

Customer Newsletter
February 2017

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NEW AT PHARMAPACK

WELCOME



Pharmapack in Paris is the first top event of the new year with plenty of innovative products on display. We're also showcasing an innovation there – our metal-free glass syringe for biotech drugs. You can find out more about that in our cover story! Or you can visit us in Paris, stand G1/H1 in hall 4, on February 1 and 2 for an informative personal demonstration of our new product.

In the last issue of Update we reported on the progress of our Global Machine Strategy. It has already been implemented in North America and is currently being rolled out at our European production plants. The current focus is on our Boleslawiec facility in Poland where the first new machines have already been put into operation.

We've also invested in new moulded glass manufacturing technology, and high-performance packing robots have now been installed at the cold end for the automated stacking of various-sized product packs onto pallets for break-proof transportation to customer filling plants.

Enjoy reading!

Jens Kürten

Group Senior Director
Communication & Marketing
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Metal-free glass syringes for the most sophisticated medications

Biotechnologically manufactured active ingredients demonstrate a series of special features. Some are highly viscous and, in individual cases, tend to interact with silicone oil or, for example, tungsten residue from syringe production. Gerresheimer therefore offers integrated thin-walled cannulas for the improved emptying capability of the syringe for these applications. The special silicone oil treatment (baked-on) for the reduction of free silicone oil and the „metal-free“ production without a tungsten pin creates a perfect primary packaging material for these sophisticated medications.

NEW: Metal-free technology for residue-free cone shaping

One problem associated with syringe use is that traces of tungsten or other metals occasionally leave residue behind in the bore when the syringe cone is shaped. Especially for medications based on biotechnologically manufactured active ingredients, our customers therefore require pre-fillable syringes that ideally exclude the possibility of contamination with metal. With the development of an innovative production technology registered for patent, we have been able to address this requirement and create a **metal-free 1 ml long Luer Lock Gx RTF® syringe** (see photo on the right) that is ready for series production. This process can also be transferred to other Luer Lock syringe sizes or to Luer cone syringes of various sizes at any time. (Continued on page 2)



NEW AT PHARMAPACK

(Continuation)

The pin used to shape the cone with our new technology isn't made of conventional tungsten or an alternative metal, but of a special ceramic. External studies confirm that we can manufacture residue-free syringes for the packaging of especially sophisticated medications with this new technology. The Fresenius Institute conducted a study confirming that no ceramic residue can be detected in the syringe. A biocompatibility study also verifies the non-cytotoxicity of the ceramic material.



Gx[®] baked-on siliconization

Pre-fillable syringes are very often used for the storage and administering of biotechnological medications. They are generally siliconized in order to ensure functionality when using the syringe. Siliconization reduces the breakaway and sliding forces during usage, improves emptying and reduces the adsorption of medications due to the hydrophobization of the surfaces. However, certain problems when using silicone oil must be considered. Inadequate or uneven siliconization can impair the mechanical functionality of the syringe. Excessive quantities of silicone oil can in turn result in the increased formation of free droplets in the medication. When packaging biotechnological medications, even droplets in the sub-visual spectrum can be a problem, as the active ingredient coagulates on them and can thus reduce the available quantity of active ingredient. The objective for the development of the syringe is there-

fore to reduce the quantity of silicone to the greatest extent possible without impairing the mechanical function. With our Gx baked-on RTF[®] syringes patented in Europe and the USA, we have developed a technology that achieves a homogeneous coating with especially low quantities of silicone. In this process, a silicone oil emulsion is sprayed into the syringe body and subsequently affixed to the surface by heating. In the process, bonds form between the molecules of the glass surface and the silicone molecules that are so strong that a part of the silicone oil can't even be removed with solvent. Despite the considerably reduced amount of silicone used and the correspondingly minimized load of free silicone droplets, the syringes provide a reliable smooth coating, as well as stable breakaway and sliding forces over the entire storage period.

Thin-walled cannulas

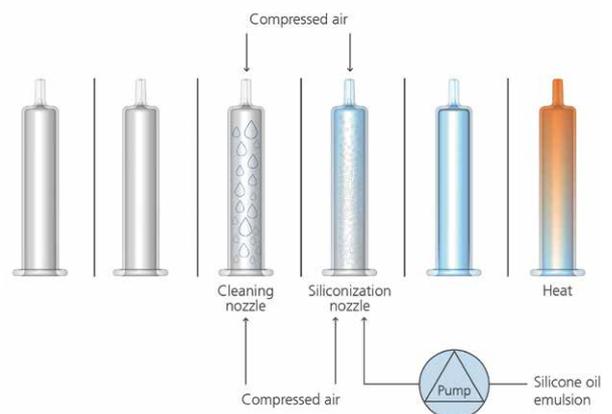
We can also equip our syringes with thin-walled cannulas that ease the administering of the often highly viscous medications thanks to their improved flow properties.

We will present our new metal-free 1 ml-long Luer Lock Gx RTF[®] glass syringe with baked-on siliconization at **Pharmapack**.

We would be very pleased to inform you in detail about our product innovation on **February 1 and 2, 2017 in Paris at the Paris expo Porte de Versailles, hall 4, stand G1/H1.**



Baked-on siliconization



PHARMAPACK

Gerresheimer at Pharmapack 2017

Gerresheimer has a selection of new products and solutions for safe, reliable, and convenient pharmaceutical drug packaging and delivery on show at the 20th Pharmapack. However, the spotlight will be on the new 1 ml long Luerlock Gx RTF® metal-free glass syringe.

Two of our product experts will be providing presentations there. The subject of the first presentation is the production of multilayer plastic containers in an injection blow moulding process for the reliable protection of content against water vapor and oxygen exposure. The second presentation informs you in detail about the new metal-free 1 ml long Luer Lock Gx RTF® Luer Lock glass syringe where the pin used to shape the cone with our new technology isn't made of conventional tungsten or an alternative metal, but of a special ceramic.



FEBRUARY 1 | 11:30 A.M.

Duma® Twist-Off Protect



Tommy Persson, R&D Engineer at Gerresheimer Plastic Packaging, holds a presentation on the subject of innovative, high-quality primary packaging products: multilayer containers for solid dose medications, Duma® Twist-Off Protect and senior-friendly closures.

Gerresheimer Plastic Packaging is the first company in the world to manufacture a multilayer product in an injection blow moulding process. Duma® Twist-Off Protect and the US standard Triveni container have a multilayer design offering improved protection against water vapor and oxygen exposure. This new multilayer container is also fully compatible with all existing product ranges, so there is no need for modifications to the filling line.

Main presentation content:

- New Duma® Twist-Off Protect tablet container
- Improved protection for sensitive pharmaceutical drugs
- Extended shelf life
- Reduction in the use of desiccants, scavengers and pack size



FEBRUARY 1 | 03:00 P.M.

The metal-free 1 ml long Luer Lock Gx RTF® glass syringe



Especially for medications based on biotechnologically manufactured active ingredients, our customers therefore require pre-fillable syringes that ideally exclude the possibility of contamination with metal. In his presentation Bernd Zeiss, Manager Technical Support Medical Systems, explains how we have been able to address this requirement with the development of an innovative production technology registered for patent, and to create a metal-free 1 ml long Luer Lock Gx RTF® syringe that is ready for series production.

PRIMARY PACKAGING GLASS

Gerresheimer continues the roll-out of its Global Machine Strategy to guarantee top quality vials

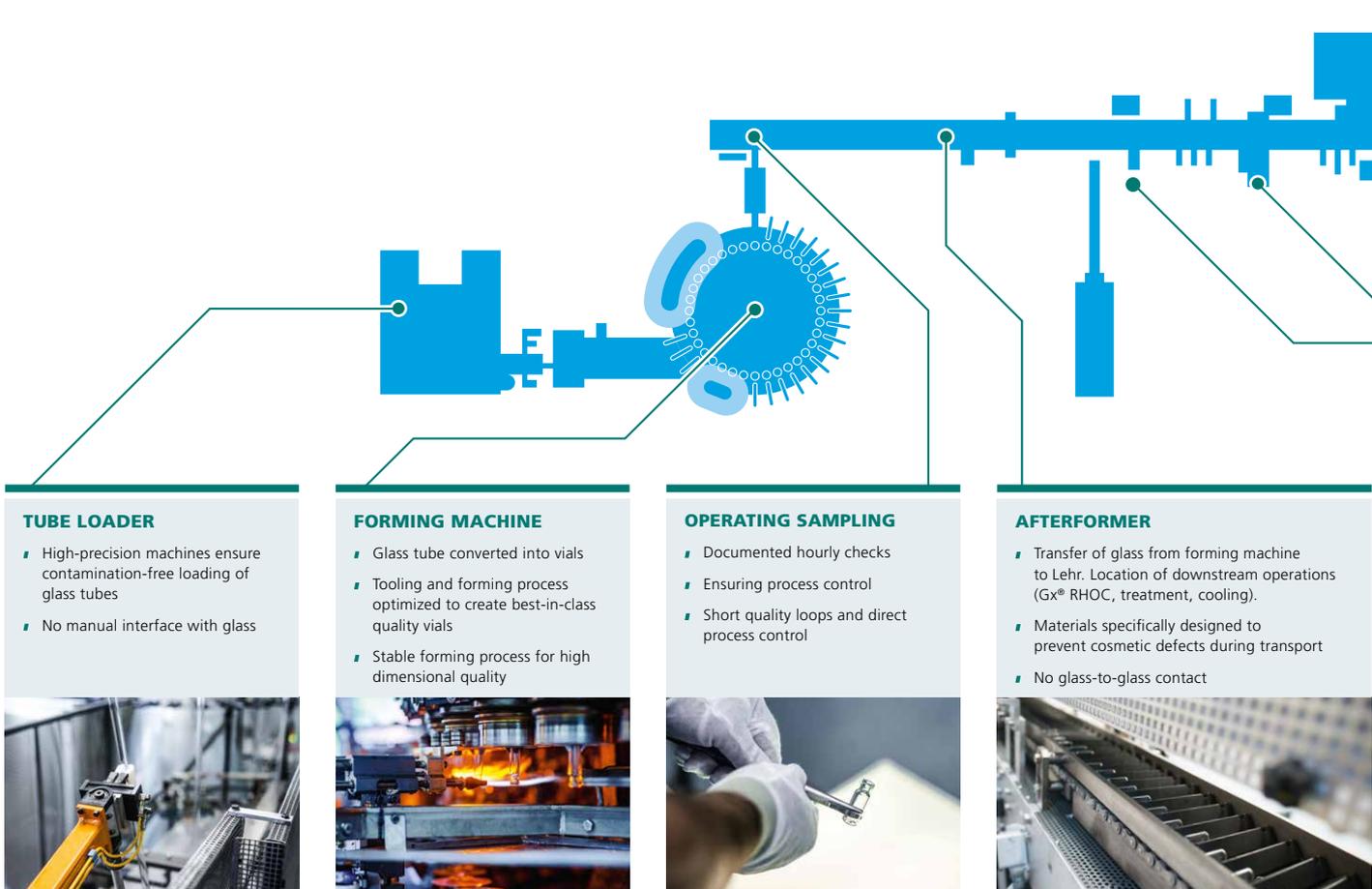


New milestone: Gerresheimer Bolesławiec in Poland

Glass vials are the most frequently used packaging for injectables in the world. Gerresheimer manufactures them in the Americas, Asia and Europe with filling volumes of between 1 and 50 ml. Gerresheimer has set up an investment program spanning several years to install state-of-the-art converting machines for vial manufacturing at all its vial plants. The latest-generation machines and the high standards that apply on a global basis will allow Gerresheimer to meet even more stringent product quality requirements in the future. The new machines have

now been installed at all the American vial plants. In Bolesławiec, where one of Gerresheimer's two European Excellence Centers for vial production in Europe is located, the first two machines were installed and put into operation in 2016. More new machines will follow in 2017 and 2018.

"Our investments have already paid off; reflected by the fact that the new machines manufacture vials in cosmetic and dimensional quality that by far surpasses the industry standard. That's why the initial customer feedback has been so positive," said Jens Heymann, Global Vice President Finance & Controlling und Senior Vice President Europe & Asia Tubular Glass.



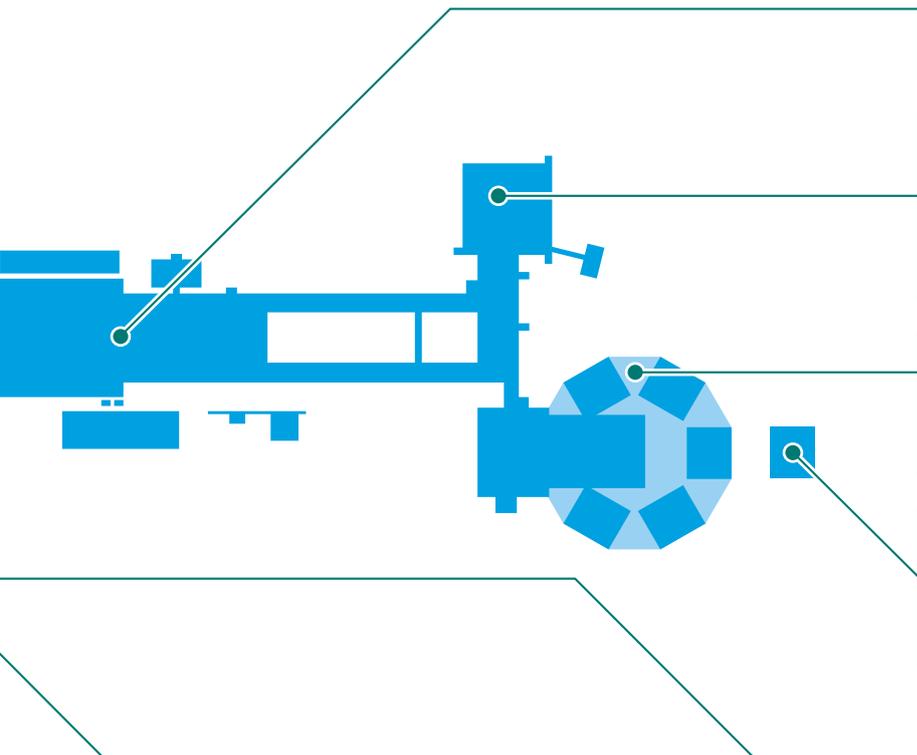
PRIMARY PACKAGING GLASS



The aim of this project has been absolutely clear from day one: Gerresheimer wants to supply its customers with vials that meet the highest quality standards in the industry. Gerresheimer Bolesławiec is the European milestone confirming that the global project is fully on schedule.

Extensive renovation work was necessary before the new machines could be installed. The floor and lighting systems were replaced, the clean room was upgraded and extended, and the existing machine layout was changed. These are just a few aspects of the extensive refurbishment program that was implemented to prepare the plant for the ultra-modern machines.

One of the new vial machines in a clean room at Gerresheimer Bolesławiec



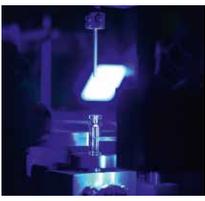
LEHR (ANNEALING OVEN)

- Anneals glass to relieve forming stresses
- Designed to provide an optimal consistent thermal profile
- No glass-to-glass contact



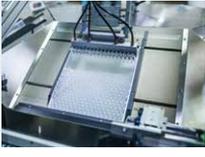
GX° G3

- 5 HD cameras ensure superior defect detection
- Smart defect recognition and classification
- Fail-safe rejection system
- Cosmetically flawless vials



TURRET PACK

- Automatically picks up inspected vials
- Then places them in customer-defined pack configurations



PACKER AND QC SAMPLING

- Packer performs final packaging (labels, shrink wrap and palletizing) as per customer specification
- QC performs final release inspection



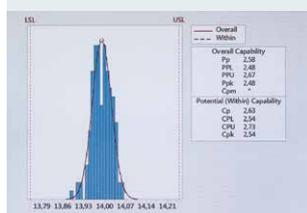
GX° RHOC

- Automated in-line dimensional inspection system
- Extremely accurate handling system
- 3 high-resolution matrix cameras on each side
- Integration with the forming machine
- Hyper-centric ID camera
- Integration with infinity software



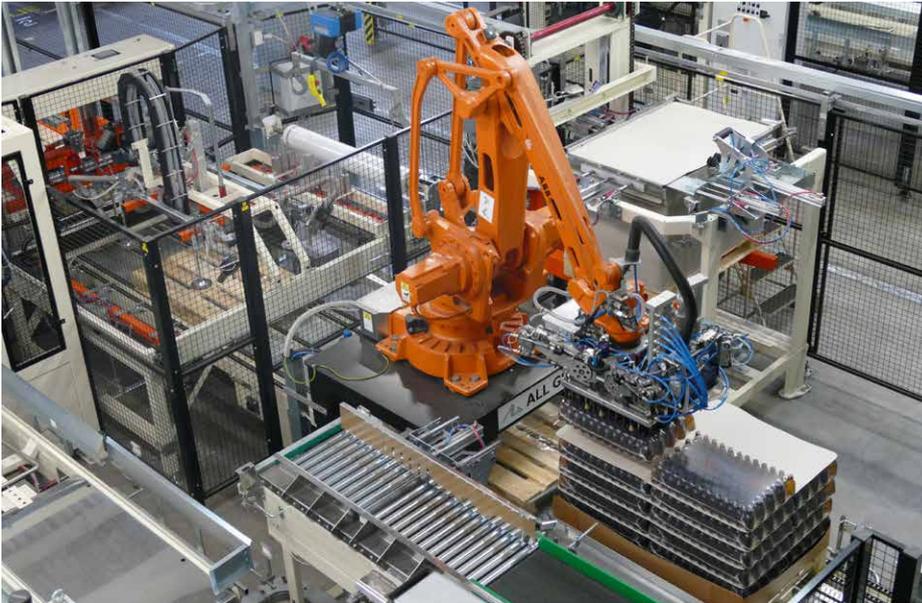
INFINITY QUALITY SYSTEM

- Real-time statistical process control
- Fully integrated with dimensional & cosmetic inspection systems




PRIMARY PACKAGING GLASS

Modern packing robots at the cold end



Every year, Gerresheimer's pharmaceutical industry customers order several hundreds of millions of glass pharmaceutical packaging products manufactured at the company's plants in Essen and Lohr. Packing robots were recently introduced to improve the efficiency and reliability of packing operations before the pharmaceutical glass products are delivered to customers.

"Innovative automated processes are safeguarding the future of our plants and improving the quality of our products," commented Dr. Jürgen Unruh, General Manager at Gerresheimer Essen. He added that the installation of packing robots at the Essen facility serves as an example for the other production plants in the Gerresheimer Group.

Pharmaceutical packaging products, such as the glass bottles manufactured by Gerresheimer, have to satisfy stringent requirements and be low in germs and particles. The extremely high temperatures in the glass moulding process initially kill all the germs. To prevent re-contamination, the bottles go straight from the annealing oven to the clean room, where various mechanical and optical inspection systems are used to identify and sort out defective bottles. After the final inspection, the bottles in the clean

room are shrink wrapped in the required pack size with safe pack technology to ensure that they are hermetically sealed in a germ-free environment.

The shrink wrapped packs then have to be packaged and palletized to prevent transportation damage. In the past, production plant personnel working in shifts loaded the transport pallets. This kind of work involves a great deal of effort and concentration because it takes place at high speeds. Gerresheimer decided to automate the process in order to eliminate the resulting pallet packing errors.

Over 1000 packing formats

All the necessary information for the palletization process is contained in the order number. The products are shrink wrapped

with safe pack technology in a clean room environment according to the customer's specifications on packing format. There are currently around 1500 different packing formats, 1000 of which can be implemented by the safe pack machine. In the future, a 100% reliable camera system will perform continuous visual inspections to ensure that the packing formats, stability and quality are correct.

Automatic packaging

The shrink wrapped packs are transported by conveyor belt from the clean room to the packing robots. At the removal station a robot takes a pack off the conveyor belt and places it on the pallet as per the packing instruction. An operator can use a touch screen to adjust the position of the packs. When one pallet layer is finished, and before the next layer is placed on top, the packing robot adds a protective interim layer. When the pallet is ready it is taken to the holding area in front of the turntable, and the next pallet is loaded. The pallet labels are affixed manually by an operator, who also releases the pallets for delivery. The final stage of the process is the shrink wrapping of the pallets.



PLASTICS & DEVICES

Gerresheimer extends clean room production operations in Spain



The new clean room at Gerresheimer's Spanish production facility in Zaragoza extends and improves its pharmaceutical bottle and closure manufacturing operations. As a result, the Zaragoza plant is evolving into a supplier of high quality PET pharmaceutical bottle systems.

"Our customers have welcomed this development," commented Niels Düring, Global Executive Vice President Plastic Packaging, adding that the employees' hard work and commitment are what made the completion of the new clean room at the end of 2016



possible. The 600 square meter clean room houses nine machines with ISBM (Injection Stretch Blow Moulding) and IM (Injection Moulding) technology. Another six can be successively installed before the maximum capacity of fifteen machines in total is reached. PET bottles for medicines and food supplements are among the products that are manufactured in the new clean room.

Plastic pharmaceutical bottles and closures

The new high-performance machines manufacture round PET bottles in higher quality, partly as a result of the optimized machine technology, but also due to improved material distribution. The bottle top design has been modified so that the bottles can have any kind of closure system, from tamper-evident and child-resistant closures, at one end of the scale, to simple stoppers, on the other. The Zaragoza plant also manufactures standard caps and accessories, as well as a total solution for tamper-evident caps.

Gerresheimer is a pharmaceutical plastic packaging specialist offering a wide spectrum of packaging solutions for solid, liquid and ophthalmic applications. The leading brands Duma®, Dudek and Triveni for solid dosage, edp-branded PET bottles for liquid dosage, and our ophthalmic products form part of a comprehensive and innovative product portfolio. Our extensive standard product range includes diverse containers and closures, PET bottles, eye drop and nasal spray bottles, nebulizers as well as numerous custom-made designs.



(Photo top left) Inside the new clean room at Gerresheimer Zaragoza.

(Photo above) Gerresheimer Zaragoza manufactures PET bottles in an ISO class 8 clean room.



Gerresheimer Vaerloese invests in a new IBM machine

Gerresheimer Vaerloese has installed the IntelliDrive Jomar 85S, a latest-generation Jomar machine. The installation process involved a two-year collaboration with Jomar and a test phase in the USA to ensure that the machine could optimally be geared to needs based on input from Gerresheimer Vaerloese. Now Gerresheimer Vaerloese has both a bigger machine park and additional technical expertise. The new machine reduces energy consumption by 50% and is much quieter in operation than the predecessor models. Further investments are planned because this machine is going to be the new standard technology.

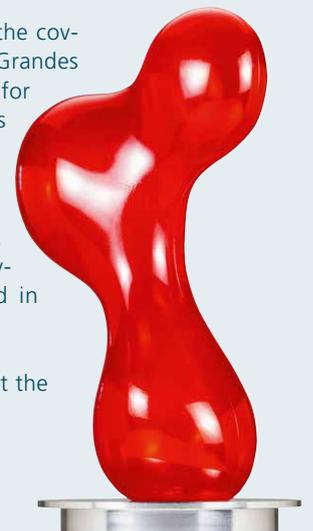


Gerresheimer Sao Paulo wins Brazilian packaging award

Gerresheimer Sao Paulo received the coveted Brazilian packaging award „Grandes Prêmios de Embalagem“ in 2016 for a plastic packaging product that is manufactured for its customer Hypermarcas. The convenient and aesthetic-looking Gerresheimer bottle is filled with an effervescent powder medication for gastric hyperacidity. It should be dissolved in water before being ingested.

You can find further information at the following link:

<https://youtu.be/IXGvAlqL8bA>



PLASTICS & DEVICES

10 years of Gerresheimer in Dongguan

Looking back on a success story

China has evolved into an economic superpower that has long since cast off its reputation as a mere low-cost production location. Rapid economic and social development have made the most highly populated nation on Earth one of the key growth markets for medical technology products. Gerresheimer Medical Systems was quick to recognize this trend and set up its first sales offices there at the beginning of the new millennium. As a result of the progressive liberalization of the Chinese economy, it was able to establish a subsidiary in Dongguan on November 16, 2006. In 2007 the plant was ISO 9001 and ISO 13485 certified. Since then, it has focused on manufacturing products for the pharma and medical technology sector such as inhalers and skin prick aids.



Skin prick aid production in Dongguan

A Technical Competence Center (TCC) was opened in China in October 2014. The highly qualified team of plastics and production engineers, project managers, quality planners, and process engineers at the TCC is now able to implement major projects locally, independently, and without any language barriers. The new TCC's main departments are Project Management, Injection Moulding Technology, Measuring Technology, Mould Optimization and Mould Purchasing. The TCC's Injection Moulding Department is equipped with its own sampling line complete with injection moulding machines and its own standards lab for mould qualification.

Our Chinese facility has come a long way over the past ten years. It has evolved from an assembly plant with 50 staff to a full-service supplier with almost three times more personnel, offering a portfolio of services ranging from injection moulding and finishing to inspection and packing. In addition to the core product of inhalation systems, the Dongguan plant manufactures a wide range of diagnostic products, from skin prick aids for diabetics, through plastic parts for intravenous drips to disposable laboratory diagnostic articles. It now has five assembly lines and 18 injection moulding machines.

RECOMMENDED READING

Optimizing silicone oil use in prefillable syringes

Silicone oil in production and in the final product, functionality, analytical methods and trends, in: TechnoPharm 6, no. 5, pages 264-275, Bernd Zeiss, Manager Technical Support Medical Systems, Gerresheimer Bünde

www.ecv.de/download/download/Zeitschriften/TechnoPharm/volltext/TP0605_0504.pdf

Optimum siliconization is crucial in the production of prefillable glass syringes because it defines the functional interaction between the glass syringe barrel and the plunger head. Optimizing the siliconization process reduces silicone oil micro droplet contamination and ensures the even distribution of the silicone oil in ready-to-fill (Gx RTF®) syringes, which has a positive effect on syringe performance. Another established option for minimizing the amount of free silicone oil in the syringe is the thermal fixation of the silicone oil on the inside glass surface. Low-silicone-oil or silicone-oil-free syringe systems are a promising new development that customers are very interested in.

Ampoules – a traditional product with a future

A zero-defect production strategy for a demanding market, in: International Pharmaceutical Industry, Winter 2016, vol. 8, issue 4, p. 96-100, Dr. Volker Rekowski, Quality Director Europe & India Tubular Glass Converting, Chairman of the Gerresheimer Quality Council; Lothar Haaf, General Manager of Gerresheimer Wertheim GmbH, Senior Product Manager Ampoules Europe Tubular Glass Converting

Ampoules were developed at around the same time as injections were invented as a form of medical treatment. This type of primary packaging allows the pharmaceutical drug to come into contact with only the inert and gas/vapor-impermeable material of glass. Ampoules are also completely tamper-proof. Although ampoules have been competing with vials for quite a while now, and increasingly also with pre-filled syringes, they are still the global number one choice of primary packaging for injectables. Despite a slight decline in demand for ampoules in developed nations, this negative trend is offset by clear growth in demand in the cost-sensitive growth markets of emerging nations. This article was provided by the Gerresheimer Center of Excellence for Ampoules in Wertheim (Germany). It presents the types of ampoules that are available and their uses, provides a detailed explanation of the manufacturing process, and describes the modern inspection systems used to assure product quality.

FACTS & FIGURES

Europe's glass recycling quota is 74%

The average glass recycling rate in the EU28 zone has reached the 74% threshold for the first time ever. This means that over 11.6 million tons were collected throughout the European Union in 2014, or 3.5% more than in the previous year. National annual comparisons show diverging developments in different countries. Whereas countries such as Germany (89% recycling rate), Sweden, Belgium and Slovenia continue to outperform, other nations that performed well in previous years have seen a slight decline in recycling despite a positive consumption trend. This has taken place in countries such as Austria and Denmark. In the Czech Republic, Finland and the Netherlands the downward trend was on a par with shrinking consumption. The recycling rates in Spain and Bulgaria are steadily increasing, though there is still room for improvement, while Rumania, Cyprus, Slovakia and Greece urgently need to address the issue of increasing their glass recycling rates.

www.feve.org

PET recycling increases in Europe

With over 1.8 million tons of collected and recycled PET bottles, the 2015 European PET collection and recycling volumes have increased by 5% compared to 2014. This means that nearly 59% of all bottles placed in the European market have been collected for recycling in 2015, outlining an increase of 2% compared to the 2014 collection rate.

www.packagingtoday.co.uk

Top pharma markets in 2016: China

China is currently the world's second-largest pharma market. This market report outlines the reasons for the Chinese healthcare reform and the challenges and regulatory obstacles associated with exports to China in: Pharmafile, vol. 62, Fall 2016, p. 68–71.

PEOPLE



Primary Packaging Glass

Changes in the Moulded Glass Business Unit

Paul Wiene has been Global Senior Vice-President Moulded Glass Sales since November 1, 2016. Before moving to Gerresheimer he worked for the 3M Group. After joining 3M Paul worked in various functions and departments in an international capacity, spending ten years in Healthcare and Pharma. Prior to the new appointment Paul held the function of Business Development Manager Energy Markets Western Europe in Diegem (Belgium).

Andreas Kohl was appointed as Global Senior Vice-President Moulded Glass Operations effective December 1, 2016. He joined Gerresheimer Lohr in 1994 as a technical employee and was later promoted to Production Manager. Since 2003 he has been Senior Plant Director Lohr Moulded Glass.



Primary Packaging Glass

Greg Watson is Vice President Quality North America Primary Packaging Glass

Greg Watson was appointed as Vice President Quality North America Primary Packaging Glass on December 1, 2016. In this function he assumes additional responsibility for quality at the moulded glass plant in Chicago Heights, IL (USA).

Greg Watson joined Gerresheimer Morgantown, NC (USA), in 2012 as Quality Systems Engineer Americas Tubular Glass. Prior to the new appointment he held the function of Senior Director Quality Americas Tubular Glass.



Plastics & Devices

Marek Miszczak is Plant Director Boleslawiec Plastic Packaging

Marek Miszczak took on the function of Plant Director Boleslawiec Plastic Packaging and has been a member of the Gerresheimer Boleslawiec S.A. (Poland) management board since November 1, 2016. He joined Gerres-

heimer Boleslawiec in 2001 and has held several development functions there. The position held prior to the new appointment was Head of Research & Development Europe Plastic Packaging.



Plastics & Devices

Dr. Michael Bätz is Vice President Medical Systems Operations Brazil, China & Switzerland

Dr. Michael Bätz was appointed as Vice President Medical Systems Operations Brazil, China & Switzerland on October 10, 2016. Prior to the new appointment Michael was Director Manufacturing Excellence / Health, Safety & Environment and Global Operational Excellence Manager / Health, Safety &

Environment at Freudenberg Filtration Technologies in Weinheim (Germany). In his earlier career he also worked at Forbo Siegling, where one of the projects he headed was the development of a new production facility in Slovakia, and at Vedag Dachsysteme in Bamberg (Germany).

WEB & EVENT

Gerresheimer at CPhI India

Innovative pharma packaging in excellent quality

Reputed pharmaceutical customers procure primary packaging products from Gerresheimer to cover their global requirements. The Gerresheimer Group's subsidiaries, Triveni and Neutral Glass, provide it with an excellent positioning in the Indian market. Gerresheimer presented glass and plastic pharmaceutical packaging products that are FDA-registered and manufactured to stringent quality standards to the trade public at CPhI in Mumbai from November 21–23, 2016.

“All of our products are manufactured in compliance with the very highest quality standards. These standards apply to both glass and plastic packaging because all the Gerresheimer production processes are standardized and certified,” said Subodh Gupta, Managing Director at Triveni in India.

Plastic primary packaging

Gerresheimer is one of the world's leading suppliers of plastic eye drop bottles. It recently modified the closure system on its Type A dropper bottle to the FDA's new requirements. Now the tamper evident ring stays firmly affixed to bottle once it has been opened.

The popular Triveni Round family was recently extended by a standard container with a multilayer design for the US market. Duma® Twist-Off Protect delivers enhanced protection against water vapor and oxygen to sensitive pharmaceutical drugs. It is the first plastic container with a multilayer structure manufactured in an injection blow molding process.

Glass primary packaging

Gerresheimer offers a fully comprehensive portfolio of glass pharmaceutical packaging extending from the smallest glass cartridges made from tubular glass to 5000 ml acid-resistant chemicals bottles. There are also vials, ampoules, cartridges and other specialty products in transparent and amber borosilicate glass types I, II and III, as well as vials that are specifically manufactured for the Indian market.



Pharma Days in Nanjing (China) are a big success

Our Business Units Medical Systems, Plastic Packaging, and the Division Primary Packaging Glass hosted their first joint Pharma Days event in Nanjing (China) on September 21 and 22. Nanjing is one of the oldest cities in southern China, and it was the country's capital in the 14th century.

Over 60 customers from more than 30 companies attended. On the first day, which was conference day, three external speakers talked about current CFDA (China Food & Drug Administration) regulations and their impacts on the Chinese pharma industry. The focus was on pharmaceutical primary packaging, audits, and compatibility studies. Niels During, Head of Gerresheimer Plastic Packaging, talked

about the applications for plastic packaging in pharmaceuticals, Wolfgang Dirk (also Gerresheimer Plastic Packaging) outlined technical innovations in plastic packaging, and Stephane Pianigiani (Gerresheimer Plastic Packaging) gave a detailed presentation of Gerresheimer's operations in China.

The second day's program was a guided tour of the Gerresheimer production facility in Danyang. During the tour, the Gerresheimer experts explained the details of each stage of the vial and cartridge production processes. Our guests took a great many interesting and lasting impressions back home with them and gave us some very positive feedback.



WEB & EVENT

Gerresheimer Vineland: tribute from Meridian Medical Technologies

The employees at the tubular glass converting plant in Vineland received a tribute from their biggest customer, Meridian Medical Technologies, for their commitment and service. A Meridian employee presented a banner to the employees that reads: "TOGETHER, WE SAVE LIVES – Our Patients Thank You Each and Every Day!"

Meridian Medical Technologies is a Pfizer subsidiary manufacturing glass packaging for antidotes to chemical weapons for the US armed forces.

Triveni supports schools in India

In 2016 the Gerresheimer subsidiary Triveni in Kundli (India) launched an important initiative as part of its CSR effort to support schools in India. The Triveni facility took on the role of "mentor" to many regional schools, making investments in new classrooms, dining rooms, and toilets. Also, and equally importantly, the schools now have clean drinking water for the pupils and teachers.

New ISO 50001 certifications



Gerresheimer Wertheim, Horsovsky Tyn and Headquarters

Gerresheimer is committed to high international standards and continuous improvements in production and service quality. Internationally recognized certifications in these areas provide official verification of our quality management systems' effectiveness, which is particularly important to our

partners and customers. Now our plants in Wertheim, Germany and Horsovsky Tyn, Czech Republic are ISO 50001-certified. Glass ampoules are manufactured in Wertheim, while Horsovsky Tyn produces a wide range of drug delivery systems, diagnostic products and medical devices made of plastic.

The Gerresheimer Headquarters in Düsseldorf has also gained its first ISO 50001 certificate (energy management system), confirming its compliance with the section 8 et seqq. of the German Energy Services Act (Energiedienstleistungsgesetz), which transposes the EU Energy Efficiency Directive's energy audit requirements into national law.

Significance

ISO 50001 is an internationally recognized energy management standard. It is designed to support organizations in all sectors to improve their energy systems and processes. It helps them to exploit energy saving potential, cut energy costs, reduce greenhouse gas emissions and mitigate negative impacts on the environment. So the energy management system makes an important contribution to environmental and climate protection. Government subsidies and tax rebates, as well as EU grants under the Energy Efficiency Directive, are conditional upon systematic energy management in accordance with ISO 50001.

GERRESHEIMER

EVENT-CALENDAR 2017



FEBRUARY, 01 – 02 Pharmapack Europe

Paris, France
Paris expo Porte de Versailles
Stand G1 & H1

FEBRUARY, 07 – 09 MDM West

Anaheim, USA
Anaheim Convention Center

MARCH, 08 – 10 CPhI Istanbul

Istanbul, Turkey
Istanbul Expo Center (IFM)

MARCH, 22 – 24 Cphi South East Asia

Jakarta, Indonesia
Jakarta International Expo
Stand B24

APRIL, 25 – 28 Respiratory Drug Delivery (RDD) Europe

Nice, France
Palais des Congres d'Antibes

MAY, 16 – 19 Iran Health

Tehran, Iran
Tehran International Permanent Fairgrounds

MAY, 23 – 25 FCE Pharma

São Paulo, Brazil
São Paulo Expo

JUNE, 13 – 15 MD&M East

New York, USA
Jacob K. Javits Convention Center

JUNE, 20 – 22 CPhI China

Shanghai, China
SNIEC

Save the Date

GERRESHEIMER



Gerresheimer Pharma Days Europe

May 16–17, 2017 in Dresden (Germany) and Boleslawiec (Poland)

Dear Business Partners,

We are pleased to inform you that the 8th Gerresheimer Pharma Days event will be taking place in Dresden (Germany) and Boleslawiec (Poland) on May 16 and 17, 2017 and we hope very much that you will be able to attend. Please save these dates! You will receive a formal invitation and detailed agenda in due course.

The first day will be dedicated to current pharmaceutical topics with a focus on innovation, technology and quality. External keynote speakers, our CEO Uwe Röhrhoff and his management board colleague Andreas Schütte (responsible for the Plastics & Devices Division) will be attending, and Gerresheimer experts will bring you up to date with our innovations as well as with the latest news and developments in the fields of pharmaceutical packaging and medical devices.

On the second day, we will show you around our two production plants in Boleslawiec in Poland. Gerresheimer has made significant investment in the plants in recent years with the objective of meeting both present and future customer requirements. State of the art plastic packaging production is our Center of Excellence for ophthalmic packaging. Next door we have invested in vial and ampoule pro-

duction from tubular glass over the last 18 months. In this plant you can see the latest production, inspection and clean-room technology for high-quality vials.

The venue for the first day of the conference is the Swissôtel Dresden am Schloss. A shuttle service will be provided from Dresden Airport to the hotel, as well as from the hotel to our Boleslawiec plant and back to the Dresden Airport on the second day.

We hope that our Pharma Days will provide a dynamic and informative framework for constructive dialogue, and look forward to seeing you in May 2017. If you would like us to add any of your colleagues to our invitation list, please send an e-mail to j.kuerten@gerresheimer.com.

Kind regards,

Jens Kürten

Group Senior Director Communication & Marketing

