



# CHINAPLAS 2020

## Polymers Enable & Enhance Sports at Every Level



Plastics and rubber materials have revolutionized many aspects of sports and leisure activities over the years, and technology advances continue to improve safety, comfort, performance and – increasingly – sustainability, in those sectors. The applications are diverse and widespread – ranging from the balls used in games and various footwear and clothing, to protective helmets and padding, playing surfaces, and gear such as racquets, golf clubs, safety eyewear, racing bikes, skis, kayaks and surfboards.

Manufacturers and brand owners, for example, are investing significant money and effort into producing sneakers and footwear that offer style, performance and increased recyclability while also leveraging techniques such as 3D printing.

Yantai, China-based materials supplier Wanhua Chemical Group Co. Ltd. has partnered with Chinese footwear maker Peak Sports to 3D print a futuristic-looking sneaker entirely from thermoplastic polyurethane (TPU). Called 'The Next,' the colorful shoe is both customizable and totally recyclable, the two firms said when announcing it in October. Wanhua supplies TPU filament, powder and coatings and adhesive to make the shoe.

Germany's Covestro, meanwhile, is also kicking up its heels in this sector. The materials supplier is working with Chinese shoe designer Axis Liu to create trendy, recyclable sneakers entirely from TPUs, as well. The partners have also developed customized running and basketball shoes, using a number of Covestro material technologies, including its Insqin-brand,

water-based PU textile coatings and adhesives, urethane foams, TPU textile fibers and films, and Maezio-brand continuous fiber-reinforced thermoplastic composites (CFRTP).

Others in that sector, such as Nike and adidas, also are finding ways to incorporate waste ocean plastics into their shoes and sportswear.

Indian start-up sports apparel company Alcis Sports, meanwhile, is making its line of athleisure clothing out of recycled PET bottles. Company co-founder



Roshan Baid told The Economic Times in India in October that the firm plans to produce half its garments from recycled polyester within the next few months. Alcis claims that each T-shirt they make, for example, consumes about eight plastic bottles, saves roughly 27 liters of water, uses half the energy to produce, and reduces carbon emissions by more than 54 percent than shirts made from virgin polyester.

Companies such as Spanish injection molder RDI Plastics use polycarbonate, ABS, expanded polystyrene and other materials to make protective helmets for use in hockey, soccer, motocross and cycling, among others.

Several materials producers are very involved in supplying solutions to different parts of the sports and leisure markets. Here are just a couple examples:

DuPont Co.'s Surlin resin finds use in golf ball covers, bowling pin covers, body boards, snowshoes and other winter sports articles. Its performance polymers, such as Delrin acetal resin, Hytrel thermoplastic elastomer and Zytel nylon resin are used in snow-shoe bindings, inline skates, and various types of buckles and straps. And its Kevlar aramid fiber is used in sporting good components ranging from bicycle helmets and motorcycle clothing, to boating hulls and hiking boots.

BASF SE's polyurethane-based flooring structures find use on track surfaces and chil-

dren playgrounds. The materials help to provide high rebound and excellent impact absorption, helping athletes achieve their best performance while lowering risks of exercise-related injuries for children.

When it comes to water sports, San Francisco-based Oru Kayak Inc. has applied the traditional Japanese art of origami and used it to create a series of lightweight, foldable kayaks made from corrugated polypropylene. Its products range from 12 to 16 feet long and from 26 to 34 pounds, and fold up into a suitcase-sized case with a shoulder strap that can easily be carried by one person.



French resin supplier Arkema Group also supplies materials for use in a variety of sporting applications, including for the cockpit window and the glazing shielding the two helms of its 50-foot Arkema trimaran racing boat. For that, they used Altuglas Shield-Up nanostructured acrylic sheet, which weighs about half as much as conventional glass.

In mid-October, the University of Maine's Advanced Structures and Composites Center, in conjunction with several partners, successfully produced the world's largest 3D printed boat, entirely from carbon fiber-reinforced ABS supplied by Techmer PM LLC. Dubbed the 3Dirigo, the 25-foot-long, 5,000-pound patrol boat was printed on a 3D printer, called the MasterPrint, made by Rockford, Ill. based Ingersoll Machine Tools Inc. The effort earned the group three Guinness World Records – for the world's largest prototype

polymer 3D printer, largest solid 3D-printed object, and largest 3D-printed boat. And even the sports venues themselves are making good use of plastic materials. At the Rio 2016 Olympics in Brazil, for example, officials found a way to use millions of recycled plastic bottles to produce more than 6,700 seats in the Maracanã stadium.

There is no disputing the vital role that plastics and rubber materials play in virtually every aspect of the sporting world – which is why such applications will be among those in the spotlight at CHINAPLAS 2020 in Shanghai next April.

CHINAPLAS 2020 is organized by Adsale Exhibition Services Ltd., Beijing Yazhan Exhibition Services Ltd., and Adsale Exhibition Services (Shanghai) Ltd. and co-organized by China National Light Industry Council – China Plastics Processing Industry Association, China Plastics Machinery Industry Association, Messe Düsseldorf China Ltd., the Plastic Trade Association of Shanghai. The event is also supported by various plastics and rubber associations in China and abroad.

First introduced in 1983, CHINAPLAS has been approved by UFI (The Global Association of the Exhibition Industry) since 2006. CHINAPLAS is exclusively sponsored by the Europe's Association for Plastics and Rubber Machinery Manufacturers (EUROMAP) in China for the 31st time. CHINAPLAS is currently Asia's leading plastics and rubber trade fair.

# More stability and reliability

## Lufthansa Group selects wGoogle Cloud as strategic partner

Flight delays, rebookings due to missed flights and extreme weather conditions are some of the many factors that can disrupt a flight schedule. In the interests of their customers, the Lufthansa Group airlines are always keen to return to a stable flight plan as quickly as possible.

Lufthansa Group has therefore chosen Google Cloud as a strategic partner to further improve its operational performance and minimize the impact of irregularities on its passengers. The aim is to build a platform that will suggest scenarios to return to a stable flight plan in the event of an irregularity so that passengers still arrive at their destinations as punctually and comfortably as possible. This will be done by merging data from various processes that are relevant for stable operations (for example aircraft replacement and maintenance as well as crew scheduling).

'By combining Google Cloud's technology with Lufthansa Group's operational expertise, we are driving the digitization of our operation even further,' said Dr. Detlef Kayser, Member of the Executive Board of the Lufthansa Group. 'This will enable us to identify possible flight irregularities even earlier and implement countermeasures at an early stage.'

For example, flights are sometimes delayed due to weather conditions such as snowfall and passengers might miss their connect-

ing flights. In the future, it will be possible to offer faster rebooking possibilities across all four hubs for Lufthansa Group passengers thanks to systems based on artificial intelligence.

'Through this collaboration, we have a significant opportunity to revolutionize the future of airline operations,' said Thomas Kurian, CEO for Google Cloud. 'We're bringing the best of Lufthansa Group and Google Cloud together to solve airlines' biggest challenges and positively impact the travel experience of the more than 145 million passengers that fly annually with them.'

A joint team of operations experts, developers and engineers from the Lufthansa Group and software engineers from Google Cloud will be developing and testing the appropriate platform. The test launch will take place in Zurich with SWISS.

The Lufthansa Group is the world's largest aviation group in terms of turnover as well as the market leader in Europe's airline sector. The airlines of the Lufthansa Group stand for safety, quality, reliability and innovation. The

Group strives to be the 'First Choice in Aviation' for its customers, employees, shareholders and partners.

The Lufthansa Group is divided into the business segments Network Airlines, Eurowings and Aviation Services. With their premium brands Lufthansa, SWISS and Austrian Airlines, the network airlines serve the Group's domestic markets at its hubs in Frankfurt, Munich, Zurich and Vienna. In addition to several Eurowings flight operations, the Eurowings business segment also includes Brussels Airlines and SunExpress. With its secondary brand Eurowings, the Lufthansa Group offers flights in the growing market of short-haul and long-haul private travel. The Aviation Services segment includes logistics, technical services and catering. All business segments play a leading role in their respective industries.

Lufthansa Group airlines serve 270 destinations in 105 countries on four continents, offering 10,775 weekly frequencies (winter 19/20). The current fleet is comprised of 763 aircraft. In 2018, the Lufthansa Group welcomed over 142m passengers on board and generated revenue of around €35.8bn. The Lufthansa Group has currently around 138,000 employees and comprises 550 subsidiaries and associated companies.



# Cooperation on smart factory projects

## HARTING and Expleo Group cooperate on IoT solutions



The HARTING Technology Group and Expleo concluded a cooperation agreement at the SPS Trade Fair 2019 in Nuremberg. The agreement was signed by Philip Harting, Chairman of the Board of the HARTING Technology Group, and Peter Seidenschwang, Head of Industry at Expleo Germany GmbH. It is a reaffirmation of the long-term cooperation by the two parties in the area of data-controlled services and IoT solutions for industrial customers. HARTING is offering the modular edge computing MICA®, which has been designed according to industrial standards for multiple industrial applications, and Expleo is contributing its know-how in connectivity and data-scientific competence.

The joint memorandum of understanding by the management of both companies is the culmination of many years of successful cooperation in MICA® network, the user organisation supporting HARTING's edge computing system MICA®. Expleo has been involved in the network since 2016, working on the development of a solution for the process and operational optimisation of machines and production systems. On the basis of compiled data, the SmartANIMO application from Expleo can independently learn the standard behaviour of connected production lines and individual machines and use this know-how to identify deviations in the process without manual interventions. Detecting any upcoming problems at an early stage means that the overall efficien-

cy of the system can be improved with a focus on predictive quality or predictive maintenance. The robustness and flexibility of MICA® also enables Expleo to implement the solution in industrial environments and to retrofit



existing production systems non-invasive.

Caption: The HARTING Technology Group and Expleo Germany GmbH concluded a cooperation agreement at the SPS Trade Fair 2019 in Nuremberg. The picture shows (from left) Philip Harting, Chairman of the Board of the HARTING Technology Group, Peter Seidenschwang, Head of Industry at Expleo Germany GmbH. At the HARTING stand at the SPS 2019, Expleo's Industrie 4.0 Showcase demonstrated how production data can be compiled by the edge computing device MICA and evaluated in the SmartANIMO application.

Expleo is a trusted partner for end-to-end, integrated engineering, quality services and management consulting for digital transformation. We help businesses harness unrelenting technological change to successfully deliver innovations that will help them gain a competitive advantage and improve the everyday lives of people around the globe.

Expleo is active in the technology-intensive sectors that make business and society more connected, sustainable and secure. We offer unique access to industry-specific expertise and best practice across the following services: consultancy and business agility, product design, production and in-service support, as well as continuous quality.

Our 15,000 people bring the right balance of boldness and reliability that businesses need to succeed in this disruptive era. We are active in more than 25 countries, generating €1.1 billion in revenue in 2018.

Expleo's network of affiliate companies includes Aero-tec, Athos Aéronautique, Double Consulting, Edison Technical Recruitment, Moorhouse Consulting, SilverAtena, Stirling Dynamics, Sud Aviation Services, Trissential and Vista Technologies.

The HARTING Technology Group is one of the world's leading providers of industrial connection technology for the three lifelines of Data, Signal and Power and has 15 production plants and 44 sales companies. Moreover, the company also produces retail checkout systems, electromagnetic actuators for automotive and industrial series use, charging equipment for electric vehicles, as well as hardware and software for customers and applications in automation technology, mechanical and plant engineering, robotics and transportation engineering. In the 2018/19 business year, some 5,300 employees generated sales of EUR 750 million.

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