

ERJ Future Tire & Rubber Awards 2024

Samara Amos. PR and Internal Communications Specialist samara.amos@conti.de

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Name and contact details of person submitting the entry

Samara Amos. PR and Internal Communications Specialist

samara.amos@conti.de

Please indicate if we can contact you to request further information about this entry

- Yes, by email

Company/companies (lead customers, suppliers etc) involved in the project or innovation. (Where possible, please give location details.)

Continental AG - Hannover

Continental Tyre Group Ltd
Botanica Ditton Park, Riding Ct Road, Datchet
United Kingdom
SL3 9LL

Which category or categories in the FTR24 Awards does this entry apply to?

- Low-emission/resource-efficient manufacture

Please give a title for the project or innovation?

Continental UltraContact NXT

Q1. Please summarise the main benefits of this development for the tire and/or rubber industry

Sustainable material usage: With a share of up to 65 percent of renewable, recycled and mass balance certified materials, our UltraContact NXT is the most sustainable production tire on the market to date.

The UltraContact NXT combines a remarkably high share of sustainable materials with maximum safety and performance.

Continental is the first manufacturer to launch a tire with both a high share of sustainable

materials and maximum EU tire-label performance in volume production. All 19 sizes available will carry the highest possible rating (“A”) of the EU tire label in rolling resistance, wet braking, and exterior noise.

The low rolling resistance significantly reduces the overall emissions of the tire during the use phase.

Transparency and trust: the use of a robust, innovative mass balance approach, which is certified by ISCC PLUS, ensures transparency and traceability throughout the supply chain by tracking the origin and characteristics of raw materials, verifying compliance with sustainable criteria and certifying the resulting product.

Future-readiness: the development and introduction of the UltraContact NXT aligns with Continental's long-term goals of increasing the share of renewable and recycled content in its tires to more than 40 percent by 2030 and transitioning to 100 percent sustainable materials by 2050 at the latest. This readiness to adapt and innovate places Continental at the forefront of the future tire market, which is expected to become increasingly regulated and consumer-driven towards sustainability.

In summary, the development of the UltraContact NXT tire represents a step forward in merging sustainability with performance, industry leadership, and customer trust, while also addressing the goals of environmental protection and resource efficiency in the tire manufacturing sector.

Q2. What are the main technical advances involved?

Depending on its tire size, the UltraContact NXT has a share of up to 65 percent renewable, recycled and ISCC PLUS mass balance certified materials. Renewable materials make up to 32 percent. The proportion of recycled materials is up to five percent. Furthermore, Continental sourced an amount of up to 28 percent ISCC PLUS mass balance approach certified materials from bio, bio-circular and/or circular feedstock.

To achieve this high amount of sustainable materials in a serial tire, robust research and development is required to identify, test, and integrate materials that meet the functional and safety standards of tire production while also providing environmental benefits.

Innovative material integration:

- o Use of recycled steel and reclaimed rubber for the construction of the tire.
- o Incorporation of polyester from recycled plastic bottles (PET) – which is not sourced from closed recycling loops – for the tire’s casing. We call this ContiRe.Tex technology.
- o Utilization of silicate from rice husk ash and bio-resins as renewable materials in the tire.
- o Integration of sustainable synthetic rubber and sustainable carbon black using the mass balance approach certified by ISCC PLUS.

Mass balance approach: the adoption of the mass balance approach allows us to mix renewable or recycled raw materials in the production process while maintaining

traceability and allocation to the final product. The ISCC PLUS certification adds an extra layer of integrity and verification throughout the supply chain.

Performance retention: despite the high percentage of non-traditional materials, Continental managed to achieve a Triple A EU tire label rating for rolling resistance, wet grip, and noise levels. This indicates that we have effectively addressed the engineering challenge of incorporating sustainable materials without compromising tire functionality.

Durability and robustness: naming the tire "UltraContact" underlines its durability and robustness, which implies

Q3. Which technical challenges did the development team overcome to deliver this project?

The development team for the UltraContact NXT tire faced several technical challenges to successfully deliver this project:

Material compatibility: integrating a high percentage of recycled and renewable materials into the tire, and ensuring new materials were compatible with each other and with traditional tire materials, to maintain the tire's integrity, durability, and performance.

Safety and performance standards: guaranteeing that the use of alternative sustainable materials with different properties did not compromise safety and performance and meeting the stringent Triple A rating on the EU tire label for rolling resistance, wet braking, and rolling noise.

Supply chain management: securing a reliable, consistently high-quality supply of recycled, renewable, and certified materials to meet the demand for tire production.

Production process adaptation: modifying existing tire manufacturing processes to incorporate a significantly different mix of materials, adjusting and innovating production techniques and quality control measures to ensure the tires produced were uniform and met specified standards.

Mass balance certification: implementing and adhering to the ISCC PLUS mass balance certification process and establishing rigorous traceability and documentation to uphold the certification's standards.

Research and development: identifying suitable alternative materials that could withstand the high stresses to which tires are subjected and conducting extensive testing to ensure that these materials would perform under various conditions.

Material transition: managing the transition of raw materials to sustainable alternatives, considering limitations in the availability and current technical restrictions of certain required raw materials.

Technical collaboration: collaborating with and co-ordinating external partners and suppliers to source and verify the quality of sustainable materials.

Q4. Please provide data showing the scale of improvement(s) achieved across the key, target metrics/parameters of this project

Sustainable material content: UltraContact NXT has a share of up to 65 percent renewable, recycled and ISCC PLUS mass balance certified materials.

Environmental impact: the use of sustainable materials in combination with the particular low rolling resistance reduces dependence on fossil resources and the overall environmental impact of tire production.

Size availability: the tire is available in 19 sizes, catering to a wide range of vehicles, including popular electric and combustion engine models, which allows the improvements to impact a significant segment of the market. It is also a summer tire, again increasing its appeal, accessibility, and positive impact.

EU tire label rating: all sizes of the UltraContact NXT have achieved a Triple A rating – a key target set during development – representing the best possible score for rolling resistance, wet braking, and rolling noise. This suggests a top-tier level of performance in critical safety and efficiency categories.

Material innovation: the use of innovative materials such as silicate from rice husk ash, bio-resins, and recycled PET polyester demonstrates success in material technology integration.

Supply chain management: successful sourcing of recycled and renewable materials, as well as mass-balanced certified materials through a verified chain of custody, showcases an improvement in sustainable supply chain management.

Long-term goals: the project aligns with Continental's "Vision 2030" strategy for integrating more sustainable materials into its products, aiming to have over 40 percent renewable and recycled content in their tires by 2030 and 100 percent sustainable materials by 2050 at the latest.

Q5. What is the commercial status of the technology or product?

We are experiencing demand for more sustainable products from Original Equipment Manufacturers, tire dealers and drivers. With climate change and environmental conservation firmly at the top of the global agenda, many consumers are seeking to make more environmentally friendly choices, including purchasing eco-friendly tires made from responsibly sourced, sustainable materials.

The UltraContact NXT is now available for sale at retailers.

Q6. Scope for further enhancements to the technology or product

We consider the UltraContact NXT to be a “lighthouse product”. The experience we are gaining through its development, material purchasing, and sales will help us to incorporate the materials in more products:

Increasing sustainable material content: our goal is to further increase the proportion of renewable and recycled materials in our tires. By 2030, we aim to have over 40% renewable and recycled content in our tires, with plans to achieve 100% sustainable materials by 2050 at the latest.

Material sourcing and certification: as the availability of certified sustainable materials increases, we can continue to develop the range of inputs used in tire production. This evolution will likely require ongoing adjustments to the Mass Balance Approach and new certifications.

Research and development: Ongoing research may lead to the discovery of new recycled, renewable, or otherwise sustainable materials that outperform current alternatives in various aspects, such as durability or safety.

Technological innovations: continual advancements in tire manufacturing technology may enable more efficient integration of sustainable materials into tire production while reducing costs and improving scalability.

Many thanks for completing the FTR24 Awards entry form. You can add further information here and/or email supporting information to ERJ Editor: praleigh@eurorubberjournal.com

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