

UPDATE.30

GERRESHEIMER

Customer Newsletter
February 2020

Drug Delivery & Packaging
Pharmapack

Hall 7.2 | Booth B60/64

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**Polymer syringes for demanding,
sensitive medications**

Gx RTF® ClearJect® 2.25 ml and 1.0 ml long

**New Center
of Excellence
for injection and
infusion bottles**
Type II glass



**Sustainable glass
and plastic packaging**



**Platform solutions and
fully customized devices
for patch and infusion pumps**



**Best in class for
optimal processing**

Gx® RTF vials
Gx® Elite vials



Workshop at Pharmapack: packaging and administering biologicals safely and securely

Which glass and plastic primary packaging and which administration systems are suitable for newly developed drugs, such as biologicals, and therapies? What do chronically ill patients need to be able to take care of themselves reliably on an ongoing basis? These and many related questions will be answered by Amir Tahric and Maximilian Vogl in their workshop at Pharmapack on February 6, 2020 at 10 a.m.



The pharmaceutical industry is focusing on new therapies. Personalized treatment such as cell therapies, new biomolecules, and drugs for rare diseases are playing a key role in new approaches. This is why smaller batch sizes are often requested for filling. In addition, bottled products are sensitive to their storage environment, the container. Containers therefore need to be individually adapted to the application. The ongoing shift of treatment

away from hospital and toward the patient's home relies on user-friendly administration systems like auto-injectors and injection pumps.

The aim of the presentation is to provide participants with more up-to-date knowledge about the current state of development for new drugs and therapies. In the practical part of the workshop, the advantages and disadvantages of existing and new delivery strategies will be evaluated. They will then be aware of the new requirements that can be used to find the best possible solution for new developments in future.

The speakers



**Maximilian
Vogl**

As Global Head of Product Management Gx® Solutions Maximilian Vogl is part of the Sales and Engineering Center of Gerresheimer Medical Systems. He focuses on market analysis and new product developments in the field of injection devices for drug delivery as well as primary packaging for parenterals. Maximilian Vogl studied engineering, patent management and innovation management at University of Applied Sciences Amberg-Weiden, Germany.

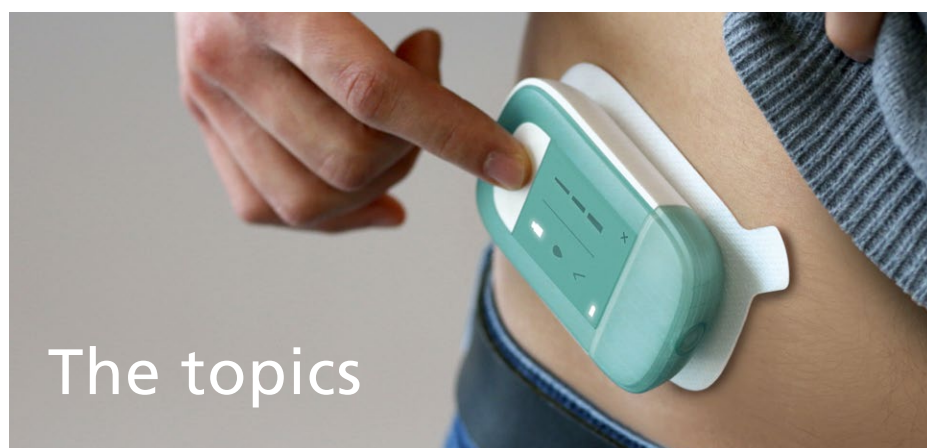


**Amir
Tahric**

As Vice President Business Development at Sensile Medical AG, a Gerresheimer Group company, Amir Tahric is responsible for communications with the pharmaceutical industry aimed at combining the drug with the device and providing patients with an injection pump that is straightforward to use. He has many years of professional experience in developing and producing sophisticated products for the medical and pharmaceutical sector.

The topics

- **Wearables** – pumps worn on the body to deliver higher volumes and doses
- **Polymer Syringes** to reduce drug-container interaction
- **Silicone-free glass and polymer syringes** for sensitive drugs
- **Ready-to-fill vials** for greater flexibility
- **Syringes:** integrated safety device for the simple and inexpensive implementation of statutory safety requirements



TUBULAR GLASS

Top quality Gx® RTF Vials

From clinical phase to industrialization

At Pharmapack in Paris, Gerresheimer is presenting its new Gx® RTF vials product offering for injectables. Gerresheimer offers both its own packaging, as well as the familiar Ompi EZ-fill® packaging design.

Gx® RTF vials – ready for filling

The Gx® RTF injection vials of type I borosilicate glass are manufactured in accordance with cGMPs, washed in a cleanroom, processed through a depyrogenation cycle, and then packed for sterilization. Gerresheimer offers its own final packaging solutions as well as the industry known Ompi EZ-fill® packaging designs. This means the vials are ready for the next steps in the filling process without any further and/or additional handling by our customers. The benefits are obvious: sterile delivery, the highest quality standards, flexibility for the customer thanks to various possible packaging options, a simplified fill and finish process, and a wide range of filling and sealing technologies adapted to the packaging configurations. Multiple RTF manufacturing locations will also enable Gerresheimer to adapt to individual and specific market requirements. These benefits all lead to a significant reduction in our customer's total cost of ownership across the product's lifecycle and provide improved patient safety.

Flexibility through various packaging configurations

The Gx® RTF injection vials are offered in Gx® Elite, Gx® Armor and Gx® Pharma Plus quality formats to help meet or exceed any customer or industry quality requirements. RTF packaging solutions offered with the Ompi EZ-fill® packaging platforms further enhance the finished product quality performance by preventing glass-to-glass contact, which could result in glass breakage and the creation of cosmetic defects.

The new packaging formats allow customers to use Gx® RTF vials to support their operation in all phases of drug and product development of new medications and into small or large-scale commercial production:

- Ompi EZ-fill® nest & tub packaging products that offer 2R, 6R, and 10R vial formats.
- Specialized tray packaging formats that support all tubular glass products sized from 2ml to 30ml (clear and amber).
- Additional packaging solutions that will support moulded glass products sized from 5ml to 50ml (clear and amber).



Intelligent defect recognition

All of the Gerresheimer tubular glass plants that produce RTF vials work with standardized monitoring, inspection, and packaging technologies, which consist of the Gx® G3 and Gx® RHOC systems. The inspection systems are developed by Gerresheimer Global Engineering and form a highly specialized vial testing platform that ensures the highest precision and quality assurance requirements for our customers glass packaging. Complete with an enhanced, integrated system of modern HD cameras, the Gx® G3 inspection system makes sure that cosmetic defects are identified reliably to support the production and quality control processes. The intelligent software detects and classifies the defects in a few fractions of a second, while the Gx® RHOC system ensures dimensional quality with HD matrix cameras and a hyper centric ID camera.

Parenteral applications

Injection vials set the benchmark for primary packaging for parenteral drugs. Gerresheimer vials come in many sizes and fulfill all international standards and pharmacopoeia requirements. The company's application range includes custom solutions for high value products for combination healthcare devices, bioengineered and branded drugs, and other specialized pharmaceutical applications.

Gx® Elite Vials

top quality injection vials for greater patient safety

The Gx® Elite vials have set new standards for type I borosilicate glass packaging. They are the result of comprehensive improvement and optimization measures in the tube draw and vial forming processes. These high-end tubular glass vials are Gerresheimers' response to increasingly stringent customer demands and expectations on the pharmaceutical market including greater demands for patient safety.

Extremely durable and free of cosmetic defects

"The Gx® Elite vials are the result of a quality by design approach that spanned several years. The primary focus for Elite Glass products was to provide the safest product for our customers and patients. This effort has impressed our customers," says Hans-Ulrich

Pieper, Director Sales Pharma Parenteral Solutions Europe & MENA PPG. The highly shatter-resistant vials are extremely durable, free of cosmetic defects and can be customized for specialized customer requirements. Gx® Elite Glass vials are produced using state of the art manufacturing platform with proprietary technology that creates a product that will exceed customers' expectations. A specialized combination of design, manufacturing and handling improvements along with customized final packaging ensures that Gx® Elite vials can be supplied for end-to-end improvements on all filling line applications. These types of advancements make it possible for customers to supply products to the market as needed and reduce costs for the industry, which will ultimately help everyone.



SYRINGE SYSTEMS

Production for the new 2.25 ml COP syringe SIN (staked in needle) started

Gerresheimer expands the Gx RTF® ClearJect® product line



Gx RTF® ClearJect® polymer needle syringe
(left 2.25 ml, right 1.0 ml long)



Low interaction potential with the medication

COP does not release tungsten metal ions into the medication solution as glass syringes can, which is a major concern for some. Since the entire syringe, including the insert-molded needle, is produced in a single step, the product, hence becomes free of tungsten and adhesives. The material has a high pH tolerance and the pH value does not change while in storage.

Safety and reliable functionality

Another important argument in favor of the Gx RTF® ClearJect® needle syringe is its end-user safety. COP is particularly break-resistant, making it suitable for packaging aggressive or toxic materials. The syringes are siliconized with a precisely controlled quantity of the highly viscous Dow Corning 360 MD (12,500 cSt) silicone oil, in order to ensure reliable syringe functionality with low breakaway and sliding forces with the lowest possible particle load.

Precision and flexible design

Production in the injection molding process ensures precise dimensions. The dead volume in the syringe is also minimized, reducing overall waste of the costly drugs. The material enables a broad range of design options, which make it ideal for customer specific requirements. The syringes are also engineered for use in autoinjectors thanks to their robustness and precision.

Economic efficiency through standard components

This syringe system, like the 1.0 ml syringe, is economical thanks to the fact that the innovative COP syringe body is designed to use commercially available standard components throughout. This starts with the use of standard cannulas and continues with the piston rods, piston plungers, backstops and closure systems used. The product platform will be expanded step by step.

Gerresheimer is expanding its range of pre-fillable polymer syringes to include a new product: the Gx RTF® ClearJect® polymer needle syringe, 2.25 ml. Like the 1.0 ml long syringe, this syringe will be produced in Pfreimd, Germany.

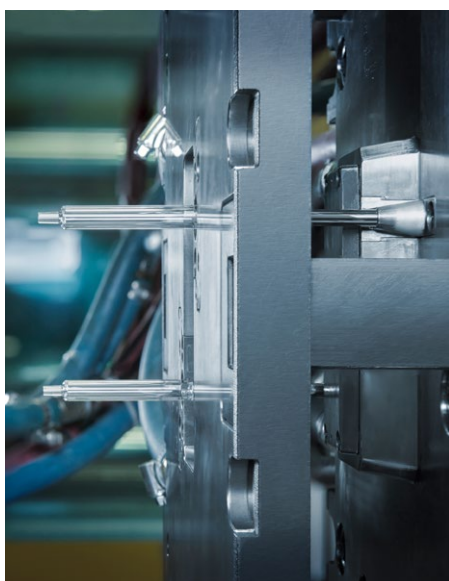
The material used for the syringe is a high performance polymer called COP (Cyclic Olefin Polymer). Due to its inert properties it is suitable for use as primary packaging for sophisticated medications, especially for sensitive, biologicals, biosimilars, and biobetters. The product was developed in close cooperation between two Gerresheimer locations in order to create synergy between the syringe experts in Bünde and the plastic experts in Wackersdorf, Germany.

The Gx RTF® ClearJect® COP SIN of Gerresheimer Bünde GmbH is now available in the sizes 1.0 ml long and 2.25 ml. 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 needle with three bevels.

MEDICAL SYSTEMS

Primary drug containers for needle-free injection

Gerresheimer and Portal Instruments develop an innovative primary packaging



Injection molding of cartridge body

Together with Portal Instruments (Boston, USA), Gerresheimer Medical Systems has developed an innovative primary drug container for use in needle-free automatic injection system. The cartridge-like container, made of the high-performance polymer COP (Cyclo Olefin Polymer), serves as the primary packaging for the sensitive active agent and is equipped with a nozzle, with which the hair-thin jet of medication is generated for the injection.

Automatic injection systems play an increasingly important role in the treatment of chronic illnesses. Patients can administer medication themselves at home with these devices and thus save the frequent trip to the doctor's office. When the injection then also takes place directly through the skin without a needle, many people find it much easier to follow the prescribed treatment. Portal Instruments has developed a needle-free automatic injection system, the injection jet of which is considerably thinner than that of the usual cannulas, and which can inject even viscous medications through the skin in less than a

second. The device is also networked through the Internet, so that the correct treatment can be monitored by the patient, and possibly also by the physician.

Gerresheimer, together with Portal Instruments, has now developed a drug container that fulfils the high demands of the medication and the injection procedure. Portal Instruments decided in favor of Gerresheimer as a development partner because the company possesses know-how in the development and production of syringes of COP. "For this project, we were able to access our experience from our own product, the polymer syringe Gx RTF® ClearJect®, and develop a customized solution on this basis," Manfred Baumann (Global Executive Vice President Sales & Marketing, Administration & TCC, Management Board, Gerresheimer Regensburg GmbH) explains.

Most modern, highly effective medications are today manufactured with biotechnological methods. These sometimes very expensive medications make especially high demands of their primary packaging. COP is often used as a material for pre-fillable syringes and cartridges. The unbreakable, clear-as-glass material hardly interacts with the highly sensitive active agents and is therefore well-suited for the storage and administering of the medication.

Especially challenging in the project was the development of the nozzle and its fastening in the cartridge. The nozzle is a micro-injection molding part with an inner diameter smaller than 200 µm. The connection with the cartridge body is generated via laser welding as it is an adhesive-free solution that eliminates the possibility of chemical contamination of the medication solution. However, the laser welding of two transparent components (Clear to Clear) is especially challenging and care needs to be taken not to deform the precise nozzle by the heat generated from the laser. Mold making, production of the syringe body, and of clinical samples took place at the Gerresheimer location in Wackersdorf.



Left: Injection molding of cartridge body

Right: Clear-to-clear laser welding of the two transparent components cartridge body and nozzle

Above: Packaging in Tyvek-sealed 160-unit standard nests/tubs

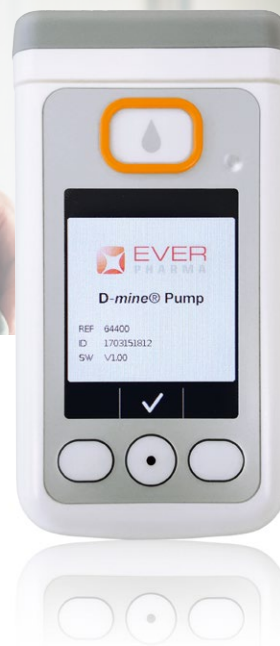
About Portal Instruments

Portal Instruments develops administering systems for the creation of a commercial, networked platform for the needle-free administering of medication for the treatment of chronic illnesses. With an innovative, needle-free injector with connectivity, analysis, and digital accompaniment, Portal wants to improve patient experiences and results. The company has entered into a pioneering partnership with the Japanese pharmaceuticals company group Takeda in order to bring this vision onto the market with a combination of medication and administering systems in the segment of inflammatory intestinal disorders.

ADVANCED TECHNOLOGIES



Innovative micro-infusion pump from Gerresheimer subsidiary Sensile Medical for EVER Pharma



Developed specially by Sensile Medical for EVER Pharma under the brand name *D-mine*®, this wearable micro-infusion pump has already been launched in several European countries. The compact, patient-friendly infusion pump is used for the continuous subcutaneous administration of drugs to treat Parkinson's disease. The first micro pump from Gerresheimer subsidiary Sensile Medical to be available on the market, it gives Parkinson's patients greater independence in their day-to-day lives.

The *D-mine*® pump is used to administer apomorphine in the advanced stages of Parkinson's treatment. Simple handling, safety, and ease of use were the main aims behind the development. The compact design is down to Sensile Medical's special micro-rotation pump technology and is straightforward to use thanks to an intuitive menu interface.

Parkinson's patients often have difficulty moving and appreciate the pump's ease of use, such as the automatic dosing function, the lack of complicated flow rate calculations, and the intuitive menu system. Its integrated choice of languages and the full-text display

on its color screen make it easier to learn the ropes, while modern technologies such as data storage and individually adjustable basal rates support better treatment management. The *D-mine*® pump comes with a specially designed charging station and does not need any conventional batteries.

With its brand of the Parkinson's drug apomorphine and its own medical product, EVER Pharma now offers a comprehensive treatment package. You can find more information at www.d-minecare.com.

PLASTIC PACKAGING

Gerresheimer is expanding its production output worldwide



Gerresheimer has over 35 sites in Europe, the Americas, and Asia making specialty packaging from glass and plastic. Not long ago, in December 2019, the company opened two more plants in China and India to manufacture plastic primary packaging for pharmaceutical products. This will enable it to offer its customers in this major region the best possible supply service.

"We have production facilities in North and South America, China, India, and Europe," explains Niels Düring, Global Executive Vice President Plastic Packaging. "This puts us in an ideal position to look after our customers in all key parts of the world and provide them with pharmaceutical packaging made from plastic." The new Chinese plant in the city of Changzhou was officially opened on December 11, 2019, with its Indian counterpart in Kosamba following suit five days later. Leading Brands for pharmaceutical packaging

Leading brands for pharmaceutical packaging

As a leading specialist in plastic packaging for the pharmaceutical industry, Gerresheimer offers a wide range of packaging solutions for solid, liquid, and ophthalmological products. The comprehensive and innovative portfolio includes the leading brands Duma, Dudek, and Triveni for solid dosages, the edp-branded PET bottles for liquid dosages, and products for ophthalmological applica-

tions. The broad-based standard range encompasses all manner of different containers and closures, PET bottles, eye droppers, nasal sprays, and vaporizers as well as countless customizations.

High quality standards

The manufacturing process at all Gerresheimer Group plants complies with the same strict European and U.S. standards. With its zero-defect strategy, the company aims to ensure the highest possible quality in both its products and its processes. Gerresheimer is also developing sustainable concepts based on recycled plastic and BioPack, a plastic made of sugarcane.

GMP and cleanrooms

In its facilities in Europe, Asia, and the Americas, Gerresheimer produces plastic packaging in accordance with the GMP standard in class 7 and 8 cleanrooms as well as under less stringent controlled conditions. All plants are ISO-certified. A global database containing specifications for all standard products guarantees a uniform manufacturing process for the company's packaging, which is registered with the FDA and licensed in accordance with global regulations such as the U.S. and Canadian Drug Master Files (DMF) of the various pharmacopeias. The products are also registered for Russia, China, and Ukraine.

The ceremonial openings of the Kosamba plant (above) and the Changzhou plant (below) in December 2019.



MOULDED GLASS



Type II glass injection and infusion bottles for parenteral applications

Gerresheimer Essen (Germany): new Center of Excellence for making type II glass

As a leading provider of specialty pharmaceutical packaging, Gerresheimer also specializes in manufacturing pharmaceutical containers made from type II glass. Two hardening and tempering methods allow extremely small injection bottles as well as typical infusion bottles with larger volumes to be produced. Guaranteeing the quality and hydrolytic resistance of the type II glass is the top priority here. The company is defending its leading position by introducing innovative furnace technology, expanding its cleanroom, and introducing automation and digitalization to its testing and packing lines.

"Our customers want safe, flawless products from us. So, we need to make sure that we have the best possible production process, even before hardening and tempering the inside of the type II glass, by monitoring the situation constantly and intervening where required," says Silvio Carriço, Senior Product Manager Pharma, Food, & Beverage.

Center of Excellence specializing in making type II glass

For many years now, Gerresheimer has produced pharmaceutical bottles made from type

II glass for drugs administered parenterally by injection or infusion. After overhauling and upgrading its clear-glass furnace in Essen, two new production lines were opened that will mainly be used to make type II glass and link directly to the newly expanded cleanroom. As a Center of Excellence for type II glass for the whole of the Gerresheimer Group, the site will focus on further increasing its capacity and expertise, supplemented by sizable investment in state-of-the-art self-learning testing lines, among other things. Gerresheimer is thus reinforcing its position as an innovative provider of parenteral solutions.

MOULDED GLASS



Type II glass – perfect for parenteral applications

Type II glass is a form of soda-lime glass, also called soda-lime-silica glass, by far the most common kind produced industrially. As the name suggests, its main ingredients besides sand are soda (sodium carbonate) and lime (calcium oxide). Type II glass is subject to a

special surface treatment process known as interior hardening and tempering that makes its surface less prone to leaching caused by alkaline solutions. It is the best option for most parenteral drugs.



You can now walk straight from the type II glass production line into the cleanroom.

Prevention is better than cure

At Gerresheimer, the emphasis is on preventing errors – rather than picking up on them later. The specific requirements are taken into account at an early stage, right when the glass is melted. Special materials are used for this process, such as fused-cast alumina

blocks. Among other things, these ensure that the stringent quality requirements made of the glass can be met reliably. The automated monitoring of drop formation and insertion into the tool close the loop, ensuring end-to-end control of the glassmaking process.

PEOPLE

Gilles Bennardo has been appointed as Plant Manager Chalon Tubular Glass


Gilles Bennardo has been appointed as Plant Manager Chalon Tubular Glass effective from December 1, 2019. Before joining Gerresheimer Gilles held the position of Plant General Manager at AMCOR in Chalon, France. Prior to that he worked for Orangina Suntory and at Smurfit Kappa, both positions at Plant Manager.

Wolfgang Kern has been appointed as Global Senior Director Program Management Medical Systems and Sensile Medical Global Pump Group


Wolfgang Kern has been appointed as Global Senior Director Program Management Medical Systems and Sensile Medical Global Pump Group, effective since December 1, 2019.

Wolfgang joined the company in Wackersdorf in November 2007 as Senior Project Manager and later as Head of Project Management. In his last function he was Global Director Program Management Medical Systems.

Ralf Kürschner has been appointed as Global Senior Director Development Medical Systems and Sensile Medical Global Pump Group


Ralf Kürschner has been appointed as Global Senior Director Development Medical Systems and Sensile Medical Global Pump Group, effective since December 1, 2019.

Ralf joined Gerresheimer in Wackersdorf in August 2012 as Head of Development. In his last function he was Global Director Development Medical Systems.

Sustainable packaging solutions



Conscious of our obligations to the circular economy

By using materials in a way that conserves resources, avoiding waste and developing new sustainable products, Gerresheimer is working toward global environmental targets such as the climate protection and the pollution of the oceans. Consumers are placing great importance on sustainable packaging products, specifically – and increasingly – on sustainable packaging solutions that can be disposed of in an environmentally friendly way. At Gerresheimer, therefore, innovation and environmental protection go hand in hand.

We are conscious of our obligations to the circular economy and use recycled materials to make plastic and glass packaging for pharmaceuticals. There are also regulatory restrictions, such as the use of prescribed resins and approval requirements, particularly for primary pharma packaging. Gerresheimer has presented its first corresponding product innovations and is promoting them to its pharma and cosmetics customers.

... from glass



In the production of pharma jars and glass cosmetics packaging, large quantities of recycled glass (cullet) are used as a substitute for raw materials. This is sourced out of the Group's own internal material cycle and, subject to controls, from household recycling (Post Consumer Recycled glass – PCR glass).

Cullet is deployed where it is available in suitable quantities, there is no compromise to end product quality, and there are no pharmaceutical or cosmetic regulatory requirements to restrict its use. In the production of Type III glass for pharmaceutical primary packaging Gerresheimer can currently use up to around 60% cullet for amber glass and up to around 50% for flint glass. Cosmetics packaging made of glass can contain up to about 30 % recycled glass. The higher the proportion of recycled glass used, the less energy is required for production. The use of recycled

glass also helps to save natural resources, as glass is made from quartz sand, sodium carbonate and calcium oxide as well as dolomite, feldspar, potash and iron oxide for colouring.

As well as having our own, internal cullet cycle, we work with suppliers such as glass tubing producers. This enables us to return borosilicate glass cullet from our glass molding process to glass tubing producers who then use this to make new borosilicate glass tubes.

Cosmetic flacons made of PCR glass

Our cosmetic glass plant in Momignies (Belgium) has been using PCR glass for more than ten years and has been able to successively increase the percentage of cullet during this time, thus reducing energy consumption. The clear-glass furnace in Momignies turns recycled glass into cosmetic glass around the clock



and the whole year. Our cosmetics site in Tettau (Germany) ran the first PCR glass campaign in 2019. As part of its commitment to circular economy, Gerresheimer has worked hard to reduce the proportion of raw materials (sand, calcium oxide, and sodium carbonate) used in its flint glass to just 45 % of the materials melted in the furnace. The glass composition has been audited and certified by Belgian company RDC environment, which also completed a full life cycle assessment (LCA) of Gerresheimer's recycled glass.

This LCA was then reviewed by Quantis, expert in sustainability for cosmetics packaging. They also meet the requirements of the EU legislation and the newly established Spice Initiative.

INNOVATION AND ENVIRONMENTAL PROTECTION

... from plastic



PET and R-PET – making new from old

Most pharma and healthcare products are packaged in bottles and containers made from polyethylene terephthalate, or PET, as the material is lightweight, versatile, easily moulded, and shatterproof. New packaging products can be manufactured from used PET, also known as R-PET (i.e. recycled polyethylene terephthalate).

Gerresheimer offers its PET ranges with various mixtures of post-consumer recycled (PCR) materials and can produce containers made from up to 100 percent R-PET.



Stackable bottles – form follows function

Gerresheimer has developed a new, refillable plastic bottle made on behalf of a major customer. The bottle has straight edges like a cube, offering four sides. The result is impressive: a container that is exceptionally lightweight for this volume and can be stacked on top of one another in a simple and space-saving manner thanks to a recess in the bottom, which in turn reduces the CO₂ emissions during transport.

BioPack – innovation and environmental protection go hand in hand

Right from the outset, BioPack containers are made from sustainable, renewable biomaterials such as sugarcane. First, the ethanol is extracted from the sugarcane plant, before being dried and dehydrated to transform it into green ethylene. This then goes to the polymerization plants, where it is converted into green polyethylene (PE) or PET. Under the name BioPack, Gerresheimer has launched a broad spectrum of plastic packaging for drugs and cosmetics made of biomaterial instead of conventional PE or PET. Innovation and environmental protection go hand in hand.



CUSTOMER SURVEY 2020

Join it!



You are in demand again – February is the time! We are once again conducting a global customer survey and would like to ask you to tell us what you think about the cooperation with Gerresheimer. The aim of this study is to better understand your needs and to gain insights for the continuous improvement of our service. B2B International, an international full-service market research institute, will support us in the survey and provide you with a link to the online survey. The questionnaire will be offered in 8 languages and participation will take 15–20 minutes. Please take your time and let us know your opinion. **Thank you for your support!**

EVENT CALENDAR

FEBRUARY 05–06, 2020

Pharmapack Europe

Paris Expo, France
Porte de Versailles
Hall 7.2 | Booth B60, B64

FEBRUARY 11–13, 2020

MD&M West

Anaheim, CA, USA
Booth 2577

FEBRUARY 25–26, 2020

PDA Europe Parenteral Packaging

Basel, Switzerland
Congress Center | Booth 16

FEBRUARY 28–29, 2020

Asia Pharma Expo

Dhaka, Bangladesh
Booth D-108

MARCH 04–06, 2020

CPhI South East Asia

Impact, Bangkok, Thailand
Booth Z04

MARCH 23–27, 2020

DCAT Week

Lotte New York Palace
NY, USA

MARCH 30 – APRIL 03, 2020

PDA Annual Meeting USA

Raleigh, NC, USA

APRIL 14–17, 2020

Korea Pack

Kintex, Korea

APRIL 28–30, 2020

Interphex (PDA)

New York, NY, USA
Jacob K. Javits Convention Center
Booth 1420

MAY 05–07, 2020

CPhI North America

Philadelphia, PA, USA
Pennsylvania Convention Center
Booth 912

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© Design und Redaktion Gerresheimer Group
Communication & Marketing
Klaus-Bungert-Straße 4 | 40468 Düsseldorf,
Deutschland

Jens Kürten

Phone: +49 211 6181-250
jens.kuerten@gerresheimer.com

Dr. Cordula Niehuis

Phone: +49 211 6181-267
cordula.niehuis@gerresheimer.com

Marion Stolzenwald

Phone: +49 211 6181-246
marion.stolzenwald@gerresheimer.com



ECO-friendly plastic packaging

From sustainable and
renewable biomaterials
and R-PET



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