NEXT Technology Evolution

-Maintaining an Insatiable Drive for Innovation

Establishing "Dantotsu (Second to None) Technology"

Sumitomo Rubber Industries will accelerate its development efforts while striving to establish "*dantotsu* (second to none) technology" by evolving its technological expertise with regard to the environmentfriendliness, safety and reliability of tires that constitute the core technological competencies the Company has accumulated over the years. In this way, we are striving to bring to market tires with leadingedge product capabilities on a timely basis.

To this end, we will implement two initiatives. First, we will further push the evolution of our core technological competencies. Specifically, we will advance our proprietary simulation technology to develop innovative, highly functional materials with even greater

Evolving 4D NANO DESIGN: New Material Development Technology

In 2011, we established 4D NANO DESIGN technology that enables the analysis of rubber materials for tires on the nano-level and thus the development of highly functional materials. Utilizing this technology, Sumitomo Rubber Industries launched the ENASAVE PREMIUM fuel-efficient tire, which received an AAA classification* under Japan's official tire labeling system** for its rolling resistance and the WINTER MAXX studless snow tire, which boasts a superior braking performance on icy roads that represents an 11% performance improvement over the Company's conventional products.

To further accelerate the development of highly functional materials, we will make use of the K computer, one of the world's most powerful supercomputers. At the same time, we are anticipating the evolution of our 4D NANO DESIGN technology to ADVANCED 4D NANO DESIGN by 2015 and NEXT 4D NANO DESIGN by 2020. In short, Sumitomo Rubber Industries will make the most of in technological experiments.

its technological capabilities to develop high-performance, high-quality tires that simultaneously embody the principles of eco-friendliness, safety and security.

- Two sizes in the lineup received AA classification
 * A labeling guideline to
- promote fuel-efficient tires



performance as well as biomass materials in a timely manner. By doing so, we seek to build on our fuel-efficient tire production technology to create new products with higher added value. Second, we will expand our overseas bases for tire and material development to establish a structure able to undertake development in line with local customer needs.

Through these two initiatives, we will achieve such objectives as accelerating the commercialization of new technologies; developing new materials; ensuring stable procurement; reducing costs; and enhancing research and development resources in response to expanding overseas markets.

"NEO-T01"— A New, Next-Generation Tire Manufacturing System

In 2012, we established NEO-T01, a new, next-generation tire manufacturing system focused on achieving the ultimate in precision with regard to tire production technologies.

Notably, we applied the "Metal Core Process," which is the outstanding feature of NEO-T01. The conventional tire making process employs a cylindrical drum that each component of the tire is affixed to and, in turn, fused together to form a tire. Instead of this cylindrical drum, the Metal Core Process employs a "former," a metal mold that is the exact same shape and size as the inner surface of the finished tire.

Compared with tires manufactured using the conventional process, tires made using the NEO-T01 system improve high-speed

uniformity by 70% and reduce weight 10% while displaying 50% less deformation under high-speed conditions. The Company plans to introduce a next-generation runflat tire in 2014, applying the NEO-T01 system for the first time.



Reinforcing Our Eco-Friendly Product Lineup

Today, awareness of global environment problems and their causes, including global warming and the depletion of petroleum resources, is increasingly widespread, spurring calls for the tightening of regulations on automobile exhaust and fuel efficiency while facilitating interest in corporate social responsibility. Reflecting this, Sumitomo Rubber Industries will reinforce three eco-friendly product categories, namely, "fossil resource-free tires," "fuel-efficient tires" and "spareless technology products" from the perspective of enhancing products' value in terms of the environment, the economy and society. By doing so, the Company will contribute to the realization of sustainable society.

Fossil Resource-Free Tires

In 2011, Sumitomo Rubber Industries accomplished the development of a 100% fossil resource-free tire prototype. Efforts are now under way to mass-produce and release fossil resource-free tires by the end of 2013. With the introduction of these tires, the Company will have firmly established the technology to replace fossil resource-based materials with biomass materials.

The Company intends to continue developing this technology, focusing on enhancing the functionality of such biomass materials with the aim of commercializing highly functional fossil resourcefree tires. We aspire to establish the first-generation technology for producing tires using highly functional biomass materials in 2016 and the second-generation technology in 2020.

History of and Timetable for Fossil Resource-Free Tire Development 2006 2008 2011 100% 70 Introduction of 70% Introduction of 97% Completion of a 100% fossil resource-free tires fossil resource-free tires fossil resource-free prototype tire **ENASAVE 97 ENASAVE ES801** 2013 2016 2020 100% biomas bioma material material Planned introduction of **Commercialization of Commercialization of** 100% fossil the first-generation tires the second-generation resource-free tires made from highly functional tires made from highly functional biomass materials biomass materials

Fuel-Efficient Tires

In fuel-efficient tires, the Company will strive to launch products in a full range of sizes that have an AAA-a rating, meaning they meet the highest criteria for both rolling resistance and gripping performance under the official tire labeling system. Simultaneously, we will promote the development of tires with 50% less rolling resistance compared with conventional tires as well as those that help maintain fuel efficiency while delivering extra high performance. Furthermore, the Company aims to capture a 10% share of the global fuel-efficient tire market by 2020 through the

Spareless Technology Products

Forecasts call for the enactment of regulations on automobile exhaust and fuel efficiency by 2015 and 2020, respectively, by governments worldwide. Once these regulations are enforced, approximately 80% of new cars sold worldwide will be eco-friendly. Reflecting this, demand for lighter materials is rising due to manufacturers' need to reduce automobile weight.

Sumitomo Rubber Industries has been involved in the development

Future Initiatives

worldwide provision of eco-friendly, value-added tires under the



and sale of "spareless technology products" that aim to obviate the need for spare tires, including runflat tires and Instant Mobility System (IMS), a flat tire repair kit. Going forward, we will pursue the further

development of such products and thereby promote environmentfriendly and costefficient products.

ENASAVE brand.





IMS (flat tire repair kit)

Innovative Flight Distance Performance of Golf Clubs and Balls

In the Sports business, we will promote the development of new golf clubs and balls that enable players to hit the ball 15 yards farther.

Drawing on our superior technological capabilities, we help customers enjoy more affluent sporting lives.

