

News Release

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CHINAPLAS 2019: BASF introduces the Ren Chair, a concept wheelchair to help users achieve a more active lifestyle

- **BASF's lightweight and durable materials enable mobility, greater comfort and stylish design, as well as extend the chair's usable life**
- **Concept wheelchair co-developed with wheelchair users by BASF, a wheelchair manufacturer and industrial designer**
- **Conceptual smartphone app improves safety with automated signaling**
- **BASF at CHINAPLAS 2019: Booth no. 11.2A41, China Import & Export Fair Complex, Guangzhou, PR China, May 21-24**

Guangzhou, China – April 11, 2019 – At CHINAPLAS 2019, BASF will introduce for the first time the prototype of a concept wheelchair, the “Ren Chair,” co-created by Wheel-Line Co., Ltd, REHTO Design and BASF. Developed in direct consultation with wheelchair users, the Ren Chair combines bold design and style with high-performance materials from BASF, addressing wheelchair users' needs for a safer, barrier-free experience.

Material innovations, combined with the availability of advanced design systems, are creating new possibilities for wheelchair users and caregivers to enjoy more freedom and versatility. “In China, we see strong demand for lightweight, durable wheelchairs with an attractive appearance,” said Dong Ok Kum, Chief Executive Officer, Wheel-Line Co., Ltd. “BASF provides us with great solutions to realize our vision of reducing the weight of wheelchairs without compromising on design and functionality.”

Lightweight plastics for higher performance

Lightweight materials from BASF used in the Ren Chair offer greater convenience and comfort for both users and caregivers. Lighter weight offers ease of mobility and also helps caregivers reduce the risk of injuries. The dual-density seat, made with BASF's Elastoflex® W flexible foam polyurethane system (PU), provides greater comfort to the user, owing to the high elasticity and compressibility of the material. Furthermore, the artificial leather in the seat cover, made with Elastollan® thermoplastic polyurethane (TPU) provides excellent haptics and enables easy cleaning.

New digital tool and durable materials for enhanced safety

A new smartphone app, which is connected to the sensors and connectors of the Ren Chair, can detect the wheelchair's movement and control the signal lights on the back, navigating users to access barrier-free facilities. The sensors and connectors, made with Ultramid® polyamide (PA) and Ultradur® polybutylene terephthalate (PBT) are more robust against damage, such as breaks and cracks, thereby improving users' safety on the road.

BASF's high-performance material innovations used in the Ren Chair offer superior mechanical properties, including high strength, abrasion resistance, and chemical resistance. For example, the seat back, made of Elastollan® TPU filament, provides comfortable and long-lasting seating with postural support, owing to its strength and durability.

Versatile materials enable design freedom for complex geometries

BASF's material innovations also enable freedom of design by using molding or 3D printing technology to produce complex shapes. Additionally, compared to traditional materials, high-performance materials such as TPU, expanded thermoplastic polyurethane (E-TPU), PU, and engineering plastics are simple to process and provide greater ease of coloring and decoration for more stylish designs, while maintaining the functionality. For instance, Elastoflex W possesses good flowability, which enables freedom of design for complex geometries.

The casters and caster housing in the wheels have been developed with the use of BASF's proprietary simulation tool, Ultrasim®. The tool provides precise calculations of the anisotropic mechanical behavior of material solutions, which

optimize production and minimize development costs.

“BASF’s material solutions, coupled with its technical and simulation technologies enabled the design and functionality of the Ren Chair,” said Jae Sung Go, Chief Executive Officer, REHTO Design. “The flexibility offered by the advanced materials opened up the creative space for us in developing the design of the Ren Chair.”

“The Ren chair’s design was facilitated by the Creation Center, BASF’s dedicated touch-point for engaging and inspiring designers, bringing their design concept to reality with material innovations from BASF,” said Tony Jones, Head, Industrial, Business Management, Performance Materials Asia Pacific, BASF. “Together, we co-created a prototype with a new look, feel and experience for wheelchair users who strive for greater independence in their daily living.”

Other conceptual material solutions in the Ren Chair to be presented at CHINAPLAS 2019 include:

- BASF’s Ultramid Vision PA offers a distinctive rear signal light design on the back of the Ren Chair, owing to its enhanced optical properties.
- Ultramid Structure LFX in the wheel spokes and flip-up footrest, enhances the durability, due to its high stiffness and strength, as well as enhanced fatigue strength.
- Ultramid SI, a surface PA in the body frame, provides a high-quality surface look and feel, in addition to possessing high stiffness, rigidity and impact strength.
- Elastollan in the armrest lights possesses excellent anti-abrasion properties and transparency.
- Elasturan® cast polyurethane PU in the casters and Ultramid PA for caster housing offers high resistance to dynamic and mechanical loads.
- Infinergy® E-TPU in the tires enhances the overall riding experience as a result of the outstanding cushioning effect from the E-TPU particles.
- Ultraform® polyoxymethylene (POM) in the gears of the release axle provides high flexural fatigue strength and good sliding friction performance.

[Click here](#) to see the video of Ren Chair’s development.

For more information on BASF at CHINAPLAS 2019, please click [here](#) or follow BASF_in_Action on WeChat.

About BASF in Greater China

BASF has been a committed partner to Greater China since 1885. With larger production sites in Shanghai, Nanjing and Chongqing, BASF is a major foreign investor in the country's chemical industry, and operates the Innovation Campus Shanghai, a global and regional research and development hub. BASF posted sales of over €7.3 billion in 2018 to customers in Greater China, and employed 9,317 people as of the end of that year. For further information, please visit www.basf.com/cn/en

About BASF's Performance Materials division

BASF's Performance Materials division encompasses the entire materials know-how of BASF regarding innovative, customized plastics under one roof. Globally active in four major industry sectors – transportation, construction, industrial applications and consumer goods – the division has a strong portfolio of products and services combined with a deep understanding of application-oriented system solutions. Key drivers of profitability and growth are our close collaboration with customers and a clear focus on solutions. Strong capabilities in R&D provide the basis to develop innovative products and applications. In 2018, the Performance Materials division achieved global sales of €7.65 bn. More information online: www.plastics.basf.com

About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The approximately 122,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio is organized into six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of around €63 billion in 2018. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the U.S. Further information at www.basf.com.