Providing customers with tires that are not only environmentally-friendly, but also meet the unique needs of individual regions

Hikomitsu Noji
President and Representative Member of the Board,
President of Tire Business

Aiming to reduce the burden on the environment in every aspect of our operations

Yokohama Rubber, which has committed itself to building "a trusted identity as a contributing member of the global community," is taking steps to reduce the burden on the environment in every aspect of the company's operations. At Yokohama Rubber, we have established a set of standards for determining whether individual products can be classed as environmentally-friendly; our goal is to ensure that all of our company's products meet these criteria by fiscal 2017.

The biggest single impact that a tire has on the environment is the carbon dioxide emissions in the exhaust of the vehicle to which the tire is attached, so we have been working to find ways to contribute to improving vehicles' fuel efficiency. While working to further reduce rolling resistance of tires, we have been undertaking R&D to enhance aerodynamic performance by attaching fins to the outside of our tires. We have also been developing a new product: a tire that improves the driving performance of sports-type passenger vehicles while at the same time providing enhanced fuel economy. This new tire product is scheduled to be launched in August 2016. Even if a vehicle has superior fuel economy characteristics, if the tire pressure is not correct, fuel consumption will increase. To help overcome this problem, we are also working on the development of new tire products that maximize the performance of both tire and vehicle by making it more difficult for air to escape, thereby helping the tire to maintain the correct pressure for longer.

Striving to achieve the kind of performance that people want from their tires

Road surface conditions and climatic conditions vary from country to country. The advent of automated driving in the near future can also be expected to have a major impact on how people drive. Nevertheless, no matter what country you are living in, the fundamental requirement for a tire is the same: to allow you to travel safely without the tire getting damaged.

For a company operating on a global scale, it is vitally important to respond to the variations in end-user needs between regions and over time, by providing tires that enable people to travel in safety regardless of the environment that they are in.

As part of the efforts being made towards the realization of the "sustainable society," we at Yokohama Rubber are undertaking research into the making of synthetic rubber from biomass resources. In March 2016, we announced the launch of a new type of tire that is 25% lighter than conventional tires, making it possible to achieve a significant reduction in resource utilization. We will continue to undertake research in this area, with the aim of using technology development to respond to society's calls for protection of the global environment.

Educating consumers about tire performance and proper tire usage

It is an unfortunate fact that, even today, the ordinary consumers who are the end users of our products tend not to have a very good understanding of tire performance. It is fair to say that relatively few consumers are familiar with even such basic concepts as rolling resistance and wet-grip performance. Even when someone is driving a low-fuel-consumption vehicle, if they are using the wrong type of tire, or if the tire pressure is too low, then the fuel economy of that vehicle will be lower than it should be. As a tire manufacturer, we have not been doing enough to educate consumers and spread awareness of the relevant concepts; in the future, we will need to be implementing awareness-raising activities that target ordinary consumers.

Social issues

Tire safety
Accidents caused by unsatisfactory tire maintenance: **272 accidents**
*Accidents caused by unsatisfactory vehicle maintenance: **546 accidents**

Source: Institute for Traffic Accident Research and Data Analysis (ITARDA)
Accidents in Japan (Nationwide) Caused by Unsatisfactory Maintenance in 2015

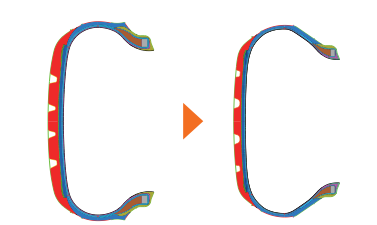
Educating consumers
Percentage of consumers with inadequate knowledge of tire performance and tire safety: **15.1%**
A significant percentage of consumers did not keep the air pressure in their tires high enough, necessitating an appeal to consumers to implement more effective tire pressure management, both in order to achieve improved fuel economy and for safety reasons.

Source: Japan Automobile Tyre Manufacturers Association (JATMA)
Results of tire inspections performed on "Tyre Day" (April 8th)

Products and services that contribute to solving social issues

01 Ultra-lightweight Concept Tire

At the Geneva Motor Show in March 2016, Yokohama Rubber showcased a new ultra-lightweight concept tire. As a result of extensive research on tire structure, materials, manufacturing methods etc., we have succeeded in simplifying the tire's structure and reducing its weight by 25% without negatively affecting braking performance, rolling resistance or any other aspects of tire performance. Preparations are underway for the full-scale commercial launch of this new tire. Reducing tire weight helps to improve vehicles' fuel economy, and contributes to reducing carbon dioxide emissions.



02 ADVAN FLEVA V701

The ADVAN FLEVA V701 is a new high-performance sport tire from Yokohama Rubber's flagship ADVAN tire brand designed to provide effortless handling. This new tire product was launched in Japan in August 2016. While retaining the responsive handling characteristic of ADVAN tires, the ADVAN FLEVA V701 also aims to improve vehicle fuel economy by reducing the tire's rolling resistance by around 20%. This enhanced fuel economy makes the ADVAN FLEVA V701 a unique environmentally-friendly sports tire.

03 LT151R Retread Tire

Retread tires (where the tread on a used tire is replaced with new tread so that the tire can be reused) offer significant environmental benefits in terms of reducing the consumption of resources. Yokohama Rubber's LT151R is a friction-resistant ribbed tire designed for use on small trucks and buses; launched in 2014, it has been very well-received, and in October 2015 a retread version was introduced. This is a product that provides enhanced safety at reduced cost.

04 Aerodynamic Tires

Yokohama Rubber noticed that, when a vehicle is moving and the wheels are going round, the airflow around the upper part of the tire is different from that around the lower part of the tire; R&D work based on the recognition of this phenomenon has led to the development of a new type of aerodynamic tire, where fins in the shape of long, thin strips are attached to the outer part of the tire, making it possible to control the airflow over the tire, which in turn helps to reduce the air resistance affecting the moving vehicle and control the amount of lift experienced by the vehicle. This aerodynamic tire design helps to improve fuel economy while also contributing to vehicle safety. A prototype of the new tire was showcased at the Tokyo Motor Show in October 2015, and attracted a great deal of interest.

05 AIRTEX

To realize the goal of giving vehicles superior fuel economy, besides tire performance, having the right tire pressure is also vitally important. AIRTEX is a new technology for the inner lining on the inside wall of tubeless tires. By comparison with traditional lining materials, AIRTEX reduces air leakage by around 30%, while also making it possible to reduce tire weight. AIRTEX has been adopted for use in passenger vehicle tires since 2007, and a similar technology for reducing air leakage was introduced for commercial vehicles such as trucks and buses since 2013.

Yokohama Rubber's new inner lining technology for passenger car tires