




Environment —Contribution to a Decarbonized Society and Circular Economy

Relevant materiality	What we aim to do
 <p>Contribution to a decarbonized society and circular economy</p>	<ul style="list-style-type: none"> • Contribute to a decarbonized society through our products • Reduce greenhouse gas emissions and energy consumption • Contribute to the circular economy by increasing the use of renewable and recycled materials

Basic Approach

As the impact of climate change has been progressively increasing on a global level in recent years, it is also necessary for companies to actively respond to climate change, such as by implementing decarbonization initiatives. The Yokohama Rubber Group also considers our materiality “Contribution to a decarbonized society and circular economy” as one of our most important management issues for contributing to a sustainable society and ensuring sustainable corporate growth.

The Yokohama Rubber Group will work to minimize the burden on the environment by providing products and services in accordance with the Yokohama Rubber Basic Environmental Policy, the Yokohama Rubber Environmental Policy, and the Yokohama Rubber Group Action Guidelines. To this end, we will develop and introduce environmental technologies while working together with various people involved in the provision of products and services to promote the reduction of emissions into the atmosphere throughout the entire value chain. Furthermore, from the perspective of contributing to a circular economy and promoting decarbonization throughout the value chain, we aim to expand the use of renewable and recycled materials for our products.

Yokohama Rubber Basic Environmental Policy, Yokohama Rubber Environmental Policy, and Yokohama Rubber Group Action Guidelines
<https://www.y-yokohama.com/global/sustainability/environment/natural/>

Contribute to a Decarbonized Society through Our Products

Yokohama Rubber begins placing its original “E+” mark on tires for electric vehicles

In response to the growing demand for tires for electric vehicles*1 in recent years, since the second half of fiscal 2023, the Company started placing its original “E+” mark on tires for electric passenger cars, trucks, and buses, signifying that the tires are compatible with electrified vehicles. The “E+” mark is placed on products equipped with technologies that meet the unique needs of EVs, such as support for high loads due to installed batteries and high torque output from the motor, quietness appropriate for quiet electric vehicles without engine noise, improvement of vehicle electricity and energy consumption efficiency, and increased driving range.

As for electric passenger car tires, the ADVAN Sport EV ultra-high

performance summer tire for EVs, which was launched in Europe in autumn 2023, and the ADVAN dB V553 premium comfort tire released in February 2024 bear the “E+” mark. In the electric truck and bus tire category, the 507U, which is sold in Japan, and the 120U, which is sold in Europe, have carried the “E+” mark since 2024.

We will continue to strengthen R&D and installation of tires on new vehicles to meet the increasing demand for tires compatible with EVs for the realization of a decarbonized society.



“E+” mark on the side of a 507U truck and bus tire



“E+” mark

*1 Electric vehicles include BEV (battery electric vehicles), EV (electric vehicles), PHEV (plug-in hybrid vehicles), HEV (hybrid vehicles), and FCEV (fuel cell electric vehicles)

Reduce Greenhouse Gas Emissions and Energy Consumption

Started tire production using electricity derived from renewable energy

At the Shinshiro-Minami Plant (Shinshiro City, Aichi Prefecture), we introduced electricity derived from renewable energy in April 2023, officially started operation of our own solar power generation system in August 2023, and started production of ADVAN Sport EV ultra-high performance summer tires for premium EVs and other high-performance tires using that electricity for production.

The photovoltaic power generation system, which has been officially put into operation, has an output capacity of approximately 1.1 MW and an annual output of approximately 1,469 MWh, which is expected to reduce CO₂ emissions by approximately 599 tons per year. This project is supported by the Japanese Ministry of the Environment’s FY2021 Subsidy for CO₂ Emission Control Measures (Project to Promote the

Acceleration of Communities’ Use of Renewable Energy and Stronger Energy Resilience through Use of Power Purchase Agreements (PPA), etc. [Project to Promote Price Reduction of Solar Power Generation Equipment, etc. to Achieve Storage Parity])^{*2}.

The renewable-energy electricity is considered to be derived 100% from renewable energy sources and deemed to generate zero CO₂ emissions as electric power provider Chubu Electric Power Miraiz Co., Inc. has procured FIT non-fossil fuel certificates with tracking information^{*3} and non-FIT non-fossil fuel certificates with renewable energy attributes^{*4} for the electricity being provided to the plant. The Shinshiro-Minami Plant’s shift to renewable-energy electricity is expected to reduce the plant’s annual CO₂ emissions by about 570 tons.

The Shinshiro-Minami Plant aims to become a carbon-neutral model plant with zero CO₂ emissions by 2030. In addition to its new solar panel

power generation system and use of renewable-energy electricity, the Shinshiro-Minami Plant is now converting boiler fuel to natural gas.

*2 This project subsidizes a portion of the expenses required by projects that aim to achieve storage parity by installing solar power generation and storage batteries for self-consumption through on-site PPA models, etc.

*3 FIT non-fossil fuel certificates are certificates of the environmental value of energy generated from non-fossil renewable energy sources that are subject to the FIT (Feed-In Tariff) system, including solar, wind, small hydropower, and biomass. FIT non-fossil fuel certificates with tracking information include a tracking function that provides such information as the specific power source and the type of power source linked to the production site. FIT non-fossil fuel certificates with tracking information can be used by companies to report their progress in advancing the use of renewable energy to such international organizations as RE100, a global corporate renewable energy initiative bringing together companies committed to using 100% renewable-energy electricity in all their business activities; CDP, a non-profit organization that aims to realize a sustainable economy; and the Task Force on Climate-related Financial Disclosures (TCFD).

*4 Non-FIT non-fossil fuel certificates with renewable energy attributes are awarded to renewable energy sources that are not subject to FIT, such as large hydropower plants.

Aiming to acquire SBT certification

In January 2024, the Company submitted a commitment letter to the Science Based Targets Initiative (SBTi),*5 an accreditation body, with the aim of obtaining accreditation for Science based Targets (SBT), a corporate greenhouse gas emission reduction target that is

scientifically consistent with the standards of the Paris Agreement.*6 SBT certification requires companies to set reduction targets for all business activities, from direct emissions by companies to indirect emissions by other companies and customers.

Going forward, we will aim to acquire SBT certification in order to accelerate the reduction of greenhouse gas emissions throughout the supply chain in response to the increasingly serious climate change problem in recent years.



A solar power generation system installed on the roof of the Shinshiro-Minami Plant

*5 The SBTi was established by the CDP (formerly the Carbon Disclosure Project), the United Nations Global Compact (UNGC), the World Resources Institute (WRI) and the World Wide Fund for Nature (WWF) as an organization to evaluate companies' greenhouse gas emission reduction targets.

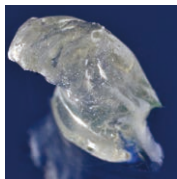
*6 An international treaty on climate change adopted at the Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris in 2015. The treaty signees agreed to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the increase to 1.5°C.

Promote the Use of Renewable and Recycled Raw Materials

Development of manufacturing technology for synthetic rubber core chemicals with carbon resource recycling

In January 2022, ZEON Corporation and Yokohama Rubber's "Development of Manufacturing Technology for Synthetic Rubber Core Chemicals with Carbon Resource Recycling" has been adopted by the New Energy and Industrial Technology Development Organization (NEDO) as a "Green Innovation Fund Project /Development of Technology for Producing Raw Materials for Plastics Using CO₂ and Other Sources." The Green Innovation Fund Project is a program established by the Ministry of Economy, Trade and Industry (METI) to support businesses in conducting innovative research for reducing greenhouse gas emissions.

This demonstration project aims to establish two advanced technologies to produce butadiene and isoprene based on carbon resource recycling, from renewable carbon resources such as used tires and biomass at high yield rates, and to implement them in society in the 2030s.



Butadiene produced from biomass

Supplying racing tires made from sustainable materials

Since 2023, the Company has been supplying ADVAN A005 dry racing tires using sustainable materials in support of the SUPER FORMULA NEXT 50 project by Japan Race Promotion Inc., which runs the SUPER FORMULA series. The dry tires being supplied by Yokohama Rubber use natural rubber and various naturally derived compounding agents including oil produced from oil palm nuts and orange peels, as well as wires made from recycled iron, and rubber recycled from waste tires. As a result, sustainable materials account for about 33% of all materials used in the tires, which have demonstrated performance equivalent to that of the conventional tires.



ADVAN racing tires (dry use) made from sustainable materials

Voice of Employee

Taking on the challenge of tire development that maximizes the use of sustainable raw materials

The circular economy, which includes the use of sustainable raw materials (recycled materials derived from non-petroleum resources and waste tires), is attracting attention worldwide. In the past, achieving a balance between conflicting performance characteristics such as low rolling resistance, wet grip, and anti-abrasion performance has been an issue in tire development, but in addition, it has become necessary to achieve this by using sustainable materials. Yokohama Rubber has been working on the adoption of sustainable raw materials such as orange oil and rice husk silica before it attracted public attention. However, this alone is no longer sufficient, and all raw materials used in tires must be replaced. I am constantly asking myself how can I use sustainable raw materials myself and how can we achieve both performance and cost. Such technological development leads to the creation of a circular economy and contributes not only to the Company but also to society. While there are difficulties involved in promoting the project while making contact with people around the world, our contribution is also on a global scale. I am proud to be working on this major issue.



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