Tire Labeling and Green Tires

National law, Infrastructure and Market in Japan, South Korea and China

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LANXESS Energizing Chemistry

TCW

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BRIDGE TO INDIA

This study was inquired by

to analyze National law, Infrastructure and Market
for Green Tires in Japan, South Korea and China.

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Preface

The European Union designed new regulation for tires, which will go into effect in November 2011. The regulations target further reduction on fuel consumption and CO2 emissions. Especially the Asian countries need to tackle these challenges. The rapid urbanization processes and increasing mobility needs in markets such as Japan, China and South Korea lead to new policies and guidelines. As one of the world largest rubber manufactuarer and additives, LANXESS is a knowledgable discussion partner for our Asian clients, suppliers and decision makers in order to implement higher regulations for tires. Therefore, we decided to mandate Prof. Wildemann, Technical University of Munich, to compile the following study on "Tire Labeling and Green Tires National law, Infrastructure and Market in Japan, South Korea and China". I thank Prof. Wildemann and his team for his exemplary work.

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Foreword

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The European Union sets its guiding principles with the new regulation 661/2009/EG in order to futher harmonize its rules in the European area. Green tires as such have less rolling resistance which is the resistance that arises from the rolling of tire by deformation and friction losses. Because of this, the EU created a European tire label that sets technical standards and provides information on substance-force efficiency, wet grip and rolling noise. Countries such as Japan and South Korea introduced an elaborate and comprehensive tire labeling standards. For the purpose of clarity and convenience, this study carried out within the framework of certain parameters, namely road infrastructure, enablers, national law/policies and finally the market analysis of the counties Japan, China and South Korea.

Munich, July 20, 2011

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0 Summary

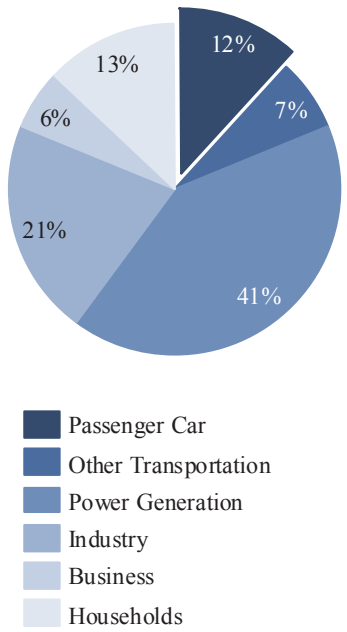
The Kyoto Protocol obliges its participating nations to reduce emissions of CO2. A large percentage of fossil fuel is consumed by means of transportation; in fact 12% of CO2 emissions in the European Unision (EU) are due to passenger cars. In this context, increasing energy efficiency is becoming the guideline for the design of cars. Increasing fuel prices and concerns about climate change due to carbon emissions trigger efforts to reduce fuel consumption.

The rolling resistance of tires is a major cause of fuel consumption as well as CO2 emission of a vehicle. Studies show that 20% to 30% of fuel consumption and over 24% of CO2 emissions are reasoned by tires. This shows the need to develop fuel optimized tires, which are discussed under the name of “green tires” in the European tire and rubber industry.

Green tires as such have less rolling resistance which is the resistance that arises from the rolling of tire by deformation and friction losses. Today efficiency potential in fuel consumption is on average 3%. Because of this, the EU created a European tire label that sets technical standards and provides information on substance-force efficiency, wet grip and rolling noise. The regulation 661/2009/EG will harmonize the tire standards in the European area and create the conditions for a high level of road safety and environmental protection. The regulation will go into effect in November 2011 and has the potential to be a role model for global policy development. Therefore, key Asian markets such as China, Japan and South Korea become focus of large tire companies.

Japan: The data on Japan highlights the fact that the island nation is doing visibly significant efforts to make its transport sector fuel efficient and world class. The energy consumption in road sector as percentage of total energy consumption has declined from 15.05% in 2003 to 13.93% in 2008. It has brought out emission laws in the transport sector which is by far the most stringent in the world. The

12% CO2 emission in the EU are due to passenger cars.



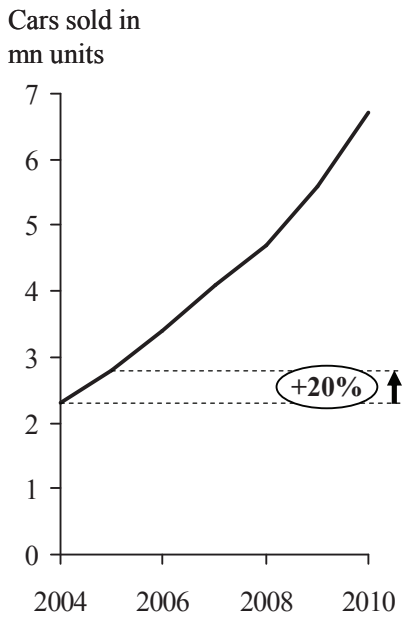
20,9% of fuel consumtion are reasoned by tires.

	Proportion of tires for fuel consupmtion in %
Rolling Resistance	16
Air Resistance	4.5
Acceleration Resistance	0.4
Total Resistance	20.9

Japanese tire labeling is equal to European standards.

Japa-nese Rating	EU Rating	Comment
AAA	A	Qualifies tires for the special mark of fuel efficient tires in Japan.
AA	B	
A	C	
B	E	Foreclosure of the market at the moment phase 2 is taking effect in EU.
C	F	
-	G	Foreclosure of the market at the moment phase 1 is taking effect in EU.

As well as the growth of the road infrastructure the cars sold in china grows 20 % anually.



privatization law that it passed in 2005 has resulted in the formation of world class expressways. The most important step taken in the direction of fuel-efficient transport system is the introduction of an elaborate and comprehensive tire labeling standards that it brought out in 2010 which is technically equal to European standards. By this, it has set an unprecendented bench mark for other Asian countries to follow. The tire standard will be mandatory from December 2011. Coupled with this is the fact that Japan's economy though never consistent has always been able to retain its status as one of the top 5 economies of the world. Thus, it provides a huge potential for the companies to invest in its green tire market.

China: Chinese economy is the fastest growing in the world. This has a direct impact on its infrastructure. Consequently, its road infrastructure has been growing at an average of 20% per year since 2000 reaching a total length of road network of 3.98 million km in 2010. The development scenario resulted in increasing fuel consumption, carbon emissions and air pollution. The environmental awareness of the population is still low, but the government intends to enforce a green development of the economy. In the upcoming 12th FYP (2011-2015), China plans to restructure the economy towards a higher level of sustainability and aims for a 'higher quality growth'. However, as of now, Chinese policies do not include any measure taken specifically on green tires or green tire labeling.

South Korea: It is also one of the better developed economies of Asia though not as much as Japan. Its economy is consistently on the rise and the public as well as private usage of vehicles is steadily increasing. Along with Japan, it has also brought out its tire labeling mechanism. It is a crucial step in making its transportation sector efficient and to keep up with the labeling standards of other developed nations. The tire regulations will become mandatory from November 2012 and so the green tire market of South Korea holds promising potential to its investors.