reject images, and display them with Section/Cavity and Mould Number information. With all range 4 Tiama machines connectable to the Tiama ECO-system, it offers the possibility to perform some correlations between Hot End and Cold End machines. Hot End operators can access Cold End data and vice versa. This synchronization of data is crucial for glass manufacturing as it allows for better communication and collaboration between the two sides. By accessing data from both sides, operators can make better decisions and optimize the production process to improve efficiency and quality.

In addition to data synchronization, Tiama ECO-system can also warn users on major production events such as measurement drifts, critical defects, sample reports failed, or high rejection rates. Users are informed by Tiama ECO-System notifications and email communication about significant events in the production. All alerts are configurable by users, machine targets, and triggers.

This feature is particularly useful as it allows operators to address issues quickly and react immediately by taking corrective actions before they become major problems, which improves the quality of the final product and reduces waste.

YOUniverse
intelligent glass solutions

CONNECTING THE DOTS

Overall, Tiama ECO-system is a powerful tool for glass manufacturing. By synchronizing data between Hot End and Cold End machines and providing real-time alerts, the system enhances communication and efficiency in the production process. With its ability to monitor and optimize production, the Tiama ECO-system solution is an essential tool for glass manufacturers looking to improve their efficiency and their quality. And this data system is a major part of Tiama YOUniverse concept.

The goal of this concept is to link all Tiama solutions to gain and improve the efficiency of each solution and in the end to improve the whole plant efficiency. It is not only Hot End and Cold End inspection machines and Data solutions, it is also about linking Laboratory devices, engraving solutions and more…

From Hot End to Cold End inspection machines, by going through Datamatrix engraving machines, Datamatrix readers or Laboratory machines, YOUniverse links all Tiama's data to offer to customers a full database of information already formatted in order to improve the global productivity of plants.

YOUniverse is Tiama's smart factory and industry 4.0 concept, and the Tiama ECO-system solution is the central point of this concept as it is the data source for the Tiama world and more. Another Data solution called Tiama DataMine is IIoT platform suite which collects data from the Tiama ECO-System solution but also on all other machines data available. Tiama DataMine A.I. technologies continuously collect data, no matter the format, and structure them in a single, secure database, providing the production teams with optimal equipment control parameters.

Tiama ECO-system and other Tiama data solutions are becoming increasingly important in glass factories as they provide a way to improve efficiency, quality, and transparency. By investing in advanced technologies and implementing a comprehensive data management system, glass plants can optimize their processes and stay ahead of the competition.

tiama
INSPECTION WORLDWIDE

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Leading Algeria lab opts for OCMI-OTG precision excellence

OCMI-OTG's success in glass production for Pharma continues today with the company's first major investment by an Algerian laboratory for the establishment of internal production lines for precision control of glass ampoules and dental cartridges - all to boost automation while reducing defects.

So far 2023 has brought significant success for OCMI-OTG in the pharmaceutical glass production line sector. One of Algeria's leading laboratories will be investing in new equipment from the company - marking the country's first substantial investment in this type of machinery. In the past pharmaceutical glass packaging was mostly imported from other Mediterranean African countries, with only a small portion produced by using outdated horizontal forming machines.

TWO LINES

Now a prominent Algerian pharmaceutical company has chosen OCMI-OTG to establish internal production lines for both borosilicate glass ampoules and dental cartridges, dedicating two lines to each product. The new ampoule lines, manufactured by Kyp Accessories in Spain -owned by OCMI-OTG since late 2019- have a maximum processing speed of 4,500 pieces per hour.

The MM30 forming machine is equipped with an Optistem/2 camera inspection system, ensuring precise control of ampoule dimensions before unloading and enabling real-time adjustments through oxygen self-regulation in the burners. The gauging station for total ampoule length on the after-forming line type LA502, connected to the Optistem panel, provides comprehensive dimen-

sional control, allowing operators to monitor all spindle dimensions while obtaining total length values on the same panel. A report with rejection statistics based upon different defects can also be generated.

AUTOMATION

Both ampoule lines will include auxiliary stations for code ring application, OPC opening systems and printing - all tailored to end-user requirements. Tube loading and packing operations will initially be done manually, including the option to incorporate automatic equipment in the future.

The two cartridge production lines, manufactured in Italian and French OCMI-OTG factories, are fully-automatic - thereby minimizing manual handling of the glass tubes while reducing the risk of cosmetic defects. The FLA20/CAR forming machine features 20 stations and continuous rotation, with pre-forming and finishing stations equipped with rollers and plungers for shoulder preparation. All forming tools are driven by servo-motors, adjustable through the touch screen for precise and convenient preliminary adjustments. Cartridge bottoms are cut using a wheel scribing unit, a dedicated burner and a water spraying nozzle for thermal shock separation of the glass tube.

TASK CALIBRATION

Dimensional control of cartridges is carried out by the Optivial hot-end camera system before unloading to the LF520 after-forming line. Total length and inner mouth diameter, which cannot be monitored during the forming operation, are checked at dedicated stations on the after-forming line. After annealing, cartridges are automatically packed using the PM-V machine, which features four box-filling stations on a rotating table. The PM-V software allows for recipe storage, including cartridge/box specifications, the number of rows to be positioned in the box and the number of cartridges per row. Job changes are simplified for operators with a modular vacuum picking arm that can be adjusted by adding or removing blocks according to box length and the required number of cartridges.

CONTRACT TIMELINE

The installation of the ampoule lines will commence in the second half of 2023, while the cartridge production lines are currently in the manufacturing phase - with production estimated to begin in early 2024. This contract opens up promising opportunities for OCMI-OTG, both in Algeria and in Northern Africa more generally, where other laboratories may follow suit and initiate pharmaceutical container production to address delayed lead times. ■

Celebrating luxury packaging leader GLASS VALLEY: courtesy of FEVE

THE EVOLUTION OF GLASS VALLEY

Evidence of a glass industry in the Bresle Valley can be traced way back to the Middle Ages, when glassmakers settled in the forest and began using its resources to produce glassware and flat glass - notably windows and stained glass for fine homes and churches.

Then a developing passion for perfumery among the Parisian bourgeoisie saw a shift towards luxury bottles that stood for quality, style and the latest in fashion. Brands that are known and loved today, such as Guerlain, began

Premium glass craftsmanship has its roots in France's 19th century Bresle Valley, from which it would lead up to what GLASS VALLEY represents today. Here FEVE takes a look at this world-leading packaging centre that's responsible for over 70 percent of the world's luxury glass bottle production for perfume, cosmetics and pharmaceuticals.

collaborating with local glassmakers on unique designs - leading to the creation of the Paris–Le Treport railway line to transport glassware to city centres.

Today Glass Valley is the world's leading producer of luxury packaging, representing more than 70 percent of global production of glass bottles for perfume, spirits, cosmetics, and pharmaceutical industries. With over 60 companies and 10,000 specialized employees all working in close proximity, Glass Valley has become a unique industrial hub that offers a wide range of traditional products - each exemplifying the best of 'Made in France'. This brings together a network of know-how while regrouping specialized companies at all stages of glass packaging production.

Says President of MG Group France, Stéphane Franconville: "The skills and expertise of Glass Valley members make it a sort of one-stop-shop that's capable of offering some of the world's biggest brands in perfumery, cosmetics and spirits with a wide range of traditional products - all made in France."

MEETING QUALITY CRITERIA FOR LUXURY PRODUCTS

The unique properties that make glass such an exceptional

material for luxury products are essentially three:

- As an inert material, glass ensures optimal preservation of its content while its longer shelf life makes it ideal for storing valuable cellar wines and spirits.
- Its recyclability, reusability, and versatility in terms of shapes and design makes it a popular choice in the perfumery industry, as it allows for unique branding and differentiation that builds brands.
- The transparency and purity of glass enhances the appearance of products, highlighting their true colours and characteristics and adding to the iconic silhouette of many collections.

As succinctly put by Jean-Marc Arrambourg, Chairman and CEO of Saverglass Group and member of both La Glass Vallée and FEVE: "Compared to other packaging materials, it's right to say that glass is the only one that combines all the above advantages."

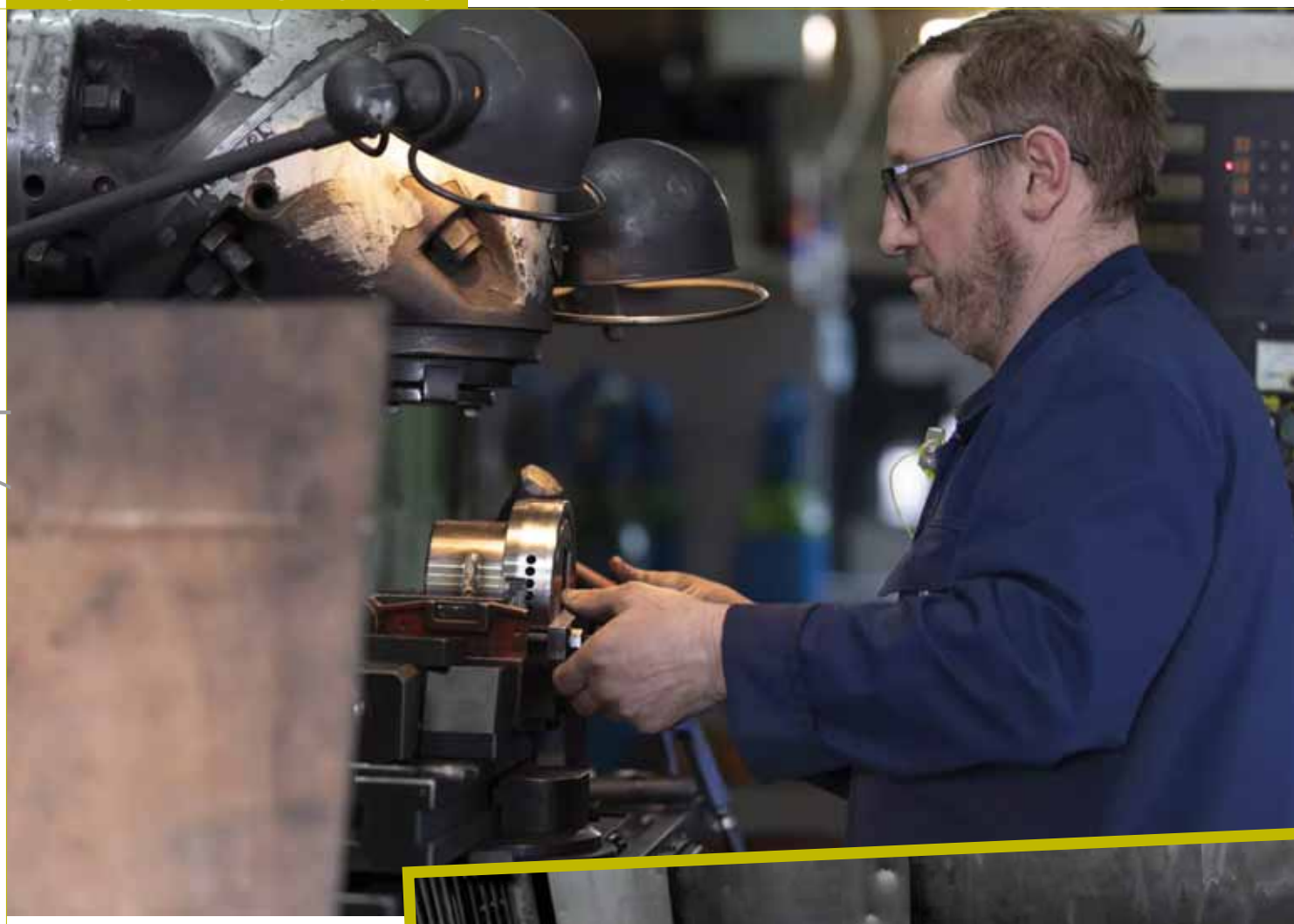
HOW BEING A 'HUB' ADVANCED GLASS PACKAGING INNOVATION

Glass Valley's rise to world-leading hub comes down to two key factors, namely proximity and shared know-how. Here Glass Valley represents more than 60 interconnected companies from all levels of the value chain - all operating in close proximity. This allows them to offer their expertise in all stages of production, from model makers to decorators to manufacturers. Glass Valley also counts on complementary companies, such as those in the transport and storage industry, to deliver finished high-end and luxury glass packaging. Together, these elements give their members the capacity of sharing their know-how on innovation, sustainability and quality with partnering brands. Says Franconville: "Glass Valley is a centre of excellence for the most complicated packaging that's also of optimum quality. Here proximity enables co-innovation between the suppliers and the customers, and we offer that to the market."

CURRENT CHALLENGES IN THE LUXURY INDUSTRY

Today's luxury glass is facing significant challenges as consumers, and in turn customers, become increasingly aware of the sustainability footprint of their preferred products. The biggest challenge is balancing regulatory and environmental constraints with innovation and customer support. To address these issues, the industry is working on various weight reduction, recycling, and decarbonisation initiatives.

In turn, Glass Valley is currently working on creating sustainable glass packaging solutions by following three principles of



customer proximity and collaboration, as well as 5 R&D principles:

- Reduce: Initiatives to reduce the weight of glass while maintaining its identity
- Reuse: Scouting for new reusable glass packaging solutions for perfume bottles
- Recycle: Increasing collection of glass throughout the value chainw
- Replace: By advancing the "glassification" of luxury packaging products to the detriment of other packaging materials
- Disrupt: Providing disruptive solutions to customers and premium brands

Glassmakers must balance environmental constraints with innovation to continue supporting customers while reducing their environmental footprint. Finally, to push initiatives forward

WHAT IS THE GLASS HALLMARK?

i The Glass Hallmark identifies the container glass on which the mark appears as recyclable while optimally preserving its content thanks to its inert nature. The Glass Hallmark neither expresses nor claims any other product-related characteristic. As such it's not an official certification stamp. More specifically, the Glass Hallmark constitutes no other environmental claim e.g., that the glass container concerned contains a minimum percentage of recycled glass or that it will be recycled at the end of its life.

that address future challenges, Glass Valley provides in-house 360-degree training with skilled trainers to prepare the next generation of workers to make a positive impact on the industry. Says Arrambourg: "We see this period as a step change - we need to be agile, flexible and as cooperative as we can. We're finding solutions for the industry that will ultimately provide solutions to the market and to customers."

BRINGING THE GLASS INDUSTRY 4.0 TO LIFE

The glass industry is committed to addressing environmental challenges and has set ambitious decarbonisation objectives that demonstrate its commitment to sustainability. In turn, Glass Valley will continue to strive for sustainable development through sharing its members' progress, with a clear path towards achieving a more climate-neutral, circular and fit for the future glass packaging.

'Glass Industry 4.0' focuses on using technology to enhance expertise in hollow glass, where Industry 4.0 technologies, such as machine learning, are already improving production quality and customer satisfaction. Digital simulation and measurement systems, along with industrial data analysis, help improve process optimization and quality control, as well as reduce CO2 emissions. Human expertise and technology integration ensure success in the premium market.

These initiatives, and others like it across the glass industry, are proof that Glass Valley is building on its combination of historical expertise and modern advancements, creating sustainable solutions while providing training and support to the next generation of workers.

It is this legacy of innovation in glass craftsmanship – along with the exceptional properties of glass as a packaging material, and collaboration from an interconnected network of companies from all levels of the value chain – that have seen Glass Valley become a world leader in luxury packaging. And it is this same legacy that will see them pave the way for the packaging that we rely on in the future. ■

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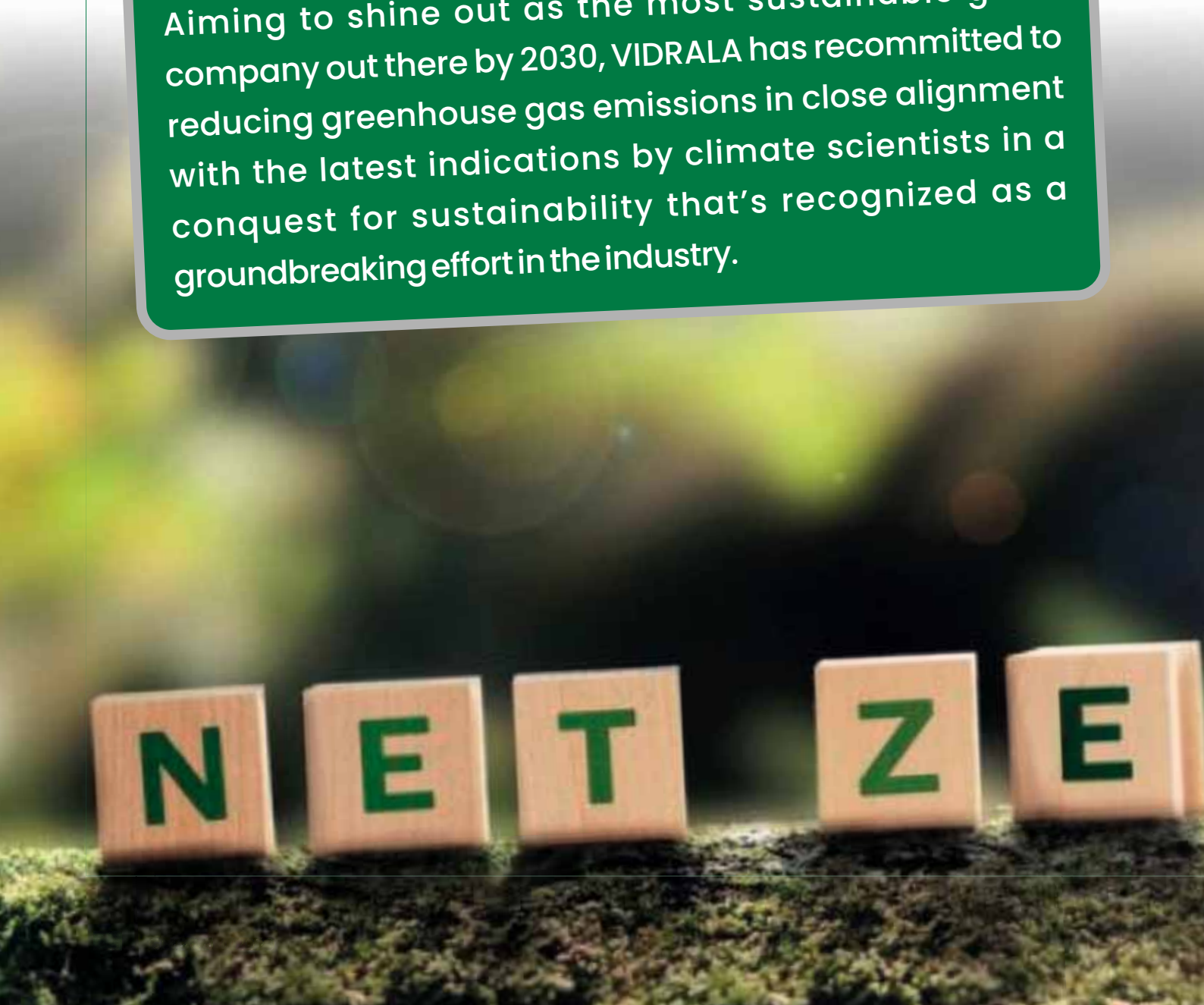
Science-based targets: VIDRALA's ambitious journey towards net-zero

Aiming to shine out as the most sustainable glass company out there by 2030, VIDRALA has recommitted to reducing greenhouse gas emissions in close alignment with the latest indications by climate scientists in a conquest for sustainability that's recognized as a groundbreaking effort in the industry.



In a landmark move that paves the way for innovative environmental initiatives, including sustainable glass furnaces and zero-emissions glass bottles, Vidrala recently validated the industry's most demanding Science-Based Targets (SBTs) as it announced its mission to create the world's first net-zero glass containers. The most ambitious of their kind, such targets will ensure the company operates in a way that will help prevent the planet's temperature from rising more than 1.5°C compared to pre-industrial levels.

THE COURAGE TO LEAD

A pivotal moment for Vidala, it ranks the company among the first in the industry to have Science-Based Targets approved within a framework that's used to ensure companies' emissions targets properly cohere with climate science. More specifically, Vidrala thus aims to reduce its Scope 1 and 2 greenhouse gas emissions by 47 percent, and its Scope 3 emissions by 28 percent by 2030 - thereby helping to prevent the worst effects of climate change while underscoring the company's core values. Here emission-reducing activity being rolled out across the group strives to rank Vidrala as the most sustainable glass business in the world by 2030.

DETERMINED TO PLAY ITS PART

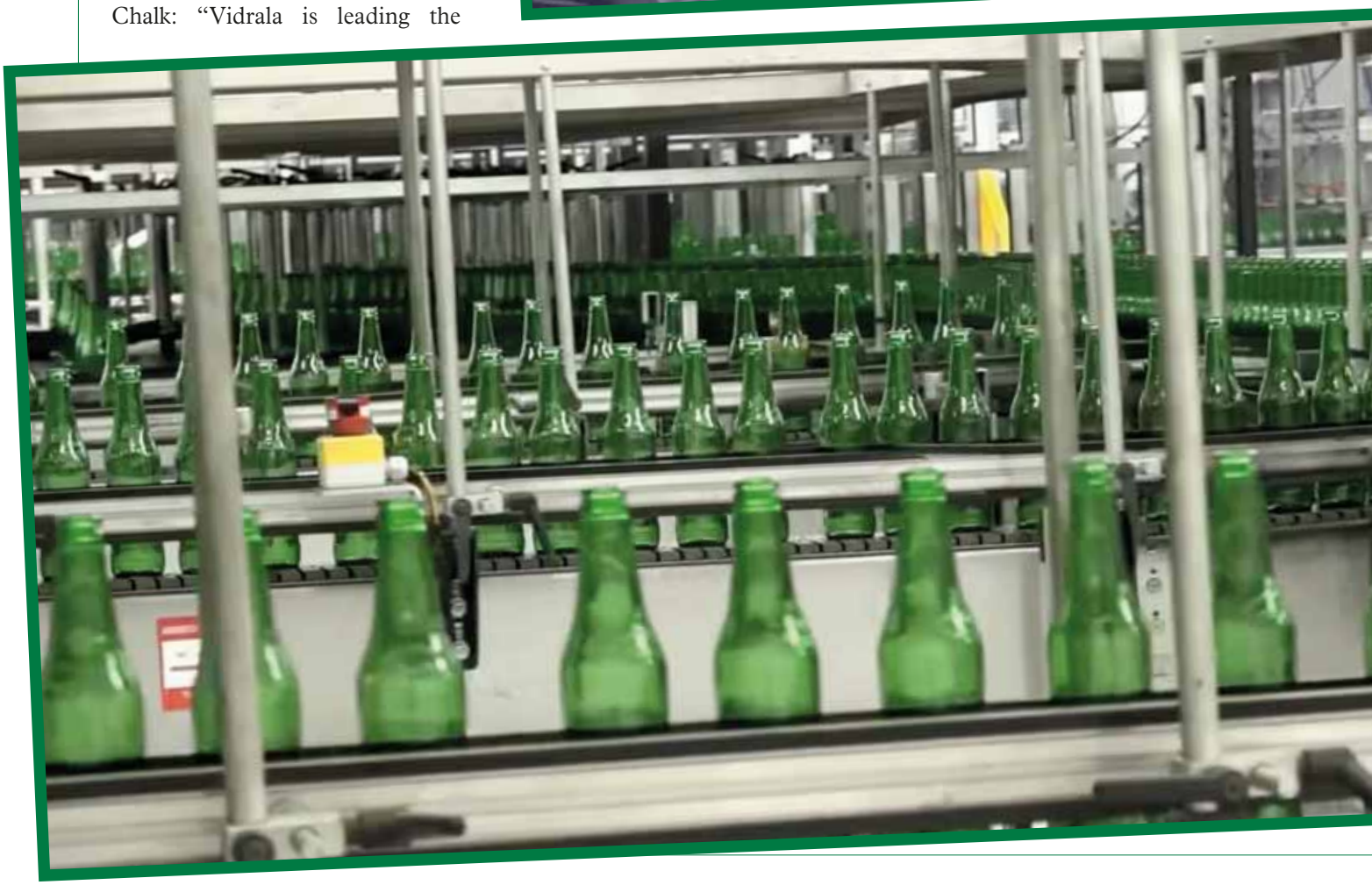
Vidrala's new targets closely follow a range of ground-breaking environmental activity at its plants throughout Europe. These include the 2021 project with Glass Futures which pioneered development of a highly sustainable glass container using biofuel, as well as the recent creation of a district heating network around its facility in Corsico, Milan. The latter scheme is now improving air quality in the area and reducing the amount of CO2 being

released into the atmosphere by 3,000 tonnes a year - all while providing a sustainable supply of energy for local inhabitants.

UNPACKING SCIENCE-BASED TARGETS

Here Vidrala's SBTs pave the way for similar bold environmental initiatives which seek to ensure the company has a positive impact on its communities, while safeguarding the planet's future. It will also create some of the world's most sustainable glass furnaces, making groundbreaking investments in more environmentally-friendly methods of logistics as it works with cutting-edge suppliers and strives to ultimately create the first zero-emissions glass bottle.

Environmental consultancy Carbon Intelligence (now Accenture) worked with Vidrala to support its submission to the SBTi. Said Associate DirectorSusie Chalk: "Vidrala is leading the



way for manufacturers wishing to improve the environmental impact of their own value-chain as well as that of their customers. The ground-breaking programme they have in place shows that ambitious change is possible in an industry perceived as difficult to decarbonise."

A SAFER FUTURE FOR ALL

Director of Sustainability at Vidrala, Fiacre O'Donnell, commented on the news: "Science Based Targets are the globally-recognised, externally-verified gold standard in measuring corporate climate action and we're delighted that our ambitious goals have been approved. We are committing to science-based targets to safeguard our future and make good on our long-term duty to protect our people and the planet. By being more innovative in our way of thinking, and constantly seeking new ways to reduce our greenhouse gas emissions, we'll protect and grow jobs, future-proof our business, and continue to create the most sustainable glass containers in the market."

Vidrala CEO, Gorka Schmitt, added: "We believe that Vidrala has the power to do good, and we know that to be able to have a positive impact, we must be commercially viable in an increasingly environmentally driven world. Signing up to SBTs makes business sense and will give us a more attractive proposition for like-minded customers and partners."

The SBTs were validated by the Science-Based Targets initiative (SBTi). The SBTi is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World-Wide Fund for Nature (WWF). ■

Carbon footprint almost halved by new LION GLASS solution

Researchers at Penn State have developed LION GLASS, a more sustainable and stronger glass with significantly reduced energy consumption and improved crack resistance. LionGlass aims to cut the carbon footprint of glass manufacturing by half, and its potential applications are being evaluated through patent applications and chemical testing.

On a global scale glass manufacturing annually produces no less than 86 million tons of carbon dioxide. However, a new glass type could potentially reduce that carbon footprint by 50 percent. The groundbreaking innovation, denominated LionGlass, has been meticulously engineered by researchers at Penn State. LionGlass requires much less energy during production while exhibiting far greater damage resistance when compared to the standard soda lime silicate glass. In a significant stride towards market implementation, the research team recently completed the filing of a patent application.

IN IT FOR THE LONG HAUL

John Mauro, Dorothy Pate Enright Professor of Materials Science and Engineering at Penn State who is also lead project researcher, articulated the team's overarching objective thus: "Our goal is to make glass manufacturing sustainable for the long term." Elucidating further on the properties of LionGlass, he affirmed that "LionGlass eliminates the use of carbon-containing batch materials and significantly lowers the melting temperature of glass."

The common variety of glass known as soda lime silicate glass, which finds extensive use in an array of everyday items such as windows and glass tableware, is made by melting together three primary constituents, namely quartz sand, soda ash, and limestone. Notably, soda ash is constituted by sodium carbonate whereas limestone is made of calcium carbonate - both of which emit carbon dioxide (CO2) upon melting: a greenhouse gas that's responsible for heat retention. Says Mauro: "During the glass melting process, the carbonates decompose into oxides and produce carbon dioxide, which gets released into the atmosphere." Nonetheless, it's the energy-intensive heating of furnaces to the elevated tem-

peratures necessitated for glass melting that mostly contributes to the bulk of CO2 emissions. When using LionGlass, melting temperatures are appreciably reduced by approximately 300 to 400 degrees Celsius. This significant reduction, explained Mauro, equates to an estimated 30 percent decrease in energy consumption compared to the conventional soda lime glass.

AN ARRAY OF WINNING PROPERTIES

LionGlass not only exhibits a reduced environmental impact. It also outperforms conventional glass in terms of strength. Here the research team were delighted to discover that the new glass variant, aptly named after Penn State's iconic Nittany Lion mascot, manifests considerably greater crack resistance in comparison to its traditional counterpart. Certain glass compositions formulated by the team exhibited such remarkable crack resistance that they remained impervious to cracking even when subjected to a load of one kilogram-force exerted by a Vickers diamond indenter. LionGlass, being at least ten times more resistant to cracking in comparison to standard soda lime glass, which succumbs to cracking under a load of approximately 0.1 kilograms force, defies any definitive limits. Here the researchers clarified that the full extent of LionGlass' crack resistance capabilities has not yet been ascertained as they encountered the maximum load capacity of the indentation equipment during their investigations.

"We kept increasing the weight on LionGlass until we reached the maximum load the equipment will allow," said Nick Clark, a postdoctoral fellow at Mauro's lab. "It simply wouldn't crack." Mauro underscored the significance of crack resistance as a crucial quality in evaluating glass, emphasizing that it determines the eventual failure of the material. Over time, glass develops microcracks on its surface, which serve as vulnerable points. Breaking glass is attributed to weaknesses caused by pre-existing microcracks. Mauro emphasized the value of glass that resists the formation of

microcracks, noting how it is particularly advantageous.

NEW FRONTIERS FOR RESILIENCE

"Damage resistance is a particularly important property for glass," affirmed Mauro. "Think about all the ways we rely on the strength of glass in the automotive industry and electronics industry, architecture and communication technology like fiber optic cables. Even in health care, vaccines are stored in strong, chemically-resistant glass packaging." Mauro expressed his hope that the enhanced strength of LionGlass would enable the creation of lighter-weight products. Given that LionGlass exhibits ten times greater damage resistance than existing glass, it could be substantially thinner - even while maintaining the same level of damage resistance. Mauro commented, "We should be able to reduce the thickness and still get the same level of damage resistance. If we have a lighter-weight product, that is even better for the environment, because we use less raw materials and need less energy to produce it. Even downstream, for transportation, that reduces the energy required to transport the glass, so it's a winning situation for everyone."

Penn State University

Mauro emphasized that the research team is currently assessing the potential of LionGlass. It has submitted a patent application that covers the full glass composition range within the LionGlass family, each one possessing its distinct properties and potential applications. As such the team is currently subjecting various LionGlass compositions to diverse chemical environments to analyze their reactions. The results will provide valuable insights into the versatile utilization of LionGlass worldwide. "Humans learned how to manufacture glass more than 5,000 years ago. Since then it has been critical in bringing modern civilization to where it is today," said Mauro. "Now, we're at a point in time when we need it to help shape the future as we face global challenges such as environmental issues, renewable energy, energy efficiency, health care and urban development. Glass can play a vital role in solving these issues, and we are ready to contribute." ■

ABOUT JOHN MAURO

Dr John Mauro, an esteemed expert in glass science, is a graduate of Alfred University. Having gained extensive experience at Corning Inc, he is also known for his contributions to glass compositions, including Gorilla® Glass. At Penn State, he focuses on glass transition and relaxation as well as predictive design of new glassy materials. Mauro's research covers various areas, including high-strength glasses, nucleation/crystallization and glass melting/processing. With over 340 publications and 72 US patents behind him, he is now an influential figure in the field and serves as Editor-in-Chief of the Journal of the American Ceramic Society.

Container glass for cosmetics and perfumery in SOUTH KOREA

Rajeev Jetley

The South Korean market for cosmetics and perfumery stands among the top ten beauty markets worldwide - renowned for its innovative spirit, its smart ingredient use and its appealing packaging. In 2020, the market size saw a notable decline against the previous year - dropping to USD 6.8 billion due to the impact of COVID-19. That said, the export of K-beauty products and the balance of trade demonstrated a resilient increase of approximately 16 percent and 14 percent respectively.

With over 52 million inhabitants, SOUTH KOREA represents a major cosmetics & perfumery market in Asia – with high per capita spending to the direct benefit of container glass producers within this lucrative segment. Here Glass Machinery Plants & Accessories provides an overview of the container glass industry in the country.

Over the next decade, the cosmetics and perfumery segment in South Korea is poised to maintain its growth momentum, fueled by an expanding customer base and a rising female population. This presents container glass producers with an extensive market to which to cater. Nonetheless, changes in product assortment and advancements in distribution channels are projected to occur at a more tempered pace compared to previous periods. Indeed the evolution of distribution channels is likely to align with the development of the Korean retail market - which is gradually embracing newer retail formats.

South Korea boasts several prominent cosmetic brands, many of which have successfully extended their reach globally. These include Amorepacific, which is known for such renowned brands as Laneige, Etude House, Innisfree, Sulwhasoo and Mamonde, as well as LG, which goes on to offer such esteemed brands as Isa Knox, The Face Shop and Nature Republic.

Within the domain of Original Equipment Manufacturing (OEM) and Original Design Manufacturing (ODM), 60 percent of the market share is dominated by three leading companies: Cosmecca Korea Co., Ltd., Cosmax Inc. and Kolmar Korea Co., Ltd. A notable market trend indicates a shift towards more refined diversification in consumer segmentation. Notably, the number of male customers seeking cosmetic products is on the rise. South Korea boasts the highest smartphone ownership rate globally, and online marketing has experienced an accelerated growth trajectory over recent years. Moreover, increasing environmental concerns and climate change have fueled public apprehension regarding skin-related issues - amplifying the demand for derma-cosmetic products.

The proliferation of K-Drama and K-pop, widely known as the K-wave, has propelled the export of Korean cosmetics - particularly to Southeast Asia and China. This surge in popularity has given rise to the term 'K-Beauty', signifying the burgeoning reputation of Korean beauty products. Companies in the industry have

diversified their offerings and expanded their brands and products, tapping into new markets in Europe and North America.

In 2020, total imports of cosmetics witnessed a decline of 2.8 percent compared to the previous year - amounting to USD 1.1 billion. France emerged as the largest exporter to Korea, accounting for USD 433 million, followed by the United States (USD 337 million) and Japan (USD 161 million). According to statistics published by the Korea Customs Service, skincare cosmetics retained their position as the largest import category in 2021, representing 34.17 percent or USD 560M of the total cosmetic imports. Perfumes, scents and haircare products all constituted the major subsequent import categories.

Suneera Joseph, a Consumer Analyst at Global Data, attributed the increased spending on make-up products among South Korean men to the influence of Korean pop music, movies, TV celebrity endorsements and the availability of innovative K-Beauty products. As COVID-19 restrictions gradually eased in 2022, consumers resumed their regular activities, including work, studies, leisure, socializing and shopping - thus providing more opportunities for make-up application. The burgeoning presence of online beauty retailers further invigorated the sales of cosmetics.

Escalating spending on cosmetics and personal care products in South Korea has become the primary driving force behind the growing demand for container glass within this segment. The desire for organic and natural beauty products is projected to witness substantial growth in the coming years. Cosmetic providers are increasingly using augmented reality tools to bolster their market presence - enabling end-users to virtually try products through mobile applications such as L'Oreal's Makeup Genius. These factors collectively propel the growth of the container glass industry within the cosmetics and perfumery segment in South Korea.

LOOKING AHEAD

The container glass industry is expected to assume an increasingly crucial role within the South Korean cosmetics and perfumery industry. Korean beauty experts predict that skincare will continue to dominate the cosmetic landscape over the coming years - particularly owing to the surging demand for multi-purpose products that provide moisturizing, wrinkle prevention and whitening effects. Notably, a significant proportion of custom-

ers exhibit a preference for glass packaging in this context. Korean facial mask sheets have achieved remarkable success in the realm of K-Beauty - captivating social media platforms with their exceptional moisturizing capabilities and user-friendly nature as they seamlessly integrate into daily skincare routines. Moreover, the realm of personalized cosmetics -including advancements in 3D printing technology and data science- is set to expand further. The growing demand for customized products among consumers seeking targeted results has facilitated the analysis of skin conditions and lifestyle habits to develop tailored skincare and cosmetic solutions. At CES 2020, Amorepacific unveiled its customized 3D printed Sheet mask system, representing a significant milestone in the realm of 3D-printed skincare products while highlighting the commercial viability of bio-printing technologies within the consumer sector.

VERESCENCE

Within the realm of major container glass producers for cosmetics and perfumery in South Korea, Verescence has emerged as a prominent brand - having ventured into the South Korean packaging market by acquiring Pacific Glas, a cosmetic and perfumery glass producer, in 2021. With three glass production sites and four decoration sites in Europe and North America, Verescence boasts an annual production capacity of 500 million bottles. Pacific Glas, a subsidiary of the global cosmetics company Amorepacific, has played a pivotal role in the growth of the Korean beauty industry since its establishment in 1973. With expertise in bottle design, mould design, bottle manufacturing and decoration technologies, Pacific Glas has established itself as a leading cosmetics container manufacturer. The company's plant located in Janghang supplies over 2,000 items to more than 100 domestic and global cosmetic companies annually - catering to customer demands through various decoration techniques, including coating, hydrofluoric acid, transfer and printing, while simultaneously improving the quality and transparency of its glass bottles.

AMOREPACIFIC

Since 1945, Amorepacific has been steadfast in its mission to bring its unique perception of beauty, widely known as 'Asian Beauty,' to the global stage. As a leading beauty company in Korea, Amorepacific combines its profound understanding of nature and humans to harmonize inner and outer beauty. With a portfolio encompassing over 20 cosmetics, personal care and health care brands, Amorepacific caters to the diverse lifestyles and needs of consumers across Asia, North America, Europe, Oceania and the Middle East. Committed to sustainable research and development, the company leverages the best of natural Asian ingredients and advanced biotechnology through research hubs situated worldwide. Recognized for its world-class products, it stands at the forefront of transforming global beauty trends through innovative approaches.

KUMBI GLASS

For over half a century, the Kumbi Corporation has been deeply involved in the manufacturing, supply and distribution of exquisite glass bottles. As a premier supplier and one of the nation's largest glass bottle manufacturers, the company has played a pivotal role in propelling the glass industry forward in South Korea. Presently, the company offers an array of flint and emerald green glass bottles, crafted in captivating shapes - including narrow-neck pressed bottles and petite containers. Such impeccable vessels find extensive use in the realms of beverages, culinary delights, spirits and cosmetics. Kumbi Corporation boasts two state-of-the-art manufacturing plants located in Onyang and Icheon - boasting an impressive total capacity of 450 tons per day, along with seven individual section machines that facilitate the creation of these artistic masterpieces.

SAMKWANG GLASS

Samkwang Glass operates two distinguished container glass production facilities in South Korea. The esteemed Nonsan facility stands adorned with an installed capacity to yield a remarkable 200 tonnes per day of flint bottles and exquisitely crafted tableware glass. The second prodigious production plant, nestled in Cheonan, boasts an awe-inspiring installed capacity of 400 tonnes per day, dedicated to the creation of vibrantly coloured glass bottles that captivate the senses.

Circular economy: FEVE unpacks current EU packaging

As the EU's Packaging and Packaging Waste Regulation (PPWR) undergoes significant political scrutiny, packaging and waste management are currently being thrashed out among Brussels' key priorities. Here FEVE investigates the potential implications of the proposed PPWR revision for glass packaging, as well as its potential effects upon brands, retailers, businesses and consumers.

RECYCLABILITY: MEETING CIRCULAR ECONOMY TARGETS

Glass is a material that exhibits endless recyclability, serving as a remarkable testament to the success of recycling efforts. Over the past six decades, glass recycling has witnessed substantial growth - achieving exceptional collection rates of 80 percent within the European Union (EU), which positions it as one of the foremost recycled packaging materials. By harnessing an increased supply of recycled glass for production cycles the reduction of virgin resources and carbon dioxide emissions is attainable - simul-

taneously conserving energy. As evinced by statistics indicating an upward trajectory, the average glass bottle or jar now contains an impressive 52 percent recycled content.

SUPPORTING EU AMBITIONS ON RECYCLABILITY

The European Commission's proposal for the Packaging and Packaging Waste Regulation (PPWR) marks a significant stride towards ensuring that only recyclable packaging enters the EU market. By 2030, all packaging in the market must be designed for recyclability, with harmonised criteria introduced to ensure effective collection, sorting and large-scale recycling. Packaging will be categorised into A-E recyclability performance grades - with grade E packaging phased out by 2030. This grading system will also serve as the foundation for eco-modulation of Extended Producer Responsibility (EPR) fees, adjusting fees according to product recyclability. While FEVE strongly supports this emphasis upon recyclability, it believes further steps can be taken. Closed-loop recycling, an essential component of a functional Circular Economy, must be recognized as a crucial measure to ensure packaging in the market is continuously made from recycled materials instead of virgin resources. This approach would guarantee the highest recycled content in available packaging. Furthermore, it is important to acknowledge that not all packaging materials exhibit equal recyclability. New regulations should acknowledge the accomplishments of such 'permanent materials' as glass to encourage waste reduction that promotes high-quality closed-loop recycling. waste reduction targets - a high priority to ensure a level-playing field and equal commitment to all materials.

NOT ALL PACKAGING MATERIALS ARE CREATED EQUAL

Glass, alongside steel and aluminium, qualifies as a permanent material that can undergo endless recycling within a closed loop, essentially retaining its intrinsic characteristics throughout the process. Furthermore, glass exhibits virtual inertness, which ensures its suitability as a food-safe packaging material regardless of its previous contents. These exceptional attributes enable glass to seamlessly integrate into a closed-loop recycling system. This guarantees its sustained quality and functionality in subsequent cycles.

BOOSTING COLLECTION

Close the Glass Loop strives to bring together the entire value chain to accomplish a target collection rate of 90 percent for glass packaging by 2030 - an objective that aligns with EU circularity and climate neutral-

ity commitments, and so necessitates increased and improved collection efforts to facilitate glass recycling. To support the packaging recyclability requirements outlined in the PPWR it's crucial that measures stimulating investments in collection, sorting and recycling infrastructure be implemented Europewide. Here the manner in which packaging is collected directly impacts the quantity and quality of recyclable materials obtained. As such, separate collection and sorting procedures come as fundamental prerequisites for ensuring high-quality recycling processes as well as adherence to the recyclability criteria.

ACCELERATING THE TRANSITION TO A TRULY CIRCULAR ECONOMY FOR PACKAGING

Mindful of the above, FEVE deems it opportune for policymakers to:

- Incorporate closed-loop recycling into the A-E recyclability performance grades -specifically as A and B grades- in order to increase the presence of recycled packaging in the market. This, in turn, should lead to reduced Extended Producer Responsibility (EPR) fees - serving as an incentive for progress.
- Exhibit greater ambition regarding the definition of closed-loop recycling, high-quality recycling and scaled-up recycling. This includes advancing the timeline for recyclability criteria to 2030 rather than to 2035.
- Ensure that packaging is collected, sorted, and recycled to a significant scale in Member States that represent at least 90 percent of the EU population - thereby surpassing the current proposal of 75 percent.
- Recognize the existence of Permanent Materials that retain their intrinsic properties to facilitate high-quality recycling within closed-loop systems. This recognition would contribute to minimising the use of virgin raw materials.
- Promote separate collecting by establishing a mandatory recycling rate of 90 percent for all packaging materials.

As European legislation imposes increasingly stringent requirements upon recycling and sustainability data, brands and retailers must guarantee the genuine recyclability of their products and effectively communicate as much. Today PPWR proposals present an untapped opportunity to prioritise recyclability. It's essential that EU policymakers demonstrate courage in defining recycling for the packaging that we rely upon daily - an approach that can transform the PPWR into a catalyst to encourage producers and the entire value chain to enhance the collection and recycling of glass, moving closer to the 90 percent collection target by 2030 while reducing packaging waste within the EU. Given the urgency of the matter, there is no time to waste.

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The European Container Glass Federation

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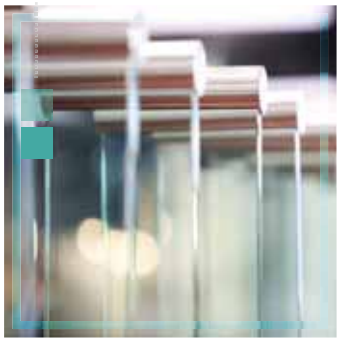

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Exquisite glass bottles demonstrate leading SAVERGLASS craftsmanship

Showcasing its unique designs, SAVERGLASS typically excels at wowing the industry with its glass bottle creations. This has the company catering to premium industries worldwide - all thanks to a manufacturing, customization and decoration excellence that ranks Saverglass among the preferred partners for both leading brands and major wine and spirits groups.

A French group esteemed in the hollow glass sector, Saverglass is renowned worldwide for its expertise in manufacturing, customising and embellishing high-end glass bottles. Catering to the premium and super-premium segments, the company serves a diverse range of industries that include spirits, fine wine, champagne, perfume, cosmetics and food. Here's why Saverglass' commitment to innovation, mastery of glassmaking techniques and uncompromising quality has earned it a sterling reputation internationally.

SEEKING TO MEET EVERY REQUIREMENT

For several decades, Saverglass has stood out by offering modern, versatile and original designs that have become the hallmark of the company's identity and reputation. By leveraging its expertise in glassmaking and decoration as well as a wide array of product offerings and innovative solutions -and by acting as a trusted consultant throughout project development- Saverglass consistently demonstrates its originality - also standing out as a value creator.

GLOBAL FOOTPRINT

Since the 1990s, Saverglass has expanded its reach internationally by establishing distribution subsidiaries and branch offices. Presently, it has a presence in all premium spirits and high-end wine production regions worldwide - including in France, the USA, the UK, Spain, Portugal, Mexico, Italy, Australia, New Zealand and South Africa.

DISTINCTIVE POSITIONING IN THE MARKET

Saverglass operates from its headquarters at the Feuquières glassworks, a site with a rich tradition in Bresle Valley - a hub of French glassmaking since the 15th century. In 1985, under the leadership of Loïc Quentin de Gromard, the company adopted a hyper-specialisation strategy - enabling it to establish a strong position in the luxury bottle niche market. With its ability to accommodate small production runs, Saverglass became a pioneer in offering products that were non-existent in the 1980s - particularly within the spirits industry.

In 1991, Saverglass ventured into the decoration business at the Feuquières site, complementing its high-end service and

meeting the growing demand for sophisticated and customised solutions. This unique position in the glass industry encompasses expertise ranging from manufacturing to personalised and decorated glass.

Today Saverglass ranks as a leader in premium and super-premium bottle manufacturing. Leveraging its production capabilities and expertise, the company handles significant order volumes while catering to the specific needs of customers seeking special and short runs. As such -and with its technological prowess, exceptional service quality and creative capacity- Saverglass occupies a truly unique position in the market.

A DIVERSE AND DISTINCTIVE PRODUCT RANGE

For over thirty years, Saverglass has been a key player in producing wine and spirits bottles that boast innovative shapes, exceptional colours, distinctive punt shapes, geometric shoulders, bodies and thick glass bases. By deviating from traditional glass packaging Saverglass has crafted an original and imaginative design tableau - very well-aligned with the demand for premium packaging in the wine and spirits industry.

With a comprehensive collection that encompasses over 250 lines, ranging from 5 cl to 6 litre, Saverglass offers the market an impressively wide product range. Every year the company introduces new shapes derived from extensive research conducted by its design department - showcasing its cross-category expertise in wines and spirits. Consequently Saverglass can provide excellent solutions for brands seeking differentiation, premiumization or added value during new product launches.

ACHIEVING DESIGN DIFFERENTIATION

Saverglass understands that each project is unique - driven by its history, values, and brand positioning. As an outstanding partner for brands and design agencies, Saverglass specialises in creating stronger differentiation - leaving a lasting impact while ensuring optimum quality in developing new types of bottles or decanters. Collaborating closely with its customers, the Saverglass Group assists in designing shapes, selecting tints, personalising products with various finishes, etchings and decorations - all while

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paying meticulous attention to the smallest details. Saverglass strives to employ the most suitable technical solutions and designs - ensuring the feasibility of each project while preserving the original essence of the product.

DETAILED DECORATION: EMBRACING DAZZLING CREATIVITY

Differentiation, visual impact and innovative decoration solutions are all at the core of Saverglass' approach. By enhancing the form design with striking decoration, the company helps brands stand out and captivate minds. Saverglass harnesses its expertise in luxury decoration to reproduce both simple and complex graphics - pushing boundaries to create new and breathtaking combinations. The range of possibilities includes brilliant mirror effects, organic multi-colour screen printing combined with hot stamping, various Savercoat® effects (total, partial, or shaded) and a plethora of glossy, matte, opaque, translucent and night effects. These extraordinary solutions cater to the most creative projects - allowing brands to make a bold statement.

Since 2005, Saverglass has been among the leaders of organic decoration globally - utilising only organic inks and glazes in its finishing processes - a commitment that keeps the company a step ahead of many competitors. The Organic Color Play® brand has become a powerful marketing tool for both Saverglass and its clients. The group remains committed to innovation, continuously developing new materials and processes - all to improve productivity, quality, differentiation and environmental excellence.

INTRODUCING VIBRANT GLASS COLOURS

Saverglass has curated a range of unique shades under the Select Colors® brand. Initially centred around eight tints -Jade Green, Water Green, Yellow Green, Moka, Miel, Grey Smoke, Blue Moon, and Blue Ice- this process also enables the creation of custom tints.

UNLEASHING NEW TACTILE AND VISUAL EFFECTS

Glass embodies a dual sensory reality - the tactile experi-

ence of touch and the emotional response it evokes. Saverglass has embarked on a journey to develop a fresh approach that constantly rejuvenates value creation - offering access to new and more nuanced sensory dimensions. Through such techniques as soft-touch, acid-etching, sandblasting and the creation of various textures and grains, including silky, rough, or oily effects, as well as engraved

or embossed details, Saverglass heightens the sensory experience and enriches all senses.

INNOVATION AS A MINDSET

Innovation is deeply ingrained in Saverglass' culture. With a view to continuously enhancing the quality of its products and services, the Saverglass Group has fostered a strong culture of innovation - constantly anticipating industry trends while delivering both innovative and functional solutions. This culture thrives under the guidance of a dedicated team of 50 research and development experts.

DECORATION: UNLEASHING LIMITLESS POSSIBILITIES

Saverglass has always prioritised high-quality decoration to support even the most challenging projects. In 1991, the company established its first dedicated business unit for finishing - instantly propelling it among the protagonists of global innovation and success within its sector. Today, decoration stands as the Group's second-largest business - employing 550 skilled professionals across three integrated finishing units and producing an impressive 110 million decorated pieces annually.

Saverglass offers an extensive range of techniques and expertise - providing a generous measure of solutions for its discerning clientele. These include screen printing with organic inks that are 100 percent recyclable, enamels or precious metals, coating using the patented Savercoat® process, acid-etching, sandblasting, hot stamping,

metallization and such creative effects as the remarkable Art&Touch®. The company's repertoire also extends to the skillful integration of various accessories. These innovative and unique solutions with added value cater very ably to the demands of a discerning market.

QUALITY: THE ESSENCE OF THE COMPANY

Saverglass has earned worldwide acclaim for its commitment to delivering excellence in products and services. However, the company understands that maintaining this reputation requires an unwavering dedication to improvement. Every day, Saverglass combines its relentless pursuit of excellence with a demand for continuous performance enhancement.

Early on, Saverglass made the decision to base its quality standards on the ISO 9001 certification - earning the distinction in 1993 as the first glassmaking company to achieve this milestone. The ISO 9001 standard encompasses the design, production, inspection and delivery of products - ensuring a constant process that guarantees ongoing quality.

All of Saverglass' products are manufactured for the food industry and adhere to the Hazard Analysis Critical Control Point (HACCP) system. Furthermore, all the company's production sites in France are certified according to the ISO 14001 environmental management and ISO 22000 food safety standards.

BUSINESS CONTINUITY MANAGEMENT

In its commitment to comprehensive management systems, Saverglass has obtained the 22301 Business Continuity Management certification. This distinction makes it the world's first glassmaker and glass decorator to receive this certification, underscoring its ability to deliver exceptional service to its customers even in the most exceptional circumstances.

THE ART OF RECOGNIZING HIGH-QUALITY GLASS

The purity, clarity and transparency of glass are the defining characteristics of premium-quality craftsmanship. While silica, sodium carbonate (soda) and calcium oxide (lime) constitute 95 percent of glass composition, the remaining five percent also play a crucial role - influencing its mechanical, chemical and visual attributes. Saverglass' expertise lies in enhancing the composition of glass - imbuing its products with unique qualities. The impeccable 'skin' of the glass, characterised by its brilliance, is achieved through the use of cutting-edge tools and equipment, meticulous monitoring of melting processes, rigorous maintenance programmes and the ability to fine-tune various procedures.

SAVERGLASS ESPRIT DESIGN

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