"Taking responsibility – for products and resources": Circular Economy at Porsche

18/12/2024 Porsche aims to use recycled materials in its vehicles and close resource loops. Jonathan Hörz, Head of the sustainability strategy field "Circular Economy", explains how the company intends to combine its ecological goals with economic efficiency through closed material cycles and durable product concepts.

Jonathan, why is sustainability so important to you?

Jonathan Hörz: Ferry Porsche once said, "We shouldn't use the limited materials available on this planet in a way that they end up being discarded after use." This mindset is deeply reflected in both my personal and professional approach to sustainability. During my studies, I focused on how businesses can operate sustainably and responsibly. These topics have continued to shape my career path. Now, as the Head of the Sustainability Strategy Field "Circular Economy," I work on ways to maximize the use and preservation of resources for as long as possible. Our decisions, whether personal or professional,

have an impact – not only for the economic system but also for the environment, animals, and people. We must take responsibility – for our actions, our products, and the resources they contain.

What does the circular economy mean for Porsche? What are your responsibilities as the head of this strategic field?

Hörz: Circular economy is one of six pillars within Porsche's sustainability strategy. Together with my team, I work on closing material loops at Porsche to both reduce our ecological footprint and contribute to preserving natural resources. We define the strategic direction for this field, establish objectives, and initiate specific actions. In all these efforts, we collaborate across departments at Porsche to advance circular economy collectively. We aim to integrate the concept of circular economy throughout the entire product lifecycle of our vehicles – from the sourcing of raw materials, through development and production, to the use phase and the end of the product's life.

Let's take a closer look at the product lifecycle of a Porsche vehicle: What role does circular economy play in vehicle development?

Hörz: Starting in the development phase, we are working on designing our products in a way that their raw materials can be reused as much as possible after their initial use – a principle we call "Design for Recycling". This involves evaluating which components and materials are particularly suitable for recycling processes and determining how to use them most efficiently. At Porsche, we also examine the supply chains of our components in this context. Together with the procurement team, we strive to focus not only on the materials themselves but also on the entire value creation process.

Do you have specific examples of sustainable materials in Porsche vehicles?

Hörz: In the future, we aim to increasingly use recycled materials as well as renewable resources in our vehicles. For our upcoming fully electric vehicle models, Porsche has therefore set goals for the use of these materials. However, even today, recycled materials can be found in our vehicles. For example, in the interior of the Taycan, we offer our so-called "Race-Tex" upholstery, which is partially made from recycled polyester fibers.

Let's take a look at the use phase ...

Hörz: Our vehicles are emotional, and we want them to be used by our customers for a long time. The same applies to the materials and resources used in them. To carry this fundamental idea over to our vehicle components, we have developed an extensive "proactive remanufacturing" concept together with the Aftersales team. The goal is to avoid using a new part when a component needs to be repaired. Instead, we aim to provide the option of using a refurbished part, such as a reconditioned transmission, starter, or electronic control unit. These parts meet the same requirements as new parts but require up to 80 percent less new raw materials compared to a new part. Additionally, this helps improve the availability of replacement parts, which is particularly important for our Porsche Classic vehicles.

Are there similar concepts from Porsche for the high-voltage batteries of our electric vehicles? How do they work in practice?

Hörz: For the high-voltage battery, we have comprehensive repair concepts in place to ensure as long a service life as possible – these are available in all sales regions for our fully electric models, the Taycan and the new Macan. In the event of a battery malfunction during the use phase, the issue can be diagnosed by our Porsche centers, and the defective components, including individual battery modules, can be specifically replaced to restore functionality.

What happens to the high-voltage battery after its use in the vehicle?

Hörz: After the batteries in our vehicles have reached the end of their useful life, responsible management of the raw materials remains a high priority for us. One option is to repurpose used batteries in internal energy storage systems. I would like to highlight one particular project: At our Leipzig plant, colleagues from production have built a stationary energy storage system with used Taycan batteries. The battery modules, which come from pre-production and prototype vehicles, were integrated into the new energy storage system without any technical modifications. This system consists of a total of approximately 4,400 individual battery modules and is designed for a service life of over ten years. If necessary, individual battery modules can also be replaced. With this concept, we have demonstrated how high-voltage batteries can be used resource-efficiently and meaningfully in a second life phase.

What option remains when a high-voltage battery is no longer usable elsewhere?

Hörz: When further use of the battery modules is no longer possible, we aim to return the raw materials used in them to the battery cycle as effectively as possible. That's why Porsche, together with the Volkswagen Group, is actively involved in the field of battery recycling and potential future developments. We've already taken an important step: In May 2024, Porsche Ventures invested in the start-up company Cylib. Through an innovative process, Cylib can recover up to 90 percent of the battery raw materials, enabling the extraction of valuable materials such as lithium, cobalt, and nickel from old batteries. As part of a pilot project, we are currently exploring the feasibility of a closed-loop battery system. Porsche's long-term goal is to use recycled raw materials in new batteries.

Do your activities contribute to ecological sustainability in ways that offer additional benefits Porsche can profit from from a business perspective?

Hörz: I'm convinced that by implementing the concept of the circular economy, we not only become more sustainable as a company but also enhance the longevity of our products and strengthen Porsche's positioning. For example, by reusing and recycling materials, we can make ourselves increasingly independent from volatile and geopolitically uncertain raw material markets. This approach can also lead to cost savings in the long run, as we recycle materials and reintegrate them into the production process, rather than having to dispose of them at high costs. Circular economy concepts show how ecological and economic interests can go hand in hand.

What projects do you have planned, and what do you hope for in the future?

Hörz: Currently, my team and I are working intensively on defining what our future recycling network for high-voltage batteries will look like. We also aim to strategically shape the direction of other value creation networks in the future and involve potential partners. To further promote the efficient use of selected materials in our vehicles, we are furthermore working on testing an exclusive interior made from regional leather sourced from organic-certified farms. For the future, I hope that as a society, we become more aware of the value of products and the raw materials used in them. The increasing burden on our environment due to growing waste volumes will quickly make it clear that this awareness is still lacking in many areas. We are responsible for the products we produce or purchase, and the continued development of the circular economy can help us take on this responsibility.

Info

In the interview series "Perspectives on Sustainability", Porsche employees talk about their specialist subject areas. The interview with Jonathan Hörz is part 15 of the series.

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