

Midterm Plan Overview & Progress Report

Value Driver No. 1

## Developing & Promoting Sales of Advanced Products

Even as global demand for tires continues to grow, competition among tire manufacturers also grows more and more intense with each passing day.

In the midst of this competitive environment, the Sumitomo Rubber Group is pushing ahead with efforts to enhance our corporate value by developing and promoting sales of Advanced Products incorporating technologies that are second to none.

### SUV Tires Featuring SILENT CORE Specialized Noise Absorbing Sponges GRANDTREK PT5

Growing demand for electric vehicles (EVs) has also led to increasing demands for quieter tires. Our SILENT CORE Technology achieves quiet drive performance by installing sponges on the inside of tires to absorb air vibration that occurs within tires during driving. The Sumitomo Rubber Group was the first in the world to develop this groundbreaking technology, which has already been installed in over 14 million tires sold to date.

Featuring our proprietary SILENT CORE Technology, our GRANDTREK PT5 tires were well received upon their release in 2021 in China, where the market is steadily shifting toward EVs.



### Ranked No. 1 Overall in Tire Testing Conducted by Europe's Largest Automobile Federation: ADAC AZENIS FK510

As one would expect from the flagship tire of our FALKEN Brand, AZENIS FK510 provides outstanding performance when it comes to handling, braking and steering stability at high speeds, all thanks to the adoption of a unique asymmetrical pattern design as well as specialized rubber compounds.

In 2021, our AZENIS FK510 was ranked No. 1 overall in tire evaluations conducted by ADAC (*Allgemeiner Deutscher Automobil-Club*), performing well in testing on both wet roads (evaluating hydroplaning, wet grip, etc.) and dry roads (evaluating handling, braking, etc.) to earn the highest score of any tire tested that summer. Thanks to its exemplary performance on both wet and dry road surfaces, FALKEN AZENIS FK510 has won accolades as an excellent all-around summer tire.

In addition, AZENIS FK510 also ranked No. 1 in tire wear test conducted by ADAC in 2022, while our ZIEX ZE310 ECORUN was ranked No. 3.



### Launching Replacement Tires for EVs on the Markets of China & Europe

In the near future, the Sumitomo Rubber Group will be releasing our first-ever replacement tires designed specifically for EVs, featuring the highest level of energy efficiency in our group's history, for the markets of China and Europe, which are rapidly transitioning toward EVs.

In 2022, we launched our first EV tire in China: e. SPORT MAXX,\* which not only provides balanced high performance in terms of wet grip and steering stability, but also features SILENT CORE Technology in order to achieve the quiet drive performance that one would expect from an EV. We plan to follow this up with the launch of e. ZIEX tires for EVs on the European market in 2023.

\*e. SPORT MAXX Details [Next ▶ p. 76](#)



The Sumitomo Rubber Group is currently focusing efforts on increasing global sales of Advanced Tires. In 2021, sales of Advanced Tires were up 12% (by volume) compared with 2020. Advanced Tires also accounted for 34% of our total tire sales in 2021, representing an increase of 2% over 2020.

#### Advanced Tire Sales as a Proportion of Total Sales

	Proportion	2020 Actual	2021 Actual	2022 Forecast
Advanced Tires*	OE Tires	40%	44%	47%
	Replacement Tires	29%	31%	33%
	Total	32%	34%	37%

\*Advanced Tires: Tires for SUVs (Primarily) & Passenger Car Tires in Sizes of 18" or Larger

Dialogue between the Officers in Charge of R&D

## "A Brighter Future" Means Innovation for the Next Generation

### What are the Sumitomo Rubber Group's main strengths when it comes to R&D?

**Muraoka** Our "Spirit of Innovation" is always a step ahead, even if we sometimes do not realize it at the time. In the past, we have developed many technologies that went unnoticed at the time of their development, but later went on to form the basis for some of our current mainstays.

**Kuniyasu** For example, our proprietary SILENT CORE Technology is now receiving a lot of attention thanks to the silent engines in electric vehicles (EV), which make noise from the road and tires all the more noticeable. This technology uses specialized sponges to absorb air vibration within tires in order to provide a remarkably quiet drive.

In fact, this technology was developed by a team of researchers who had discovered the cause of tire noise: air resonance occurring within the cavernous interiors of tires during driving. They then surmised that stuffing crumpled up newspaper into a tire might serve to eliminate this noise, and the rest is history.

**Muraoka** Their work led to SILENT CORE, but neither our group nor our competitors paid much attention to this technology at first. After a while, our competitors began to notice the advantages of this technology and started working on versions of their own. I believe that we owe our survival in this highly competitive market to our ongoing pursuit of these kinds of technical innovations.

**Kuniyasu** Another example of a technology that did not receive much attention at first was our IMS (Instant Mobility System) Tire Puncture Emergency Repair Kits. IMS is also now in the spotlight thanks to electric vehicles, which often forgo spare tires in order to make room for batteries.

And IMS is not our only technology when it comes to forgoing spare tires. We have run-flat tires, which can continue running for a fair distance after being punctured. We also have sealant tires, which apply a special sealant to the inside of the tire tread in order to fill in holes and prevent air from leaking in the event of a puncture. Indeed, one of our greatest strengths is the fact that we have so many different technologies in our toolbox.

**Muraoka** I often tell our young researchers to "create the trends of the times." This means approaching our customers with new ideas and solutions before our competitors get a chance, and this is something that has been a key strength of the Sumitomo Rubber Group ever since we produced Japan's very first domestic tire, which was just the first of many Japan-first and even world-first products and services that we have brought into the world.

### What are your thoughts on the future direction of R&D and the challenges ahead?

**Kuniyasu** When it comes to tires, I believe that R&D will take two directions. The first direction will involve developing tires that provide new added value to keep pace with the transformation of mobility. In addition to EV, we are also actively engaged in R&D to support future advances in autonomous vehicles, including the development of technologies to prolong tire performance and technologies to detect road conditions. The second direction will involve contributing to the realization of a sustainable society, and so we are also working on the development of technologies to reduce, reuse and recycle tire materials.

**Muraoka** Speaking of materials, biomass (a catchall term for renewable organic resources derived from plants and animals) is now receiving a lot of attention as an environmentally friendly alternative to fossil resources, and so many companies have been racing to develop the next generation of biomass materials. Meanwhile, whereas companies have developed their own proprietary rubber materials up until now, the ongoing shift toward biomass materials will make it more and more difficult for



**Kiyoshige Muraoka**  
Director and Senior Executive Officer  
Head of the Research & Development HQ

companies to set themselves apart on the basis of material properties. As a result, I think that future development will center on efforts to reduce the costs involved in biomass materials. In the future, I believe that it will become necessary to differentiate ourselves from our competitors on the design side (such as designing lightweight tires that use fewer raw materials) as well as the manufacturing side (such as improving mixing and other processes involved in material processing), etc.

At the same time, the use of biomass materials will not be limited to tire manufacturers. Indeed, manufacturers across all industries are currently looking into the possibilities of various biomass materials. However, it goes without saying that not enough biomass materials are being produced to fully replace the vast quantities of petroleum currently being used. In the interests of securing sustainable quantities of raw materials, we will need to make use of recycled materials as well. Japan has systems in place for recycling tires, but most of the materials are simply incinerated to produce heat energy. We need to think about how to turn tires back into raw materials so that we can put these to use again. I think that our entire industry should come together to tackle this challenge through the establishment of new systems for recycling tires.

### In what ways will R&D contribute to the realization of "Our Philosophy"?

**Kuniyasu** "Our Philosophy" calls upon us to "create a brighter future." Perhaps this is a universal theme shared by all manufacturers. However, the major difference lies in how innovation for a brighter future is created. I would say that now is the time to make the change from a top-down approach to innovation and move toward a more self-driven approach. When young researchers and technicians can attain fulfillment by working on things that they are passionate about, this in turn serves as a springboard that motivates them to contribute to society, which leads to greater fulfillment. I think that it is great to be able to get such a virtuous cycle going. This passion may not go far in the hands of a single person, but if a hundred people all come together and say, "Let's do it," then they are sure to get things done.

After all, making friends is also part of "Our Philosophy."

**Muraoka** I really like the idea of "innovation for a brighter future." The lives of comfort and convenience that we lead today are made possible by the many innovations that came before. We live in an age when many things can be produced cheaply and in large quantities as production becomes increasingly automated. While this is surely also the result of innovation, at the same time, the earth is facing an existential crisis when it comes to finite resources and environmental issues. Can we really say that we are creating a brighter future? I believe that "innovation for a brighter future" must mean innovation for future generations, for our children and grandchildren.

There is perhaps no greater symbol of the "Sumitomo Business Philosophy" than Mt. Besshi Copper Mine. After years of mining pollution had caused extensive damage to the surrounding forest and local community, the Director General of the Sumitomo Group expended an enormous amount of time and money to restore Mt. Besshi to how it had been before. Today, the forest there is truly beautiful. Perhaps what we are all facing right now is similar to Mt. Besshi. With the way that things are going, the earth may very well turn into a bald mountain as well. And so, we must restore our planet into a world where people can continue to live far into the future. I believe that this is the world envisioned in our Purpose.

I hope not only to uphold these two ideals for as long as I live, but also to pass them on to future generations.



**Yasuaki Kuniyasu**  
Senior Executive Officer  
Head of the Tire Technical HQ