# Promotion of Proper Disposal of Scrap Tires and 3Rs



# Framework for Promotion of Reduction, Reuse, and Recycling of Scrap Tires to Combat Global Warming

Proper collection and reuse of scrap tires is pursued under the leadership of the Waste Tire 3Rs Committee. This committee consists of two councils: the Council for Promotion of Proper Disposal of Scrap Tires, and the 3R Technology Development Promotion Council.

\*The "3Rs" are: reduction, reuse, and recycling.

#### Framework for recycling of scrap tires

Waste Tire 3Rs Committee Chair: General Manager of Tire Domestic Sales & Marketing Div. Council for Promotion of Proper Disposal of Scrap Tires Purpose: Proper collection and disposal of scrap tires

3R Technology Development Promotion Council Purpose: Promotion of reuse of scrap tires and material recycling

### Hoping to raise all employees' awareness

It is important to raise the overall rate of recycling of scrap tires through a combination of action by industry as a whole and independent activities pursued by the Yokohama Rubber Group to reduce, reuse, and recycle tires. The Yokohama Rubber Group will raise the proportion of scrap tires collected, and at the same time accelerate development of products that make use of scrap tires. In conjunction with this, we aim to raise awareness among all our employees.



Koichi Tanaka Managing Corporate Officer, General Manager of Tire Domestic Sales & Marketing Div.

### **Development of Recycled Products**

Led by the 3R Technology Development Promotion Council, we are pursuing reuse of scrap tires and development of material recycling technologies. In fiscal 2006, work in this area produced the following results.

#### Porous Elastic Road-surfacing Material That Contributes to Safety and Conservation of Resources

This porous elastic road-surfacing material is made from rubber chips that are recycled from scrap tires and silicon sand hardened with urethane resin, and it can be used for a variety of products that contribute to safety, comfort, resource conservation, and resource recycling. In fiscal 2006, it was awarded the company's in-house Outstanding Performance Award for Environmentally Sound Products.

#### 1) Safety and Comfort

The material's high air content gives it outstanding sound absorption performance. In tests held on a section of public road in Zama City, Kanagawa Prefecture, in November 2006, it was found to be 90% quieter than ordinary asphalt. It also has excellent drainage properties, prevents slippage and splashing, and helps prevent freezing.



Section of public road surfaced with the new material for tests (the part of the darker color)

#### 2) Resource Conservation

The use of urethane resin makes the material more heat resistant, preventing the formation of ruts caused by large trucks and other heavy vehicles. It is therefore expected to be around twice as durable as ordinary asphalt surfacing.

#### 3) Resource Recycling

Three square meters of the material can be made from a single scrap tire. It can also be recycled into numerous products, including anti-slip surfacing for pedestrians, and the barrier-free grating material (ditch lids) "Eco-Soft," which is colored for ease of recognition for disabled users.



Eco-Soft

#### First in the Industry to Mass Produce Recycled Rubber

In January 2007, we commenced full-scale mass production of recycled rubber in the company. Using our own specially developed technology, rubber can be recycled into higher quality raw material than is possible with conventional techniques, thus ensuring that

using recycled materials does not lead to a decline in quality. In 2007 we plan to use 400 tons of recycled rubber as raw material for tire products.



Mass-production equipment introduced at the Mie Plant



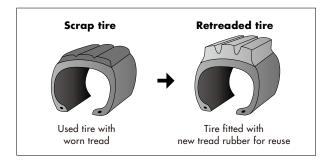
### Aiming at a Higher Rate of Controlled Scrap Tires

Led by the Council for Promotion of Proper Disposal of Scrap Tires, we are engaged in proper management of manifests and accurate tracking of the quantity of scrap tires collected. In order to enhance manifest management, tire distributors are pursuing centralized control of manifests in their areas, while at the same time regularly auditing scrap tire collectors and transporters. Action is being taken to ascertain the number and tonnage of scrap tires collected. In fiscal 2006, the rate of controlled scrap tires was 64.2%.

#### **Retreaded Tires Contributing to Reuse of Scrap Tires**

#### Four Centers Established in Japan

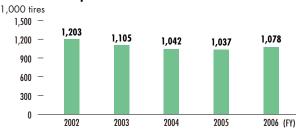
Retreaded tires are used truck and bus tires that are readied for reuse by fitting them with new tread rubber. The Yokohama Rubber Group has established two specialist retreaded tire companies in Japan—Yokohama Tire East Japan Retread and Sanyo Retread—to manufacture and distribute retreaded tires at four locations across the country.



#### Designated Procurement Product

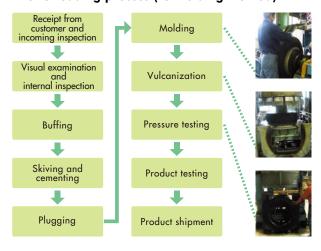
Consigned tires for retreading, which are received from the customer and returned after retreading, have been made a "designed procurement product" under the Law on Promoting Green Purchasing.

#### Trend in output of retreaded tires



Sources: Ministry of Economy, Trade and Industry, Japan Automobile Tire Manufacturers Association (JATMA).

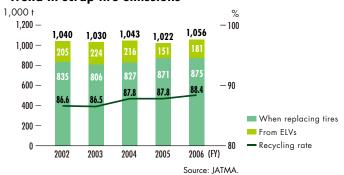
#### Tire retreading process (re-molding method)



# Scrap Tire Emissions and Recycling Rate in Japan

Japan produced around 103 million scrap tires weighing a total of 1,060,000 tons in fiscal 2006. 83% were produced when replacing tires, and 17% when vehicles reached the end of their lives. The recycling rate was 88.4%.

#### Trend in scrap tire emissions



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