

Sailun sets sustainable standards with green EcoPoint³ technology Clean into the future with smart, innovative and efficient tires

Frankfurt, May 24, 2022 Sailun, one of the 20 largest tire manufacturers in the world is "ready to go" to present its wide product range of innovative car and truck tires in view of the trade fair THE TIRE COLOGNE 2022, which will take place in Cologne from May 24 to 26, 2022. Using the innovative EcoPoint³ technology and in response to future climate targets, immensely rising energy costs, the Chinese tire company is opening its new chapter in the young company's history at the world's leading trade fair for the tire industry. In addition to the EcoPoint³ technology and premieres around the current Sailun tire range, the focus is also on future ambitions in terms of resource conservation and the development and production of tires to improve the global carbon footprint while meeting climate targets. "Our vision for clean global mobility of tomorrow, convinces not only our customers, but also the international trade press, thus recognizing the performance, durability and efficiency of our tires as well as the innovative strength of our company in equal measure," said Gareth Passmore, Senior Vice President Passenger Cars and Trucks Europe in the run-up to Tyre Cologne in Cologne.

The Sailun tire brand is not only an innovation driver in the international tire industry. For example, the company, which was founded in China just 20 years ago, already ranks 17th among the world's 400 tire manufacturers, which have around 800 tire brands in their range, at the beginning of 2022. Gareth Passmore, Senior Vice President Car and Truck Europe, is pursuing ambitious goals with Sailun in the coming years, particularly in Europe: "We are not just offering tires for the cars of today and tomorrow. We offer intelligent, sustainable solutions that our customers can rely on. Our formula for success is: intelligent, smart technology, added sustainability and a premium brand experience." In short: premium-level product quality, sustainable technology and a smart, modern brand.

In addition to driving comfort and fuel economy, the Sailun Group's core themes are the use of renewable raw materials and the economical use of resources in development, manufacturing and production. With these aspects in mind, the innovative EcoPoint³ technology, which sets new standards in the industry, was also developed to production readiness. "We develop the Sailun and Maxam brands in Europe and worldwide on the basis of values, emotional brand-building technology and consumer insights. With EcoPoint³ technology and the corresponding test results,



Sailun – 20 years of innovation and progress

Sailun Group was founded 20 years ago in the East China technology and economic zone of Qingdao. Starting as a technology and testing platform for tires, the Sailun tire group is now one of the top 20 tire manufacturers in the world (ranked 17th in 2021). Sailun Group employs about 13,000 people, including scientists, technicians and designers. 300 specialists research the tire generations of the future and work together with Qingdao University of Science and Technology on continuous improvement. For each new tire, design engineers create and develop quality tires on the computer, on the road and through rigorous testing that meet customers' needs - and also protect the environment and resources. Whether optimizing rolling resistance, durability, better fuel economy or meeting the challenges of electromobility, it's all about innovative materials and composites that successfully position the Sailun brand among manufacturers and customers alike as an alternative to premium manufacturers.

With the know-how accumulated over two decades, the total annual capacity in Sailun's seven high-tech production facilities amounts to more than 80 million car and truck tires, as well as 160,000 tons of specialty tires for agricultural, industrial and OTR- vehicles produced by the subsidiary brand Maxam. Four of the tire factories are located in northern China (Qingdao, Dongying, Shenyang, Weifang), and two others in Vietnam, one of which is operated as a joint venture with Cooper. Another production site is in neighboring Cambodia. To serve international markets around the globe, Sailun has a global distribution network and numerous logistics centers in North America, Europe, Australia and Asia.

Sailun currently sells around seven million tires per year on the European markets, and the trend is rising. "Our goal of becoming the smart alternative to the established brands, especially here in Europe, is a special challenge for Sailun," says Gareth Passmore. The aim is to meet the challenges of the markets throughout Europe with their high-performance density and strong industry competition, to offer even more





premium quality at attractive prices, and to always focus on innovative further development of the tire range. To this end, the Chinese invest more than 30 % of their 2021 net profit in the further development of their tires. Together with Qingdao University of Science and Technology, the tire manufacturer is constantly researching new products and breaking new ground.

EcoPoint³ – innovative technology sets new standards in the tire world

Today's tires are true high-tech products. Many thousands of working hours are invested before a finished product rolls off the production line. And the road to series production always leads through various stations in the research and development department. This also applies to the EcoPoint³ technology, which will be used in all new Sailun tire products in the future.

The development until the EcoPoint³ tire technology was ready for series production took almost a whole decade. In this time Sailun collected its exclusive know-how also from numerous co-operation and development partnerships. In addition, Sailun's developers worked together with manufacturers and customers on new concepts and researched which requirement profiles would prove themselves in practice and everyday life on roads in use worldwide. A process that lasted many years, during which the current new tires with EcoPoint³ technology have been subjected to countless tests and simulations in various driving situations.

At the end of 2011, the founding of the EVE Rubber Research Institute by Sailun's National Rubber and Tire Engineering Technology Research Center marked the start of today's EcoPoint³ technology. After nearly two years of fundamental research in the field of liquid-phase mixing, Sailun officially filed the first of numerous patents related to continuous liquid-phase mixing in 2013.

The very next year, Sailun started to industrialize the liquid-phase mixing technology. In March 2016, the trade journal "Tire Technology International" first reported on the development status at that time and praised Sailun's liquid-phase mixing technology, now known as EcoPoint³ technology, as "liquid gold". April 2018, the first batch of tires made of EcoPoint³ rubber rolled off the production line at Sailun Group Dongying Factory.

The EcoPoint³ tire then made its debut on the OE market for the first time in 2019 on vehicles in the mid- to high-end tire segment. Here, the 245/70R17 tire dimension was

SAILUN SAILUN MAXAM EcoPoint³

used exclusively for BAIC Off-Roader BJ40 City Edition models. In the same year, the EcoPoint³ tire size 205/55ZR16 is subjected to extensive quality tests by IDIADA. Experts attest the EcoPoint³ tire convincing properties in terms of rolling resistance and in the area of wet grip.

At the end of 2019, the National Rubber & Tire Engineering Technology Research Center of tire manufacturer Sailun will enter strategic cooperation with passenger car and truck manufacturer China FAW Group (passenger cars, medium to heavy buses and trucks), and establish a new research and development laboratory for the Automotive Rubber Products Alliance with the passenger car and truck manufacturer. The joint goal is to expand and apply high-performance tires based on the new EcoPoint³ technology.

Series production of tires based on the new EcoPoint3 rubber technology started as early as mid-2020 with a target capacity of 300,000 tons. In May 2021, the developed EcoPoint³ tires were tested by the international testing center IDIADA, the automotive industry's development service provider in Spain, and achieved the top score for both rolling resistance and wet grip, thus earning the EU tire label's Class A quality seal.

At the end of 2021, the internationally independent testing, inspection and certification company TÜV Rheinland published the first test results on fuel consumption and awarded Sailun Group the "Energy Saving Pioneer" award for the new tire generations based on the green EcoPoint³ technology due to their excellent fuel consumption data.

In the future, virtual tire development will also play an important role at Sailun, especially since it offers enormous innovation potential - particularly regarding the development of tires for alternative forms of propulsion such as electromobility. What's more, the different requirements for Sailun tires can be tested much more precisely and in a resource-saving manner, and the knowledge gained can be incorporated into the respective development processes for new tire ranges at a much earlier stage.

EcoPoint³ – everything you need to know about green tire technology

Modern tires are often taken for granted, but they contain so much more than simple rubber. They are made up of around 25 components, various rubber compounds, plenty of fillers - and lots of know-how. The basic ingredients of a tire compound include synthetic and/or natural rubbers, silica, carbon black, fillers, sulfur, zinc oxide, oils and resins. If necessary, they are weighed to the nearest thousandth of a gram and processed into a compound.



"The demands placed on tires today are much more complex than in the past. On the one hand, they have to meet the highest safety standards with maximum performance, and on the other hand, they have to be environmentally friendly in production, sustainable in service life and, of course, as efficient as possible," emphasizes Dr. Wang Mengjiao, a scientist in rubber science and dean of the EVE Rubber Research Institute, who is leading the development of EcoPoint³ technology. With the new EcoPoint³ technology, Sailun has managed to meet all the requirements for a modern high-tech tire without compromising. Compared to green tires produced by international brand manufacturers using the dry process, Sailun's tires produced with EcoPoint³ technology achieve a globally high level of guality in the performance indices of composite tires. In practice, this means: EcoPoint³ tires are primarily characterized by the improvement of wet skid resistance, a reduction in rolling resistance and an improvement in wear resistance. "EcoPoint³ is undoubtedly a milestone in the development of green tire technology at Sailun. Already in the production of our new car and truck tires, we are reducing energy consumption for every tire produced. In addition, we use silica instead of fossil carbon black as the main filler, which again significantly reduces the CO₂ footprint and also underlines our sustainability ambitions," said Gareth Passmore, Senior Vice President Car and Truck Europe.

EcoPoint³ - Facts and Figures on Sailun's liquid-phase mixing technology

What makes the EcoPoint³ technology so special is the new mixing technology. Sailun has been researching the so-called liquid-phase mixing, on which the EcoPoint³ technology is based, for around ten years. Until now, fillers have been mixed into the rubber purely mechanically. This is a very energy-intensive process in which the filler is often not well distributed.

In Sailun's world-first continuous liquid-phase mixing, on the other hand, the filler is fully and uniformly dispersed, and the degree of dispersion tends to reach its limit. Compared to the conventional dry mixing technique, the filler can thus be mixed evenly and optimally in the nanometer range. There is also a high efficiency of salinization, leading to stronger filler-polymer interaction and weaker filler-filler interaction. Sailun tires thus obtain a significantly finer compound, which at the same time exhibit excellent dynamic properties, better strain-stress properties, friction, and abrasion.



Significant product advantages of Sailun tires with EcoPoint³ technology

On the one hand, the new compound technology improves wear resistance and grip in wet conditions. This is because the use of silica as a filler enables the tire to better penetrate the water film on the road and thus generate more grip, especially on slippery roads, which makes a significant contribution to increasing safety. Another advantage of EcoPoint³ tires is their lower rolling resistance, which significantly reduces fuel consumption, especially in conventionally powered vehicles, and noticeably increases the range of electric cars. Extensive tests with EcoPoint³ tires on the roads of China, Japan, Europe and North America have shown a fuel consumption advantage of around 20 percent compared with competitor products, with up to 30 percent higher mileage. According to Dr. Wang Mengjiao, "EcoPoint³ tires clearly have the potential to successfully solve the problem of the so-called Magic Triangle which has plaqued the industry for many years. Previously, the problem with Green Tires was increasing rolling resistance and wet skid saw a significant decrease in wear resistance, now EcoPoint³ allows for the overall improvement in all three attributes," he said. The results from Sailun's extensive testing and research confirm that, provided other performance characteristics are not compromised, EcoPoint³ tires can improve the balance and improvement of these three characteristics to the highest degree.

EcoPoint³ tires also reduce heat generation in the tire and already contribute to noticeably improved ride comfort and reduced noise emissions. This is due to the fact that the rubber compound of EcoPoint³ tires is softer, which reduces noise generation on contact with the road and results in fewer vibrations. It also reduces excessive heat build-up in the tire and the associated wear and tear, significantly increasing tire safety and overall tire life. In addition, the EcoPoint³ tire offers exceptional all-season performance thanks to its softer rubber compound.

Finally, the silica filler used in EcoPoint³ tires, known as white carbon black, uses raw materials that originate from sand making it a more sustainable option compared to carbon black, which uses fossil fuels in its creation. In general, silica is also more durable compared to carbon black therefore improving wear resistance and reducing the amount of rubber particles released.



EcoPoint³ offers best performance also for electric cars

Choosing the right tires for electric vehicles is crucial for the efficiency, braking performance and mileage of its users. Therefore, a tire's rolling resistance plays an even greater role for electric cars. After all, lower rolling resistance means greater electric range and efficiency, while contributing to overall sustainability. What's more, thanks to EcoPoint³ technology, rolling resistance remains stable even at lower temperatures and, what's more, increases much more slowly than with comparable tires from competitors. This is especially beneficial to owners of e-cars in Scandinavia and European high altitudes.

Sailun tires create an optimal balance between tire size and component distribution. Sailun's high-tech compounds provide robust bonds between silica and rubber and allow for optimal adaptation to changing road conditions, ultimately improving the tire's rolling resistance and fuel economy. Dr. Wang Mengjiao: "Thanks to EcoPoint³ technology, the tires better compensate for the high torques of electric motors and have a particularly quiet driving noise. After all, electric cars are also much quieter on the road. The tires can also handle the additional weight of the battery and score with extremely low rolling resistance, which increases the range of electric vehicles."

EcoPoint³ tires guarantee low-noise tires, optimum grip and shorter braking distances, and also withstand the demands of EV

Electric vehicles have instant torque, meaning they accelerate the second you fully depress the pedal. However, the instantaneous tire torque of electric vehicles can also increase wear. In addition to good grip and low rolling resistance, the rubber compound used for electric vehicle tires must also offer maximum robustness. More weight also means longer braking distances. Thus, Sailun focuses on using the best possible rubber compounds for its latest tire generations. The Sailun Atrezzo Elite, for example, relies on a premium compound with additives for improved braking performance, even on heavier electric vehicles. In addition, in the absence of engine noise, low-noise tires contribute to a smooth and quiet driving experience by reducing tire noise transmitted into the passenger compartment. EcoPoint³ technology therefore also serves to reduce tire noise, which reduces interior noise on all road surfaces and leads to greater comfort. In addition, it offers great potential fuel savings and the tire impresses with its excellent comfort and driving performance.



The CO₂ savings potential of EcoPoint³ tires through the world's first rubber enhancement technology

Instead of the traditional rubber mixing process, Sailun uses the world's first liquidphase mixing technology, which significantly reduces energy consumption in the manufacturing process. Finally, the use and reuse of tires is also environmentally friendly and reduces CO₂. Consequence: EcoPoint³ tires also offer high social and economic benefits in addition to their superior rolling resistance, wear resistance and consumption-optimized potential. Example 1: If we take a truck tire as an example, for every 100 Km, the fuel-saving between the EcoPoint³ tire and competitors' tires is from 2 up to 7 liters. If a truck drives 200 thousand km per year, the minimum fuel saving is around 4 thousand liters (ecoscore, 2022), cutting the carbon emission by 10.6 metric tons. If all 6.2 million trucks in Europe use EcoPoint³ tires, we will save almost 21 million tons of fuel and cut the carbon emission by 65 million tons. According to the regulation setting CO₂ emission standards for heavy-duty vehicles issued in August 2019 (Commission, 2022), Europe targeted 54 million tons of carbon reduction in the period 2020 to 2030. Simply adopting EcoPoint³ tires will exceed this goal.

Not only are the raw materials Sailun selects environmentally friendly and low carbon, but all areas of the manufacturing process are clearly aligned with sustainable specifications. For example, non-fossil silica is used in the selection of raw materials for EcoPoint³ tires. The silica is produced by the National Engineering Research Center for Rubber and Tires' (NERCRAT) globally unique carbon dioxide process, replacing carbon black filler made from fossil fuels. This innovative process helps reduce CO_2 emissions by an average of about 8 kg for a Sailun passenger car tire and about 36 kg for a Sailun truck tire. At the same time, the EcoPoint³ compound is produced using liquid-phase mixing technology compared to synthetic rubber produced using the conventional mixing process, which significantly reduces energy consumption due to the simplification of post-treatment processes such as drying, molding and packaging.



Experts attest great potential to Eco-Point³ tires from Sailun and Maxam Result of consistent investment in research and development

Sailun tires with the new EcoPoint³ technology are not only particularly sustainable, but also offer significant fuel savings while meeting the highest standards of safety and performance compared to competitors in the tire industry. Some current examples in shorthand:

Example 1: Consumption and rolling resistance tests by AutoBild, TÜV Süd and IFV proved significant fuel saving of up to 5 % of Sailun Atrezzo Elite

The tire experts of AutoBild, TÜV Süd and IFV (Ingenieurgesellschaft für Fahrversuche) tested the Atrezzo Elite on the road over a distance of 2,000 kilometers (20% country road, 80 % highway at a maximum speed of 120 km/h). The results: Sailun's low-rolling-resistance tire demonstrated its advantages with a significant fuel saving of up to five percent compared with competing products. Converted, it saves car owners up to **half a liter of gasoline per 100 kilometers** in everyday mobile driving. Converted to an average annual mileage of 15,000 kilometers, this adds up to 75 liters, for example. Furthermore, the Rolling resistance test at on the calibrated test stands of TÜV SÜD in Garching near Munich achieves, that the new Sailun Atrezzo elite lands with somewhat over ten kilograms with the weight on the second place, but with clearly lower rolling resistance. In detail, the independent TÜV engineers attested it an advantage of over **25 % over comparable competitor tires.** The result means noticeably lower consumption and longer ranges for drivers in everyday driving.

<u>Example 2:</u> Fuel consumption test by TÜV SÜD proved advantages in consumption and performance of Sailun truck tires STL2, SFL2 and SDL2

The comprehensive tests of Sailun's truck tires STL2, SFL2 and SDL2 has passed TÜV SÜD tests. During the tests of the new generation of EcoPoint³ tires proved its strength not only around economy (rolling resistance), but also in consumption and performance on road. The Sailun truck tire showed **better fuel consumption performance from 3.3 % up to 7.6 %** compared to the premium competitors (fuel consumption L/100km). Results: In the area of rolling resistance, the new EcoPoint³ tire generation **reached the EU label A** (SFL2, SDL2 and STL2) and have been awarded with the seal of quality in form of TÜV Süd Testmark.

Example 3: Performance tests of AutoBild confirm competive characteristics in dry, wet and snow conditions of Sailun Atrezzo 4Seasons Pro

Comprehensive performance tests of AutoBild at UTAC (Ivalo, Finland) revealed that the Sailun Atrezzo 4Seasons Pro – the new generation of EcoPoint³ tires – is on the **same quality level as premium competitors**. They also confirmed the **competitive performance in dry, wet and snow conditions**. In addition, data shows **better rolling resistance** of Sailun Atrezzo 4Seasons Pro against direct premium competitors.



Example 4: Rolling resistance tests of TÜV Süd verify the excellent properties in the area of rolling resistance from 9,8 % up to 39,2 % of Maxam MS 700 tires

According to recent tests by TÜV Süd, the Maxam MS700 for forklifts is better than established competitor tires, especially in rolling resistance. Forklifts are among the most important machines in the world. They should therefore always have optimum tires. As an original equipment tire partner for the leading forklift brands, Maxam places particular emphasis on the highest possible quality. Maxam MS700 tires showed **rolling resistance advantages of 9.8 % up to 39.2 %** compared to leading automotive premium manufacturers in this segment.

Example 5: Performance tests with Tesla Model 3 in North America confirm range advantage of up to 7 % for EVs on new Sailun EcoPoint³ tires.

Extensive tire tests in North America with Tesla Model 3 models showed how the Sailun EcoPoint³ tires combines a variety of advantages: always good grip despite electric-typical higher vehicle weight, little wear under heavy acceleration, low rolling resistance and therefore more range and less road noise. With **5 % shorter dry braking distance**, **15 % lower rolling resistance coefficent and 7 % improved battery life**, the Sailun EcoPoint³ tire played out its advantages compared to the competitor tires.

<u>Example 6:</u> Driving noise tests of AutoBild revealed a reduction of pass-by noise compared to the competitors up to 3 dB for Sailun Atrezzo Elite.

The size 215/55 R17 was tested on the vehicle models VW Passat and Skoda Superb, which are just used as company cars in fleet operation. At the manufacturerindependent test center TRIWO in Pferdsfeld (Rheinland Pfalz, Germany), the environmental impact of driving noise was also tested. A criterion that is becoming increasingly relevant and can already be read on every tire label. Background: The EU will prescribe a significant reduction in rolling noise soon. Result: The Sailun Atrezzo Elite already meets the high requirements. In the pass-by noise test, Sailun's tire **rolled up to 3 dB (decibels) quieter** than its competitors.

<u>Example 7:</u> Tests by TÜV Süd underline superior performance in terms of rolling resistance, wet handling and braking of the Sailun Atrezzo ZSR2

Sailun's Atrezzo ZSR has passed the TÜV SÜD test. During the TÜV test of new EcoPoint³ tires proved its strength not only in the area of economy (rolling resistance), but also in wet handling and wet braking, among others. In all aspects Sailun Atrezzo ZSR2 maintained superior performance compared to competitor products.



Notes for editors: Sailun - Facts & Figures

The Sailun Group was founded 20 years ago in the East China technology and economic zone of Qingdao. Starting as a technology and testing platform for tires, the tire group is now one of the top 20 tire manufacturers in the world (ranked 17th in 2021). There are currently around 400 tire manufacturers worldwide with about 800 tire brands.

Sailun produces in a total of seven high-tech production facilities - four of which are located in northern China (Qingdao, Dongying, Shenyang, Weifang), two in Vietnam, one in Cambodia. To serve international markets around the globe, Sailun has a worldwide distribution network and numerous logistics centers in North America, Europe, Australia and Asia. With a total production capacity of more than 80 million truck tires and passenger tires and 160,000 tons of specialty tires in 2021, Sailun serves its customers in more than 180 countries and regions around the world. In Europe, sales have already reached a stable figure of 7 million tires and continue to grow.

With the goal of further expansion, Sailun Group invests around 30 percent of its net profit in 2021 in the further development of its tire range. 300 specialists are researching the tire generations of the future and are constantly working together with Qingdao University of Science and Technology to improve the new tire generations in order to become the pioneering alternative to established premium manufacturers for its international customers.

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