

# Sustainability Management Undertaken by the Sumitomo Rubber Group

This section discusses the Group's sustainability initiatives with a focus on material issues (materiality).

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## A Message from the Executive Director in Charge of Sustainability



**Linking Sustainability and Management Strategy to Improve the Viability of Solving Social Issues**

### Yasuaki Kuniyasu

Director (Senior Executive Officer)  
General Manager of Corporate Management Planning & Administration Department  
and New Global Base Promotion Project Department

### Sustainability that lives in Sumitomo Rubber Philosophy

I have been in charge of corporate strategy and DX promotion, and from January 2024, I was also put in charge of the Sustainability Management Promotion HQ.

Sumitomo's business began as a copper refining industry, and we have been engaged in tree planting and other activities to combat the pollution caused by our business. As the Sumitomo Business Philosophy states, "Benefit for self and others, private and public interests are one and the same,"<sup>1</sup> we believe that sustainability management is the roots of our business.

In promoting sustainability management, there may be a temporary negative financial impact, which may require understanding and cooperation from related departments. If we only pursue profits with concern for short-term financial impact, we will not be able to respond to social issues. Without forgetting the roots of our business as described above, we will promote various measures more efficiently and promptly

by integrating sustainability measures into our management strategy with a long-term orientation and perspective of creating social value.

We are implementing specific measures based on the Long-Term Sustainability Policy: "Driving Our Future Challenge 2050"<sup>2</sup> that was formulated in 2021. To improve its viability, the promotion system consists of working groups under the umbrella of the Sustainability Promotion Committee, which is directly supervised by the Board of Directors, and six subcommittees that deal with carbon neutrality and other important issues.

<sup>1</sup> Please refer to page 5.

<sup>2</sup> Based on "Our Philosophy," we have established the Long-Term Sustainability Policy for 2050 to ensure the sustainable development of the Company and society.

P.84 Sustainability Management System

### Initiatives for "Pursuing the Development of a Decarbonized Society" and "Building a Circular Economy"

In the environmental field, we have set two key issues: "pursuing the Development of a decarbonized society" and "building a circular economy."

For "pursuing the Development of a decarbonized society," we aim to achieve carbon neutrality through business activities focused on reducing CO<sub>2</sub> emissions. We had set a target of 50% reduction in emissions compared to 2017 levels by 2030 for Scope 1 (direct emissions by the Company) and Scope 2 (indirect emissions from the use of electricity, heat, and steam supplied by other companies), but we are on track to achieve that goal and have decided to raise the target to a 55% reduction. This is a sign that the Group's decarbonization efforts are making steady progress. We are also taking industry-leading steps to decarbonize fuels as part of our initiatives to achieve carbon neutrality. The utilization of hydrogen energy at our Shirakawa Factory in Fukushima Prefecture has enabled the mass production of tires that are the first in Japan\* to achieve carbon neutrality in Scopes 1 and 2. We will continue to take on the challenge of utilizing hydrogen energy in the tire manufacturing process, placing importance on long-term perspectives and a spirit of innovation. Specifically, we plan to install hydrogen

production equipment on the premises of our own factories and start new verification testing so that we can apply it to our own production of hydrogen gas, which we have been procuring from other companies until now.

\* Based on Sumitomo Rubber Industries' own research (as of January 2023)

Additionally, we have set a 2030 reduction target for Scope 3 (emissions by other companies and users other than Scope 1 and 2), which accounts for more than 90% of the Group's CO<sub>2</sub> emissions. In addition to quantitative targets, we have set KPI targets for emissions during use by product users (Category 11), which account for a high percentage of emissions. We will promote the development of materials, design, and manufacturing technologies to create lightweight tires and improve wear resistance, which will be even more important in the future, to increase our competitiveness and contribute to CO<sub>2</sub> reduction.


With regard to "building a circular economy," we are increasing the usage rate of sustainable raw materials and have started an internal project to expand sales of retread tires\* as part of the TOWANOWA business model designed to support a circular economy through the tire business. In Japan, many used tires are reused as heat sources, so we


## A Message from the Executive Director in Charge of Sustainability

believe that shifting to material and chemical recycling will contribute to resource conservation and CO<sub>2</sub> reduction.

In 2023, we also set KPIs for our 2030 targets to realize the TOWANOWA Concept, and are working to steadily achieve our goals.

\* Retread Tires: tires that are reused by replacing the tread rubber (the part in contact with the road surface) that has been worn away by driving, thereby restoring the tire's functionality.

 P.52 "TOWANOWA," a Circular Economy Business Model for the Tire Business

 Japan Retreaders' Association website (Japanese only)  
<https://www.retread.jp/retread-tire/>

## As a Company that Uses Natural Rubber, a Gift from Nature

The use of natural rubber, a natural capital, as a raw material for products is one of our business risks. Last year, based on the Taskforce on Nature-related Financial Disclosures (TNFD) recommendations, we conducted an analysis of the impact of the Group's operations on nature.

Expansion of natural rubber plantations has caused deforestation in some parts of the world, which have become hotspots. Since our analysis confirmed that the Tire Business in particular is highly dependent on and affected by nature, we plan to conduct a more detailed analysis that includes the Sports Business and Industrial Products Business.

 P.55 Preservation of Biodiversity

Furthermore, with regard to the procurement of natural rubber, we believe that human rights due diligence efforts are important due to risks including child labor on the plantations. As we work to strengthen supply

chain management, we clearly state our policy of respect for human rights in our Procurement Guidelines and strive to ensure that all suppliers understand and practice it. In January 2021, we began using a monitoring tool provided by EcoVadis SAS to evaluate our suppliers in terms of human rights, governance, and the environment.

The natural rubber supply chain is very complex. Therefore, it is a challenge to secure the traceability\* of producers, including smallholders. By using tools such as RubberWay®, we are working to make natural rubber procurement more sustainable.

\* The process of tracking and making traceable records of manufacturing and processing activities, as well as the receipt and placement of orders, to clarify when, where, and by whom a product was produced.

 P.57 Supply Chain Management

## As a Company that Handles Tires

One of the risks we are aware of is the problem of particles emitted from the interface between tires and road surfaces (TRWP\*) while driving. In the future, as the number of EVs increases and gasoline-powered vehicles decreases, and as the regulations on exhaust emissions from vehicles starts to apply in the EU (Euro 7), vehicle exhaust emissions will be expected to be on a downward trend. As a result, efforts to reduce the environmental impact of particles generated from brake pads and interface between tires and road surfaces will become even more important. We have been working to reduce TRWP emissions by improving the wear

resistance of our tires, and we will continue to promote these efforts in cooperation with industry associations.

We will use sensing technologies to monitor tire wear conditions and feed the data back into development to create tires with an even lower environmental impact.

\* Tire and Road Wear Particles

 P.60 Initiatives to Reduce Environmental Impact

## Raising the Level of Technical Development and Contributing to the Solution of Social Issues

Creating environmentally friendly products will not solve all social issues. For example, reducing the amount of raw materials used in tires to make them lightweight can improve environmental performance while reducing costs. Despite these benefits, weight reduction can also have negative effects such as increased noise when driving and shorter product life due to shallower grooves.

In response to these issues, we have experience in developing ENASAVE 100, a 100% fossil resource-free tire, so we believe that we have a solid foundation for innovation to solve social issues. Furthermore, in addition to utilizing sensing technologies, which is one of our strengths,

we would like to contribute to solving social issues by raising the level of technical development while investing in various simulation and analysis tools.

We are currently interviewing employees to develop a long-term strategy for 2035. When talking about their vision for the Company 10 years from now, we often hear employees express their desire to become an environmentally friendly company. To evolve into the "environmentally friendly company" that our employees envision in 10 years, we will steadily pursue our goals while making timely and appropriate business decisions that are focused on our mid- to long-term goals.

## Carbon Neutrality

If greenhouse gas (GHG) emissions from the Sumitomo Rubber Group's business activities further exacerbate climate change, we believe what will be affected most in our business activities are rubber, raw materials for tires; and water, used in the process of manufacturing products. Based on this recognition, we understand that the elements of our material issues, "climate change," "resource circulation," and "biological resources," are interrelated with each other, and thus, need to be addressed through an integrated approach, rather than being addressed independently, and have moved forward with an integrated approach to these elements.

 P.59 Environmental Management

### Initiatives Toward Carbon Neutrality

Climate change, primarily global warming, is a challenge common to all humankind. To pass on a better global environment to the next generations, we need to resolve the challenge. To realize sustainable growth of the Sumitomo Rubber Group as well as a sustainable

environment and society, we believe it is an essential part of our social responsibilities that we reduce the generation and emission of CO<sub>2</sub>, a cause of global warming.

### Carbon Neutrality Targets

The Sumitomo Rubber Group has set a goal to achieve Scope 1 and 2 carbon neutrality by 2050. Specifically, we have raised the emissions reduction target in our Long-Term Sustainability Policy: "Driving Our Future Challenge 2050" from initially set "50% reduction by 2030 (compared to 2017 levels)" to "55% reduction." To this end, we are making proactive efforts at each of our sites.

As a specific measure, we have developed a scenario for reducing CO<sub>2</sub> emissions at each site. For instance, in 2023, our Shirakawa Factory

succeeded in carbon-neutral manufacturing of tires for the first time in Japan\* by utilizing hydrogen as fuel for the curing process and electricity derived from renewable energy sources as fuel for other processes. We will collaborate with the government and academia, aiming to establish and deploy new technologies for utilizing hydrogen, etc. as innovation that enables us to create a future. Further, in 2023, we also set a Scope 3 emissions reduction target for 2030.

\* Based on Sumitomo Rubber Industries' own research (as of January 2023)

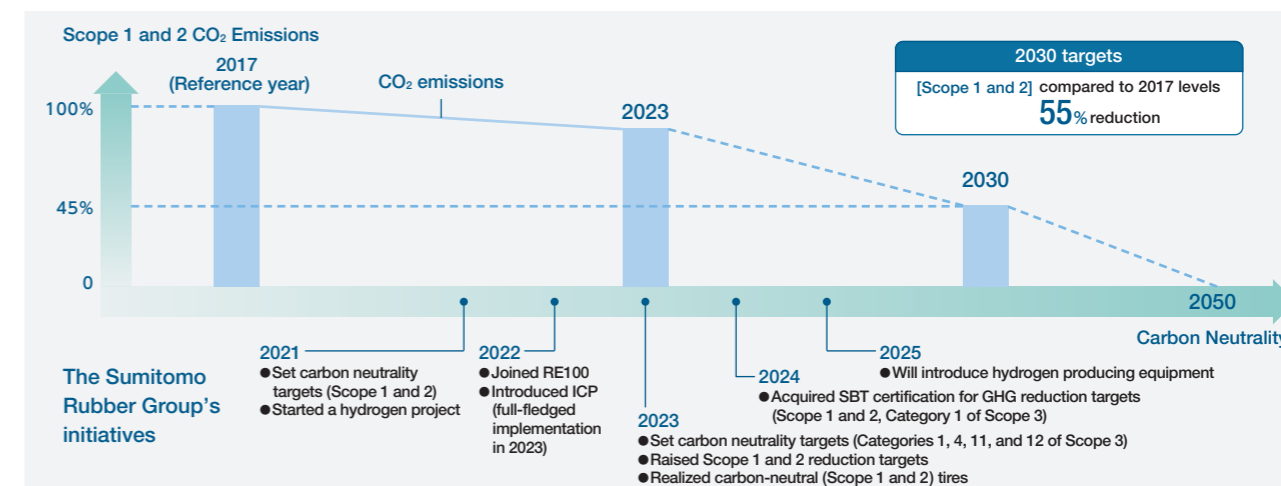
### Carbon Neutrality (Scope 1 and 2)

To reduce Scope 1 and 2 emissions, we will work on the installation of energy-saving facilities, the expansion of cogeneration systems, the introduction of solar power generators, and a shift to green energy procured from renewable energy sources. In and after 2030, we will make efforts to put decarbonation into practice, including a shift of fuel to

hydrogen and other energy sources, while closely watching the trends of infrastructure development and technological innovation.

 Global Environmental Data

[https://www.srigroup.co.jp/english/sustainability/genki/ecology/04\\_4.html](https://www.srigroup.co.jp/english/sustainability/genki/ecology/04_4.html)



### TOPICS

#### Initiative to Utilize Hydrogen Energy at Shirakawa Factory—Introduction of Hydrogen Producing Equipment

To decarbonize fuel, we conducted a verification test for utilizing hydrogen at our Shirakawa Factory. This project was subsidized by the New Energy and Industrial Development Organization (NEDO) as one of its grant projects. The aim of this project is to supply steam produced by hydrogen-fired boilers to the curing process of our leading-edge NEO-T01 Manufacturing System, which employs a high-precision metal core and enables the production of tires boasting extremely high performance with a compact, streamlined process. Currently, we procure hydrogen within Fukushima Prefecture. In the future, however, we will take steps to produce hydrogen within the factory, using the Power-to-Gas (P2G) systems that produce hydrogen using electricity derived from renewable energy sources. This project, subsidized by NEDO and supplied with small-scale packaged P2G systems developed jointly by the Yamanashi prefectural government and a private-sector firm, will commence operations in April 2025. This will enable us to produce hydrogen in-house.



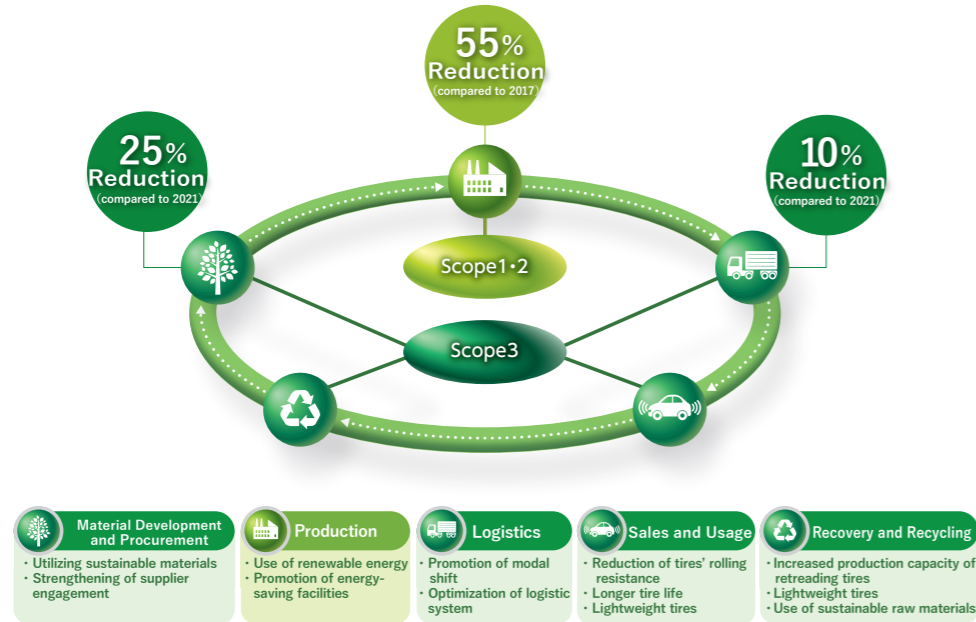
## Carbon Neutrality (Scope 3)

### Setting Scope 3 Emissions Reduction Targets for 2030

At present, Scope 3 GHG emissions, emissions from the supply chain outside the Sumitomo Rubber Group, represent approximately 90% of the entire greenhouse gas (GHG) emissions for the Group. This is why it is

important for us to reduce Scope 3 emissions. Among Scope 3 emissions, we will work to reduce emissions especially in Categories 1, 4, 11, and 12 which are large in volume.

### Carbon Neutrality 2030 Targets and Main Initiatives



Each process mentioned above corresponds to the Scope 3 category in the greenhouse gas (GHG) protocol as shown below.

Process	Material Development and Procurement	Logistics	Sales and Usage	Recovery and Recycling
Scope 3 Category in GHG Protocol	Category 1 (Purchased goods/services)	Category 4 (Upstream transportation and distribution)	Category 11 (Use of sold products)	Category 12 (End-of-life treatment of sold products)

For Category 1 "Material Development and Procurement," we aim to reduce emissions by 25% by 2030 (compared to 2021 levels) by strengthening supplier engagement. For Category 4 "Logistics," we aim to reduce emissions by 10% by 2030 (compared to 2021 levels) through efforts such as promoting modal shift. In addition, for Category 11 "Sales and Usage" and Category 12 "Recovery and Recycling," we will make

efforts to reduce CO<sub>2</sub> emissions, such as reducing the rolling resistance of tires, extending the lives of tires, and expanding the production capacity of retread tires.

**Global Environmental Data**  
[https://www.srigroup.co.jp/english/sustainability/genki/ecology/04\\_4.html](https://www.srigroup.co.jp/english/sustainability/genki/ecology/04_4.html)

Classification	2030 targets
Scope 1, Scope 2	55% reduction (compared to 2017 levels)
Scope 3	Category 1: 25% reduction (compared to 2021 levels)

## Acquisition of SBT Certification

The Company received a certification for its GHG emissions reduction targets for 2030 from Science Based Targets Initiatives (SBTi) based on the recognition that our reduction targets are consistent with scientific knowledge.

GHG emissions reduction targets certified this time are as shown on the right.

## Disclosure Based on TCFD Recommendations

In June 2021, the Company declared support for the TCFD recommendations. Concerning both risks and opportunities that climate change poses to our business, we have moved forward with information disclosure based on the following four basic elements: governance, strategy, risk management, targets and indicators. Going forward, we will

make analyses using the 1.5°C scenario to update disclosure information.

**Responding to Climate Change (TCFD)**  
[https://www.srigroup.co.jp/english/sustainability/genki/ecology/04\\_5.html](https://www.srigroup.co.jp/english/sustainability/genki/ecology/04_5.html)

Materiality (Material issue): Building a Circular Economy | Issue to Be Addressed: Pursuit of Eco-Friendly Products and Services That Boast High Quality in Terms of Safety, Security and Comfort

# Resource Circulation and Sustainable Raw Materials

We aim to establish a circular economy business throughout our supply chain centered on the Tire Business, which is our mainstay business. We will also work to reduce waste by minimizing and making effective use of resources that we use, and recycle resources by expanding their reuse and recycling.

## "TOWANOWA," a Business Model Designed to Support a Circular Economy through the Tire Business

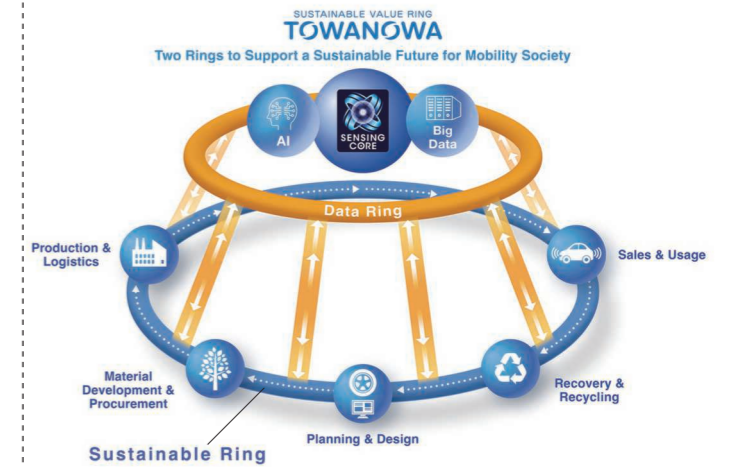
### Vision of and Value Delivered by TOWANOWA

Encapsulating our hope to support the long-lasting development of a sustainable mobility society in the future, the word TOWANOWA brings together the two Japanese terms TOWA, meaning "Everlasting," and WA, meaning "Ring."

In line with the TOWANOWA concept, we aim to facilitate the circulation and effective utilization of limited resources while promoting the use of big data, comprising data gleaned by such technologies as SENSING CORE, an asset unique to the Company. Through these efforts, we will deliver new value to customers, contribute to the creation of the next-generation mobility society and otherwise help realize a sustainable future in which all people can enjoy safety, security and comfort. We will thus promote the "TOWANOWA" concept to materialize a long-lasting tire business cycle as part of efforts to embody "Our Philosophy." In the course of doing so, we will address issues associated with CASE\* megatrends, help realize a sustainable world and contribute to the creation of a future of joy and well-being for all.

\* CASE is regularly used to describe the four main strategic areas of focus for the

industry—an abbreviation for Connected, Autonomous, Shared, and Electrified.



### Data Ring and Sustainable Ring

The TOWANOWA concept consists of a "data ring" (here depicted in orange), which coordinates and leverages data obtained in each value chain process, and a "sustainable ring" (in blue), which facilitates the circulation of goods and materials throughout the value chain processes, eliminates redundant resource consumption and helps realize a circular economy. TOWANOWA thus creates new value by bringing together the sustainable ring and data ring.

- Initiatives to Support a Circular Economy**  
[https://www.srigroup.co.jp/english/sustainability/genki/ecology/02\\_2.html](https://www.srigroup.co.jp/english/sustainability/genki/ecology/02_2.html)
- Video introducing "TOWANOWA" (on the following website)**  
[https://www.srigroup.co.jp/english/innovation/report\\_06.html](https://www.srigroup.co.jp/english/innovation/report_06.html)

### KPIs Designated for Each Process

Process	Value provision	Item	Target year
Planning & Design	<b>Higher performance × Efficient resource usage</b> • Lightweight tires, greater fuel efficiency, and longer tire life	<ul style="list-style-type: none"> <li>Reducing CO<sub>2</sub> emissions by trimming the weight of tires and lowering the Rolling Resistance Coefficient (RRC)* while the vehicle is in motion</li> <li>Reducing CO<sub>2</sub> emissions by 5.3% compared to 2019 levels</li> <li>* Loss of energy occurring to a tire while it is in motion</li> <li>Improving tires' wear resistance</li> <li>Reducing the unit amount of road wear particles by 5% compared to 2019 levels</li> </ul>	<ul style="list-style-type: none"> <li>2030</li> <li>2030</li> </ul>
Material Development and Procurement	<b>Promoting resource circulation and reducing CO<sub>2</sub> emissions</b> • Utilizing sustainable materials	<ul style="list-style-type: none"> <li>Increasing the ratio of sustainable materials used</li> <li>40% by 2030, 100% by 2050</li> </ul>	<ul style="list-style-type: none"> <li>2030</li> <li>2050</li> </ul>
Sales and Usage	<b>Proposing optimal tires for customers</b> • Fuel (ICE) / Energy (EV) Efficiency • Longer tire life • Greater safety	<ul style="list-style-type: none"> <li>Increase the ratio of sustainable products</li> <li>Standard 100%, including Gold 30% * Based on the internal standards of the Sumitomo Rubber Group</li> </ul>	<ul style="list-style-type: none"> <li>2030</li> </ul>
Recovery and Recycling	<b>Promoting retread tires</b> • Contributing to resolving the "Last One Mile" issue in the logistics and transportation industries • Resource conservation & cost reduction <b>Putting End-of-Life Tire (ELT) to use</b> • Using ELT as recycled tire materials • Realizing a circular economy	<ul style="list-style-type: none"> <li>Expanding the retread Tire business</li> <li>Increasing the sales quantity of retread tires in Japan to 190% of the quantity in 2021</li> </ul>	<ul style="list-style-type: none"> <li>2030</li> </ul>

### [Details of Initiatives in Other Processes]

- Production:** Improving production efficiency by advanced supply/demand projections, predictive maintenance, and improved yield at factories to reduce losses in production and supply and conserve resources
- Logistics:** Making efforts to improve transportation efficiency, such as optimizing the level of inventories, to reduce CO<sub>2</sub> emissions
- Recycling:** Making efforts to promote the recycling of chemicals and materials to reduce CO<sub>2</sub> emissions from factories and utilize waste as recycled materials

## Resource Circulation and Sustainable Raw Materials

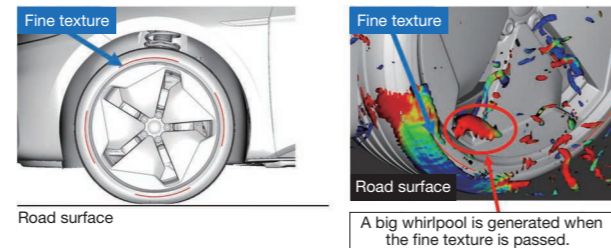
### Planning and Design

#### Developing “Tire Aerodynamic Simulation” Essential for Development of Next-Generation EV Tires

Sumitomo Rubber Industries aims to develop a tire that further contributes to lowering the electricity consumption of an EV as a next-generation EV tire to be launched in 2027.

The “Tire Aerodynamic Simulation” is a simulation technique that visualizes airflow around a tire and its impact (aerodynamics). A unique characteristic of this technique is its ability to calculate the aerodynamics of a rotating tire, using actual vehicle data, by simulating the tire pattern and changes in the tire shape in contact with the road surface caused by vehicle weight, through the use of AI technologies. In addition, we have newly developed a simulation technique that changes the shapes of the lettering and fine texture on the sidewall while they are rotating. While it is important to smoothen the sidewall to reduce air resistance in EV tires,

the use of the newly developed simulation technique will enable the development of a tire that achieves both design and air resistance reduction at higher levels.



### Material Development and Procurement

#### Promoting the Use of Sustainable Raw Materials

The Company aims to increase the content of sustainable raw materials in its tires to 40% by 2030 and 100% by 2050 to ultimately reduce the volume of CO<sub>2</sub> emissions throughout the supply chain. In the motorsports field, which is at the front line of tire development, we will accelerate our initiatives to realize carbon neutrality by developing products using sustainable raw materials. In March 2023, the Company released DUNLOP racing tires with a ratio of sustainable raw materials increased to 38%, aiming to launch these tires for racecars by 2024. Through a series of processes for selecting materials, the Company succeeded in increasing the content of sustainable raw materials to 43%. As these tires showed steady performance in driving tests, we brought forward the introduction of these tires to the third round of the EV section of 2023 All Japan Karting Championship to which the Company supplies one-make tires. In the years ahead, we will contribute to realizing sustainable motorsports with a view to introducing these tires to broader categories of

motorsports.

Leveraging our knowledge and experience, we released concept tires with the content of sustainable raw materials increased to 80% at Japan Mobility Show 2023. Also, from 2024 onward we will sequentially release some of these tires as new replacement tires.



Racing kart tires with a higher sustainable raw materials content equipped for the third round of the EV section of 2023 All Japan Karting Championship

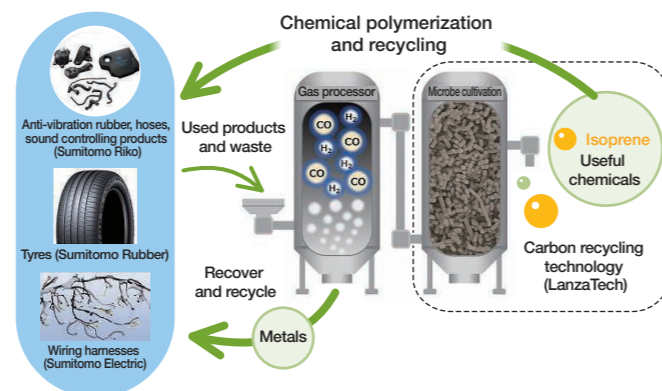
Concept tire with the content of sustainable raw materials at 80%

### TOPICS

#### Challenge of Developing Sustainable Raw Materials Participating in Waste Recycling Related Development Project with LanzaTech, US-based Biotech Company : Tripartite Collaboration of Sumitomo Riko, Sumitomo Rubber, and Sumitomo Electric

To realize innovation that enables us to create a future of joy and well-being for all, we have not only adopted sustainable raw materials but have taken on a challenge to develop sustainable raw materials on our own. Together with Sumitomo Riko and Sumitomo Electric, we are now pushing ahead with the development of new technologies in collaboration with LanzaTech. We aim to leverage LanzaTech’s carbon recycling technology to turn waste materials like tires into isoprene, which can be used as new rubber materials. This will be achieved by gasifying the waste materials and purifying the resulting gas, and then putting them through a fermentation process that transforms the gas into new raw materials.

Working alongside raw materials manufacturers, we are also exploring the feasibility of establishing a recycling technology that enables the reuse of isoprene as materials for rubber and resin. We are also contemplating the idea of recycling the metals recovered during the gasifying process and reusing them as raw materials.



### Sales and Use

#### Certification System for Sustainable Products (Internal Standards)

In 2023, the Sumitomo Rubber Group introduced a certification system for sustainable products based on internal standards as part of measures specified in its Long-Term Sustainability Policy “Driving Our Future Challenge 2050.”

We thus apply our own assessment standards to the selection and certification of sustainable products from among all offerings of our Tire, Sports, Industrial Products and other businesses. Assessment items are set for each product group and include the ratio of sustainable raw materials used, the type of energy consumed in manufacturing processes, and the product’s recyclability after use. Products that meet bare

minimum requirements are designated as “Standard” certification, while products boasting outstanding features in terms of sustainability are designated as “Gold” certification. Our current aim is to ensure that all products are certified “Standard” by 2030 and, to this end, are striving to update their features.

Looking ahead, we will continue to develop an internal certification framework to identify products capable of contributing to global warming countermeasures and environmental load reductions throughout their life cycles. By doing so, we will align our product development approach with a progressive shift to a business model in favor of circular economies.

### Recovery and Recycling

#### Expanding Sales of Retread Tires

We have positioned retreading\* tires as one of the important initiatives in establishing a circular business model, aiming to increase the sales volume of retread tires in Japan to 190% of the level in 2021 by 2030. In addition, we will improve the rate of recovering quality base tires for retreading and the number of retreading to reduce tires to be disposed of

by leveraging the information and history of use of tires obtained through the Tire Pressure Monitoring System (TPMS) and Radio Frequency Identification (RFID) as well as SENSING CORE.

\*Retreading refers to a process for recycling worn-out tires by removing the spent tread and then applying new tread rubber to the tire casing.

### TOPICS

#### Release of Replacement Tires Equipped with RFID for the First Time as a Domestic Manufacturer\*1

In October 2023, the Company released replacement tires equipped with RFID which allows for individual tire identification.

These tires specifically include DUNLOP “e. ENASAVE SP148,” a rib tire for EV route buses, and DUNLOP “ALL SEASON MAXX AS1 for TAXI\*2,” an all-season tire for taxis.

RFID is a wireless communication technology that uses radio waves for individual identification, instead of conventional barcodes or QR code, for traceability purposes, including quality assurance, responses to customer complaints, and elimination of counterfeit tires. In January 2023, the Company joined the Global Data Service Organization for Tires and Automotive Components (GDSO), an international association developing industry standards for the traceability of tires. The Company then satisfied a range of requirements, such as the impact of RFID on tire performance, a challenge when it is equipped with mass-produced tires, and the durability of RFID tags, and succeeded in releasing tires equipped with RFID this time. RFID built

into tires will enable acquiring tire data in various stages, such as manufacturing, sales, and use, in the future. We expect that we can eventually improve the number of retreading, promote the recycling of materials, as well as enhancing safety and operational efficiency, by analyzing the status of use and driving history.

Going forward, we will strive to develop solution businesses, focused on retreading and maintenance, to provide high-value-added services tailored to customers’ situations and needs.

\*1 Based on Sumitomo Rubber Industries’ own research (September 2023)

\*2 Part of the products released



#### Waste Reduction Initiatives

##### Achieving Complete Zero Emission

The Sumitomo Rubber Group has worked to reduce waste by minimizing and making more effective use of the resources we use, recycle resources by expanding their reuse and recycling; and reduce the volume of hazardous waste. In fiscal 2023, we achieved complete zero landfill waste at 24 production bases, including affiliates, in Japan and overseas.

Complete zero landfill waste is defined as the complete diversion of

landfill waste, meaning a 100% recycling rate and no waste sent directly to landfills. In fiscal 2024, the aim of our efforts is to maintain the status of complete zero landfill waste at these bases.

##### Global Environmental Data

[https://www.srigroup.co.jp/english/sustainability/genki/ecology/04\\_4.html](https://www.srigroup.co.jp/english/sustainability/genki/ecology/04_4.html)

##### Plastic Reduction Initiatives

The Sumitomo Rubber Group has been making efforts to reduce the volume of plastics used globally by 40% compared with 2019 by 2030. In the Sports Business, our initiatives include updating tennis ball packaging

by abolishing the use of plastic lids and switching to paper-based labeling. As for golf ball packaging, we are phasing out window films.


Issue to Be Addressed: Preservation of Biodiversity

# Preservation of biodiversity

## Responding to TNFD

The Sumitomo Rubber Group creates value, in its business activities, by leveraging ecosystem services. In the process of identifying material issues, we have designated “preservation of biodiversity” as one of our materialities to be addressed. Initiatives relating to biodiversity will be managed by the Biodiversity Working Group reporting to Sustainability Promotion Committee. In 2023, based on the Taskforce on Nature-related Financial Disclosures (TNFD) recommendations, we analyzed the Sumitomo Rubber Group’s risks in its business activities related to nature.

In December 2023, the Sumitomo Rubber Group registered as a TNFD Adopter, which adopts the TNFD recommendations, and was announced as an Early Adopter at the Annual Meeting of the World Economic Forum (Davos Conference) held in Davos, Switzerland in January 2024.

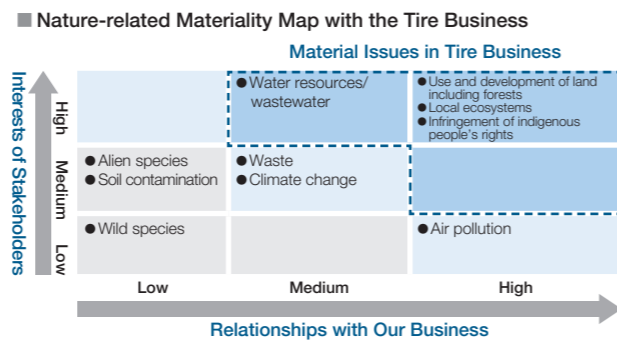
 **Responding to TNFD**  
<https://www.srigroup.co.jp/english/sustainability/genki/ecology/TNFD/>

## Strategy

### Material Nature-related Risks and Opportunities

In responding to TNFD, to address risks in the order of their magnitude, we screened nature-related risks and opportunities in each of our businesses using a tool called ENCORE. As a result, we have found that especially the Tire Business has a significant dependence and impact on nature. Therefore, we conducted a risk assessment of the Tire Business in line with the LEAP approach recommended by TNFD based on the decision to first clarify material issues for the business. Based on the results of these research and analyses, the results of the ENCORE analysis were used as the vertical axis “stakeholders’ interests” and the results of the risk materiality assessment based on the LEAP approach were used as the horizontal axis “relationship with the Company’s business.” We then plotted nature-related issues associated with the Tire Business on the materiality map. As a result, we identified the following four items as material issues related to nature in the Tire Business: use and

development of land including forests; local ecosystems; infringement of indigenous people’s rights; and water resources and wastewater.



### Potential Impact on Business

We assessed the potential impact of each risk and opportunity on the Tire Business in reference to the TNFD’s classification of nature-related risks and opportunities.

#### ■ Risks That May Impact the Tire Business

Risk Category by TNFD	Business Risks for Organization	Potential Impact on the Organization’s Business	Time Frame
Transition risks	<b>Policy</b> Introduction & reinforcement of regulations	● Higher procurement prices and development costs due to compliance with restrictions on the product sales that may contribute to deforestation, regulations regarding raw materials used for tires and TRWP, and tighter water withdrawal regulations	short-medium
	<b>Market</b> Rise in raw material prices Change in consumer behavior	● Higher raw material cost of natural rubber and other materials such as metals due to rise in cost for preserving biodiversity ● Change of plan due to citizens’ protest campaign to ecological impacts during development of rubber plantation ● Avoid purchasing tire products with heavy environmental burdens	short-medium
	<b>Technology</b> Development & spread of low environmental burden technologies	● Higher development costs of low environmental burden technologies for tire	short-medium
	<b>Reputational</b> Criticism from consumers & society Investor reputation	● Loss of customers and decline in corporate image and ESG reputation if corporate efforts are deemed passive ● Divestment from investors and financial institutions if corporate efforts are deemed passive ● Decline in ESG reputation due to not comply with assessment items related to biodiversity provided by ESG rating agencies	medium-long
	<b>Liability</b> Liability for damages arising due to new regulations and legal precedent changes	● Liability and administrative dispositions in response to tightening existing laws and regulations or establishing new ones ● Liability for damages arising from citizens’ protest campaign to ecological impacts of rubber plantation development	short-medium
Physical risks	<b>Acute</b> Increase frequency and intensity of natural disasters	● Suspension of products production because of natural disasters on tire factories	short-medium

#### ■ Opportunities That May Impact the Tire Business

Opportunity Category by TNFD	Business Opportunity for Organization	Potential Impact on the Organization’s Business	Time Frame
Opportunities	<b>Resource efficiency</b> Spread of efficiency solutions	● Reduced cost due to improved resource efficiency in tire manufacturing	medium-long
	<b>Markets</b> Entry into nature-related business	● Increase natural rubber productivity by investing to improve the environment for the vicinity of natural rubber farms (improved ecosystem services, enhanced resilience) ● Products development & recycling commercialization to meet the growing demand for used tire recycling	medium-long
	<b>Capital flow and financing</b> Obtain funding for R&D	● Possible funding expansion through sustainable financing for the development of new ICT technologies that preserve biodiversity preservation	short-medium
	<b>Products &amp; Services</b> Achieve differentiation through creation of products & services that protect, manage, and restore nature	● Achieve differentiation through tire products with improved wear resistance for TRWP reduction ● Achieve differentiation through expanded sales of retreaded tires to reduce resource use and manufacture of lightweight tire products	short-medium
	<b>Reputational capital</b> Consumer and social reputation	● Improved corporate image and ESG reputation by developing and providing ICT technology-driven service solutions that preserve biodiversity ● Improved reputation and corporate value through contributions to Nature Positive	medium-long

### Locational Assessment of Supply Chain

For the identified material issues, we first assessed the local situation of supply chains and deep-dived into relevant issues to consider and promote measures to address these issues for the Tire Business at particularly high risk. To assess the local situation, we first classified the identified material issues into each stage of the supply chain: upstream, own operations, and downstream. Then, in regard to material issues associated with each stage of the supply chain, we identified hotspots

where we should consider preferentially implementing measures by assessing biodiversity risks of our business bases using tools such as the Integrated Biodiversity Assessment Tool (IBAT).\*

\* A tool used to collectively plot areas designated for preserving biodiversity, such as protected areas and Key Diversity Areas (KBA), the distribution of endangered species, etc. surrounding the assessment targets.

Supply Chain	Material Issues	Objects of assessment Targets	Hotspots
Upstream	Use and development of land including forests Local ecosystems	Natural rubber processing factories	28% (the volume of natural rubber procured)
	Violation of indigenous people’s rights		32% (the volume of natural rubber procured)
	Water resources/wastewater (depletion of water resources)		1% (the volume of natural rubber procured)
Direct Operations	Water resources/wastewater (depletion of water resources)	Production bases of Tire Business and natural rubber processing factories	17% (the volume of water intake)
Downstream	Water resources/wastewater (discharge into the environment)	Countries where we sell tires	34% (the number of products sold)

### Evaluation of Countermeasures

For natural rubber suppliers, where there were particularly many hotspots, we will conduct risk assessment and mitigation activities using the RubberWay® software, which enables mapping of the natural rubber supply chain (see page 58 for details), and promote the establishment of a sustainable procurement network.

For our bases of own operations, we have assessed the risks of the bases based on the results of analyses made using Aqueduct, a water risk assessment tool provided by World Resources Institute (WRI), while


also taking into consideration our own standards regarding legal risks, limitations on water intake, and other items. At plants with high water risk, we developed a scenario towards achieving one of the challenge targets in our Long-Term Sustainability Policy, “100% Recycled Water Usage at Bases of Operations in Areas with High Water Security Risk (2050),” and have worked to implement concrete measures.

Water-related initiatives at our plants are reported semi-annually by the Sustainability Committee.

### Metrics and Targets

The Sumitomo Rubber Group discloses GHG emissions, waste emissions, and water usage out of the TNFD’s core metrics in the non-financial data section. As for the core metrics that are not currently disclosed, preparatory measures for disclosure are now underway, specifically by collecting data and conducting more detailed analyses.

Going forward, we will set metrics and targets in accordance with the TNFD disclosure framework.

 P.91 Financial and Non-Financial Data

# Supply Chain Management

Raw materials used for tires, our mainstay products, also include natural rubber, which is produced with the blessings of nature. To make this natural rubber sustainable, we will make efforts to resolve issues in our supply chain, including collaboration with all people involved in natural rubber. Through these efforts, we will provide our customers with joy and well-being.

## Procurement Guidelines

With the aim of realizing sustainable procurement, the Sumitomo Rubber Group updated its Procurement Guidelines to the 8th Edition in July 2024. In the new edition, we have provided additional information regarding our activities relating to natural rubber and guidelines that we would like our business partners to follow to ask for their support. We have particularly focused on efforts to help our business partners fully understand our

initiatives toward carbon neutrality and implement the guidelines.

### Procurement Guidelines

[https://www.srigroup.co.jp/sustainability/genki/governance/pdf/procurement\\_guidelines\\_en.pdf](https://www.srigroup.co.jp/sustainability/genki/governance/pdf/procurement_guidelines_en.pdf)

## Social Risks at Natural Rubber Farms

The world's demand for natural rubber has increased nearly three-fold over the past 40 years. This is attributable mainly to population growth and the rapid spread of motorization worldwide. In the face of these trends, people are concerned about issues such as illegal deforestation, land grabbing, and violation of human rights; and the possible impact of forest destruction and illegal deforestation on biodiversity.

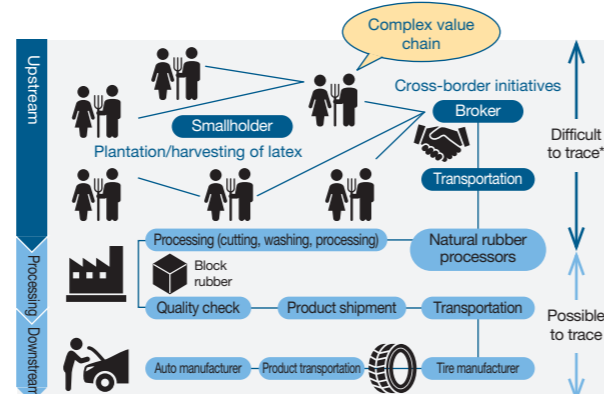
knowledge and know-how on harvesting rubber, and the increasing burden on ecosystems.

Moreover, many of the regions where natural rubber is produced are located in tropical rainforests adjacent to fertile lands that are home to many rare species. The expansion of natural rubber plantations may endanger the lives of these species.

Approximately 85% of natural rubber is produced by small-scale farmers, called smallholders, rather than plantation operators. These smallholders are faced with issues such as poverty due to the shortage of

### Based on a website of Automobile Business Association of Japan:

<https://www.aba-j.or.jp/info/industry/18043/> (Japanese only)



\* Tracing the route from production and processing to distribution so as to inspect farm crops, products, etc.

## Difficulty and Importance of Traceability

The natural rubber supply chain is comprised of many stakeholders around the globe, including approximately 6 million smallholders as well as plantations, dealers, and natural rubber processors, which has made the supply chain highly complex. Further, some transactions are made across the boundaries of regions and countries. Therefore, it is extremely difficult to clarify (to ensure the traceability of) the distribution route from a producer to a processing plant of natural rubber. However, we believe it is important to identify and procure the natural rubber that has limited risk in terms of forest destruction and human rights violation.

## Initiatives to Resolve Issues

In September 2018, the Company participated in Global Platform for Sustainable Natural Rubber (GPSNR). In November 2018, we also formulated our Sustainable Natural Rubber (SNR) Policy which reflects a policy framework approved by the GPSNR, with the aim of gearing up efforts to resolve issues in regions where natural rubber is produced, such as environmental problems caused by the destruction of forests and human rights problems in the working environment (updated in August

2021). Based on this updated SNR Policy, we proactively promote collaborative initiatives with all companies in our supply chain to realize the sustainable procurement of natural rubber.

### Sumitomo Rubber Group's "Sustainable Natural Rubber Policy"

[https://www.srigroup.co.jp/sustainability/genki/governance/pdf/governance\\_4\\_1\\_en.pdf](https://www.srigroup.co.jp/sustainability/genki/governance/pdf/governance_4_1_en.pdf)

#### 【Major Initiatives】(★ represents initiatives in 2023.)

- ★ Introduction of RubberWay®, an environmental/social risk assessment tool dedicated to natural rubber (July 2023)
- ★ Compliance with EU Deforestation Regulation (EUDR)
- Monitoring activity undertaken by France-based EcoVadis (since January 2021)
- Implementation of Traceability and Transparency Project with Natural rubber suppliers in Indonesia (since September 2022)
- Initiating procurement through the Agridence Rubber Platform (since November 2022)
- Funding financial assistance to GPSNR Capacity Building Project in Thailand
- Providing training to neighboring farmers in Thailand

## Introduction of RubberWay®, an Environmental/Social Risk Assessment Tool Dedicated to Natural Rubber

To ensure sustainable natural rubber procurement, the Sumitomo Rubber Group believes it is extremely important that we identify risks in our natural rubber supply chain. Therefore, we have implemented RubberWay®, the environmental and social risk assessment tool dedicated to natural rubber since July 2023. This tool statistically analyzes huge amounts of questionnaire data to assess the magnitude of environmental and social issues and displays the assessment results on the map. This tool covers 10 natural rubber-producing countries, and the

assessment items include, but not limited to, deforestation, water resource management, forced labor, and child labor. From now on, by using RubberWay® effectively, we will assess/identify risks in the natural rubber supply chain and develop measures to mitigate such risks to contribute to the sustainable procurement of natural rubber.

\* An application software developed by Michelin, Continental, and the software developer SMAG

## Responding to EU Deforestation Regulation (EUDR)

Beginning at the end of fiscal 2024, we are obliged to comply with EUDR, which is expected to significantly affect our sales of tires and other rubber products in the EU markets. All Directors, officers, and employees of the Company, from the management team to front-line employees, understand their commitment to the sustainability of natural rubber and

will work to ensure the Company's compliance with EUDR through measures such as collaborations across the industry and system development. We will make group-wide efforts to strengthen governance and push forward with efforts in connection with the sustainability of natural rubber.

## Toward the Future

The Company has been working to determine details of its procurement plan based on its Long-Term Sustainability Policy. For the assessment of suppliers, we are developing our procurement strategy by keeping track of the operating conditions, business policies, and medium- to long-term business plans of our business partners, rather than the assessment focused on the status of their Quality, Cost, and Delivery (QCD) as in the past. We will continue to clarify and resolve our sustainability issues

throughout our supply chain, collaborate with our suppliers in addressing biodiversity, and push ahead with related measures.

Moreover, we will contribute to enhancing the sustainability of raw materials and reducing the impact of their procurement on biodiversity through in-house research and development activities aimed at increasing the production efficiency and performance of natural rubber.

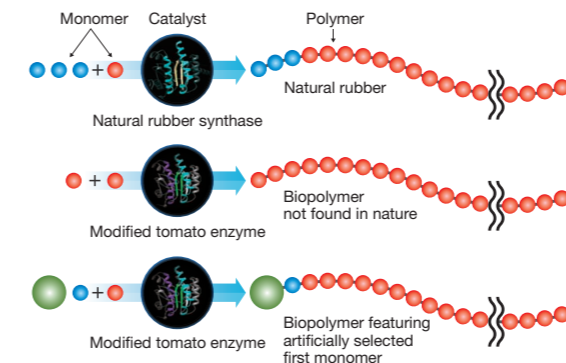
### TOPICS

## Initiatives for Elucidating Natural Rubber Biosynthesis

The Company was chosen to receive awards in the following two categories for its excellent research results at the "Tire Technology International Awards for Innovation and Excellence," a program held as part of "Tire Technology Expo 2023" held in Hanover, Germany.

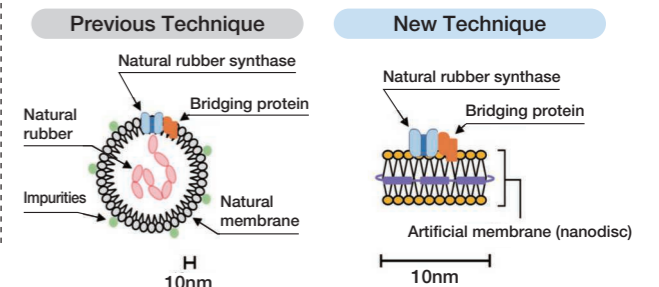
### Summary of Synthesis of Biopolymer (Awarded Materials Innovation of the Year)

Through our collaborative research with Tohoku University, Kanazawa University, Saitama University and RIKEN to study an enzyme derived from tomatoes which is structurally similar to natural rubber synthase, we succeeded in synthesizing a biopolymer with a structure not found in nature.



### Summary of New Enzyme Evaluation Technique (Awarded R&D Breakthrough of the Year)

Through collaborative research with Saitama University, Tohoku University, and Kanazawa University, we invented a new technique for evaluating enzymes that utilize artificial membranes (nanodiscs). This new technique allows for much greater precision in evaluations compared to the conventional evaluation techniques that use natural membranes. We have also succeeded in activating the function of natural rubber synthases on these artificial membranes.



### TOPICS

## Initiative to Increase Production Efficiency of Natural Rubber Through Improvement of Technique to Produce Rubber Tree Seedlings (Joint Research with Khon Kaen University of Thailand)

The Sumitomo Rubber Group has been making efforts to improve yields of natural rubber in line with its Sustainable Natural Rubber Policy. As part of such efforts, the Group launched a joint research with Khon Kaen University of Thailand in March 2024. This joint research is aimed at investigating the mechanism that leads to differences in the pace of growth and yield improvement by examining

the growth and leaf shapes of rubber tree saplings derived from tissue culture and those derived from ordinary grafting and comparing their plant physiological responses. Through this research, we will improve the production efficiency of natural rubber and accelerate our initiatives for sustainable natural rubber procurement.

## Environmental Management

### Basic Policy on Environmental Preservation (Fundamental Philosophy)

The Sumitomo Rubber Group established its Environmental Policy, which is aimed at realizing a sustainable society, in July 2007 (revised in April 2019). Based on the policy, we determine the issues to be addressed and the course of action to be taken for the environment, and then, make efforts to realize decarbonization and reduce environmental burden. Going forward, also based on this policy, we will continue to resolve

environmental issues across our supply chain and live up to our stakeholders' expectations to ultimately enhance our corporate value.

#### Environmental Policy

[https://www.srigroup.co.jp/english/sustainability/dvql4p000000f222-att/190401\\_Environmental\\_Policy.pdf](https://www.srigroup.co.jp/english/sustainability/dvql4p000000f222-att/190401_Environmental_Policy.pdf)

### Global Environmental Management System

The Sumitomo Rubber Group holds the Sustainability Promotion Committee meetings twice a year to determine material issues to be addressed through sustainability activities including environmental management around the globe, share information, and confirm the progress in such activities. With the Director in charge of sustainability

serving as the committee chair, officers in charge of related departments are appointed as committee members.

#### P.84 Sustainability Management Structure

### System of Implementing Measures for Important Themes

#### Governance

The Sumitomo Rubber Group has set up subcommittees under the Sustainability Promotion Committee, which are collectively called Sustainability Promotion Working Groups, with the approval of the committee, to address environmental issues such as climate change,

natural capital, and circular economy. Each working group, consisting of management and member divisions, is responsible for planning and promoting activities and reporting to the Sustainability Promotion Committee and the management team, etc.

#### Risk Management in Sustainability Activities Including Environment

Sustainability-related risks that may materially and adversely affect our business activities shall be addressed by each of the relevant divisions and/or subsidiaries in advance, through the analysis of those risks and the planning of countermeasures in accordance with the Regulations Concerning Risk Control, which define risk management methods for the entire Sumitomo Rubber Group. These risks shall then be referred to the


Management Meeting and other bodies for discussion. In addition, the management team monitors and reviews the themes that they believe are especially important in reducing burdens on society and the environment in the Company's supply chain as well as the global supply chain. The results are reported to the Board of Directors.

### ISO 14001 Global Multi-Site Certification

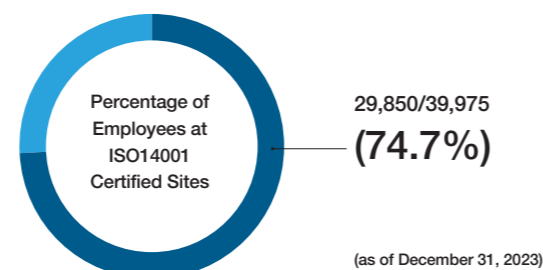
The Sumitomo Rubber Group has obtained the ISO 14001 certification, international standards for environmental management, to continue to improve our environmental management system against environmental targets through a PDCA cycle. We have operated and implemented the Environmental Management System (EMS) based on the standards.

The number of sites that have obtained the ISO 14001 certification increased to a total of 37 at the end of 2023 (of these, 34 sites are covered by the multi-site certification). As such, the ratio of ISO 14001 certified sites has reached 94.9%. Moreover, the number of employees working at these sites as a percentage of total employees has reached 74.7%.

In fiscal 2023, no sites were newly certified. However, we subjected uncertified sites to corporate audits conducted in a manner similar to those conducted at certified sites in order to strengthen our environmental management structure.

 P.90 Honors and Certifications from Outside Organizations  
P.91 Financial and Non-Financial Data

#### Percentage of Employees at ISO14001 Certified Sites in All Employees



### Initiatives to Reduce Environmental Impact

#### Initiatives for Tires

##### Initiatives Related to TRWP\*1

Tires are the only components in a vehicle that contact the road surface. For tires to run (start moving), turn, and stop while supporting the load of a vehicle, friction between tires and the road surface is physically inevitable. TRWP refers to tire and road wear particles generated by such friction, and is a mixture of tire tread materials and road pavement materials.

Many are still unknown as to TRWP's characteristics and its possible impact on the environment. We recognize that it is highly important that we clarify them and reduce its impact on the environment.

Sumitomo Rubber Industries is one of the founding members of the WBCSD's\*2 TIP,\*3 an industry association consisting of 10 global tire manufacturers. We have been involved in activities such as research and studies on TRWP, the establishment of evaluation methods, and

dialogues with stakeholders. In addition to tackling the issue of TRWP, the TIP currently strives to address universal sustainability concerns of the tire industry such as the management of waste tires, the handling of raw materials, and their chemical substance content and environmental KPIs.

Sumitomo Rubber Industries is also a member of the JATMA\*4 and JRMA\*5, working on the development of ISO standards related to the assessment of TRWP and other efforts.

\*1 Tire and Road Wear Particles

\*2 World Business Council for Sustainable Development

\*3 Tire Industry Project

\*4 The Japan Automobile Tyre Manufacturers Association, Inc.

\*5 The Japan Rubber Manufacturers Association

##### Handling of Anti-Degradant for Tires (6PPD)

6PPD (N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine) is an anti-degradant used widely in the tire industry. In recent years, an article that suggests that 6PPD-quinone formed when 6PPD reacts with oxygen or ozone in the air is harmful to some aquatic organisms was published. Triggered by the publication, the process for regulating 6PPD is currently underway in the U.S. Meanwhile, 6PPD itself plays an important role in preventing cracks in tires produced when rubber reacts with oxygen or

ozone in the environment to retard deterioration from aging. As such, 6PPD is essential for tires to fully demonstrate their performance and for customers to use tires with a sense of safety for many years. Currently, the tire industry as a whole is examining the possible replacement with alternative technologies as well as developing/evaluating alternative products. The Company has joined in promoting such industry-wide initiatives.

#### Initiatives for Artificial Turf

##### Reducing Microplastic Dispersion

Artificial turf used in sporting facilities is now considered a possible source of microplastic\*1 dispersion into rivers and the sea, as, with use over time, turf fibers break and the rubber chips used as fillers may leak, spreading into the environment.

Since 2020, the Company has worked to confirm the status of microplastic dispersion and to develop materials and products designed to robustly curb microplastic dispersion. Thus far, countermeasures such as the installation of outer perimeter fences around artificial turf and filtering materials in drainage conduits have proven effective. These

measures are highlighted on the website of the Ministry of the Environment\*2 and are also featured in the guidelines on preventing microplastic dispersion issued by Osaka Prefecture\*3 and Tama City, Tokyo\*4.

\*1 Small pieces of plastic that have a diameter less than 5 mm

\*2 <https://plastics-smart.env.go.jp/microplastics#case-study-1> (Japanese only)

\*3 [https://www.pref.osaka.lg.jp/documents/806/jinkoshiba\\_gl\\_10\\_1.pdf](https://www.pref.osaka.lg.jp/documents/806/jinkoshiba_gl_10_1.pdf) (Japanese only)

\*4 <https://www.city.tama.lg.jp/map/sports/tennis/1003856.html> (Japanese only)



Water-permeable artificial turf is installed on the rainwater ditch to filter microplastics, and blocks are installed around the field to prevent microplastics from scattering by wind.



Photo of TAMA Sustainable Award 2023 ceremony  
Awarded a grand prize in the Plastic Smart Category for its artificial turf containing sand as a countermeasure against microplastic dispersion