UPDATE.24

GERRESHEIMER

Customer Newsletter
February 2018

PHARMAPACK NEWS

Gx® InnoSafe™:
avoids inadvertent needle stick injuries

INNOVATION

Gx® RTF Vials
powered by Ompi EZ-Fill®:
Standardized packaging platform for sterile vials

Gx® Elite Glass Vials:
2–3 times harder
than type-I standard glass

QUALITY

New child-resistant
Duma® Pocket CR Box
in 40 ml

New Duma®
Standard container
with child-resistant
Duma® Handy Cap

SAFETY

New 20 ml snap-on bottle
for metering pump systems

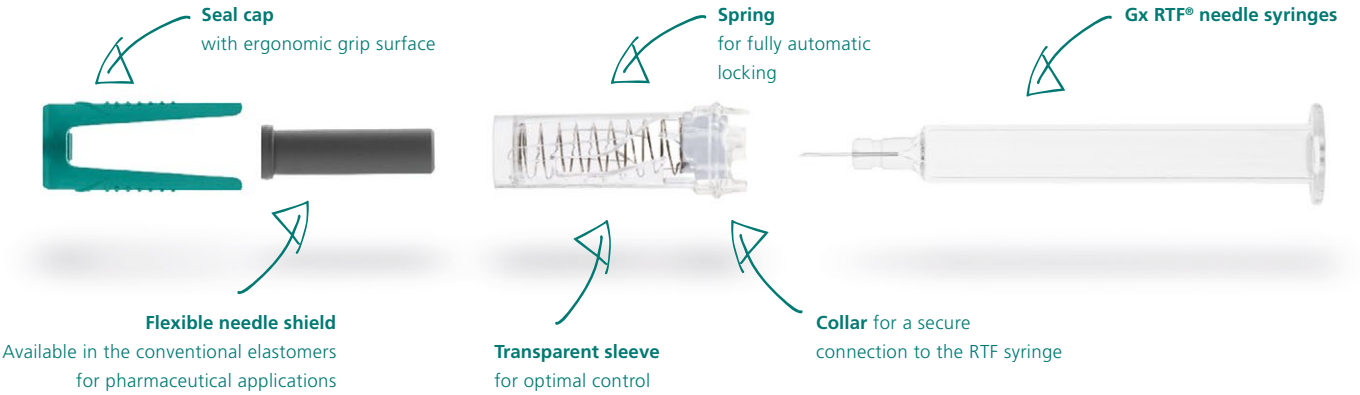
Metal-free
Gx RTF® glass syringe
for sophisticated medications

Gx RTF® ClearJect®
a COP syringe with cannula
for sensitive medications

Gx® InnoSafe™:

Greater protection against needlestick injuries

Gerresheimer to present an integrated and passive safety system for avoiding needlestick injuries at Pharmapack in Paris.



With their exposed cannulas, used syringes are a source of risk at physicians' surgeries, laboratories, and hospitals the world over. Although existing needle protection systems reduce the risk of injury for the end user, they are more complex for pharma companies to fill and must be handled by medical specialists. With the Gx® InnoSafe™, Gerresheimer is now offering a syringe with an integrated passive safety system that avoids inadvertent needlestick injuries, prevents repeated use, and is designed with pharmaceutical companies' production processes in mind as well as being optimized for simple and intuitive use by medical specialists.

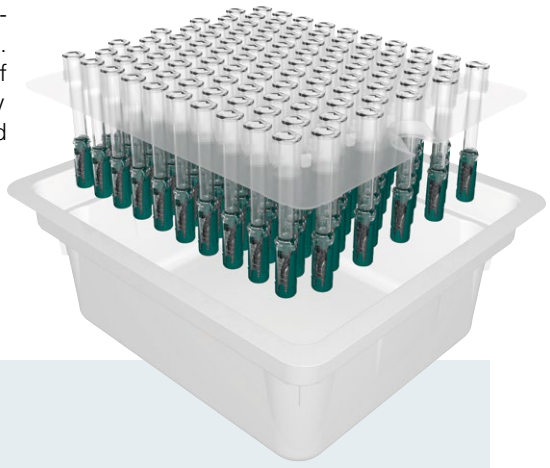
"For health care workers, handling used hypodermic needles is part of their day-to-day job. In some cases, this leads to serious diseases being transmitted. It is estimated that around one million needlestick injuries occur in Europe every year," explains Maximilian Vogl, Product Manager Injection Devices, in the presentation that he will be giving in the Learning Lab at Pharmapack from 10:50 a.m. to 11:20 a.m. on February 7, adding that in the worst case, it can lead to serious infections. There is also the risk of used syringes being used for a second time by accident. Gx® InnoSafe™ reliably protects against inadvertent needlestick injuries and prevents repeated use. Unlike many existing solutions, the needle shield mechanism is activated automatically and does not require any additional manipulation by the end user. It is therefore known as a passive needle protection system. The processing of the Gx® InnoSafe™ syringes, which can be carried out without any major changes to existing lines in a nested state, is just as beneficial to pharmacists. This eliminates the need for an additional step to assemble the safety system, as is currently standard on the market.

The user wants a safety system that does not change the familiar injection procedure, that is intuitive and ergonomic to handle, and that requires no additional manual activation to

secure the cannula before it is disposed of. As part of the manufacturing process, the Gx® InnoSafe™ safety system is installed on Gx RTF® glass syringes in the clean room like a standard needle shield. The syringe body is completely visible so that the presence of the active ingredient, its purity, and its administration can be observed and monitored ideally. The injection itself is also administered as usual. After removing the ergonomic sealing cap with an integrated, flexible needle shield, the syringe is placed on the injection site, the cannula is inserted into the tissue to be administered, and the active ingredient is injected as with a common syringe. The safety system cannot be activated inadvertently because the mechanism is not preloaded before the injection. The system is only activated when the cannula is inserted and it automatically ensures that the safety mechanism is permanently locked when the syringe is removed from the injection site. This guarantees that the cannula is reliably covered and the syringe cannot be reused.

Gx® InnoSafe™ provides advantages for pharmaceutical companies in the filling process of ready-to-fill syringes. The safety system is installed during the RTF process entirely automatically and fully checked for any punctures and positioning with a visual inspection. The syringes are then packaged into trays of 100 (nests) and tubs, including the safety system, and are then sealed and sterilized with ethylene oxide gas. They can be processed on existing filling lines without any additional preparation or assembly steps.

The design of the safety mechanism avoids inadvertent activation during filling, packaging, and transport. The flexible needle shield part is available in all standard market elastomers for pharmaceutical applications. With the introduction of the new product line, Gx® InnoSafe™ is available for the 1.0 ml long Gx RTF® glass syringe with ½" cannula. Further needle variants will follow.



The dangers of needlestick injuries

Injuries to medical professionals due to sharp objects are among the most common accidents they face at work. In at least half of cases, the objects causing the injury are contaminated with a patient's blood. Regardless of whether the injury was a stab, cut, or scratch to the skin or was caused by needles, knives, or similar objects, they are usually called "needlestick injuries" for the sake of simplicity. They present a serious risk to the person involved as a whole range of infectious pathogens can be transmitted, especially through patients' blood. Particularly significant in practice are the human immunodeficiency virus (HIV), which leads to AIDS (acquired immune deficiency syndrome), as well as the hepatitis B virus (HBV) and the hepatitis C virus (HCV). According to the joint initiative "Safety First", HBV is transmitted after a needlestick injury in 300 out of every 1,000 cases, HCV in 30 out of every 1,000 cases, and HIV in three out of every 1,000 cases.

EXPERT LECTURE

Maximilian Vogl
Product Manager
Injection Devices

Wednesday,
07th February 2018
10:50 a.m.

Market evolution of needlestick prevention systems to meet regulatory requirements

It is everyday life for health care workers to handle blood contaminated injection needles which leads in some cases to a contraction of serious diseases. It is estimated that there are about one million needlestick injuries in Europe every year.

In the last decade regulations have been implemented to improve the safety of the healthcare professionals. These regulatory requirements triggered the development of various systems to prevent needlestick injuries.

Latest legislative revisions imposed new challenges to be considered in terms of developing new products in this field. Gerresheimer aims to address these requirements by offering custom-tailored solutions for a wide range of applications.

Gerresheimer introduces metal-free syringe

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 offers a special metal-free syringe for these applications at booth 24A at Pharmapack 2018 in Paris.

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 the bore when the syringe cone is shaped. Especially for medications based on biotechnologically manufactured active ingredients, the 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, Gerresheimer has been able to address this requirement and creates a metal-free 1 ml long Luer Lock Gx RTF® syringe 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. The pin used to shape the cone with the new technology isn't made of conventional tungsten or an alternative metal, but of a special ceramic. External studies confirm that Gerresheimer 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.

Series-ready, metal-free 1 ml long Luer Lock Gx RTF glass syringe; transfer of the new production technology registered for patent to the most varied Luer Lock syringe sizes and Luer cone syringes is possible at all times.

The pin used to shape the cone with the new technology is no longer made from the tungsten usually used or an alternative metal, but instead of a special ceramic.

Gx RTF® ClearJect®:

Gerresheimer presents new COP syringes produced in Germany

The new Gx RTF® ClearJect® syringe is available in the 1 ml long size.

At Pharmapack 2018 in Paris at booth no. A24, Gerresheimer presents the first product of its newly developed Gx RTF® ClearJect® brand: a COP syringe with cannula. The prefillable, high-performance plastic COP (Cyclo-Olefin-Polymer) syringes made in Germany at the Pfreimd location are especially suitable for demanding, sensitive medications and high-viscosity agents. The new development reflects the combined knowhow of experts in prefillable glass syringes in Bünde, Germany and the plastic specialists at the Technical Competence Center in Wackersdorf, Germany.

Gerresheimer currently offers a range of prefillable COP syringes produced by long-time company partner Taisei Medical Co. Ltd. in Japan. Gerresheimer is assuming the sales and technical consulting roles for ClearJect® syringes for customers in Europe and the US. The company is now expanding its product portfolio of COP syringes and is combining the tried-and-tested RTF (ready-to-fill) concept of glass syringes with ClearJect to create the new Gx RTF® ClearJect® brand. In close cooperation with the company's Japanese partner, the new syringe will be produced at the German production facility (Pfreimd) of Gerresheimer Medical Systems. The first product of this line is a 1 ml long syringe with integrated cannula. Other formats will follow.

COP – a plastic alternative to glass syringes

COP is an interesting plastic alternative to time-tested glass syringes due to the growing demands of novel agents on their primary packaging. Medications for cancer therapy, for example, can be extremely aggressive to the point where the break resistance of a syringe is a decisive criterion for selection. Innovative biotech medications, on the other hand, are often effective in the smallest of doses and are frequently very expensive. Any interaction with the syringe material must be ruled out here. COP meets all of these requirements. Syringes made of this material are resistant to breaking, as transparent as glass and hardly interact with the packaged medications at all. Thanks to the use of injection molding, the design boasts especially tight tolerances. Its precise geometry also reduces dead volume, leaving behind less of the expensive medication in the syringe.

Key advantages for demanding medications

The new Gx RTF® ClearJect® syringe with cannula offers key advantages with regard to the primary packaging of demanding medications, especially when it comes to biocompatibility. The COP material does not release metal ions into the medication solution. Since the entire syringe including the insert-molded cannula is produced in a single step, the product is also free of tungsten and adhesives. COP has a high pH tolerance and, unlike glass, does not change the pH value while in storage. The oxygen permeation rate is low in comparison to other plastics, and the values for extractables and leachables are low. The syringes are siliconized with a precisely controlled amount of high-viscosity, and thus low-particle, Dow Corning 360 MD (12,500 cSt) silicone oil to ensure optimum functioning.

More end-user safety

Another important advantage of the Gx RTF® ClearJect® syringe with cannula is its end-user safety. COP is particularly break-resistant, making it suitable for packaging aggressive or toxic materials. Gerresheimer chose COP as the material for its new syringe due to these superior physical properties. Precise dimensions and siliconizing ensure reliable syringe functioning with low breakaway and gliding forces and minimal force required to pull-off the needle shield. The syringes are also excellently suitable for use in autoinjectors thanks to their ruggedness and precise geometry.

Economical thanks to commercially available components

This syringe system is economical thanks to the fact that the innovative COP syringe body is designed to use commercially available components throughout. This begins with the use of standard cannulas and continues with the piston rods, piston plungers, backstops and closure systems which can be used.

The new Gx RTF® ClearJect® syringe is available in the 1 ml long size. The design is inspired by ISO 11040-6 and registered. The syringe is equipped with a 27-gauge, 1/2-inch (12.7 mm), thin-walled stainless-steel cannula with three bevels.

Perfect Gx® Elite vials

presented by Gerresheimer at Pharmapack

Gx® Elite vials have set new standards for type 1 borosilicate glass vials. They are the result of comprehensive optimization measures in the conversion process, which have focused on designing out the risk to create product flaws during production including the removal of all glass-to-glass contact beginning with the tubing material all the way through final packaging. The chemical composition of the borosilicate glass is still the same. Gerresheimer will be showcasing Gx® Elite vials at booth A24 at Pharmapack in Paris (France) from October 7 to 8, 2018.

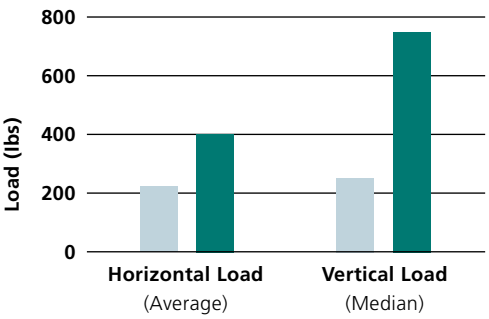
The best in its class

"Our Gx® Elite vials are setting new standards when it comes to quality," says Jens Heymann, Senior Vice President Europe & Asia Tubular Glass at Gerresheimer, underlining the major difference that avoiding glass-to-glass contact in the production process can have on vial quality. The highly shatter-resistant vials are extremely durable and free of cosmetic defects. They also boast an incredibly robust structure, while their resistance to delamination protects the drug inside. Simple handling and a range of packaging options ensure that Gx® Elite vials can be supplied for end-to-end use on various filling lines. For customers, this means lower costs and higher quality.

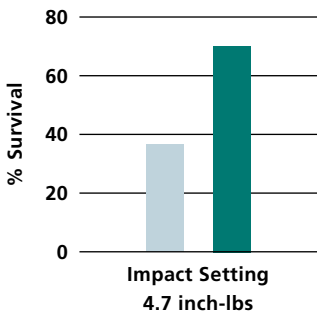
Intelligent defect recognition

All of Gerresheimer's tubular glass plants that produce vials work with standardized monitoring, inspection, and packaging technologies, which essentially comprise the Gx® G3 and Gx® RHOC systems. The inspection systems, for one, are developed in house and form part of a close-knit testing system that ensures the highest precision and quality assurance in line with the latest standards. Complete with five HD cameras, the Gx® G3 inspection system makes sure that cosmetic defects are identified reliably, for instance. The intelligent software detects and classifies the defects in a few fractions of a second, while the Gx® RHOC system ensures dimensional quality with three HD matrix cameras on each side and a hypercentric ID camera. Injection vials set the benchmark for primary packaging for parenteral drugs. Gerresheimer's vials come in all sizes and comply with the relevant international standards and pharmacopoeias (EP, USP, JP). The company's range includes solutions for bioengineered drugs and other specialist pharmaceuticals.

Compression Testing



Sidewall Impact Testing



Standard

Gx® Elite

Gx® Elite Vials are a step up from standard products, performing significantly better in compression and side impact tests.

Gx® RTF vials

Standardized platform for prefillable, sterile injection vials

Gerresheimer is presenting the new Gx® RTF vials in Paris at Pharmapack at booth no. A24. The customer can receive identically packaged sterile injection vials from two different manufacturers as Gerresheimer's RTF® vials will be delivered adopting Ompi EZ-fill® packaging process.

Two manufacturers – one packaging

Gerresheimer's two areas of expertise – the glass forming of vials from tubular glass and the ready-to-fill processing of prefillable glass syringes - will also be combined with recognized Ompi EZ-Fill packaging technology for the new Gx® RTF vials. The Gx® RTF vials are washed, packed in trays or in nests and tubs and sterilized before being delivered to pharmaceutical customers. They can then be filled straight away without the need for any further steps in the process.

"Our new injection vials meet our customers' increasing desire for comprehensive solutions. By setting up a standardized packaging platform for sterile vials, we are making the process much simpler for the customer," says Andreas Schütte, Member of the Management Board for Plastics & Devices at Gerresheimer.

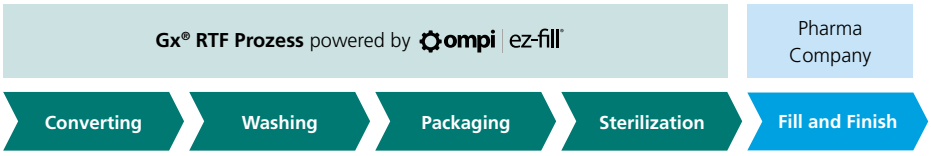
Flexibility through various packaging configurations

The new product currently exists in the 2R, 6R, and 10R formats in nests and tubs as well as in formats ranging from 4 to 13,5 ml in tray. Further formats will follow. The new packaging solution allows the vials to be used from the development phase of new medications to small or large-scale production.

"We are very happy that Gerresheimer is adopting our leading technology. Our scalable solution gives the customer more flexibility, enhances quality and safety, and reduces time to market", says Mauro Stocchi, General Manager Pharmaceutical Systems Division of the Stevanato Group.

Top quality requirements

The Gx® RTF injection vials are made from borosilicate glass type I. They meet all established requirements of the applicable ISO standards and pharmacopoeias (USP and Ph. Eur.). By using the Ompi EZ-Fill® packaging formats, the risk of glass-to-glass contact, which could result in breakages, cosmetic defects, and particle contamination is minimized.



50 years of Duma®

1967 Duma® Standard
1975 Duma® Special
1982 Duma® Rectangular
1989 Duma® MG
1992 Duma® Twist-Off
1992 Duma® Pocket
1998 Dudek™
2000 Duma® Twist-Off Q
2002 Duma® Combi
2004 Duma® Handy cap with embossing
2006 Duma® Twist-Off closure with integrated desiccant
2007 Duma® Handy cap with integrated desiccant
2010 Duma® OneLiner
2013 Duma® PET
2014 Duma® Twist-Off Advanced
2015 Duma® Twist-Off Protect
2015 Duma® Twist-Off CR/SF closure 2nd generation
2016 BioPack
2017 Duma® Pocket CR 100
2017 Duma® Pocket CR Box
2018 Duma® Standard CR

The renowned 50 ml Duma® Standard container has now been on the market for 50 years. Production of this successful model began on July 1, 1967 at Gerresheimer Vaerloese (Denmark) when it was the first HDPE container in the world to be used for solid pharmaceutical ingredients. Nowadays HDPE is the prevailing standard in the pharmaceutical sector for solid goods and the Duma® brand is found on the base of tablet containers around the world.

The Duma® product range has grown significantly over the last 50 years.

The broad spectrum of Duma® products ensures that the right container is always available, including for special applications. The range is complemented by a wide variety of closures and takes account of the requirements presented by the contents and the target group. The selection ranges from child-resistant and senior-friendly closures through to tamper-evident caps either with or without a desiccant. Alongside classic screw caps, a range of snap-on and dispenser systems is also available to enable different solids such as tablets, capsules, powder, and granulate to be filled too.

The Duma® Standard container has long since ceased to be in use in the field of pharmaceuticals alone. It is also popular in the consumer goods sector e.g. for vitamins, food supplements, and chewing gum and is available in many sizes and colors.

Duma® Pocket –

for drugs that you need to carry with you all the time

Patients prefer pharmaceutical packaging that does not give away its contents at first glance. With their oval shape, Gerresheimer's extremely handy Duma® Pocket containers look more like boxes of sweeteners, chewing gum, or peppermints. The Duma Pocket® is available in many different sizes and colors and with various closures. Gerresheimer is expanding its range of this tried-and-tested packaging with the addition of the 40 ml Duma® Pocket CR Box and the 100 ml Duma® Pocket CR 100 for large filling volumes.

The 40 ml Duma® Pocket CR Box has a child-resistant closure, which can be opened by applying moderate pressure to the sides of the box with one hand while opening the top with the other: a simple task for adults but not for tiny hands.

As the name suggests, the Duma® Pocket CR 100 can hold up to 100 ml. It also boasts an ergonomic design, a simple dispensing system, a child-resistant closure, and mounted desiccant(s) stored in its base. These impressive features make it an ideal primary packing solution for all kinds of drugs that need to be taken every day.

Duma® Standard container

now available with child-resistant Duma® Handy Cap made out of one component

Gerresheimer is to present its Duma® Standard CR (child-resistant) container with Handy Cap CR at Pharmapack in Paris. This is the company's first snap-on cap with child-resistant (CR) solution. The snap-on cap is a one-component system compared to more conventional child-resistant screw-cap solutions that are made of two components.

"I'm a father myself and I know how curious children are," says Niels Düring, Global Executive Vice President Plastic Packaging. "You have to be very careful because they'll play with anything they can get their little hands on. So it's vital for drugs to be supplied in childproof packaging."

Only the 40 ml version of the new Duma® Standard CR container is currently available with the Handy Cap CR. Other sizes can be supplied upon request.

Children experiment with everything and that includes medicines – mummy's tablets could well be some sort of tasty treat, after all. This means tablets should be stored out of the reach of children. This is much easier said than done, however. It is all too easy to leave a box of tablets behind on the kitchen table where your child can play with it.

Packaging like the new Duma® Standard CR container with its child-resistant cap is designed to prevent young children from getting hold of items like medicines that could be harmful to their health. Many products that could pose a threat to young children's health are required to incorporate a safety device under national and international law. ISO standard 8317 (2015) applies in Europe and US 16 CFR section 1700.20 in the U.S.

ISO 8317 (2015)

ISO 8317 (2015) is the international standard for reclosable child-resistant packaging. It governs both pharmaceutical and technical chemical products. The standard describes two test procedures, which any packaging to be tested must be subject to. One test run is with a group of up to 200 young children aged between 42 and 51 months. They must not be able to open the packaging, which is filled with a harmless replacement substance. At the same time, a test group of older people aged between 50 and 70 must be able to open and reclose it without imparing the child-resistant function. Packaging will only meet the requirements of ISO 8317 (2015) if the tests demonstrate that they are safe for children and user-friendly for the elderly, as defined in the standard.

Gerresheimer presents a new snap-on bottle for metering pump systems

It is often only the minor improvements that make a product ideal to use. Gerresheimer presents a new snap-on bottle, developed especially for snap-on spray and pump systems.

Nasal sprays are used to treat and look after your nose. The liquid is applied to the nasal mucous membrane as tiny aerosol particles by means of a spray system. To activate the system, the spray bottle opening is inserted into the nostril and one dose is released by pushing down the nebulizer.

"It's often the technical details that add the finishing touches to packaging," says Niels Düring, Global Executive Vice President at Gerresheimer Plastic Packaging, who, with the help of his team, will showcase an extensive portfolio of plastic primary packaging for solids and liquids to existing and potential customers at booth A24 at the Pharmapack in Paris.

Nasal spray hermetically sealed

The new snap-on 20 ml bottle for metering pump systems ensure nasal sprays are hermetically sealed, allowing the contents to be optimally protected against impurities until the sprays are used. With this new 20 ml snap-on bottle and our existing snap-on bottles we are now capable of delivering snap-on bottles for the most renowned metering pump systems in the market.

Under clean-room conditions, Gerresheimer produces different snap-on bottles made from HDPE for different spray and pump systems holding 10-20 ml. Other sizes, designs and materials can be made in accordance with customer requirements or specifications. They are produced using the injection blow molding (IBM) process.

PLASTIC CONTAINERS

New Plastic Packaging plant in Goias, Brazil

Gerresheimer Plastic Packaging is expanding its already strong presence on the South American market: The new Gerresheimer Anapolis plant has commenced production in the Brazilian state of Goias. In future, this is where the full range of plastic containers made from PP, PE, and PET will be manufactured, alongside their closures and caps. There are also plans to have the containers assembled and printed on here, providing the customer with a complete solution.

The new plant will initially operate over 3,200 square meters and will reach full capacity utilization in the course of 2018 with 30 machines. A further expansion to 20,000 square meters by 2021 is in the pipeline.

Gerresheimer Plastic Packaging thus has a presence in not one but two Brazilian states. Alongside Goias, Gerresheimer Plastic Packaging is also represented in the Sao Paulo region, where no fewer than three plants provide the full range of pharmaceutical primary packaging made from plastic. There is also a further Gerresheimer Plastic Packaging plant in the Argentinian city of Buenos Aires.

PEOPLE

Dr. Lukas Burkhardt new member of the Management Board at Gerresheimer AG

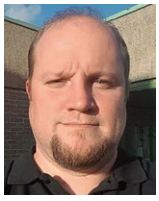
Dr. Lukas Burkhardt (38) has been appointed to the Management Board of Gerresheimer AG effective January 1, 2018. Lukas Burkhardt assumes responsibility on the Gerresheimer Management Board for the Primary Packaging Glass Division.

"In Lukas Burkhardt, we gain an outstanding leadership personality as a valuable addition to the Gerresheimer AG Management Board. He will be able to contribute his diverse international experience from a variety of industries very well to the Primary Packaging Glass Division," said Dr. Axel Herberg, Chairman of the Gerresheimer AG Supervisory Board.

Lukas Burkhardt studied mechanical engineering at ETH Zurich, where he also obtained his PhD. He began his career at Audi AG in Ingolstadt. From 2007 to 2014, he held various managerial positions within the Rieter Automotive Group, now the Autoneum Group, including six years in China and India. Most recently, he was in charge of all Asian plants as Head of Operations Asia. In 2015, he became Chief Operating Officer and member of the Group Management Board of the international Franke Group. There, he was responsible for production at more than 30 plants worldwide as well as for logistics, procurement, and process engineering and partly product engineering.

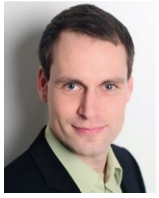
The Management Board of Gerresheimer AG now comprises Christian Fischer (CEO), Rainer Beaujean (CFO), Andreas Schütte (Plastics & Devices Division) and Lukas Burkhardt (Primary Packaging Glass Division).

Nicolas Zielinski is Senior Plant Director Operations Momignies Moulded Glass



Nicolas Zielinski has been appointed as Senior Plant Director Operations Momignies Moulded Glass in Belgium, effective from November 1, 2017. Together with Nicola Balena, Managing Director Momignies Moulded Glass and Senior Director Sales Cosmetic Europe & USA Moulded Glass, he takes over the leadership for the Momignies plant. Whereas Nicolas Zielinski will be responsible for all production areas, Nicola Balena will be responsible for New Product Development, Supply Chain and Administration.

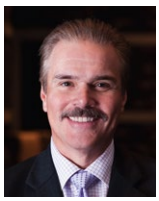
Management changes at our Tubular Glass plant in Wertheim



On December 1, 2017, Dr. Dirk Olbert was appointed as Plant Director & Managing Director Wertheim Tubular Glass. Dirk Olbert joined Gerresheimer in September 2016 as Production Manager Wertheim Tubular Glass.

On December 1, 2017, Lothar Haaf was appointed as Director Product Management Ampoules Europe Tubular Glass and gave up his responsibilities as Managing Director Wertheim Tubular Glass.

Norman Angel, Moulded Glass USA, leaves the company



On December 31, 2017, Norman Angel left after working at Gerresheimer for nearly 39 years. With his departure, an exceptional leader and manager, glass expert, and role model for One Gerresheimer is leaving the company.

If one would ask for an expert to write a book about the American glass industry, you could hardly find anyone better suited for that than Norman Angel. In his nearly 39 years in the industry and with Kimble Glass and Gerresheimer he has shaped a large part of the primary packaging glass industry in the US. In that time he has seen up's and down's in the industry, but his forward looking, optimistic and energizing attitude has always been very inspirational.

GERRESHEIMER

WORTH A READ

The prefillable solution – how packaging solutions can help in an innovative drug landscape

European Pharmaceutical Manufacturer, Vol. 17, No. 7, October 2017, pp. 40–41

The field of prefillable syringes is constantly changing, driven by the innovations in active ingredients and patient safety at affordable costs. Here Bernd Zeiss, Manager Technical Support Medical Systems, Business Development at Gerresheimer reveals the challenges and how packaging solutions can help.

www.epmmagazine.com/opinion/the-prefillable-solution-%E2%80%94-how-packaging-solutions-can-help-/

Tungsten in the production of prefillable syringes – Also possible without tungsten

International Pharmaceutical Industry, Autumn 2017, Vol. 9, Issue 3, pp. 124–126

The reduction of tungsten and the metal-free production make a big contribution to making pre-filled syringes safer. The prefillable syringe can thus be used even more broadly and is even better suited for sensitive biotech drugs. In past years, Gerresheimer has already made a decisive contribution to the improvement of sterile, pre-fillable syringe systems with other innovations.

www.ipimediaworld.com/tungsten-production-prefillable-syringes-also-possible-without-tungsten/

A variety of solutions to ensure formulation protection

DOSES No. 68, July–September 2017, pp. 92–98.

Opthalmic care is a strong-growth segment. Pharmaceutical labs are working on new solutions to stand out, while also turning towards packaging solutions that may protect their formulations without using preservatives. If drops remain the main delivery form, the delivery method itself has changed.

GERRESHEIMER

EVENT-CALENDAR 2018

FEBRUARY 07–08, 2018
Pharmapack Europe
Paris, France
Paris Expo Porte de Versailles
Booths A20 & A24

FEBRUARY 08–10, 2018
Asia Pharma Expo Dhaka
Dhaka, Bangladesh
International Convention City Bashundhara (ICCB)
Booth 123

FEBRUARY 27–28, 2018
PDA Europe Parenteral Packaging
Rome, Italy
Booth 36

MARCH 19–22, 2018
DCAT Week
New York, New York (USA)

MARCH 19–21, 2018
PDA Annual Meeting
Orlando, Florida (USA)
Loews Sapphire Falls Resort
Booth 518

MARCH 27–29, 2018
CPhI South East Asia
Jakarta, Indonesia
Jakarta International Expo
Booth H13

APRIL 11–14, 2018
China Medical Equipment Fair (CMEF)
Shanghai, China
National Exhibition and Convention Center

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