



Hans J. Michael GmbH



## SPETEC® cleanroom cell



Cleanroom technology can be used in the manufacture, packaging and storage of dust-sensitive mechanical and electronic components and wherever a particle-free environment is needed.

Spetec GmbH has now extended its cleanroom offering to encompass three different cleanroom concepts. This means that it is possible to implement solutions for the whole range of requirements, from inexpensive installations right up to top-class cleanrooms compliant with the GMP guidelines for the pharmaceuticals industry.

The cleanroom cell consists of anodized aluminum profile sections and can be set up in any laboratory, production room, production hall or office without the need for any special construction work. And a complete cleanroom workstation can also be installed in the cleanroom cell. The use of profile systems allows customers to freely choose the dimensions of the cleanroom anywhere between 3 m<sup>2</sup> and around 350 m<sup>2</sup>.

The cell itself is enclosed by an odorless plastic strip curtain or side panels made from acrylic or laminated glass or aluminum sandwich panels, resulting in a self-contained unit. Other optional features are also available, such as electric sliding doors or airlocks for material or personnel, which can be fitted with a mutual locking system if required.

The effective cleanroom area can be varied by combining individual laminar flow modules of different sizes. This means that it is even possible to integrate assembly lines or conveyors in the cleanroom cell.

The SPETEC® cleanroom cell uses H14 filters with

a cleanroom classification of 100. These have a filtration efficiency of 99.995 %. This means that the filter captures at least 99.995 % of all particles of a size of 0.12 µm (as per MPPS). The filtration efficiency is approx. 99.9995 % for particles with a size of 0.3 µm. This laminar airflow below the flow modules means that there is no crossover with dirty air from the outside.

Using a SPETEC® cleanroom cell can, for example, reduce the particle concentration from approx. 15 million/m<sup>3</sup> (at a size of 0.12 µm, MPPS) to approx. 1,500 particles within the unit. This corresponds to the cleanroom class 5 as per DIN ISO 5 or class 100 as per US Federal Standard 209E.

It is also possible to meet the requirements of ISO classes 6 through 9 (DIN ISO 14644-1) and classes A through D of the GMP standard. This means that, depending on the precise requirements, SPETEC® cleanroom cells can be custom built and adapted to meet the customer's needs.



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Dear readers, dear subscribers,

now it's the beginning of May 2016 and we have a lot of interesting news and a lot of interesting events for your appointment calendar.

So the amount of the German and the International newsletters is constantly growing. We hope, we can give you with this information a good help for your daily work and your planning tasks.

Yours sincerely,  
  
 Reinhold Schuster



The map shows where the readers of the cleanroom online newsletter are coming from: if you want to get in contact with these readers please contact us.



**NEW**

If you click at this sign in the pdf-document you will easily get more information in the internet



Cherwell's extensive product range for passive and active environmental monitoring.

Focus on Microbiological Contamination Control & Risk in Pharmaceuticals, Cosmetics & Toiletries

# Cherwell Supports Pharmig PCT Microbial Risk Event

Cherwell Laboratories, specialist suppliers of products for environmental monitoring and process validation, will be supporting Pharmig and the Cosmetic, Toiletry & Perfumery Association (CTPA) at their upcoming event: Microbiological Contamination and Risks for Pharmaceuticals, Cosmetics and Toiletries (PCT).

The event, being held at The Oxford Belfry on 21st April 2016, will see leading industry experts addressing key issues such as: microbial risks from utilities; environmental cleaning and disinfection protocol; objectionable microorganisms in cosmetics, as well as validation as an integral part of cosmetic GMP.

As members of Pharmig, Cherwell Laboratories aim to contribute to the discussions, as well as being on hand to offer practical advice and solutions tailored to meet individual customers' specific microbiological monitoring and validation requirements. A selection of Cherwell's comprehensive range of products - designed for environmental monitoring, process validation applications and validation of sterilisation processes - will also be on display.

With over 40 years' experience in the industry, Cherwell has built a strong reputation for providing an extensive range of products for both passive and active environmental monitoring. Suitable for air

and surface sampling, the Redipor® prepared microbiological media range is available in a variety of formats, including contact plates, Petri dishes and liquid media. Available for active environmental monitoring, SAS microbial air samplers utilise standard agar contact plates or Petri dishes. This range includes hand held air samplers, plus specialist systems for compressed air monitoring, isolator monitoring and filling line monitoring.

Andrew Barrow, Sales Manager at Cherwell Laboratories, commented, "We recognise how important it is for microbiologists and quality specialists to keep up to date with regulatory and safety requirements of good manufacturing practice for cosmetics and toiletries. This meeting provides the opportunity to learn and share such information, so we look forward to supporting and attending the event, as it also allows us to offer practical advice and solutions to meet any specific microbiological requirements."

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New construction represents an important component of a previously announced investment strategy

# Creation of a new 70 million euro Vetter production building

Vetter, a leading global contract development and manufacturing organization (CDMO) for the development, commercial manufacturing and final packaging of aseptically prefilled drug-delivery systems, today announced the construction of a new building at a ground breaking ceremony held at its Ravensburg Schuetzenstrasse site. Scheduled for completion in the first quarter of 2018, the building is planned to begin operations in early 2019. Expected to cost approximately 70 million euro (\$79 million), it is part of the total investment strategy announced by the company in September 2015, and will constitute an important element in the overall Schuetzenstrasse facility rebuilding concept for modernization and expansion.



Working together to break ground for the new production building within the Vetter Schuetzenstrasse production site (from left to right): Peter Soelkner, Oliver Albrecht, Harald Bader, Thomas Ruebekeil, Udo J. Vetter, Dr. Daniel Rapp, Thomas Otto, Gunther Strothe, Wolfgang Kerkhoff, Christian Schmid.

Upon completion, the seven story building will cover a total of 8,000 sq. meters (86,000 sq. ft), and include in its core a cleanroom with supportive media systems. Additionally, it will contain the site's central material preparation; office space for the production staff as well as a staff canteen with roof garden. The applied technology of the cleanroom will be dedicated to the filling of bulk syringes and designed to be compatible for the filling of sensitive drugs such as biologics and ophthalmics. Syringes prepared in the bulk process offer a number of customization options that are tailored to substance and primary packaging material components, and offer customizable low silicone levels and thus, process flexibility. Another central technological element of the cleanroom will be the implementation of an improved restricted access barrier system (RABS) concept to combine the advantages of isolator and RABS technology. The core of this innovative approach is a uniquely fast, by today's standards, 3-hour cycle and fully automated decontamination of the cleanroom using hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>).

"This addition to our Schuetzenstrasse site is an exciting chapter in our company's history and will again support Vetter's target to offer its customers the adequate high manufacturing quality for their high value drugs", said Vetter Managing Director Thomas Otto. "Attai-



ning this high level of quality is of particular significance to Vetter as it represents one of our core customer relations value propositions."

Vetter Pharma International GmbH  
D 88212 Ravensburg



Remaining minority shareholders receive cash compensation

# Endress+Hauser completes takeover of Analytik Jena



Swiss measurement and automation engineering specialist Endress+Hauser has completed the takeover of German analytical instrumentation provider Analytik Jena. The remaining minority shares of Analytik Jena were legally transferred to Endress+Hauser on 30 March 2016 following the entry of the transfer resolution in the commercial registry that was previously adopted at the extraordinary general meeting in February. The process will now be finalized with the agreed-upon cash payout to the minority shareholders.

In the run up to the completed takeover, as majority shareholder Endress+Hauser owned all but 3.4 percent of the Analytik Jena shares. The demand for the remaining shares was delivered to Analytik Jena in September 2015. This set the final part of the takeover process in motion, during which an independent appraiser fixed the value of the company at 13.68 euros per share.

Endress+Hauser gained control of publicly-traded Analytik Jena AG in 2013, most recently holding 96.6 percent of the shares. The goal of the acquisition is to eventually be at the side of both companies' customers from the lab to the process, giving support from product development to production. Analytik Jena employs nearly 1,000 staff worldwide in its core businesses analytical instrumentation and life sciences.

Endress+Hauser AG  
D 4153 Reinach BL 1

## 2015 operating result

# CWS-boco generates record turnover

The CWS-boco Group generated a record turnover in the 2015 business year. At € 779 million, it is up 4% on last year and is greater than ever before.

The CWS-boco Group's success story continues to go from strength to strength: In the 2015 business year, the company increased its turnover by approx. 4%. The record turnover of € 779 million is € 28 million more than the 2014 figure. With an operational result of € 75 million, which is € 4 million more than the figure from the previous year, the company once again recorded disproportionate growth. The earnings before tax increased by 36 per cent from € 47 million to € 64 million.

The key reasons for this positive development are, on the one hand, the expansion of the sales workforce, which has proved highly lucrative for the new business sector, and, on the other hand, in 2015 CWS-boco continued its measures to modernise its laundry network. New laundries opened up in Germany, Croatia and Poland. These are based on a highly flexible laundry concept which not only improves the quality of services, but also significantly reduces the amount of resources used.

In addition, the company further improved customer loyalty by enhancing its service quality and stepping up its customer service. In 2015, CWS-boco also successfully integrated its acquisitions into its business fields: SaniQ, in the washroom hygiene sector in the Nether-

lands, the workwear and washroom hygiene business of Celtic Linen in Ireland and Zahn-Hitex in the clean room sector in Germany.

Adjusted for acquisitions and currency effects, the turnover of the service business – the rental of workwear, washroom hygiene products and dust control mats – is up by two per cent.

“The growth achieved last year is confirmation that the market still has a lot of potential. Having spent the last two years developing sales, in the future we want to focus on building our reputation as a driver of innovation. Our pioneering role in terms of sustainability will be a great help here,” explained Max Teicher, CEO of the CWS-boco Group.



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RAUMEDIC development center and production facility in Mills River, NC.

## New production center and production facility in the USA to begin operation

# RAUMEDIC goes West

RAUMEDIC, development partner and system supplier of polymer-based components and systems for the medical and pharmaceutical industry is opening its new headquarters in Mills River, North Carolina. A modern, full-service development and production center allows RAUMEDIC to provide its customers in North America high-quality polymer extrusion, injection molding and assembled products on site.



Clean room production according to ISO 14644, class 7

The decision to open new headquarters in Mills River, North Carolina, was made at the end of 2014. We broke ground in March of 2015, and just nine months later we were able to move into the new building. A two-story production and administration building with a total area of 60,000 ft<sup>2</sup> (5,600 m<sup>2</sup>) serves as a production and development center for customer-specific polymer components and systems, including 13,000 ft<sup>2</sup> (1,200 m<sup>2</sup>) of the most cutting-edge clean room production according to ISO class 7.

RAUMEDIC Inc. in Mills River started production in January 2016 with 56 employees. Specialists in the fields of engineering, research and development, clean room production, quality management, logistics, marketing and sales, as well as management

have settled into their new workplace. The order books have filled up nicely and the number of new employees will increase in the coming months.

Not only is the architecture reminiscent of the German headquarters, but also the technology, quality and services as a polymer specialist for the medical engineering and pharmaceutical industry. High-quality polymer products will be custom developed, produced and packaged at both locations, the German plant and the new US location. CEO Martin Bayer: "This is an important step for RAUMEDIC. We will now offer our customers the same quality and service they have come to expect from us as a development partner and system supplier at the Mills River location in the USA."

This includes multi-component injection molding with hard-hard and hard-soft connections, micro injection molding, insert molding, fully automated assembly systems, micro extrusion with an internal diameter of 0.1 mm and multiple layers in the tubing wall including X-ray tubing or film blowing. These are advanced technologies that will be introduced gradually at the new Mills River plant.

Based on decades of expertise in chemistry and raw materials, RAUMEDIC processes all current medical-grade thermoplastics, silicones and high-temperature poly-

mers such as PEEK, FEP or PTFE. The ability to do our own compounding for customized material formulas rounds off our portfolio.

Until now, medical products manufactured in Germany were sold in the USA by RAUMEDIC Inc. Rudi Gall, Managing Director RAUMEDIC Inc.: "With our new development and production center, we are able to combine the strengths of both German and American engineering. The advantages are obvious: short routes and a more comprehensive as well as timely service for our North American customers."

RAUMEDIC has invested approximately 11 million US dollars in the construction of the modern building. A total investment of approximately 27 million US dollars will be reached by 2022.

The official dedication of the building will take place on April 22, 2016 and thus the company continues its story of success. The polymer processing company is steadily pursuing its path of expansion and meeting the challenges of the largest and most innovative medical market in the world. Thanks to its development expertise and manufacturing technologies, RAUMEDIC is optimally equipped for this challenge.

Raumedic AG  
D 95233 Helmbrechts



In line with current requirements in this age of digital manufacturing, the scientists from Stuttgart are presenting an intelligent interplay of different exhibits at the AUTOMATICA in Munich from 21st till 24th June 2016. Covering the fields of man at the workplace, products and automation, as well as IT infrastructure and networking, the exhibits demonstrate the added value offered by a production plant geared towards Industrie 4.0.

# Fraunhofer IPA demonstrates the advantages of networked manufacturing components



- 13 exhibits displayed at four trade fair booths in three halls
- Focus on an IT platform for processing near real-time production data
- The workplace, automation and IT infrastructure form a thematic framework
- Presenting the »Flexible sheet metal processing lab« as part of the TRUMPF cooperation



Selected parts of the test environment for industrial research, which is normally located at the Application Center Industrie 4.0 in Stuttgart, will be on show at AUTOMATICA. (Source: Fraunhofer IPA, photo: Rainer Bez)

At the Fraunhofer IPA booth, the four cornerstones of Industrie 4.0 can be experienced in various ways within the overall context of a digital production: a wide range of cyberphysical systems, a participatory platform, the Internet of things and services, and also a portal with intuitive man-machine interfaces for interacting with the manufacturing system. With the aid of exhibits interacting intelligently with the cloud, visitors can comprehend the solutions offered by the research institute for various segments of the value chain. These range from singularization, though (partially-)automated assembly processes and workpiece transportation, right up to networking components with the IT infrastructure. The services are not only relevant to users and decision-makers in manufacturing enterprises but also to their suppliers: for planning, operating and optimizing produc-

tion plants, as well as developing innovative industrial components, machines and systems.

## Focus on the federative platform »Virtual Fort Knox«

Ever since 2012, Fraunhofer IPA has been working together with medium-sized enterprises on an open platform for manufacturing companies called »Virtual Fort Knox«. Under the motto »manufacturing-IT-as-a-service«, various applications (services) can make production data on the platform usable by any end-device. Joachim Seidelmann, head of DigiTools at Fraunhofer IPA, formulated the declared goal as follows. »On the one hand, we want to implement Industrie 4.0 concepts that enable users to increase their production

## Fraunhofer IPA demonstrates the advantages of networked manufacturing components

efficiency. On the other hand, together with our industrial customers, we want to answer the question: which digital solutions can be integrated meaningfully into my product or production plant in order to develop new business models?»

At the AUTOMATICA, »Virtual Fort Knox« plays a key role: various demonstrators are linked via the platform. As with a real production plant, a wide range of near real-time status and process data is collected in the system for direct processing. The huge advantage, in particular for small and medium-sized enterprises, is that users can access the information from applications via an output medium of their choice. This does away with the need to procure and maintain a suitable IT environment. Furthermore, the user is billed for the use of the software and hardware on a »pay-as-you-go« basis, thus avoiding fixed costs.



With a new software program, a wide range of forcecontrolled assembly processes can now be automated. (Source: Fraunhofer IPA, photo: Rainer Bez)

### Multiple benefits from the cloud for robotics

The basic technical requirement for an Industrie 4.0 environment is that all equipment with integrated sensors and controllers has to be networked as a cyber-physical system (CPS). A typical example of a CPS is robot systems, such as the bin-picking IPA demonstrator on show at the booth. The manufacturer-independent software bp3™ enables the robot to locate objects rapidly and reliably and plan trajectories for numerous workpieces. A further exhibit presents the advantages of a software package that can be used in conjunction with nearly all types and makes of robot to perform numerous assembly tasks. For the first time, complex tasks that were previously carried out manually, such as assembling switching cabinets, can now be taught intuitively by non-experts and thus be automated cost-effectively.

Through their connection to the cloud architecture, the potential of both software solutions is extended: thanks to the central data pool containing information on workpieces or program modules for direct implementation – so-called skills – robot systems can be put into operation and maintained more efficiently than in the past, components replaced easier and all processes traced and controlled centrally. This not only makes robot systems more adaptable but also significantly speeds up retrofitting to accommodate new product variants. Via a range of services, the cloud also offers new software functions. Similarly, locally-optimized processes can be played back to the cloud, thus enabling all networked robot systems to benefit from once-only program changes.

For flexible transport solutions, the IPA experts have developed »Cloud Navigation«. The advantage of this information is demonstrated by example at the booth with the aid of two mobile, self-na-

vigating systems. Since both automated guided vehicles (AGVs), or multiple AGVs in an industrial context, supply their locally-acquired data to a central point, the entire fleet benefits from more accurate localization and more efficient pathplanning. The AGVs could then act as »lean clients«, i.e. because computer-intensive navigation algorithms could be outsourced to the cloud server, they would require less hardware but would still retain a high degree of navigation intelligence. External sensors, e.g. from the manufacturing environment, could be integrated, as well as navigation functions provided in the form of services.



Automated guided vehicles can be located highly accurately with the aid of external sensors linked to the cloud. (Source: Fraunhofer IPA, photo: Rainer Bez)

### Controlling and optimizing process

A further key element of Industrie 4.0 is the continuous monitoring of all process steps. This is achieved with »Smart System Optimization« developed at Fraunhofer IPA, which can be implemented without the need for expert IT knowledge. The mobile system collects and automatically analyzes near real-time component and process data using intelligent cameras, generally installed singly at each production station. The system not only detects process aberrations and their cause but also identifies possible losses or bottlenecks. In areas where »Smart System Optimization« is utilized, companies can increase their efficiency by more than ten percent. Moreover, with the intelligent workpiece carrier »smartWT«, single workpieces can also contribute towards process monitoring. Integrated sensors constantly gather logistics and process data relevant to quality and transmit the information wirelessly to the cloud. The user has access to current data at all times and can intervene as required, thus improving production quality and throughput.

As far as the IT infrastructure is concerned, Fraunhofer IPA also has a solution tailored to the demands of an adaptable production plant: with the software »Sense&Act«, companies can devise individual rules to network production equipment. Modifications to the IT, as well as extensions and new interfaces, can be realized at little effort. The software uses sensor data to monitor production, for example to detect system errors. Under certain circumstances, it initiates specific action, such as notifying the user or implementing a measure on the robotic system. Sensors and actuators are swiftly regulated via an intuitive user interface, or shared throughout the company and evaluated.



## Fraunhofer IPA demonstrates the advantages of networked manufacturing components



An ergonomic workplace analysis leads to concepts for relieving the burden on humans as they work. (Source: Fraunhofer IPA, photo: Rainer Bez)

### Relieving the burden on humans and analyzing data usefully

Even in Industrie 4.0 environments, the close involvement of man and his abilities in production brings significant advantages. How this can be achieved, even in the case of burdensome tasks and in view of the demographic change, is demonstrated by the first work exoskeleton that is capable of aiding the worker with overhead tasks. The assembly workplace is linked to the IT infrastructure and adapts automatically to the worker's individual body measurements as well as the assembly process required. This reduces set-up times and relieves the strain off the worker. Additionally, a workplace analysis developed at Fraunhofer IPA quantifies how effectively the solution reduces the employee workload and optimizes production processes.

All the exhibits in the Industrie 4.0 environment have one thing in common in that they continuously collect information in the sense of »Smart Data«, which can then be used to optimize production. Visitors to the booth can see for themselves how the IPA experts visualize and analyze the sensor and status data acquired from an exhibit to advantage. The information gained from intelligent data analyses also represent approaches for new business models based on usage data, such as service intervals tailored to individual requirements or adaptations to product portfolios to suit customer needs.

### Basic research on Industrie 4.0 with TRUMPF

That theory alone is not enough is demonstrated by a cooperation initiative with TRUMPF: in the summer of 2015, the Ditzingen-based company - one of the world's leading manufacturers of machine tools for flexible sheet metal processing and industrial lasers - entered into a five-year strategic cooperation with Fraunhofer IPA. The aim of the cooperation is to anchor knowledge from current research on Industrie 4.0 in sheet metal processing. In the so-called »flexible sheet metal processing lab«, workers from TRUMPF and Fraunhofer IPA are working together on innovative solutions for production technologies of tomorrow. In initial starter projects, the areas of »intralogistics«, »service-oriented machines« and »autonomous production« are being handled. The aim is to further develop the contents of the cooperation as it progresses with new project topics being regularly added.

Ulrich Schneider, project manager at Fraunhofer IPA, will be reporting on the joint cooperation scheme during AUTOMATICA on 24th June at 11 a.m. Together with Dr. Martin Landherr, he will be presenting the project under the title »Think in business models, work in cooperations - cooperation with TRUMPF as a practical example of the Application Center Industrie 4.0«. He will also talk about the

Application Center Industrie 4.0, which is located at the Fraunhofer Institute Center. This is a test environment for industrial research that unites cyber-physical systems with a real manufacturing environment.

### Other booths involving Fraunhofer IPA

[SMERobotics - Versatile robots for medium-sized enterprises, Hall A4 | Booth 131](#)

Fraunhofer IPA is coordinating the European initiative »SMERobotics«, which will be presenting eight robot systems from three application areas at its booth. The exhibits demonstrate how intelligent robots can greatly facilitate the automation of small and mid-sized lot sizes, as well as man-robot collaboration. This is possible because the robots are cost-effective to install and can be programmed and operated intuitively thanks to innovative software. Furthermore, thanks to efficient sensors, they can be retrofitted quickly for new product variants and are able to handle uncertainties and loose materials. Read more under [www.smerobotics.org](http://www.smerobotics.org).

[LIAA - Man-robot collaboration for assembly processes, Hall B4 | Booth 402](#)

As part of the EU project »LIAA«, Fraunhofer IPA has developed an assembly workplace where the worker and the robot can work together to apply solder. With the aid of a new software tool, the safety measures necessary for man-robot collaboration, as well as the resulting influences on the cost-effectiveness of the workplace, can be ascertained systematically. This means that MRC applications can be realized much faster. Read more under [www.project-leanautomation.eu](http://www.project-leanautomation.eu).

[Currently being planned and coordinated: ReApp - Increasing productivity with the aid of robots](#)

In the project »ReApp« coordinated by Fraunhofer IPA, robotics apps and a simple development environment are being created to enable robot systems to be set up faster and cheaper. ReApp also makes it easy to reconfigure the robot cell or modify process parameters, meaning that companies - particularly medium-sized enterprises - can use robots more flexibly than before. The project is funded by the German Federal Ministry for Economic Affairs and Energy. Read more under [www.reapp-projekt.de](http://www.reapp-projekt.de).

**21st - 24th June 2016: AUTOMATICA, Munich (D)**



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## AUTOMATICA 2016: Integrated Assembly Solutions

# Enabler for Industry 4.0



It is the largest area at AUTOMATICA: Integrated Assembly Solutions (IAS) will showcase more than 200 exhibitors at the trade fair in Munich from June 21 to 24. It is already clear today: The providers in the IAS industry have the right answer for every trend: from Industry 4.0 to human-machine collaboration.

IAS providers have already demonstrated their capabilities as enablers for Industry 4.0 projects for quite some time. They recognized the trend toward networked, self-optimizing production at an early stage. IAS companies create innovations, including digital components that provide information and can be networked. Without these Industry 4.0 would be not a living reality but still just a vision today. At AUTOMATICA, the industry will again demonstrate its innovative strength and present the most recent developments for efficient production of tomorrow.

The success of IAS providers can also be measured by its impressive figures. With sales of more than six billion euros, the IAS industry generated more than half of the 11.4 billion euro record result of the entire German automation industry in 2014. The signs also point to growth in the future. The VDMA Robotics + Automation expects further sales growth of four percent both in 2015 and 2016.

Development has already been constantly toward smaller batch sizes, increasing variety and shorter product life cycles in assembly automation for some years. What manufacturers want here: flexibility! Consequently, IAS providers are betting increasingly on modularity, system concepts that can adapt to the order situation and the reduction of setup times thanks to automated solutions, which enable efficient installation of smaller batch sizes. They are also introducing many other technology details for increasing flexibility.

## Industry 4.0: flexibility in a new dimension

Schunk CEO Dr. Markus Klaiber explained how the Industry 4.0 megatrend affects the increase of flexibility: „The goal of all measures in Industry 4.0 is the comprehensive flexibility of all production processes with maximum transparency and cost effectiveness. In actual practice, this means that Industry 4.0 has to provide flexible and adaptable components and structures that make it possible to produce even small batches economically.“ The company will demonstrate at AUTOMATICA what such solutions look like in reality.

## Human-machine collaboration: the best of two worlds

The most recent developments in human-robot collaboration for flexible assembly are greatly anticipated at the trade fair. The meaningful combination of manual and mechanical skills can prove to be particularly economical at all places where the assembly of small batch sizes in many variations is required. Fraunhofer IPA emphasizes how easy it is to implement collaboration between humans and robots in the meantime. Scientists will exhibit workplaces at AUTOMATICA where workers perform demanding tasks manually and are supported by robots that handle repetitive, non-ergonomic activities at the same time. The collaborative robot systems are integrated into mobile tool trolleys and can be docked to manual workstations as needed.

## Conventional assembly concepts reinterpreted

Of course, AUTOMATICA also takes a look at conventional assembly systems and equipment, which still make up the lion's share in practice. In many applications, it concerns the fundamental question of linear transfer systems versus rotary transfer systems. Many of the exhibitors have all solution variants in their product range.

For example, Püschel: The assembly technology specialist can implement flexible linear

transfer systems or fully automatic rotary transfer systems for very different industries depending on the task. “The specific customer application determines which technology is used,” Managing Director Cornelia Püschel explained. Among other things, the company is going to exhibit new developments in the field of rotary transfer machines. For example, a semi-automatic machine, in which an operator handles the pre-positioning of difficult parts in the workpiece carrier of the rotary switching table. This hybrid solution provides added flexibility and also enables variant processing using conversion kits.

## Components, modules and complete systems for all production areas

Manufacturers are certainly going to be impressed by the highly flexible solutions that will premiere at AUTOMATICA. In addition, assembly technology is proving useful in all industry sectors. The exhibitors have components and systems for even the most sensitive operations in the areas clean room, life sciences and food in their product ranges. Component and module vendors as Gehmeyr, Festo, Montech and many other well-established plant engineering companies, including names such as Mikron, ATS Automation, Manx and teamtechnik, will exhibit comprehensive products and solutions in Munich that leave nothing to be desired.

**21st - 24th June 2016: AUTOMATICA,  
Munich (D)**

Messe München GmbH  
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Chillventa is without question the world's largest and most important trade fair today for the refrigeration industry with the air-conditioning, ventilation and heat pump sectors. For 2016, all the indicators are once again pointing towards success. The event organisers are already expecting an increase in both floor area and exhibitor numbers. Chillventa is far more than just a trade show; this is where projects are brought to life, trends are set and innovative products are presented to the market. This is also where the community meets and where experts from around the world come together: Chillventa Connecting Experts. It was thus an obvious decision for NürnbergMesse to work together with a strong partner, Bauverlag, to launch the Chillventa AWARD. The prize is awarded in the four categories of commercial refrigeration, large-scale refrigeration, air-conditioning and heat pumps in recognition of special and exemplary expert team projects.

## Premiere: Chillventa AWARD – Connecting Experts

- **Chillventa AWARD 2016 to be awarded in four categories**
- **The motto „Connecting Experts“ is put into practice and honoured**
- **Outlook for Chillventa: Signs set for record figures again**

„We are very pleased that we will be awarding the Chillventa AWARD this year for the first time. There are not many sectors of industry that are as innovative and inventive as the refrigeration, air-conditioning, ventilation and heat pump community, and it is only right to highlight and pay tribute to this. At Chillventa, experts from around the world meet, develop projects together and set them on track. It was therefore an obvious opportunity to invite entries for a high-quality competition to evaluate the best, most exciting and most innovative projects in four categories and to present them with the Chillventa AWARD. Chillventa is an ideal platform for a prize of this quality“, stated the Chillventa AWARD initiators, Christoph Brauneis, Senior Editor KKA, tab and jury member, and Daniela Heinkel, Director Exhibition Chillventa, NürnbergMesse.

### The Chillventa AWARD – paying tribute to expert team achievements

The Chillventa AWARD is presented by NürnbergMesse in cooperation with the Bauverlag publishing house, with its trade journals „KKA Kälte Klima Aktuell“ and „tab – Das Fachmedium der TGA-Branche“. The Chillventa AWARD honours teams of experts (planners, system builders, principals/operators) who, in an exemplary collaboration going beyond normal technical standards, have realised a project that excels in terms of functionality, energy consumption and technical innovations. In evaluating the projects, the jury – in line with the Chillventa motto of „Connecting Experts“ – will focus in particular on the interplay between the people involved in the project, from conceptual formulation, through planning and system construction to the operation of the system. Projects submitted for the award must clearly demonstrate and map the level of quality reached through cooperative planning.

Alongside these points, the Chillventa AWARD will also consider the above-mentioned aspects of the system's functionality, energy consumption and technical innovation. Other aspects, such as compliance with the planned budget and timetable, environmental safety requirements, certifications, etc. will be integrated into the jury's assessment. The Chillventa AWARD considers any form of refrigeration, air-conditioning or heat pump system (new or refurbished that has been carried out in Europe. Projects may be submitted which have been carried out on the applicant's own responsibility and which are completed by the final date for submission for the AWARD. The submitted project must not have been completed any more than two years ago.

### Who can apply for the Chillventa AWARD?

The competition is open on an equal footing to principals/operators, planners and system builders, as individuals or in consortia, with an office in a European country – and the partners taking part must be explicitly named. Manufacturers of components and systems from the industry or the trade are not entitled to enter. However, the industry and trade may support the authorised competitors with their submissions without any problems.

### Commission of experts of the highest quality – the Chillventa AWARD Jury

- Christoph Brauneis, Senior Editor, KKA and tab

- Prof. Dr.-Ing. Michael Deichsel, Georg Simon Ohm Technical University, Nuremberg
- Rolf Harig, Harig GmbH
- Dr. Rainer Jakobs, IZW (Heat Pump and Refrigeration Engineering Information Centre)
- Prof. Dr.-Ing. Ulrich Pfeiffenberger, Giessen-Friedberg University of Applied Sciences, Fachverband Gebäude-Klima [Building/Air-Conditioning Association]
- Bertold Brackemeier, Manager Public Relations, NürnbergMesse

### Award to be presented for the first time at Chillventa 2016

The Chillventa AWARD will be presented in the four categories of commercial refrigeration, large-scale refrigeration, air-conditioning and heat pumps. In each category, the project participants will be presented with their awards at the Chillventa on 11 October 2016.

### Review and outlook: The Chillventa success story continues

All the key trade show figures for Chillventa 2014 were impressive. With 30,585 trade visitors from 118 countries, Chillventa recorded its best result to date. This was an increase of 7.5% over the previous event. The total of 984 exhibitors was also pleasing – 70 more than even 2012 and also a record-breaking figure.

The prospects for Chillventa 2016 are already excellent, a good six months before the start of the trade fair: „We can already see that Chillventa 2016 will once again be bigger. We are very confident that we will at least reach our already excellent levels, in terms of both floor area and exhibitors, or even surpass them“, stated Daniela Heinkel, Event Manager of Chillventa, NürnbergMesse.

### The international refrigeration and air-conditioning network

With the key Chillventa trade fair and the European Heat Pump Summit in Nuremberg, ACREX India and the European Pavilion powered by Chillventa at China Refrigeration, NürnbergMesse has built up an impressive worldwide refrigeration, air-conditioning, ventilation and heat pump network in recent years. Here too, the motto is: Chillventa Connecting Experts.

**11th - 13th Oct. 2016: Chillventa, Nuremberg (D)**

NürnbergMesse GmbH D 90471 Nürnberg



Promising innovations, a comprehensive industry overview and an attractive international conference program—that is what you are guaranteed to find at the 25th analytica in Munich. The International Trade Fair for Laboratory Technology, Analysis and Biotechnology is opening its gates one month later than usual. From May 10–13 more than 1,100 exhibitors will present the latest products and developments for laboratory operations. As in the past, topics such as food and plastics analysis, genetic analysis and bioanalysis will play an important role. However, this year's first-rate events will also focus on the latest technologies for "Laboratory 4.0".

## analytica 2016: Trade-fair preview

Visitors who attend analytica 2016 can find out how increasing digitalization in all branches of industry will change routine laboratory applications in the future. The industry's leading trade fair in Munich allows manufacturers to present the latest technologies and future-oriented IT solutions for the smart laboratory of the future.

### **Program highlights: Live Labs and a special show on Occupational Safety**

Once again, trade-fair participants can be on hand when experts in two laboratories present their latest developments and laboratory equipment live! This year, the extremely popular Live Labs revolve around the topics of food analysis and material analysis. Exciting live presentations and experimental lectures will be held several times each day. During the breaks, anyone who is interested will have plenty of time to gather additional information about the latest equipment developments. The special show on Occupational Safety/Health and Safety in the Workplace is certain to be another highlight in the program of events at analytica 2016. When it was first held two years ago, it was a popular attraction from the very beginning that drew more than 4,000 visitors. Safety experts will conduct impressive experiments that demonstrate where dangers lie in everyday laboratory practice and how to protect oneself against them effectively. The 30-minute experimental lectures on each day of the fair promise to be highly explosive—naturally, without putting visitors in any danger.

### **analytica conference**

As in the past, this year's analytica conference will feature scientific highlights and some of the industry's most distinguished international experts. Renowned researchers from around the world will discuss the latest analysis trends in chemistry and the life sciences. There will be lectures on topics such as environmental, water and material analysis, bioanalysis, laboratory medicine, diagnostics, biotechnology and genetic therapy, and the conference will also deal with issues such as food safety and quality control. There will also be presentations of current and future research activities in the chip-technology sector. Planned sessions include topics such as "Emerging contaminants—Novel analytical concepts," "Metabolomics—new technologies" and "Lab-on-chip technology." In addition, several "stars" in the analysis industry are expected to speak in Munich: Last year, Professor Luigi Mondello (Italy), Professor Peter Schoenmakers (Netherlands) and Dr. Dwight Stoll (USA) were ranked among the 100 most important analysts in the world by "The Analytical Scientist" magazine. Conference participants can look forward to several "big shots" in the field of analytical chemistry to appear in a session titled "New strategies in modern analytical spectroscopy—Surprising insights." They include Professor Gary M. Hieftje from Indiana University (USA) and Professor Jörg Feldmann from the University of Aberdeen (Scotland). Professor Alejandro Cifuentes (Spain), a figurehead and the man who coined the term "foodomics," will speak at

the session on "Foodomics—Tools for Comprehensive Food Analysis." The conference is being organized by Forum Analytik, an alliance of Germany's three leading scientific associations, i.e. the German Chemical Society (GDCh), the Society for Biochemistry and Molecular Biology (GBM) and the German Society for Clinical Chemistry and Laboratory Medicine (DGKL). Admission to the conference is included in the ticket to the fair.

### **analytica's supporting program**

Besides the international exhibition and the conference, analytica's attractive supporting program is the fair's third pillar. The Biotech Forum in Hall A3 and the Laboratory & Analytics Forum in Hall B2 will enthrall visitors with Best Practice lectures, inspire them with reports based on actual experience and give them useful tips for routine laboratory tasks. On Friday, the last day of the fair, jobvector career day takes place in the Laboratory & Analytics Forum. It will give entry-level applicants as well as seasoned professionals valuable tips for planning their careers. They can also have HR specialists analyze and optimize their application documents at the application-portfolio check. Another highlight: live job interviews in which the applicant answers questions posed by personnel professionals. Student Day, which prepares future professionals for careers in the analysis, laboratory technology or biotechnology sectors, also takes place on Friday. Professionals will inform them about the prerequisites for pursuing degrees and subsequent fields of employment.

Finance Day in Hall A3 on the third day of the fair gives biotech startups help getting started. New companies in the life sciences can get tips on how to win over investors for their companies. This year's lectures will focus on alternatives that are available on the American market. And on May 13, 2016, everything at the "Personalized Medicine" theme day will revolve around personalized therapy thanks to modern diagnostics and genetic therapy.

Anyone who wants to know which training courses are recommended for the laboratory sector can gather information from the training and consulting firm Klinkner & Partner. Once again, its experts will be offering special courses for laboratory specialists selected especially for analytica. Visitors can expand their technical expertise just a few steps away from the exhibition halls.

The free analytica app allows visitors to optimize preparations for their visit to the fair and gives them access to the latest information at all times. The app will be available at [www.analytica.de/app](http://www.analytica.de/app) prior to the fair.

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**10th - 13th May 2016: analytica, Munich (D)**

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analytica special show

## Recognizing and avoiding dangers in the laboratory

In many cases, even the slightest mistake can have devastating consequences. Dealing with hazardous materials in the laboratory calls for extreme caution. Visitors attending analytica (May 10–13, 2016, Messe München) can find out how laboratory employees should act and what protective measures should be taken at a special show on Occupational Safety/Health and Safety at the Workplace in Hall B2.

**10th - 13th May 2016: analytica, Munich (D)**

The special show will revolve around spectacular live demonstrations conducted by experts from asecos and Bernd Kraft on the topics “Fires and explosions”, “Handling hazardous materials safely” and “Avoiding health hazards”. In daily experimental lectures, the safety experts will demonstrate the hazards that can arise when various chemicals interact or are stored improperly. Even the smallest quantities of flammable hazardous materials and a spark are all it takes for an uncontrollable chain reaction.

Additionally, visitors will also receive valuable basic knowledge for their everyday tasks in science, industry and the laboratory. That includes sufficient protective and preventative measures, the right personal protective equipment and a comprehensive understanding of hazardous materials and legal foundations. For example, Dr. Jochen Kraft, Managing Director at Bernd Kraft, will demonstrate with his presentation “The Safe Handling of Hazardous Substances/Avoiding Health Risks through the EMKG and PPE” the best ways to organize a laboratory to protect laboratory users’ health.

### Clear cut and effective

Susanne Grödl, analytica’s Exhibition Director: “The combination is just right: Our concept consists of information and exciting experiments, which allows us to transport the important topic of Occupational Safety/Health and Safety in the Workplace for all laboratory users in an impressive and informative manner.” The special show was a success from the beginning. More than 4,000 visitors experienced the experiments live two years ago, some of which ended with a bang. Once again, a variety of demonstrations are on this year’s agenda: from rich and lean mixtures and exothermal reactions to small controlled fires and explosions. Naturally, visitor safety is guaranteed at all times.

The experimental demonstrations last approximately 30 minutes each. They take place every day at 11:00 and 15:00 in German and at 14:00 in English.

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## analytica supporting program



# Fascinating insights and plenty of practical tips

Besides the exhibition and first-rate scientific lectures, once again the International Trade Fair for Laboratory Technology, Analysis and Biotechnology (May 10–13, 2016) will have a supporting program featuring a number of impressive highlights. Now visitors can look forward to their favorites, i.e. the Live Labs, practice-oriented forums and career tips from the experts on analytica Job Day.

## 10th - 13th May 2016: analytica, Munich (D)

What does a modern, fully equipped laboratory look like and what devices are used for material and food analysis? Anyone who wants to see for themselves should be sure not to miss the lab bench presentations at the Live Lab on Material Analysis in Hall B1 and the Live Lab on Food Analysis in Hall A3. Experts from science and industry will give 30-minute lectures and live demonstrations about the latest developments in material analysis, for example on topics such as sample preparation, material classes and quality assurance. In the food analysis sector, they will focus on innovations in pesticide and residue analysis, ways to detect antibiotics and other pharmaceuticals, mycotoxin analysis and much more. Visitors get practice-oriented insights and can experience all common techniques as well as special-purpose methods in real laboratory surroundings. Lectures are held at 11:00, 13:00 and 15:00 on Thursday through Thursday and at 11:00 and 13:00 on Friday.

### analytica: Science platform

analytica is more than just the most important industry gathering for experts in the laboratory technology, biotechnology and analysis sectors. The international trade fair is also a platform that allows visitors to take valuable tailored know-how home with them. New startups in the life sciences in particular profit from tips from the professionals at Finance Day in Hall A3 on the third day of the fair. This year, Finance Day revolves around ways that new businesses can gain a foothold on the American market. In a lecture titled “Entrepreneurial Thinking: A key to success for German biotech startups,” Andy Goldstein will give tips for founding a company in the United States. In his presentation titled “Going to the States—Addressing US investors: What do German biotech companies have to consider,” Jonathan Fassberg will explain the challenges, which new companies in Germany can expect, and how to impress American investors with their ideas.

Anyone who wants to update their technical know-how on a specific topic can take advantage of the customized range of training events for laboratory experts that training and consulting specialist Klinkner & Partner has put together for this year's fair.

### New therapy approaches thanks to personalized medicine

What capabilities does personalized medicine now offer, and what are the limits of these new technologies? At the Focus Day, on Personalized Medicine at the Biotech Forum on May 13, 2016, everything revolves around individual therapies thanks to modern diagnostics and gene therapy. Eminent authorities from research and industry report on the latest issues and give their appraisal of the status quo. Exciting topics are on the agenda: Prof. Dr. Theodor Dingermann

from Goethe University in Frankfurt am Main will give a lecture titled “Personalized medicine: 15 years of the human genome—Where do we go from here?” In Panel 1, representatives of the research sector and the Association of Health Insurance Funds and Pharmaceutical Companies (Verbands der Ersatzkassen und der Arzneimittelhersteller) will discuss the topic “Stratified, personalized and precise: New diagnostics and therapies, from development to the point of care.” Panel 2 promises to be an interesting highlight: “Volume, velocity and variety—from big to smart data” is the title of the panel discussion featuring prominent representative of SAP SE, Molecular Health and the Hasso-Plattner Institute.

In addition, the Life Science Research working group in the German Diagnostics Industry Association is organizing a series of lectures on personalized medicine in the Laboratory & Analysis Forum at 12:00 and 14:00 on Tuesday and Wednesday. Topics are amongst others “Measuring tumor load with personalized Droplet Digital PCR assays” and “Interactions of growth factors with the extracellular matrix”.

### Practical forum with tips for laboratory work

analytica allows visitors to find answers to many of the latest questions about working in the laboratory on a daily basis. Experts will present marketable product innovations, use their expertise to advise, and assist visitors in the Biotech and Laboratory & Analysis Forums at this year's fair. Experts in the Biotech Forum will present the latest methods for the life sciences in best practice lectures, while presentations in the Laboratory and Analysis Forum primarily focus on optimizing laboratory processes. Attending the forums is included in the price of admission to analytica.

### analytica Job Day: Climbing the career ladder made easy

Anyone who is considering furthering their career in the industry should be sure to attend jobvector career day in the Forum on May 13th. On the last day of the fair, HR managers from several companies will be on hand to give career tips in personal discussions. This kind of first-hand information is directed at both college graduates and seasoned industry professionals. Participants include many corporations and medium-sized companies in the pharmaceutical and biotechnology sectors. In addition, job seekers can have their job application documents checked by professionals and profit from a job interview that is conducted live. As in the past, Student Day will take place on the same day: It gives future professionals a chance to gather information about careers in the life sciences and about prerequisites for degree programs and jobs.

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analytica conference 2016

# Talking science —Today's knowledge for tomorrow's applications

From diagnosing cancer to analyzing petroleum: The analytica conference is the scientific highlight of analytica. It takes place on the first three days of the fair, i.e. from May 10 to 12, at the ICM—Internationales Congress Center München (ICM) directly next to the exhibition halls.

Whether it comes to food or environmental analysis, diagnostics or the constant ongoing development of chromatography, spectroscopy and other analysis techniques: The analytica conference features some 130 lectures that cover the entire range of topics in analytical chemistry and bioanalysis. Its speakers and chairs include eminent experts such as Gary Hieftje and John Yates III from the United States, Luigi Mondello from Italy, Peter Schoenmakers from the Netherlands and Andreas Manz and Hans Maurer from Germany. According to *The Analytical Scientist* magazine, they were all among the world's 100 most important analysts in the year 2015.

## Focusing on energy and raw materials

The analytica conference not only gives participants a comprehensive overview of modern analysis, it also picks up on general topics that have social relevance. For example, this year's conference features two symposia about strategic raw materials: "Resource Analysis" on the afternoon of Tuesday, May 10, focuses on analyzing high-tech materials and other inorganic raw materials. The first lecture in this series will be held by Kim H. Esbensen from the Geological Survey of Denmark and Greenland. He is considered an absolute expert when it comes to representative sampling—which ultimately is the essential element when analyzing ores and other heterogeneous base materials.

Speakers at the full-day session on "Energy & Fuel" on Wednesday, May 11, will include scientists from Great Britain, the United States, Russia, Belgium and Germany as well as representatives of the petroleum industry. Frans G. A. Van den Berg from Shell Global Solutions International in the Netherlands will discuss characterizing crude oil, and Pierre Giusti from TOTAL Refining and Chemicals in France will talk about fingerprint analysis of petroleum and polymers. A presentation titled "Your petroleum may be quite different from what electrospray-mass spectrometry makes you believe" by Jan

Andersson from the University of Münster should also be exciting.

## Spotlight on the nanoworld

Analyzing nanoparticles is another focal point of the analytica conference. On Wednesday, May 11, "Analytical and Bioanalytical Chemistry (ABC)" magazine is hosting a full-day symposium titled "ABC's Spotlight on the Nanoworld". Ten renowned international speakers will discuss detecting nanoparticles on the one hand and the advantages of nanotechnology for analysis on the other. For example, Lihua Zhang from the Chinese Academy of Science will discuss functionalized nanoparticles for sample preparation in protein analysis.

Detecting nanoparticles in biosamples will also be the focus of a session titled "New strategies in modern spectroscopy" on Thursday, May 12. Molecular microscopy, which combines spectroscopy and imaging, is helpful here because, in addition to images, it also supplies chemical information.

## From metabolomics to foodomics

Bioscientists can also look forward to a diverse program of events. Besides a session on the hot topic of lab-on-a-chip on the morning of Thursday, May 12, organized by miniaturization expert Andreas Manz from Saarland University, and on imaging techniques on Thursday afternoon, there will be a series of omics lectures including a symposium on metabolomics in personalized medicine on the afternoon of Tuesday, May 10.

The fact that omics techniques have also made their way into food analysis will be demonstrated by the session on "Foodomics" on Tuesday morning. For example, it will report on pesticide metabolomics, i.e. the ability to detect all of a pesticide's metabolites by coupling chromatography with mass spectrometry. Spanish food scientist Alejandro Cifuentes, who coined the term "foodomics", will explain his choice of words in an introductory presentation. On Tuesday

afternoon, the second symposium on food analysis is titled "Emerging Contaminants": It will report on contaminants that have not gotten much attention until now such as pyrrolizidine alkaloids, mycotoxin metabolites and perfluoroalkylated substances.

## The latest about cancer diagnostics and drug analysis

Among other things, this year's diagnostics sessions will focus on the common disease cancer. The session on "Liquid Profiling/Liquid Biopsy" on the morning of the first day of the fair is dedicated to circulating tumor DNA, tumor markers and detecting cancer cells in blood.

The session on clinical and forensic toxicology led by "designer drug detective" Hans Maurer from Saarland University on the morning of Wednesday, May 11, is a must for all drug analysts. On the other hand, those who are interested in steroids in bodily fluids and hair should be sure to attend the lecture by Alexander Gaudl from Leipzig University on Tuesday afternoon. In another session on Tuesday afternoon, Mario Thevis from the German Sport University in Cologne will present examples of doping analysis in sports.

## Bioprocesses, electroanalysis and more

The above-mentioned sessions are just an excerpt from the extensive program of events. There will also be a full-day session on modern separation techniques as well as sessions on monitoring bioprocesses, sewage analysis, electroanalysis methods and general topics such as laboratory management and data evaluation.

The analytica conference's organizers—i.e. the German Chemical Society (GDCh), the Society for Biochemistry and Molecular Biology (GBM) and the German Society for Clinical Chemistry and Laboratory Medicine (DGKL)—also invite everyone to think outside the box. For instance, on the morning of the first day of the conference, why not attend the lecture by Eva Krupp from the University of Aberdeen about mercury in the brains of stranded whales and then join her in a discussion about whether the toxic metal may have disoriented the marine animals. In short: The analytica conference has something to offer everyone. Participation is free of charge for visitors attending analytica.

**10th - 13th May 2016: analytica,  
Munich (D)**

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Everyone is talking about digitalizing society and industry. Doing so will also have an enormous influence on the laboratory. analytica, which takes place in Munich from May 10–13, 2016, will examine the challenges facing manufacturers and users and what solutions are already available for the intelligent laboratory.

## Laboratory of the future at analytica in Munich in the present



In the future, the increased complexity of laboratory processes will call for the use of integrated automation and digitalization solutions. The objective is to transform manual processes into automated ones and to integrate them into laboratory information management systems (LIMS). Particularly when it comes to growth-oriented industrial laboratories, it is important to improve efficiency, optimize structures and increase flexibility. Essential prerequisites and factors of success for reaching those objectives include state-of-the-art, high-resolution, communication-capable analysis systems, functional automation solutions to monitor reaction parameters and product quality and ensure rapid data availability, and efficient data management.

### Concrete system solutions for smart labs

At this year's analytica, experts will present corresponding tools as well as software and networking solutions in theory and in practice. „This year we will look to the future and focus on the latest solutions for the intelligent laboratory,“ says Susanne Grödl, Exhibition Director of analytica. „analytica's visitors can gather the latest future-oriented information on everything from robotics and laboratory automation to handling Big Data.“ Among other things, LAUDA will present thermostats and circulation chillers with various interfaces. For the first time ever, its exhibits will include optimized thermostats for bath applications and circulation thermostats for external applications in which the operating unit is completely independent of the thermostat and can be placed wherever it is needed. A new joint initiative is also exploring promising new possibilities: nexygen®—THE NEXT GENERATION LAB—is

a coalition of the German companies Köttermann, Memmert, Hirschmann, 2mag and Sartorius, which are exhibiting together at analytica to show what they have to offer the laboratory of the future. The employees of the equipment manufacturers and service providers have joined forces to develop products with optimum customer utility. They include innovations that increase useable space in the laboratory and surfaces that perform tasks such as stirring, heating, cooling and weighing.

### The objective: Networking laboratory processes

The Fraunhofer Institute for Manufacturing Engineering and Automation IPA is also working on using LEAN management to optimize laboratory processes. The team of researchers who work with Andreas Traube, Head of the Department of Laboratory Automation and Biomanufacturing Engineering at Fraunhofer IPA, has developed new approaches for networking laboratory and analysis processes in the value chain covering everything from sample logistics to documentation that will be presented at analytica. By successfully implementing their objectives, the team of researchers did an exemplary job of bridging the gap between the life sciences and automation technology. „We live in an age of increasingly personalized products. As a result, laboratories that are used to research and test products in various branches of industry are becoming a key factor in the product development process,“ predicts Traube. „Networking key laboratory elements such as laboratory processes, data analysis, equipment and operating personnel are essential elements for an efficient smart laboratory. The technological foundation for this is already available. These technologies will have an enormous influence on and change laboratories in the years to come!“

**10th - 13th May 2016: analytica,  
Munich (D)**

Messe München GmbH  
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## New SAVE FOOD Packaging Awards

# interpack cooperates with World Packaging Organisation



04th - 10th May 2017: interpack,  
Duesseldorf (D)

## New SAVE FOOD Packaging Awards

In anticipation of the upcoming edition of the world's most important trade fair for the packaging sector and related processing industries, which is taking place from 4 to 10 May 2017, interpack is cooperating with the World Packaging Organisation (WPO). Within the scope of this cooperation, the WPO has extended its celebrated WorldStar Awards to include the category "SAVE FOOD Packaging Awards". The WorldStar Awards commend best-practice approaches that have already proven themselves on the national level, and the awards will be presented at a ceremony during interpack 2017.

"We are giving the WorldStar Awards a platform in keeping with the standing of these celebrated awards. After all, in terms of innovation density and internationality, no other event can rival interpack worldwide," says Bernd Jablonowski, Global Portfolio Director Packaging & Processing at Messe Düsseldorf.

"We are delighted to be able support the idea of SAVE FOOD with an award. Good packaging can of course go a long way towards reducing food loss and wastage," stresses Dr Johannes Bergmair, Vice President Sustainability & Food Safety at the WPO.

## SAVE FOOD Packaging Awards

The SAVE FOOD Packaging Awards recognise packaging solutions distinguished by their capacity to reduce food loss and wastage – for instance, by prolonging the packaged product's shelf life or with intelligent concepts for portioning or protecting the contents of packages once they have been opened. In the adjudication of the submissions, it is also important that the package's production is

resource-efficient and makes use of as little packaging material as necessary. Overall, associations from more than 15 countries are participating – including ones in Africa and the Middle East – in the staging of the awards. These are choosing national winners in a variety of categories in advance of interpack 2017. Honours will be going to retail and transport packages, among other things.

The national winners will then be competing at interpack 2017 for the WorldStar Award in the SAVE FOOD category and will be exhibited at the "innovationparc" special show, which will again, following on from 2014, be devoted to the topics associated with SAVE FOOD.

## About the World Packaging Organisation (WPO)

The World Packaging Organisation is a non-profit, non-governmental, international federation of national packaging institutes and associations, regional packaging federations and other interested parties including corporations and trade associations. Founded on September 6, 1968 in Tokyo by visionary leaders from the global packaging community, the primary activities of the organisation today are to promote education through meetings, special activities and publications, to sponsor an international packaging design awards programme and to facilitate contact and exchange among the various national institutes of packaging. The WPO vision is "Better Quality of Life, Through Better Packaging, For More People".

Messe Düsseldorf GmbH D 40001 Düsseldorf





## Fakuma 2017 – Plastics Processing Meets Functions Integration

# Plastics Conquer Further Applications

The Fakuma international trade fair for plastics processing is kicking off its canvassing and registration phase for the 2017 session with momentum from the record-breaking event in 2015. The 24th Fakuma proved its worth in every respect as an outstanding industry event for all aspects of industrial plastics processing, and private trade fair promoters P. E. Schall GmbH & Co. KG are setting the standards even higher once again for the anniversary event!

When Fakuma opens its doors at the Friedrichshafen Exhibition Centre in the fall of 2017 from the 17th through the 21st of October, it will become plainly apparent that “functions integration based on plastics technology” is still advancing, and that processes are overlapping and intermeshing with each other to an ever greater extent. New as well as hybrid and composite materials are playing just as important a role in this respect as are the advancing industrialisation of additive-generative manufacturing, functions integration in the form of overmoulded metal and plastic inserts and, as of recently, fully digitally controlled printing of PET bottles and containers directly within the production process.

The list of exhibitors with firm bookings already includes all of the leading companies – from small to large – for technologies, processes and technical solutions based on plastics, so that the 25th Fakuma will once again represent more than just the current state of the art in plastics processing. The implementation of the Industry 4.0 philosophy (or expressed perhaps more accurately: the Industry 4.0 strategy) will certainly play a central role – especially in light of the fact that the necessary networking of all processes embodies the basis of consistent

production automation including testing, optimisation, identification and packaging functions.

The refinement of processes, innovative use of conventional and new materials, designs which reduce material consumption and efficient processing equipment – as manufacturing in flexible quantities including diverse variants becomes more and more prevalent, plastics and above all multifunctional tooling systems for efficient injection moulding, thermoforming and extrusion are gaining even more importance! The 25th Fakuma will put the innovative capabilities of the manufacturers and distributors of injection moulding machines, thermoforming and forming technologies, extrusion equipment, tooling systems and materials into their proper perspective.

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**17th - 21st Oct. 2017: FAKUMA 2017,  
Friedrichshafen (D)**

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P. E. Schall GmbH & Co. KG  
D 72636 Frickenhausen

## New special show devoted to Industry 4.0

# Record registration figures for interpack 2017

interpack 2017 has recorded the biggest exhibitor demand in its over 55-year history. By the official closing date for registrations for the world's most important trade fair for the packaging sector and related processing industries at the end of February, companies had booked about 20 per cent more space than is available at the Düsseldorf exhibition centre with its 19 halls. Taking place concurrently, the “components” event showcasing the offering of packaging technology suppliers, will probably be fully booked as well – even though the dedicated, temporarily erected lightweight hall offers over twice as much space as at the event's premiere in 2014.

### Special show on Industry 4.0 partnered by VDMA

In terms of its scope and internationality, interpack is an unparalleled platform for companies with products and solutions from the fields of packaging technology, related processes and packaging materials for the segments of food and beverages, confectionery and bakery products, pharmaceuticals, cosmetics, non-food consumer goods and industrial goods. What exhibitors are offering is being supplemented by innovative special themes. At interpack 2017, the spotlight will be on Industry 4.0, which is being staged in cooperation with the German Engineering Federation (VDMA). In the form of a technology lounge at the VDMA stand, the special show is presenting examples of applications in the packaging machine and process technology sector that open up new opportunities with regards to safety, traceability, copy and piracy protection, and individualised packaging.

### innovationparc on the theme of SAVE FOOD

The theme of SAVE FOOD will again be a prominent one at interpack 2017. The “innovationparc” special show is presenting packaging strategies and solutions that can help to

reduce food loss and wastage – including the winners of the national competitions for the SAVE FOOD Packaging Awards of the World Packaging Organisation (WPO). Selected in advance of interpack, the winners will be competing against one another for the WorldStar Awards. Also integrated in innovationparc is a lecture forum that companies can use for the presentation of their solutions and strategies. As in 2014, innovationparc is again taking place in a high-quality marquee construction between Halls 2 and 3.

Also scheduled, taking place on the first day of the trade fair, is the third international SAVE FOOD Congress with the participation of its partner institutions: the Food and Agriculture Organisation of the United Nations (FAO) and the United Nations Environment Programme (UNEP).

interpack is taking place at the Düsseldorf exhibition centre from 4 to 10 May 2017. “components” will be staged concurrently in the centrally located, temporary Hall 18 and is freely accessible to all interpack visitors.

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**04th - 10th May 2017: interpack,  
Duesseldorf (D)**

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Highest product protection and maximum flexibility

# New pharma cartoner Sigpack TTMP from Bosch

- Modular and scalable for small and large product batches
- Patented format changeover – quick, toolless and reproducible
- Great format and pack style flexibility on one machine



Highly flexible cartoning solution: Sigpack TTMP: The new topline cartoner from Bosch is based on the successful TTM platform and is specifically adapted to the needs of pharmaceutical customers.

Bosch Packaging Technology, a leading supplier of process and packaging technology, has added a new topline cartoner to its well-known TTM product portfolio. “The Sigpack TTMP enhances our product portfolio with an efficient and highly flexible cartoning solution, especially for pharmaceutical customers. It is based on our successful TTM platform, which is already used around the world,” explains Michael Haas, product manager at Bosch Packaging Systems.

## Specifically for the pharmaceutical industry

The proven features of the TTM platform have been advanced specifically for the packaging of ampoules, vials, syringes, pens and further products from the pharmaceutical industry. A simple and safe changeover concept, high process safety and a broad format and product flexibility characterize the machine. Due to its modular design, the machine layout can be adjusted to different product infeeds. With an output of 30 up to 200 cartons, the TTMP provides individual solutions for both small and large production batches.

The Sigpack TTMP can be seamlessly combined with the Sigpack TTMC case packer. This offers customers a uniform, user-friendly operating concept for the entire line.

## Great flexibility and smooth handling

Thanks to the patented format changeover concept, tool-less format changes with vertical restart can be carried out within a few minutes. The open and easily accessible machine design provides for a very fast line clearance. “The patented changeover concept enables our customers to flexibly and quickly package various pack styles on one machine. This is especially important for increasingly small batch sizes,” Haas says.

A wide range of product infeed solutions and loading possibilities ensure the gentle handling of sensitive products such as vials, ampoules, syringes and injection pens. Various gripper technologies provide for smooth packaging of the products. Depending on requirements, dif-



Tool-less format changeover with the Sigpack TTMP: Thanks to the patented concept, format changeover can be carried out within a few minutes without the use of any tools.

ferent mechanic, vacuum-based or grippers with airflow technology are being used. Modules for forming and inserting partitioners, package inserts and tray denesting can also be integrated.



New pharma cartoner Sigpack TTMP: The TTMP has been specifically advanced for the packaging of ampoules, vials, syringes, pens and further products from the pharmaceutical industry.

## New pharma cartoner Sigpack TTMP from Bosch

### Maximum efficiency and 100 percent process safety

The Sigpack TTMP is easily accessible and open. The compact, GMP-compliant design supports process safety. Additional Track & Trace-solutions such as the CPS module (Carton Printing System) from Bosch or third-party suppliers can be easily integrated. The machine can also be equipped with the Bosch CPI software, which manages serialization from the allocation of serial numbers through to the last aggregation step. Thus, the Sigpack TTMP fulfils the most recent serialization requirements for pharmaceutical products.

Various monitoring functions inspect the packaging process at several points. For instance, the carton blanks are already scanned at the infeed. Vision systems and code verification allow to examine carton contents, the correct infeed of the package inserts, as well as the intact shape of the cartons. Incorrect packs are automatically dispatched from the system by discharging devices. This concept ensures 100 percent process control and also speeds up line clearance during batch change.



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Gerresheimer is presenting two new products in its range at this year's FCE Pharma in Sao Paulo, Brazil from May 10 to 12: Biopack and Duma Combi. Biopack is a more eco-friendly alternative to PE and PET. Duma Combi is a tablet packaging with an additional compartment for the patient information sheet.



## Gerresheimer is at FCE Pharma 2016 with new 'green' products and enhanced convenience features



Duma Combi is the first Gerresheimer tablet packaging with a compartment for the patient information leaflet.

### Green PE, or PET made from sugar cane

Biopack is the name of Gerresheimer's first-ever range of eco-friendly plastic containers for pharmaceutical and cosmetic applications.

"By using biomaterials our customers contribute to the reduction of greenhouse gas emissions, thereby protecting the environment and avoiding unnecessary waste. Biomaterials are the renewable alternative to conventional PE/PET," said Niels Düring, Global Executive Vice President Plastic Packaging. Biomaterials like sugar cane are the renewable alternative to conventional PE and PET. You take the ethanol from the sugarcane plant and then put it through a dehydration process to transform it into green ethylene. Afterwards the green ethylene goes to the polymerization plants, where it is converted into green polyethylene/PET.



### Space-saving leaflet compartment

Duma Combi is the first Gerresheimer tablet packaging with a separate compartment for the patient information leaflet. It increases the available space on the outside surface for attractive branding because the leaflet in the compartment contains the information that would otherwise be printed on the pack. The container's rectangular design also makes space-saving packing for transportation possible.

### Successful products in plastic

Gerresheimer is also exhibiting its traditional PET, PE and PP products. The portfolio includes dropper bottles for eye drops, spray bottles for nasal sprays, PET bottles for cough medicine, PE containers for tablets, plus a wide range of caps, closures and all kinds of accessories such as dosing caps, droppers, measuring cups, dosing syringes and applicators.

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## New Standard on the Digital Sensor Market

# Digital Humidity Sensors with Integrated Contamination Protection

At the SENSOR+TEST 2016 the Austrian sensor specialist E+E Elektronik presents for the first time the new digital humidity and temperature sensors EEH110 and EEH210. The integrated E+E proprietary coating protects the sensors optimally from pollution and leads to excellent long-term stability even under harsh conditions. Several interfaces and supply voltages (3 V or 5 V) allow for easy integration of the accurate RH/T sensors in a wide range of applications.

By employing the E+E proprietary coating, developed for harsh industrial environment, EEH110 and EEH210 set a new standard on the digital sensor market. A special hygroscopic layer protects the active sensor surface from contamination and corrosion, which considerably improves the long-term stability. Additional components, such as filter caps, are not required. This simplifies the design-in of the sensors, reduces space requirements and significantly helps to reduce costs.

Precise humidity and temperature factory adjustment ensures a high accuracy of  $\pm 2\%$  RH and  $\pm 0.3\text{ }^{\circ}\text{C}$  ( $\pm 0.5\text{ }^{\circ}\text{F}$ ). The measured values are available on I2C, PWM and PDM digital interfaces. Additionally, EEH210 features a SPI interface, while EEH110 offers an analog output for relative humidity. The choice of supply voltage, 5 V for EEH110 and 3 V for EEH210, increases the versatility of the sensors. With very small dimensions of only 3.6 x 2.8 x 0.75 mm (0.14 x 0.11 x 0.03 inch), the sensors can also be used in applications with space restrictions.

EEH110 and EE210 are optimized for mass manufacturing and can be processed automatically thanks to the DFN enclosure. The digital RH/T sensors are ideal for use in smart home applications, in air conditioning or in the field of consumer and entertainment technology.



Digital humidity and temperature sensor from E+E Elektronik. (Photo: E+E Elektronik Ges.m.b.H.)



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## GMP251 Carbon Dioxide Probe for %-Level Measurements

- Measurement range 0 ... 20 %CO<sub>2</sub>
- Intelligent, stand-alone probe with analog (V, mA) and digital (RS485) outputs
- Superior long-term stability with the 2nd-gen proprietary CARBOCAP® technology
- Wide operating temperature range -40 ... +60 °C
- IP65 classified housing
- Full temperature and pressure compensations
- Integrated temperature measurement for CO<sub>2</sub> compensation purposes
- Compensations for background gases, O<sub>2</sub>, and humidity
- Sensor head heated to prevent condensation
- Applications: life science incubators, cold storages, fruit and vegetable transportation

The Vaisala CARBOCAP® Carbon Dioxide Probe GMP251 is an intelligent, stand-alone probe for measuring carbon dioxide in life science incubators, cold storages, fruit and vegetable transportation, and in all demanding applications where stable and accurate %-level CO<sub>2</sub> measurements are needed.

The GMP251 is based on Vaisala's unique, second-generation CARBOCAP® technology that enables exceptional stability. A new type of infrared (IR) light source is used instead of the traditional incandescent light bulb, which extends the lifetime of the GMP251.

The warranty for the GMP251 is 24 months.



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## Optimized performance and energy efficiency

 **Bosch introduces new generation of pure steam generators and distillation units to the market**

- Focus on sustainability
- Preheater reduces heating energy consumption by up to 30 percent
- Modularization leads to shorter delivery times

Bosch Packaging Technology has developed a new generation of pure media systems with optimized performance and energy efficiency, including pure steam generators and distillation units for the production of sterile, pyrogen-free pure steam or WFI (water for injection). "We contribute to a significantly more efficient production of pure media and to more sustainability in the pharmaceutical industry," says Dr John Medina, sales director at the Bosch subsidiary Pharmatec. For instance, the preheater reduces heating energy consumption by up to 30 percent.

**Focus on energy efficiency and sustainability**

Pure steam and WFI are key components of pharmaceutical production. While WFI is predominantly needed for the production of infusion and injection solutions, pure steam is mainly used for sterilizing equipment components like preparation vessels, piping systems and filling machines. In addition, pure steam is employed for the humidification of air in cleanrooms.

Bosch delivers the new distillation units with a preheater by default. From the second column onwards, it uses pure steam from the previous column to preheat the feed water. As a result, heating energy demand is significantly reduced. For pure steam generators, a preheater is available as an option. It is fed with condensate from the heating steam. Using this stored energy leads to reduced heating steam consumption.

**High thermal efficiency and reduced blowdown**

Evaporation is a basic operation in the production of pure steam and WFI. The equipment's evaporator operates according to the proven natural circulation principle. The water, which is fed for evaporation, continually circulates between the evaporation chamber and the heat exchanger. A high thermal transfer enables the system to be heated up smoothly without causing temperature stress for the evaporator. This process only needs electrical energy or heating steam; no further process steps or functional modules such as a compressor are required.

"The new, compact design of the evaporator contributes to optimal thermal use of heating energy, leading to high yields and low operating costs", explains Medina. "Since the production of pure steam and WFI is particularly energy-intensive, improvements in efficiency play an important role in sustainability and climate protection." The geometry of both evaporators and condensers has been optimized for the new product range. For instance, Bosch adjusted the evaporator's diameter as well as number and formation of the heating pipes. Subsequently, the machines can achieve 20 percent higher performance rates compared to previous models. Bosch also succeeded in reducing the amount of water loss, which results from the disposal of endotoxins (blowdown) in the feed water, from between five and eight to no more than four percent.

**From 100 to 7,500 kilograms per hour**

With these new developments, Bosch has streamlined the product range, compiling a consistent set of machines. The number of different sizes was reduced from eleven to six pure steam generators and from fourteen to ten distillation units. "Customers profit from shorter delivery times, lower acquisition costs due to a higher degree of standardization and modularization," says Medina. The series now encompasses a performance range of 100 to 7,500



Key components of pharmaceutical production: While WFI is predominantly needed for the production of infusion and injection solutions, pure steam is mainly used for sterilizing equipment components. (Quelle: Tobilander @fotolia)



New generation of pure steam generators: The new, compact design of the evaporator contributes to optimal thermal use of heating energy, leading to high yields and low operating costs.

kilograms per hour. In order to enable quick set-up, feed water pumps with frequency regulation are used for all sizes. The equipment can be further adapted to the respective operating conditions.



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# Sampler with 3 aspirating heads



**TRIO.BAS**<sup>TM</sup>  
BIOLOGICAL AIR SAMPLER

Trio.Bas Air sampler is proposed to customers who make a large number of controls, in different environments, with staff rotation and that comply with the quality standards and QM GLP / GMP. The use of 3 heads allows to carry out at the same time two samples with different nutrient media. The registration of operator, sampling point and plates used for the sampling take place automatically by means of a system of radio frequency RFID. As an alternative to RFID, this air sampler can be equipped with a BAR-CODE module through the use of a scanner (Barcode Reader) with Bluetooth.

The data collected by the Barcode Reader are transmitted directly to the instrument. This solution proves to be useful for those who already use culture plates with Barcode 1D or two-dimensional Barcode 2D (QR Quick Response Code). The subsequent transfer of the data collected is via Bluetooth between the sampler and a PC or Laptop equipped with Bluetooth. PC or Laptop should have a dedicated software (BAS.PC).

Recharging the battery is done by induction without any cable connection between the instrument and the charger. The Air Sampler is free of any external plug and is IP65 certified. The charging base is equipped with a system that allows, regardless of the auto-calibration already present in the instrument, to be able to check and possibly realign the state of precision of the air flow. This verification is necessary to avoid invalidating the tests between annual inspections of official certification.

The most important customers are the pharmaceutical industries (and all those other industries that need to control microbiological air according to the GPL and GMP

rules), cosmetics, medical devices, industries that package sterile products for third parties, hospitals, etc.

rules), cosmetics, medical devices, industries that package sterile products for third parties, hospitals, etc.

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## Different models available



## Reusable cleanroom overshoes

These reusable overshoes for cleanrooms are used in sensitive environments, ISO 5. The material made out of polyester guarantees a minimum of losing particles. The incorporated carbon fiber provides for excellent antistatic qualities. Available colours: White and light blue.



The bottom is made out of ESD-conform synthetic leather. The overshoes can be washed at 60 degrees (if used within cleanrooms all clothes have to be professionally decontaminated). The product range of this company comprises also over-boots.



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New 2016 Redipor® price list available on request

## Cherwell Introduces New Redipor® Prepared Media Products to Support Customer Needs



The Redipor® prepared microbiological media range is available in a wide variety of formats

Cherwell Laboratories, specialists in cleanroom microbiology products, have introduced over 55 new products to their Redipor® prepared microbiological media range in the last twelve months. Cherwell's dedication to customer service and their ability to deliver bespoke prepared media solutions has seen the company working closely with customers to deliver these new prepared media products to meet their specific requirements.

In Cherwell's continued endeavour to provide the right product for their customers' needs, they have announced the availability of their 2016 Redipor price list. The new price list provides a foundation for discussion of more individual microbiological monitoring and testing needs and is available on request from [www.cherwell-labs.co.uk](http://www.cherwell-labs.co.uk).

With over 40 years' experience, Cherwell has developed a fully integrated range of products for environmental monitoring, product sterility testing, operator validation and process validation. The Redipor range, which is designed to meet customer requirements for both industry standard products and those with a unique formulation or presentation; includes petri dishes and contact plates, plus bottled media, broth bags and ampoules. All products are manufactured at Cherwell's ISO9001 registered site in Bicester and are sub-

ject to a full array of QC tests, including comprehensive growth tests, with detailed QC certification supplied for every batch.

Cherwell has maintained flexible production methods and managed stock levels, ensuring they can continue to deliver cost-effective, in-time solutions for both large and small customers alike.

Andrew Ramage, Microbiology Product Specialist, Cherwell Laboratories commented, "Having spent many years working within the industry, both I and Cherwell Laboratories understand that customers don't just want standard media, the media they use has to fit into their processes for the most accurate and consistent results. Our experience at working with customers producing bespoke products means we understand very quickly what they want and are able to offer a cost effective solution for their needs. In the last twelve months, we have worked with customers to produce, on average, nearly five new products a month."

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