

**MRR No. 379**

## **Research Report**

# **Overview of Tyre Ecosystem in Malaysia**



Ahmad Noor Syukri Zainal Abidin  
Kak D-Wing  
Afiqah Omar  
Tan Choon Yeap  
Muhammad Arif Fahmi Abdul Wahab  
Mohd Rasid Osman  
Siti Zaharah Ishak  
Khairil Anwar Abu Kassim

**M.I.R.O.S**

MALAYSIAN INSTITUTE OF ROAD SAFETY RESEARCH

ASEAN ROAD SAFETY CENTRE

# Overview of Tyre Ecosystem in Malaysia

Ahmad Noor Syukri Zainal Abidin  
Kak D-Wing  
Afiqah Omar  
Tan Choon Yeap  
Muhammad Arif Fahmi Abdul Wahab  
Mohd Rasid Osman  
Siti Zaharah Ishak  
Khairil Anwar Abu Kassim



Published by:

**Malaysian Institute of Road Safety Research (MIROS)**

Lot 125-135, Jalan TKS 1, Taman Kajang Sentral,  
43000 Kajang, Selangor Darul Ehsan, Malaysia.

Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Ahmad Noor Syukri Zainal Abidin,

Overview of Tyre Ecosystem in Malaysia / Ahmad Noor Syukri Zainal Abidin,  
Kak D-Wing, Afiqah Omar, Tan Choon Yeap, Muhammad Arif Fahmi  
Abdul Wahab, Mohd Rasid Osman, Siti Zaharah Ishak, Khairil Anwar Abu Kassim.  
(Research Report; MRR No. 379)  
ISBN 978-967-2988-08-3

1. Tires.
  2. Automobiles--Tires.
  3. Traffic safety.
  4. Government publications--Malaysia.
    - I. Afiqah Omar. II. Tan, Choon Yeap.
    - III. Muhammad Arif Fahmi Abdul Wahab.
    - IV. Mohd. Rasid Osman. V. Siti Zaharah Ishak.
    - VI. Khairil Anwar Abu Kassim. VII. Kak, D-Wing.
    - VIII. Title. IX. Series.
- 629.2482

Printed by:

**VISUAL PRINT SDN BHD (186281-A)**

No. 47, 47-1, Jalan Damai Raya 1,  
Alam Damai, 56000 Cheras,  
Kuala Lumpur.

Typeface: Calibri

Size: 11 pt.

#### **DISCLAIMER**

None of the materials provided in this report may be used, reproduced or transmitted, in any form or by any means, electronic or mechanical, including recording or the use of any information storage and retrieval systems, without written permission from MIROS. Any conclusion and opinions in this report may be subject to re-evaluation in the event of any forthcoming additional information or investigations.

## Contents

---

	<b>Page</b>
<b>List of Tables</b>	<b>v</b>
<b>List of Figures</b>	<b>vi</b>
<b>Acknowledgements</b>	<b>vii</b>
<b>Abstract</b>	<b>ix</b>
<b>1. Introduction</b>	<b>1</b>
<b>2. Objectives</b>	<b>4</b>
<b>3. Study Background</b>	<b>5</b>
3.1 Tyre Ecosystem	5
3.2 Importation of Tyres	7
3.3 Production, Sales and Distribution of Tyres	8
3.4 Tyres Retreading	10
3.5 Tyres Certification	10
3.6 Tyres Scrapping	11
<b>4. Methodology</b>	<b>16</b>
<b>5. Results and Discussions</b>	<b>19</b>
5.1 Production, Sales and Distribution of Tyres	19
5.1.1 Production of Tyres	19
5.1.2 Sales and Distribution of Tyres	22
5.2 Importation of Tyres	23
5.3 Tyres Certification	27
5.4 Tyres Retreading	32

## Overview of Tyre Ecosystem in Malaysia

5.5	Tyres Scrapping	36
5.5.1	Scrap Tyres Treatment	36
5.5.2	Lack of Regulations	38
5.5.3	Reward System	39
<b>6.</b>	<b>Summary of Findings</b>	<b>40</b>
<b>7.</b>	<b>Issues and Recommendations</b>	<b>54</b>
7.1	Tyre Importation	54
7.2	Tyre Certification	55
7.3	Tyre Retreading	55
7.4	Tyre Sales and Distributions	56
7.5	Scrap Tyres Management	56
<b>8.</b>	<b>Conclusion</b>	<b>57</b>
	<b>References</b>	<b>58</b>

## List of Tables

		<b>Page</b>
Table 1	The trade description requirement for passenger car, commercial vehicle and re-treaded tyre as prescribed in Trade Description (Marking of Pneumatic Tyre) Order 2011	9
Table 2	Approval of performance requirements by type of vehicles ( <i>Source</i> : RTD Malaysia Subject Category)	11
Table 3	Daily generation and treated scrapped tyres (National Solid Waste Management Department, 2011)	13
Table 4	Annual and daily tonnage for scrap tyres generation types of vehicles from 2011 to 2015 (National Solid Waste Management Department, 2011)	14
Table 5	Stakeholders engagement according to the scope of interests	16
Table 6	Technical visit list according to the scope of interests	18
Table 7	Local tyre manufacturers and their respective tyre models	20
Table 8	Relevant agencies to conduct, certified or confirm the standard	28
Table 9	Malaysian Standard (MS) regarding tyre with voluntary status	29
Table 10	The full list of MS224:2005 certified retreaders (Dated: 03 May 2018)	33
Table 11	Details of processes involved for new tyres	40
Table 12	Issues and recommendations related to tyre importation	54
Table 13	Issues and recommendations related to tyre certification	55
Table 14	Issues and recommendations related to tyre retreading	55
Table 15	Issues and recommendations related to tyre sales and distributions	56
Table 16	Issues and recommendations related to scrap tyres management	56

## List of Figures

		<b>Page</b>
Figure 1	Tyre management flow ( <i>Source: A study on Scrap Tyres Management for Peninsular Malaysia, 2011</i> )	6
Figure 2	Summary of tyre importation	25
Figure 3	Process flow of product certification approval for Malaysian Standard (MS)	29
Figure 4	Process flow with agencies in charged for new tyre process	51
Figure 5	Process flow with agencies in charged for used tyre process	52
Figure 6	Process flow with agencies in charged for retreaded tyre process	52
Figure 7	Updated process flow of overall tyre ecosystem in Malaysia	53

## Acknowledgements

The authors gratefully express their deep appreciation to the former Director-General of MIROS, Professor Dr Wong Shaw Voon and forgiving his insight on the study and development of this report. Also, deepest appreciation goes to all officers and personnel from various stakeholders and agencies who have contributed to providing the valuable inputs throughout conducting this study.



## Abstract

Issues related to tyre failure particularly retread tyres as a contributing factor in road crashes often been highlighted by local media. However, in order to provide recommendations that are more comprehensive to the entire spectrum of the tyre usage and industry in Malaysia, loopholes in the current tyre ecosystem need to be identified and thorough understanding of the ecosystem is required. Thus, this study was conducted to establish the knowledge on current situation pertaining to tyre ecosystem in Malaysia. The scope of the study is divided into five (5) processes starting from the production of the tyres until processes involving disposal and scraping. The study looks into each process and the stakeholders involved in each scope within the ecosystem and from that onwards, current and potential gaps were identified and recommendations to improve the identified issues were put forward. To enable a clearer explanation of the issues found and the proposed recommendations, the findings were tabulated separated according to each phase. The findings from this study are expected to provide useful insight into the current tyre ecosystem in the country.



## 1. Introduction

Tyres are highly engineered structural composites whose performance is designed to meet the vehicle ride, handling, and traction criteria, with the required safety performance and quality. The primary function of tyres is to provide the interface between the vehicle and the road surface. The ability of vehicles to start, stop and turn corners results from friction between the road and the tyres. Tyre tread designs enable water to escape from the tyre-road contact area to minimize hydroplaning while providing a reasonable balance between traction and noise level (Cheah et al., 2016).

From a technical point of view, the main requirements for tyres are among others, high wear resistance, optimal deformation characteristics, low rolling resistance, high operational life and safety and others. In terms of vehicle safety components, tyre is considered under the active safety requirement of a vehicle, in which it is designed to protect the vehicle from involving in a road crash. However, in terms of tyre safety, it is both passive and active. Kostial et al. (2012) concurred that passive elements of the tyres depend on the quality of the production of a tyre casing, the applied technology and used materials. On the other hand, elements of active tyre safety are particularly high running safety on various types of road surfaces, breakdown resistance, speed resistance and high life of materials used for the production of tyres.

Tyres during operation are exposed to combined loading as from a mechanical (statically, dynamic) and as a temperature point of view (local heating in subzones, overall heating in the tyre-tread area permeating into the tyre during braking). This has to be considered in defining tyre safety at high speeds. In the US, previous research study found that 12.6% of the overall number of crashes occurred due to vehicular tyre and wheels failures (Klein, E., & Black, T., 1999). Moreover, throughout the year 2007 to 2010, NASS-CDS data showed that 11,047 crashes had occurred due to tyre failure and 1.77% (195) of the crash were involving fatalities (NHTSA, 2014). In Malaysia, data from

## Overview of Tyre Ecosystem in Malaysia

MIROS in-depth investigation has revealed that 37% of crashes involving tyre issues had caused for more than three fatalities in one single crash (Syukri et al., 2012).

All tyres need to be tested through standardized procedures to ensure the performance, quality and safety of the product. Various standard certification marks were also being used worldwide in the tyre industry such as CCC (China Compulsory Certificate) mark for China standard, SNI (Indonesian National Standard) for Indonesia, and several other marks. In Malaysia, tyres that were locally manufactured are required to pass a certain level of safety standards and those tyres shall be marked with MS (which refers to Malaysian Standard). Meanwhile, for imported tyres, E or DOT mark is required under Trade Descriptions (Marking of Pneumatic Tyre) Order 2012. E mark represents the tyre standard requirement marking under the Economic Commission for Europe (ECE).

The certification mark is categorized by numbers to indicate the country that made the approval for the E mark on a tyre product. On the other hand, DOT mark is the tyre standard marking from the Department of Transport of USA. DOT mark indicates that the tyres met or exceeded the safety standards that were established by the Department of Transport (Pirelli, 2013) (Dunlop, 2013) (NHTSA, 2013). Having said that, the level of performance of the substandard tyres are ambiguous, as the tyres most likely did not possess the same test requirement abovementioned. On another note, current limited knowledge and inadequate control with regards to the entire spectrum of tyre ecosystem in Malaysia from the manufacturing phase up till the disposal point has caused for concern. Knowledge on safety performance differences between tyres with different approval markings could help users in making wiser decisions while buying new tyres, with safety as a priority in mind.

In the local scenario, issues related to tyre failure particularly retread tyres as a contributing factor in road crashes often been highlighted by local media. On May 2016, this issue was again highlighted by the media which required relevant stakeholders including MIROS to react in providing inputs and comments from safety point of view on the issue. To date, MIROS has conducted a study related to passenger vehicle tyres which focuses on the effects of shelf age and approval marking to the safety performance of the tyres. The research has indicated that shelf age and types of

## Overview of Tyre Ecosystem in Malaysia

certification marks indeed provide a significant effect on the safety performance of passenger car tyres. The research has also quantified the shelf age limit on the tyres when referring to performance degradation. However, in order to provide recommendations that are more comprehensive to the entire spectrum of the tyre usage and industry in Malaysia, loopholes in the current tyre ecosystem need to be identified and thorough understanding of the ecosystem is required. A study on the current status of tyre ecosystem in Malaysia to be conducted to address the concerns raised previously. It is expected that from this study, critical area which requires proper intervention will be identified, enabling MIROS to propose effective and efficient solutions in the form of recommendations to improve current situation regarding tyre ecosystem in the country.

## 2. Objectives

The study was conducted to establish the knowledge on current situation pertaining to tyre ecosystem in Malaysia. The scope of the study is divided into five (5) processes starting from the production of the tyres until processes involving disposal and scraping. The detailed scope of the study are as follows:

- i. Production of tyres
- ii. Certification
- iii. Import of tyres
- iv. Sales and distribution
- v. Scrap tyre management

The study will look into each process and the stakeholders involved in each scope within the ecosystem and from that onwards, current and potential gaps will be identified and recommendations to improve the identified issues will be put forward. The findings from this study are expected to provide useful insight on the current tyre ecosystem in the country. The gathered facts from the study will then be utilized to be the reference to future intervention to improve the whole spectrum of tyre ecosystem in Malaysia.

### 3. Study Background

#### 3.1 Tyre Ecosystem

Tyres are one (1) of the most prominent components of motor vehicles on the road. Using faulty tyres on motor vehicles could expose the road user into great potential risk. Hence, it is necessary to study the ecosystem of tyres in Malaysia to ensure that no exploitation occurs in all of the involved processes. The tyre management flow is as illustrated in Figure 1. From Figure 1, it indicates that tyres are either manufactured locally or imported from other countries before distributing to tyre workshops and consumers. The import of tyres does not limit to new tyres only. Some distributors do import retreaded tyres and used tyres which will be supplied to commercial vehicle fleets and tyre retreading manufacturers respectively. After a new tyre has worn out, it was not disposed or recycled immediately but the used tyre will be collected for retreading. The retreaded tyres will return to the market and will be supplied to commercial vehicle fleets. Used tyres which cannot be further retreaded will be either disposed to dumpsites or sent to the recycling centre.

The entire process flow has to be monitored and overseen by respective authorities. In the following section, it will explain the process flow stated in Figure 1. The process flow consists of import of tyres, production, sales and distribution of tyres, product certification for tyres, tyre retreading and tyre scrapping. The responsible of relevant authorities for a specific process flow will be discussed in the same section.

Overview of Tyre Ecosystem in Malaysia

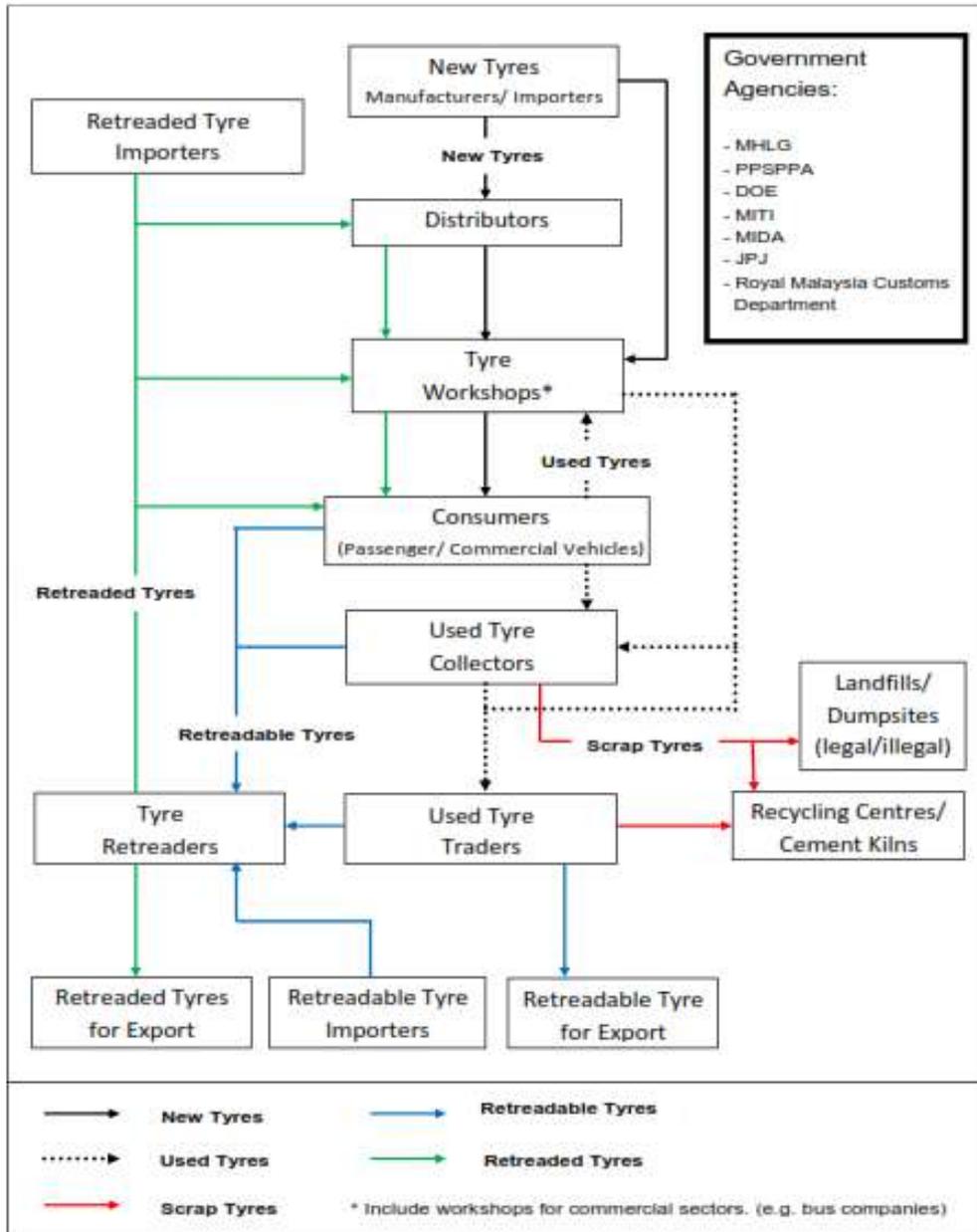


Figure 1 Tyre management flow (Source: A study on Scrap Tyres Management for Peninsular Malaysia, 2011)

### 3.2 Importation of Tyres

Tyres are imported into Malaysia from foreign country in a different category, namely, new tyres, used tyres and retreaded tyres. Policies on import of tyres are different among these categories of tyre.

The import of new tyres does not require any Approved Permit (AP). All imported tyres must comply with specific standards. In 2004, the Ministry of Transport (MOT) became a member of the World Forum for Harmonisation of Vehicle Regulations (WP29) working group that requires its members to implement mandatory standards on tyres. Since 1 January 2010, mandatory standards are enforced under the MOT the Fourth Schedule, Part II, Customs Order (Prohibition of Imports) 2009. For passenger car tyre, the importer must ensure that all tyres must comply with either UN R30 (E-mark) or FMVSS Standard No. 109 (DOT mark) or MS 149 (MS mark). On the other hand, for commercial vehicle tyre, it must comply with either UN R54 (E-Mark) or FMVSS Standard No. 119 (DOT mark) or MS 1394 (MS mark).

Previously, to import used tyre, it is required to apply for AP. The AP will only be issued to tyre re-treading manufacturers who have obtained MS 224 product certification. The requirement of obtaining AP to import used tyres was imposed on 1 January 2010. However, on 1 August 2016, importation of used tyres no longer require AP. According to Customs (Prohibitions of Imports) (amendments) (No. 2) Order 2016 of Customs Act, 1967 amending Part 1 of the Third Schedule, importation of used tyre requires Letter of Approval (LoA) from SIRIM Berhad. In the process flow, SIRIM is given the task to ensure that the imported used tyres complied with the requirements. SIRIM will carry out inspection based on sampling on the imported used tyre before the used tyres can be released to be used for retreading purposes.

Lastly, all imported re-treaded tyres must be accompanied with a DOT or E-mark UN R 108/109 issued by recognised technical service or MS 224 certificate issued by SIRIM in accordance with Forth Schedule, Part II.

### 3.3 Production, Sales and Distribution of Tyres

Trade Descriptions Act 2011 was approved in the Malaysia Parliament on 18 August 2011. Effectively on 1 November 2011, the Trade Description Act 2011 came into force and repealed the Trade Descriptions Act, 1972. The Trade Description Act 2011 prohibits false trade descriptions and false or misleading statements, conduct and practices in relation to goods or services, thereby protecting the interests of consumers. On 1 September 2012, Trade Description (Marking of Pneumatic Tyre) Order 2012 came into operation. Hence, sales of tyres in Malaysia must also comply with the new order and must display the trade description as prescribed in the act.

The act empowered the Enforcement Division of the Ministry of Domestic Trade and Consumer Affairs (MDTCA) to take action against any infringer who distributes and sells tyres that do not comply to the regulation. The enforcement officer may seize infringing goods bearing the false trade description or without proper trade description. All tyres must be labelled with proper marking in the premise of tyre distributor or tyre workshop. The presence of marking on the sidewall of the tyre indicates that the specification of the tyre complies with the given standard. In Malaysia, the act recognises three standards which are Malaysia Standard (MS marking), United Nation Regulation (E-Mark) and Federal Motor Vehicles Safety Specification Standard (DOT marking). For passenger car tyre, it must be labelled with either MS 149 or UN R30 or FMVSS Specification Standard No. 109. For the commercial vehicle tyre, the marking of either MS 1394 or UN R54 or FMVSS Standard No. 119 must be visible on the sidewall of the tyre. Lastly, for re-treaded tyre, the marking of MS 224 or UNR 108/ 109 must be labelled on the tyre. The detail of the trade description requirement for pneumatic tyre is as illustrated in Table 1.

**Table 1** The trade description requirement for passenger car, commercial vehicle and re-treaded tyre as prescribed in Trade Description (Marking of Pneumatic Tyre) Order 2011

(1) Type of pneumatic tyre	(2) Mark	(3) Standard
(a) New pneumatic tyres for highway vehicles other than passenger cars.	 <p>MS 1394 XXXXX</p> <p>XXXXX – Approval number.</p>	Malaysian Standard MS 1394 – Specification for New Pneumatic Tyres for Highway Vehicles other than Passenger Cars.
	 <p>YYYYY</p> <p>X – Refers to the Country which recognizes the compliance of standard.</p> <p>YYYY– Approval number.</p>	United Nation Economic Commission for Europe Regulation 54 Uniform Provisions Concerning the Approval of Pneumatic Tyres for Commercial Vehicles and Their Trailers.
	<p>DOT XXYY</p> <p>XXYY – Approval number.</p>	Federal Motor Vehicles Safety Specifications Standard No. 119 New Pneumatic Tyres for Highway Vehicles other than Passenger Cars.
(c) Retreaded pneumatic tyres for passenger cars and commercial vehicles.	 <p>MS 224 XXXXX</p> <p>XXXXX– Approval number.</p>	Malaysian Standard MS 224 – Specification for Retreading of Pneumatic Rubber Tyres for Passenger Car and Commercial Vehicle.
	 <p>YYYYY</p> <p>X – Refers to the Country which recognizes the compliance of standard.</p> <p>YYYY– Approval number.</p>	United Nation Economic Commission for Europe Regulation 108 Uniform Provisions Concerning the Approval for the Production of Retreaded Pneumatic Tyres for Motor Vehicles and Their Trailers.
	 <p>YYYYY</p> <p>X – Refers to the Country which recognizes the compliance of standard.</p> <p>YYYY– Approval number.</p>	United Nation Economic Commission for Europe Regulation 109 Uniform Provisions Concerning the Approval for the Production of Retreaded Pneumatic Tyres for Commercial Vehicles and Their Trailers.

### 3.4 Tyres Retreading

In tyre retreading industry, used tyre was remanufactured by removing worn tread surface and replacing with a new tread. The casing of the used tyre may still intact and structurally strong. A proper retreading process will inspect the condition of the used tyre before it is used for retreading. Remanufacturing used tyre can provide economic benefit to the logistic industry because it can reduce the cost of operation. The retreaded tyre can be considered as a safe product if it was done in accordance with the applicable standard.

Tyre retreading manufacturers usually obtain used tyres from tyre workshop or the commercial vehicle fleet operator. However, the tyre retreading manufacturer also obtains their source of used tyres through importing from a foreign country. According to current regulation, only tyre retreading manufacturers with MS 224 product certification are allowed to import used tyres.

### 3.5 Tyres Certification

In Malaysia, new vehicle systems and components shall conform with the specifications of UNECE regulations (UNR) or Malaysian Standards (MS). This process ensures the components are well functioned and achieve the desired performance. The mandatory standards for new pneumatic tyres are categorized into passenger car tyres and highway vehicles other than passenger cars. MS 149 specifies the designations testing and minimum safety requirements for new pneumatic rubber tyres use on passenger cars. New pneumatic tyres for highway vehicles other than passenger cars, excluding for racing and aviation must follow MS 1394 standard. The standard provides safer operational performance levels for pneumatic tyres designed for highway use on multipurpose passenger vehicles, light trucks and trucks, buses, trailers and motorcycles. Under UN regulation, new pneumatic tyres must meet the specification of UN R30 for passenger vehicles, UN R54 for commercial vehicles and UN R75 for motorcycles.

For retreaded tyre, the tyre must meet the specifications of Malaysian Standard MS 224, retreaded pneumatic rubber tyres for passenger cars and commercial vehicles. Related UN regulation for retreaded tyres falls under R108 for motor vehicles and R109 for commercial vehicles. The mandatory type approval performance required by the Road Transport Department (RTD) Malaysia according to the type of vehicles are listed in Table 2. The mandatory standards are in accordance with the Road Transport Act 1987.

**Table 2** Approval of performance requirements by type of vehicles (*Source: RTD Malaysia Subject Category*)

Subject	Category	Documents containing requirement
Tyres	L-Motorcycles	M.S. 1394 E.C.E R75
	M-Passenger car	M.S 149/224 E.C.E. R30/R54/R108/R109 FMVSS 109
	G/N-Machinery/Commercial vehicle	M.S. 1394 E.C.E. R30/R54 FMVSS 119
	O-Trailer/Semi-trailer	E.C.E R30/R54

Only tyre manufacturers with MS certification can place the label on the tyres. In Malaysia, the certification of standard is issued by SIRIM. SIRIM is the agent which has been appointed by the Department of Standards to develop Malaysian Standards and as the agent for distribution and sale of Malaysian Standards. Malaysian Rubber Board is selected to run the mechanical testing for the tyres. The sales of pneumatic tyres are monitored by the Ministry of Domestic Trade, Co-operatives and Consumerism together with the Malaysian Customs Department while the Road Transport Department controls the use of tyres on the roads.

### 3.6 Tyres Scrapping

There are various definitions for these common tyre terminology (National Solid Waste Management Department, 2011) and are outlined as follows:

## Overview of Tyre Ecosystem in Malaysia

- **Scrap tyres:** Used tyres that can no longer be utilized as tyres, or that contain defects that make them unusable on vehicles.
- **End-of-life tyres (ELT):** Is a used tyre that cannot or is not reused for its originally intended purpose and is not safe for re-tread. Such tyres may have value as a raw material for other processes or be destined for final disposal. End-of-life tyres are called “scrap tyres” in the United States.  
End of life tyre is a non-reusable tyre in its original form. It enters a waste management system based on product/material recycling, energy recovery or goes to landfill.
- The **part-worn tyres** are tyres, which are reusable, as a second-hand purchase or reusable after reprocessing (re-treading). It can be reused as it is for its original purpose when a residual tread depth remains, otherwise it can be reprocessed under a procedure whereby new tread is vulcanized on-to the casing and it becomes a re-treaded tyre.
- **Waste tyres:** Tyres which are no longer capable of being used for its original purpose, but which has been disposed-off in such a manner that it cannot be used for any other purpose.
- **Used tyres:** A tyre removed from a vehicle's rim which cannot be legally described as new, but which is structurally intact and has a tread depth greater than the legal limit. This tyre can be remounted onto another vehicle's rim without repair.
- **Discarded tyres:** Worn or damaged tyres which have been removed from a vehicle.
- **Worn tyres:** Tyres which have been removed from a vehicle because of wear or damage. Worn tyres can be re-treaded, repaired or scrapped.

Based on the above definitions, the term “Scrap tyres” may be used interchangeably with other terms such as “End-of-Life tyres”, “Waste tyres”, “Used tyres” and “Discarded tyres”, collectively of which refers to tyres which are removed from the vehicles rim, no longer used for their original intended use and purpose but may remain useful for other processes, activities or even destined for final disposal. They may also be taken from their original rim and discarded irrespective of their original conditions that have led to their removal from their rims.

## Overview of Tyre Ecosystem in Malaysia

In Malaysia, scrap tyre collector usually collects used tyres from tyre workshops. The collected tyres will be redistributed to tyre re-treading manufacturer, recycling facilities or landfill site. On average, approximately 758 tonnes of scrapped tyres are generated every day and only 170 tonnes of these scrap tyres are treated or recycled properly from the year 2010 to 2015 (National Solid Waste Management Department, 2011). The generation of scrapped tyre from 2010 to 2015 is tabulated in Table 3.

**Table 3** Daily generation and treated scrapped tyres (National Solid Waste Management Department, 2011)

Year	Generation (tonnes/day)	Recycled/Treated (tonnes/day)	Gaps (tonnes/day)
2010	670	170	500
2011	702	170	532
2012	737	170	567
2013	774	170	603
2014	812	170	641
2015	853	170	682

From 2011 to 2015, motorcar category still ranked the highest contribution for generally used tyres between 116 tonnes to 141 tonnes per year. Similarly, lorry more than 2.5 tonnes, trailers and others still ranked the 2<sup>nd</sup> and the least contributing category is the mini bus which generated around 368 to 447 tonne annually. All types of vehicle showing an increasing trend from the year 2007 to 2015. The total tonnage for scrap tyres shown an increasing trend from the year 2007 to 2015 from 208,911 tonnes to 311,337 tonnes annually. The generation of used tyres for the year 2011 to 2015 are shown below.

## Overview of Tyre Ecosystem in Malaysia

**Table 4** Annual and daily tonnage for scrap tyres generation types of vehicles from 2011 to 2015 (National Solid Waste Management Department, 2011)

Type of vehicles	Annual tonnage					Daily tonnage				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Motorcycle	21,830	22,922	24,068	25,271	26,535	60	63	66	69	73
Motorcar	115,979	121,778	127,867	134,260	140,973	318	334	350	368	386
Mini Bus	368	387	406	426	447	1	1	1	1	1
Bus	8,903	9,348	9,815	10,306	10,821	24	26	27	28	30
Taxi	4,436	4,658	4,891	5,135	5,392	12	13	13	14	15
Hire and Drive Car	918	964	1,012	1,063	1,116	3	3	3	3	3
Vans	2,053	2,155	2,263	2,376	2,495	6	6	6	7	7
Light trucks (<2.5 tonnes, and non-diesel trucks)	11,290	11,854	12,447	13,069	13,723	31	32	34	36	38
Lorry (>2.5 tonnes), Trailers and Others	70,377	73,896	77,590	81,470	85,543	193	202	213	223	234
Light truck	10,236	10,748	11,285	11,849	12,442	28	29	31	32	34
Heavy vehicles	9,749	10,236	10,748	11,285	11,849	27	28	29	31	32
<b>Total</b>	<b>256,138</b>	<b>268,945</b>	<b>282,392</b>	<b>296,512</b>	<b>311,337</b>	<b>702</b>	<b>737</b>	<b>774</b>	<b>812</b>	<b>853</b>

Recycling is possible for scrap tyres. The recycling process could extract rubber granules and steel wire from the scrap tyres (National Solid Waste Management Department, 2011). The extracted rubber granules can be processed into rubber tiles as secondary products. These rubber tiles can be utilized to produce rubberized asphalt for road constructing, sports ground surface, noise and vibration insulation, playground and rubber matting, conveyer belts, agricultural pipes and wharf pilings. On the other hand, the extracted steel wires can be remanufacturing in steel mills. Some recycling facilities are capable to recycle scrap tyre in Malaysia.

Pyrolysis treatment is possible to decompose scrap tyres. In the pyrolysis process, the organic components of scrap tyres are decomposed into low molecular weight product which can be used as fuels or chemical source (National Solid Waste Management Department, 2011). However, the carbon and inorganic components of scrap tyres cannot be decomposed in the process and have to be treated separately. Some companies in Malaysia are capable to conduct pyrolysis process on scrapped tyres.

The scrapped tyres are also used as low cost supplementary fuel in the cement industry. The combustion of these scrapped tyres can produce high calorific value to support cement production process (National Solid Waste Management Department, 2011).

## Overview of Tyre Ecosystem in Malaysia

Nonetheless, combustion of scrapped tyres may emit toxic gas in the process which can be harmful to the environment. Some cement factories did purchase collected scrap tyres as the supplementary fuels in Malaysia.

Even though a large amount of scrapped tyres are generated every day in Malaysia, there are no disposal facilities specifically designed for the disposal of scrapped tyres (National Solid Waste Management Department, 2011). Most of the landfill dumpsites do not treat scrapped tyres as a special waste and the scrapped tyres are treated as normal household waste.

## 4. Methodology

This chapter discusses the methodology used for this study. The study was conducted over three (3) stages; literature review, stakeholder engagement and technical visit. To conduct this study, all relevant items related to tyre ecosystems were identified through literature review and is categorized into five (5) scopes of interest; tyres production, sales and distribution, importation, certification, retread tyres, and tyres scrapping. Literature review was carried out by studying all the above-mentioned processes. Then, a team consists of six (6) research officers conducted engagement sessions with the relevant stakeholders conducted several technical visits to premises associated with tyre ecosystem and processes. The list of stakeholder engagements and technical visits are shown in Table 5 and Table 6.

Before conducting the engagement sessions, a list of specific questions related to the scope of interest on tyre ecosystem was sent by email to the relevant stakeholders. The stakeholder engagement sessions were conducted in order to gain detail information on the legislation, relevant guidelines and procedure and current practices related to the scope of interest as described in Table 5. Each stakeholder is engaged separately and all the questions were discussed and answered by the stakeholder either verbally during the session or written after the engagement sessions. Additional questions which are relevant to the stakeholders were also utilized. Moreover, engagement notes were also prepared for each engagement session.

**Table 5** Stakeholders engagement according to the scope of interests

Stakeholders engagement	Scope of interest	Output material
SIRIM QAS Sdn. Bhd.	Certification	Engagement notes
Malaysian Rubber Board (MRB)	Certification	
Ministry of Domestic Trade and Consumer Affairs (MDTCA)	Production, Sales and Distribution	

## Overview of Tyre Ecosystem in Malaysia

Malaysia Automotive Institute (MAI)	Production, Sales and Distribution, and Scrapping
Road Transport Department (RTD)	Certification
Tyre Retreading Manufacturers Association of Malaysia (TRMAM)	Production, Sales and Distribution
Royal Malaysian Customs (Customs)	Importation
Continental Tyre PJ Malaysia Sdn. Bhd.	Production, Sales and Distribution

In addition to that, in order to provide a better understanding of the processes related to tyre ecosystem, several technical visits were conducted to tyre manufacturers premises including a visit to the Customs Department based in Port Klang. During the technical visit to the tyre manufacturing factory, the team even visited the production line in order to gain a better understanding of the manufacturing process of new pneumatic tyres and new retreading tyres. The team also observed on the quality control and quality assurance processes for each category of tyre produced. All these processes were then compared to the requirement stated by the related standards and regulations. The representative from the factory was also required to explain in details in terms of the production, sales, and distribution processes conducted on the tyres including retread tyres. Moreover, during the visit to North Port Pelabuhan Klang, the team also observed the inspection process of imported tyres and explanation was given by Customs. Customs also demonstrated on how inspection on container carrying imported tyres was conducted. All of the information gathered through each visit was recorded in the visit notes (Refer to Table 6).

## Overview of Tyre Ecosystem in Malaysia

**Table 6** Technical visit list according to the scope of interests

Technical visit	Scope of interests	Output material
Sun Tyre Industry Sdn. Bhd.	Production, Sales and Distribution	
CUSTOMS Pelabuhan Klang – North Port	Importation	
Kit Loong Commercial Tyre Group	Production, Sales and Distribution	Visit notes
Continental Tyre PJ Malaysia Sdn. Bhd.	Production, Sales and Distribution	

Finally, based on the literature review, stakeholder engagements, and technical visits, the team makes a comprehensive mapping on tyre ecosystem in Malaysia in order to identify any loopholes and areas for improvement to be recommended to the relevant authority.

## 5. Results and Discussions

### 5.1 Production, Sales and Distribution of Tyres

#### 5.1.1 Production of Tyres

New tyres are either manufactured locally or imported and distributed by tyre dealers to the consumers. In both cases, upon production at tyre plants, new tyres will be sent to tyre dealers before the tyres reach the tyre shops. Under the current requirement, all tyres being manufactured in Malaysia shall comply to the Malaysian Standards (MS) requirement in which SIRIM Bhd (SIRIM) plays the role of certification body and was appointed by the Department of Standards Malaysia (DSM). Series of testing shall be conducted by the accredited testing laboratories on a number of samples of the tyres according to the MS requirement. Upon production, the process called Conformity of Production shall be performed by the certification body, or in the case of MS refers to SIRIM on the certified manufacturers. Physically, these tyres shall have the MS certification mark on the sidewalls. In overall, as of the time the study was conducted, there are (3) three major local tyre manufacturers registered under Federation of Malaysian Manufacturer (FMM) namely:

- i. Goodyear Malaysia Berhad, (located in Shah Alam, Selangor)
- ii. Silverstone Berhad (also owns Toyo), (located in Taiping, Perak) and
- iii. Continental Tyre (located in Petaling Jaya, Selangor and Alor Setar, Kedah)

Table 7 shows the local tyre manufacturers, types of tyres being produced and their respective models. For the record, only the abovementioned manufacturers conduct production of tyres in Malaysia by having the MS certification mark, where else other manufacturers deal only for importation purpose and act as tyre distributors, and can

## Overview of Tyre Ecosystem in Malaysia

only import tyres certified by the United Nations Regulation (E marking) or comply to the Federal Motor Vehicle Safety Standards (FMSS) with DOT markings. Moreover, according to the current requirement, the manufacturers are not required to be involved or subscribed to any form of scrap tyre management. Thus, with no responsibility on scrapping procedures being put liable from the starting end of tyre ecosystem and no mechanism of control and monitoring in place, issues on tyre scrap are hard to be solved.

**Table 7** Local tyre manufacturers and their respective tyre models

No.	Manufacturer	Type of tyre	Brand name
1	Goodyear	Passenger car	1. Goodyear 2. Kelly
		Commercial vehicle	1. Goodyear
2	Silverstone	Passenger car	1. Toyo 2. Nitto 3. Silverstone
		Commercial vehicle	1. Silverstone 2. Silverdolf
3	Continental	Passenger car	1. Continental 2. Viking 3. Dunlop
		Commercial vehicle	1. Continental 2. Dunlop 3. General

According to the Ministry of International Trades and Industry (MITI), there are currently 120 companies in the tyres and tyre-related products sub-sector comprising of nine (9) tyre producers, while the remaining companies produce re-treads, tyre treads for re-treading, valves and other accessories. With regards to passenger car tyres, in Malaysia, five (5) local tyre manufacturers have acquired MS 149:2008 certification for new pneumatic tyres for passenger vehicles. The certified manufacturers are:

- i. Continental Tyre AS Malaysia Sdn. Bhd.
- ii. Goodyear Malaysia Bhd.
- iii. GTS Manufacturing Sdn. Bhd.

- iv. Kian Hon Tyres Sdn. Bhd.
- v. Silverstone Berhad

However, it is to be noted that under the MS requirement, some of the other non-local tyre manufacturers have also been certified such as from Indonesia (3 manufacturers), Thailand (2 manufacturers) and China (1 manufacturer). These manufacturers have obtained the MS 149:2008 certification to export their products into the Malaysian market. Furthermore, in regards to commercial vehicle tyres, currently, in Malaysia, 10 local tyre manufacturers have acquired MS 1394:2008 certification (commercial vehicle). These manufacturers are as followed:

- i. CB LongMarch Tyre Sdn. Bhd.
- ii. Continental Tyre AS Malaysia Sdn. Bhd.
- iii. Continental Tyre PJ Malaysia Sdn. Bhd.
- iv. Everthrough Rubber Products Sdn. Bhd.
- v. Fortune Everlink Sdn. Bhd.
- vi. Goodyear Malaysia Berhad
- vii. GTS Manufacturing Sdn. Bhd.
- viii. Kian Hon Tyres Sdn. Bhd.
- ix. Klang Yew Huat Trailer Parts & Tyres Sdn. Bhd.
- x. Silverstone Berhad

Similar to MS 149:2008 for passenger car tyres, some foreign tyre manufacturers have also acquired the MS certification for MS 1394:2008 enabling them to compete for sales within the local market. At the time of this study was being conducted, these manufacturers are four from Thailand, two (2) from China and one (1) from Indonesia. With the mixture of local and non-local manufacturers certified with the relevant MS, authorities need to carefully check and detect the misuse of the marking by other none certified manufacturers as this may bring confusion even to the enforcement officers on the ground.

## Overview of Tyre Ecosystem in Malaysia

### 5.1.2 Sales and Distribution of Tyres

The Malaysian Parliament passed the Trade Descriptions Act 2011 on August 18, 2011. The Act empowered the Enforcement Division of the Ministry of Domestic Trade, Cooperatives and Consumerism (MDTCA) to take criminal action against the infringer, including the seizure of infringing goods bearing the false trade description. Under the Act, the MDTCA is empowered to conduct monitoring and inspection on premises and if any wrongdoings or substandard products were identified, the ministry has the authority to summon the premise and for the products to be confiscated. However, due to the limited human resource as compared to the vast coverage under the act, most on-market enforcement activities were conducted based on consumer complaint.

In regards to vehicle tyres, the Trade Descriptions (Marking of Pneumatic Tyre) Order 2012 comes into operation in Malaysia on 1 September 2012. According to the requirement stipulated under the Trade Description Order is that a pneumatic tyre shall bear the mark specified as follows:

For highway vehicle other than passenger cars:

- i. MS 1394; or
- ii. E-mark (UN R54); or
- iii. DOT mark (FMVSS No.119)

For passenger cars:

- i. MS 149; or
- ii. E-mark (UN-R30); or
- iii. DOT mark (FMVSS No. 109)

Thus, for new tyres, only tyres fulfilling the above-mentioned certification are legal to be on the market. However, it is important to note that currently the substandard tyres are still available on the market in numbers of tyre premise particularly in Sabah and Sarawak and the demand for such tyres still exist.

In regards to used tyres, based on stakeholder engagement it is noted that these tyres are usually being imported to Malaysia for the purpose of retreading. However, some tyre dealers were reported to have sold the used tyres directly to the consumers for usage and not for re-treading. The reason behind was that the imported used tyres still have 50-60% of available tread. What more alarming was that some stakeholders also mentioned that currently some China tyre manufacturers have also built their plants in Malaysia for the purpose of exporting the tyres to other countries and to avoid the effect of trade barrier policy from certain countries against China. However, whether these tyres are distributed within Malaysia is still unknown.

In relation to the on-market tyres for new tyres for usage and used tyres for retreading purposes, the study has found that the enforcement from MDTCA is not able to reach the satisfactory level to solve the issue, particularly with regards to tyre retreaders operating without product certification (MS224:2018) for retread tyres. It was informed during the stakeholders' engagement that a list of 'illegal' retreaders has been provided to MDTCA from an informant. However, no significant action in stopping the illegal retreaders from operating was taken by the ministry. In regards to monitoring and record-keeping of on market tyres, it was noted that currently no centralized system is available which can enable the monitoring mechanism on the distribution of tyres according to models and tyre sizes. This will result in an occurrence whereby even tyre dealers are unable to trace their tyres based on the tyre serial number. This provides an imminent loop hole in tyre tracking and allows the possibility of illegal tyre rebranding and raised the potential issue of tyre cloning.

## 5.2 Importation of Tyres

According to the Oxford Online Dictionary (Oxford, 2008), the process of import is defined as bringing goods or services into a country from abroad for sale. Along with exports, imports form the backbone of international trade. Import is needed whenever the goods or services is not enough or available in the country. Sometimes, imports are more cost-effective rather than produced by our own due to the volume. Importation of goods may be categories into new, used, second-hand, waste and scrap. There must be

## Overview of Tyre Ecosystem in Malaysia

a restriction for import to preserve the local industry and to prevent Malaysia from becoming a dumping ground of substandard product, used, second-hand, waste and scrap.

In Malaysia, importation manner being governed by Royal Malaysian Customs (CUSTOMS) through Customs (Prohibition of Imports) Order 2017 under Customs Act 1967. Under that order, there are four (4) manners of import which are absolute prohibition, conditional prohibition except under import license, conditional prohibition except in the manner provided and conditional prohibition except conforming to the Malaysia Standard or other standards approved by the Malaysian Authorities and in the manner provided.

For the case of tyre, the importation of tyre into Malaysia is categorized into new pneumatic snow tyre, new retreaded snow tyre, new pneumatic tyre, new retreaded pneumatic tyre, used pneumatic tyre and used retreaded pneumatic tyre. There is an absolute prohibition on importation of new pneumatic snow tyre and new retreaded snow tyre (Customs (Prohibition of Imports) Order 2017). According to United Nations Regulation 117 (UNR117) "Snow tyre" means a tyre whose tread pattern, tread compound or structure is primarily designed to achieve in snow conditions a performance better than that of a normal tyre with regard to its ability to initiate or maintain vehicle motion. UNR 117 also defined a tyre category of "Snow tyre for use in severe snow conditions" which means a snow tyre whose tread pattern, tread compound or structure is specifically designed to be used in severe snow conditions and that fulfils the requirements of paragraph 6.4 of that Regulation. Overall, the importation manners of tyres are as summarised in Figure 2.

**According to Customs (Prohibition of Imports) Order 2017**  
[http://www.federalgazette.agc.gov.my/output/pua\\_20170404\\_P.U.\(A\)103\\_Import.pdf](http://www.federalgazette.agc.gov.my/output/pua_20170404_P.U.(A)103_Import.pdf)

Type of Tyre	Snow (excluding M+S and M&S Tyre)				Others			
	New		Used		New		Used	
Pneumatic Tyre	Pneumatic Tyre	Retreaded Tyre	Pneumatic Tyre	Retreaded Tyre	Pneumatic Tyre	Retreaded Tyre	Pneumatic Tyre	Retreaded Tyre
Manner of Import	Absolutely prohibited for import	Absolutely prohibited for import	Import must be accompanied by a letter of approval issued by or on behalf of SIRIM Berhad	Import must be accompanied by a letter of approval issued by or on behalf of SIRIM Berhad	Import must be accompanied by certificate of compliance and the product bearing certification mark either UNECE Regulations (E-mark) of WP29 or Malaysian Standard (MS mark) or FMVSS (DOT mark).	Import must be accompanied by certificate of compliance and the product bearing certification mark either UNECE Regulations (E-mark) of WP29 or Malaysian Standard (MS mark) or FMVSS (DOT mark).	Import must be accompanied by a letter of approval issued by or on behalf of SIRIM Berhad	Import must be accompanied by a letter of approval issued by or on behalf of SIRIM Berhad

**Figure 2** Summary of tyre importation

However, there are some arguments in term of manners of import for Used Pneumatic Snow Tyre and Used Retreaded Snow tyre because there are no such terms mentioned in Customs (Prohibition of Imports) Order 2017. Some users of the Order (Order 2017) agreed that terms “used pneumatic tyre” and “used retreaded pneumatic tyre” already covered all types of tyre including tyre for the use in snow. There is also an argument in term of new pneumatic snow tyre and new retreaded snow tyre with marking M+S and M&S because according to Customs (Prohibition of Imports) Order 2017 those type of tyre is excluded from absolute prohibition. However, according to UNR54 and UNR177, the inscription M+S or M.S or M&S must be marked to the tyre if the tyre is classified in the category of used "snow tyre" and "Alpine" symbol ("3-peak-mountain with snowflake") shall be added if the snow tyre is classified as "snow tyre for use in severe snow conditions". Basically, Malaysian authorities have agreed not to allow “snow tyre for use in severe snow conditions” to be imported, sell and used in Malaysia due to the fact it may accelerate the damages of road, deterioration of performance, and high

## Overview of Tyre Ecosystem in Malaysia

probability for the tyre to fail if operated during summer (TNO, 2016). It is because Malaysia is a tropical country characterized as warm and humid located within the Tropic of Cancer and Capricorn which the climatic elements categorized as high temperature and uniform diurnal pattern throughout the year with annual mean temperature of 26.4°C, average daily maximum temperature of 34°C, and average daily minimum at 23°C (Al-Tamimi & Syed Fadzil, 2011). But since inscription M+ S or M.S or M&S also marked on the tyre together with Alpine symbols, it may confuse the Customs.

In case of the new pneumatic tyre and new retreaded pneumatic tyre, many importers importing tyres that are sub-standard but possessing imitated FMVSS compliance marking (marked with 'DOT'). This is due to the reason that the FMVSS compliance is only self-declaration and only the Department of Transport (DOT) of the USA possesses the authority to charge for cases of falsifying that marking. Currently, Malaysia does not have any agreement with the USA to ease the enforcement for product that falsifying DOT marked and due to that matter, Malaysia authority such as RTD, unable to identify or confirm whether the tyre imported comply with FMVSS or not. Other than that, even though the manners of imports for new pneumatic tyre and new re-treaded pneumatic tyre said that it shall comply to the standard as prescribed under the Motor Vehicle (Construction and Use) Rules 1959 governed by RTD, usually the importation of that tyres are not referred to RTD. Moreover, the importation of tyre must also be accompanied by certificate of compliance and the product bearing certification mark either UN Regulations (E-mark) of WP29 or Malaysian Standard (MS mark) or FMVSS (DOT mark). RTD is one (1) of approval authority under WP29 framework under United Nations and able to confirm the genuity of the compliance document for UN Regulations and E-mark while compliance to Malaysian Standard (MS) can be confirmed by Department of Standards Malaysia and SIRIM.

Moreover, during the engagement session with CUSTOMS and visit to Port Klang, it was found out that the CUSTOMS have difficulty to check every piece of tyres that are being imported to Malaysia. It was because of the volume is too high for every container, the process of unloading and reloading may require many manpower and time consuming, difficult to reload back the entire tyre stocks into the same container and unable to arrange the tyres into their original positions in the container. CUSTOMS, however, said

that due to that matter, they mostly concentrate on doing random 100% physical checking only on container declared contained used pneumatic tyres and used retreaded pneumatic tyres because of the duty and tax much lower and many importer cheating by doing false declaration. There is a strong need for Malaysian authorities to tighten up their legislation and procedures to minimize loop-hole in term of importation of tyre.

### 5.3 Tyres Certification

In Malaysia, several agencies have been appointed to conduct, certify, or confirm the originality of the certification for new and retreaded tyre. Table 8 lists the relevant agencies (not limited to) in accordance to the certification and conformity of production for MS and UN regulation related to pneumatic and retreaded tyre. Road Transport Department Malaysia (RTD), has been recognized as approval authority for UN regulation in Malaysia since July 20, 2012. Within the endorsement, RTD can issue UN R52 and appointed accredited technical service to conduct the testing (e.g.; IDIADA, TUV Rheinland, VCA). For MS, the certification of standard is issued by SIRIM, the technical service appointed by the DSM to develop the Malaysian Standards (MS) and the agent for distribution and sale of the standards. The performance testing can be conducted in any accredited laboratory. MRB is one (1) of the accredited laboratory that can conduct technical testing for tyre certification. The lists of companies with MS certification can be checked through website [www.malaysian-certified.my](http://www.malaysian-certified.my). For FMVSS standard with DOT Tyre Identification Number, the traceability of the products is quite challenging, since the markings are based on self-declaration by the manufacturer that their products meet all of the FMVSS requirements.

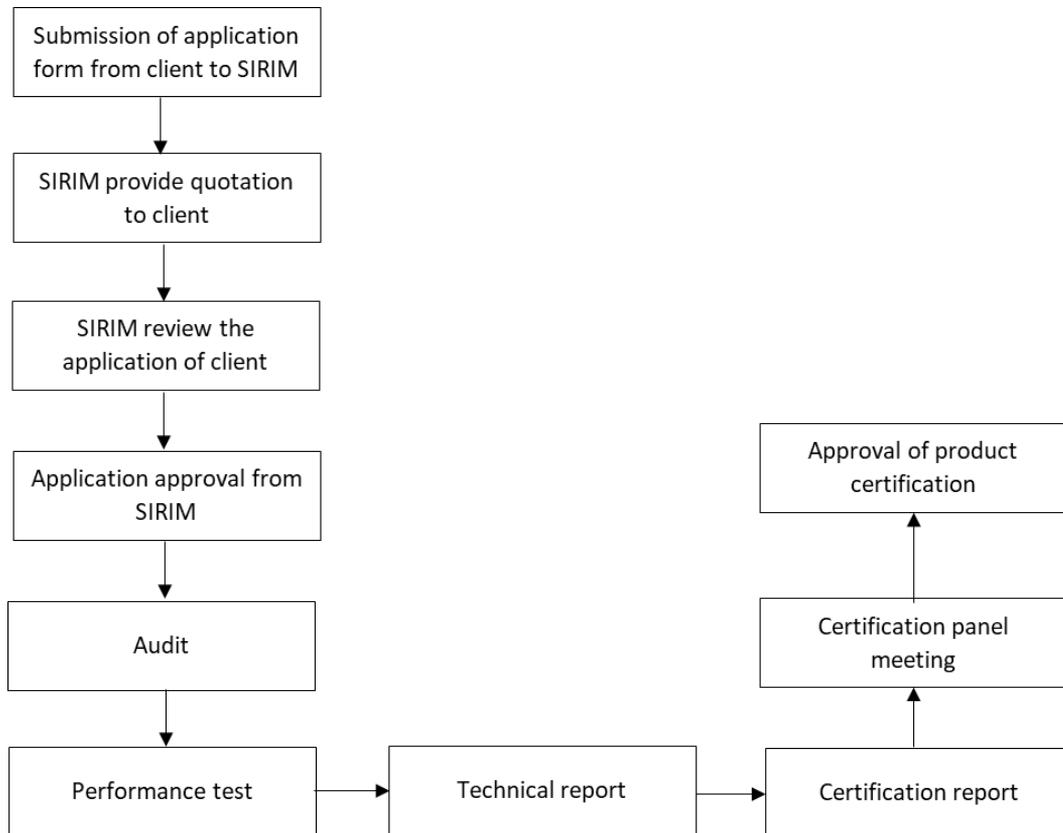
## Overview of Tyre Ecosystem in Malaysia

**Table 8** Relevant agencies to conduct, certified or confirm the standard

Process	Standard	Agency
Certification	UN R30, UN R54, UN R108 and UN R109	JPJ/LGM/IDIADA/ UV Rheinland /VCA
	MS 1394 and MS 149	SIRIM/LGM
Conformity of production	UN R30, UN R54, UN R108 and UN R109	JPJ/LGM/IDIADA/TUV Rheinland/VCA
	MS 1394 and MS 149	SIRIM/LGM

As confirmed by the discussion with the stakeholders, the other two (2) standards are considered as less stringent compared to the requirements of the MS. The manufacturer must apply for MS certification if their tyres do not contain certification approval either in the form of DOT or UNECE marking. However, there are several cases where the manufacturers applying MS certification even though their products already contain DOT or UNECE marking, as a strategy to penetrate the local market. The process flow of product certification approval for Malaysian Standard, specifically in this case referring to tyre is shown in Figure 3. The certification of MS1394, MS 149 and MS224 are issued by SIRIM. The performance testing can be conducted in any accredited laboratory. For the time being, the performance testing procedures can be conducted either in MRB tyre laboratory or in the client’s laboratory, witnessed by SIRIM officers. Only tyre manufacturers with MS certification can place the label on the tyre. Upon issuance of the certification, there are periodic surveillance audit and testing conducted by SIRIM. Another MS that are related to tyre that can be applied voluntarily by manufacturers is listed in Table 9.

## Overview of Tyre Ecosystem in Malaysia



**Figure 3** Process flow of product certification approval for Malaysian Standard (MS)

**Table 9** Malaysian Standard (MS) regarding tyre with voluntary status

MS number	Requirement status	Title
MS 1565	Voluntarily	Motorcycle Tyre Dimensions and Rims (Inch Code Designated Series)
MS 1566	Voluntarily	Definition of Common Terms Used in the Tyre Industry - Solid Tyres
MS ISO 4000	Voluntarily	Passenger Car Tyres and Rims – Part 1: Tyres (Metric Series)
MS 1348	Voluntarily	Cushion Gum Used in Precured Retreading of Tyres – Specification

## Overview of Tyre Ecosystem in Malaysia

MS 1208	Voluntarily	Precured Tread for Retreading Tyres – Specification
MS 1097	Voluntarily	Rubber Tread Compound for Hot (Conventional) Retreading of Passenger Car and Commercial Vehicle Tyres – Specification
MS 150	Voluntarily	Road Vehicles – Determination of Bead Unseating Resistance of a Tubeless Passenger Car Tyre
MS 1107	Voluntarily	Specification for Steel Disc Wheels for Motor Vehicles
MS 1025	Voluntarily	Wheel Rims for Motorcycle and Assembly – Specification
MS 2398	Voluntarily	Motorcycle Spoke Nipples – Specification
MS 2455	Voluntarily	Motorcycle Spokes – Specification

Several government agencies are involved with the monitoring of tyre certification in Malaysia. The selling of pneumatic tyres on premises, wholesalers and retailer are monitored by the Ministry of Domestic Trade, Co-operatives and Consumerism. The inspections are done based on complaints and periodical proactive inspections. For imported tyre, new pneumatic tyres importers are required to present a MS, UNECE or FMVSS certification to Royal Malaysian Customs Department and starting from 1<sup>st</sup> August 2016, all importation of used pneumatic tyres and used retreaded pneumatic tyres must be accompanied by Letter of Approval (LoA) issued by or on behalf of SIRIM. The process involves inspection by SIRIM based on sampling. In addition, the Road Transport Department controls the use of tyre on the roads.

Several issues have been highlighted during the engagement with stakeholders and tyre manufacturers. Firstly, several agencies have highlighted the traceability of tyre product carrying DOT marks (FMVSS standard). The system is quite different with MS and UN standard, where the other two (2) markings can be tracked by its serial number. The Tyre Identification Number (TIN) related to DOT mark consisted of up to four (4) groups of symbols, where the first group identifies the manufacturer of the tyre. The code differentiates between the production of new tyres and retreaded tyre. The application of the codes is based on request to National Highway Traffic Safety Administration (NHTSA), where manufacturers and retreaders need to provide contact information and information about what types of tyres they are producing. While tyre safety is under

controlled within the United States, local authorities have difficulties to track the origin of imported tyre with DOT marks in Malaysia. The problem raised especially when the products found to have quality issues or the products are out of specification. The quality control of the tyre with DOT marks is uncertain since the authorities cannot clarify whether the products are well functioned and can achieve the desired performance or not.

Other issues include the selling of retread tyres that do not contain certification in the market. There is a great number of local retread tyre companies that still do not comply with MS standard or E marking for retread tyre. The market for retread tyre without marking is high since it offers lower prices as compared to retread tyre with marking or new pneumatic tyre. This is a debatable issue since consumers tend to assume that most of tyre tread debris on road are caused by retread tyre. One of the main cause for retread tyre to fail on the road is due to a problem caused during the retreading process. The problems occur since the retread process does not comply to the recommended quality step, in this case, either MS or UNECE requirements. Additionally, the companies producing retread tyres without marking may use tyre casing with low qualities, that could also lead to the failure of retread tyres on road.

Regarding the tyre imported to Malaysia, there are reports that the supplier presents fake documentation during an inspection by the Customs Department. This results in the complaint by customer that the shipping products cannot be used due to defect in quality. There are also cases where the declarations are not aligned with the products shipping. This is worrisome since our country should not be dumping areas for unwanted tyres. Additionally, the tyres are sold in our market, to be used by the consumer on the roads.

For the time being, the printing of MS mark on the products is produced by the manufacturers. The colour coded on the retread tyre referring to companies was also coming from the retread tyre association. SIRIM provides the guidelines on how the mark is being printed. In order to ensure that the marking not being misused and consumed according to the certification, the printing of MS standard should be controlled by the issuance.

## Overview of Tyre Ecosystem in Malaysia

Next issue is regarding the application of MS certification for tyre. As the process can be conducted on manufacturer 'site witnessed by SIRIM officer, there are cases where the testing was conducted in non-accredited laboratory. In addition, MS 224 standard does not itemize mechanical test to be conducted in an accredited lab, as the standard focusing generally on the process of retreading. The requirement of testing in accredited lab is to ensure that the laboratory is technically competent to carry out specific testing activity required in the standard, thus producing reliable results. The results from non-accredited laboratories are recognized if the test reports are endorsed by an accredited laboratory for that test. Furthermore, there is no COP required for product with MS marking. Test on the sample is conducted only during the application of certification and audit process. COP should be included as part of the certification requirement for MS.

### 5.4 Tyres Retreading

Tyre retreading is a remanufacturing process for used tyre, in which the tread of a worn tyre is replaced with a new tread. Tyre retreader usually collect used tyre from tyre dealers, fleet company or through importing used tyre from other countries. The tread of a used tyre may have worn out, but the structure of the tyre casing may be still in good condition. A good quality tyre casing can be retreaded up to three (3) times. In other words, tyre retreading can increase the life span of a tyre. In normal practice, a retreaded tyre can be used for 6 to 12 months depending on the level of loadings and frequency of travel.

A proper tyre retreading process involves diagnostic process, surgical process (buffing, skiving and repair), new life process (cementing and curing) and finishing process (high-pressure testing and final inspection). Used tyres that are structurally weak should be rejected from being retreaded during the process of diagnostic.

In Malaysia, the retreaded tyre is mainly used by heavy vehicle. However, the usage of retreaded tyre has raised the concern of the public pertaining to the safety-related issue. The public perceives retreaded tyre as low-quality tyre and the usage of retreaded tyre

by the logistic industry may compromise road safety and could become the potential risk and hazard to other road users.

The concern of the public is valid in a certain condition. If retreaded tyres were not manufactured according to the proper procedure, it could expose safety risk to other road users. Therefore, some controlling mechanism is required to ensure that the manufacturing process of the retreaded tyre is properly conducted by the industry.

Hence, to properly regulate the sales of retreaded tyre, KPDNKK instructed that all tyre retreading manufacturer must comply to MS 224: 2005 (Retreaded Pneumatic Rubber Tyres for Passenger Cars and Commercial Vehicles- Specification) or the equivalent UN R108 and UN R109.

According to the Malaysian Certification database, currently, SIRIM has issued 76 product certification MS 224:2005 in Malaysia till date (03 May 2018). Out of 76 product certification, 60 companies have acquired the product certification as tabulated in Table 10.

**Table 10** The full list of MS224:2005 certified retreaders (Dated: 03 May 2018)

No.	Company name	License no.
1	Acten Tyre Technology Sdn. Bhd.	PA058801
2	Anggun Enterprise Sdn. Bhd.	PA056402
3	Anjur Canggih Sdn. Bhd.	PC000370
4	Big Way Tyre Retreading Sdn. Bhd.	PB033801
		PB033301
5	Big Wheel Green Tyres Sdn. Bhd.	PB033302
		PB033304
		PB033303
6	Cerico Retread Sdn. Bhd.	PC044901
7	Chin Thye Tyre Service Sdn. Bhd.	PC003244
8	Coltrac Sdn. Bhd.	PC043101
9	Continental Tyre Pj Malaysia Sdn. Bhd.	PC041306
10	Deauto Recycle & Retread Industry Sdn. Bhd.	PC001886

## Overview of Tyre Ecosystem in Malaysia

11	Eco Retread Sdn. Bhd.	PC001316
12	Euro Tyres Retread Sdn. Bhd.	PC001454
13	Expert Green Tyre Retread Enterprise	PC003331
14	First Unitex Tyre Retreading Sdn. Bhd.	PF027503 PC000387
15	G Fortune Tyres Sdn. Bhd.	PG028101
16	Great Wall Tyre Industries Sdn. Bhd.	PC000168
17	Gtr Tyre Retreaders Sdn. Bhd.	PG027502
18	Gulf Rubber (M) Sdn. Bhd.	PG011301
19	Gummitread Sdn. Bhd.	PC001951
20	Highclass Technics Sdn. Bhd.	PH033502
21	Ho Brothers Retreading Tyres Sdn. Bhd.	PC000270 PC000394
22	Hock Leng Tyre Retreading Industries Sdn. Bhd.	PC000395
23	Htr Enterprise Sdn. Bhd.	PH039701
24	Jingyun Enterprise Sdn. Bhd.	PJ025601
25	K & K Tyre Retread Trading	PC000512
26	Kayel Tyre Retread Sdn. Bhd.	PA052701
27	Kian Hon Tyres Sdn. Bhd.	PK044801
28	Kian Tat Trading	PC002171
29	Kilang Pencilup Tayar Iraman	PC000511
30	Lean Wah Tyre Retreads Sdn. Bhd.	PL028801 PL028802 PL028102
31	Lee Hwa Industries Sdn. Bhd.	PC000465
32	Magna Jaya Engineering Sdn. Bhd.	PC002195
33	Matteo (Malaysia) Sdn. Bhd	PM077301 PM076501
34	Mawau Sdn. Bhd.	PM076502
35	Melinau Tyre Retreading Sdn. Bhd.	PM065101
36	Mestread Tyre Solutions Sdn. Bhd.	PC000043
37	Nam Bee Tyre Retreading Sdn. Bhd.	PN021501 PN021502
38	Nor Tyre Retreading Sdn. Bhd.	PN022001

## Overview of Tyre Ecosystem in Malaysia

		PC002196
39	Olympic Retreads (M) Sdn. Bhd.	PO011201 PO011202
40	Performance Retreads Sdn. Bhd.	PP083701
41	Pnsb Nam Bee Rubber Industrial Sdn. Bhd.	PC000320 PC000319
42	Pylon Industries Sdn. Bhd.	PC000184
43	Q-Team Sdn. Bhd.	PQ002701
44	Qualitred Sdn. Bhd.	PC000166
45	Sn Tyre Retread Trading	PS106401
46	Soon Lee Tyre Retreading & Services	PC000478
47	Stamford Retread Industries (M) Sdn. Bhd.	PS106601
48	Sun Trac Industry Sdn. Bhd.	PS101802
49	Sun Tyre Industries Sdn. Bhd.	PS020201 PS020202
50	Sunrico Retread Sdn. Bhd.	PC001851
51	Syarikat Weng Keong Pencelup Tayar	PS106502
52	Tayar Celup Juara Sdn. Bhd.	PT061101 PT061102
53	Tayar Celup Tanda Batu Sdn. Bhd.	PT057501 PT057502
54	Tayatek Sdn. Bhd.	PT060901
55	Tme Tyre Retread Sdn. Bhd.	PC003147
56	Top Central Tyre Industries Sdn. Bhd.	PT057301 PT057302
57	Usmeta Manufacturing Sdn. Bhd.	PU000101
58	Vimax Retreading Sdn. Bhd.	PC000292
59	WI Wah Lean Sdn. Bhd.	PW012602
60	Yik Woh Tyre Enterprise Sdn. Bhd.	PC003121

However, according to the Tyre Retreading Manufacturers Association of Malaysia (TRMAM), some tyre retreading manufacturers were operating without obtaining the required product certification. Without product certification, these tyre retreading manufacturer could compromise the safety of the public while supplying uncertified

## Overview of Tyre Ecosystem in Malaysia

tyres to the market. In addition, some tyre retreading manufacturers purchased product certification markers from certified manufacturers and applied the markers on their non-certified retreaded tyres.

Hence, stern action has to be taken against non-compliance. KPDNK shall take immediate action on tyre retreading manufacturers who are operating without product certification. To further control the quality of retreaded tyres, MIDA shall make compliance of MS22 or UN R108 and UN R109 as the requirement in obtaining manufacturing license for tyre retreading manufacturers. To prevent improper trading of product certification markers, the product certification markers which were produced by the manufacturer must be recorded and controlled by the certification agency such as SIRIM.

## 5.5 Tyres Scrapping

### 5.5.1 Scrap Tyres Treatment

From the info gathered, it is learned that scrap tyres treatment can be segregated into five (5) processes which are:

#### i. Energy Recovery

Scrap tyres are burned for crude oil but currently, there are minimum burning activities of scrap tyres due to health and environment issues which contravene the Environment Quality Act. Lafarge Malayan Cement and YTL Cement used the scrap tyres to fuel its cement kiln for energy recovery as supplementary fuels.

#### ii. Recycling

Scrap tyres could be recycled into commodities and resources, such as concrete, asphalt and other tyres. To convert the scrap tyre into a valuable product, it must first be reduced in size and then recycled. The recycling process begins first by shredding tyres

into small manageable chips, which are then cooled to cryogenic temperatures, causing the pieces to become brittle. These brittle pieces are then pulverized into a material that must be screened to remove large chunks of rubber or polymer. Finally, the remaining fibre and magnetic material are separated from the pulverized material using a magnetic separator and a vibrational separator. This form of recycling is environmentally friendly and allows a valuable resource to be used again and again.

There is a potential for using waste tyre rubber to make activated-carbon adsorbents for air-quality control applications. Such an approach provides a recycling path for waste tyres and the production of new adsorbents from low-cost waste material. Also, recycled rubber from tyres is used as a component of various products commonly known as "tyre derived products". Such products include asphalt paving mixtures and as extenders in a variety of rubber products such as roofing materials, walk pads, carpet and flooring underlay and other products. More such products are being developed.

The only recycler, namely the G-Cycle that process scrap tyre into rubber granules. These rubber granules are further processed by six (6) service facilities to crumb which can be used to manufacture rubber secondary products. The steel wire residue is sold to a steel mill for further processing.

### **iii. Treatment at Legal Landfill**

In Malaysia, there are NO disposal facilities specifically designed for the disposal of scrap tyres. Most of our landfill sites receive scrap tyres as mixed waste with normal household waste. This poses some serious issues on the environment and pollution.

### **iv. Illegal Dumping of Scrap Tyres**

Rampant dumping of scrap tyres at the back yards, illegal landfill, drains, rivers, and sea which would affect the flora and fauna and eventually posed environmental issues. Issues such as fee charged by authorised landfill are too high and the scrap tyres in landfills are usually not segregated from other domestic waste has caused some illegal dumping of waste tyres.

## Overview of Tyre Ecosystem in Malaysia

### v. Other Uses of Scrap Tyres

Apart from many different uses for scrap tyres beneficial in helping reduce the amount of scrap tyres in stockpiles and used in creating Synthetic Turf in sports arenas as well as used to make Rubber Mulch which is used in gardens and playgrounds such as, tyre swings, flower pots, compost bins, retaining walls, and sandals in developing countries. Scrap Tyres have also been known to be used in making track and field pavements, roads, and shooting targets.

### 5.5.2 Lack of Regulations

As the disposal of scrap tyres in landfills has proven to pose negative impact to the environment which not only taking up a great deal of space within a landfill, but their process of decomposing has created a wide variety of issues that have made their disposal in landfills unfeasible and many regions and thus, banned. The process of bubbling of trapped methane gas has been linked to increased mosquito and other insect breeding which increases the risk of disease spreading, contamination of both underground and above ground water systems, as well as chemically destroying many beneficial bacteria that grow in the soil within and surrounding a landfill.

The most obvious hazard associated with the uncontrolled disposal and accumulation of large amounts of tyres outdoors is the potential for large fires which are extremely detrimental to the environment. Once a large pile catches fire, it is very hard, if not impossible, to extinguish.

The scrap tyre management should be regulated, monitored and enforcement intensified with penalties for non-compliance.

### 5.5.3 Reward System

There is lack of exciting rewards for the industry to embark on recycling of scrap tyres. Little or no obvious initiatives are seen to encourage public or industry players on the importance of recycling of scrap tyres to protect the environment.

## 6. Summary of Findings

The details of processes involved in new tyres are depicted in Table 11 and Figure 4. For the ease of the readers, the processes detail in both figures refer to both newly manufactured tyres and newly retreaded tyres.

**Table 11** Details of processes involved in new tyres

No.	Process	Agency	Activities	Details	Status
1	Production	Tyre manufacturers	Tyre production at tyre factories local or abroad	Tyre production conducted at manufacturers tyres factories. Tyres which are locally manufactured shall comply with MS requirement as for new imported tyres, all tyres shall have either E or DOT certification marking on the sidewalls.	Currently conducted
2	Certification	Certification agency: RTD SIRIM	Certification process of manufacturers for UNECE Regulation (UNR) and Malaysian Standard (MS) compliance	Certification process of the followings UNR: I. UN 30 – Uniform Provisions Concerning the Approval of Pneumatic Tyres for Motor	Currently conducted

- Vehicles and Their Trailers
- II. UN 54 – Uniform Provisions Concerning the Approval of Pneumatic Tyres for Commercial Vehicles and Their Trailers
  - III. UN 108 – Uniform Provisions Concerning the Approval for The Production of Retreaded Pneumatic Tyres for Motor Vehicles and Their Trailers
  - IV. UN 109 – Uniform Provisions Concerning the Approval for the Production of Retreaded Pneumatic Tyres for Commercial Vehicles and Their Trailers

are conducted by the regulatory body in charged (currently the RTD). The certification tests are conducted by

---

## Overview of Tyre Ecosystem in Malaysia

---

the certified testing agencies which:

Currently conducted

- I. Malaysian Rubber Board (for E52 certification)
- II. IDIADA
- III. TUV Rheinland
- IV. VCA

Certification process of the followings MS:

- I. MS 149 – New Pneumatic Passenger Car Tyres – Specification
- II. MS 1394 – 1394:2008 New Pneumatic Tyres for Highway Vehicles Other Than Passenger Cars
- III. MS 224 – Retreaded Pneumatic Rubber Tyres for Passenger Cars And Commercial Vehicles – Specification

are conducted by the certification agency in

---

## Overview of Tyre Ecosystem in Malaysia

				charged (currently the SIRIM) which is/are recognized and approved by the Department of Standards Malaysia (DSM). The certification tests are conducted by the certified testing agencies which currently the MRB.	
3	Conformity of Production (COP)	Certification agency: RTD SIRIM	Verification of product conformity to related regulation/standard	Conformity of production for tyres certified to the followings UNR: <ul style="list-style-type: none"> <li>I. UN 30 – Uniform Provisions Concerning The Approval Of Pneumatic Tyres For Motor Vehicles And Their Trailers</li> <li>II. UN 54 – Uniform Provisions Concerning the Approval of Pneumatic Tyres for Commercial Vehicles and Their Trailers</li> <li>III. UN 108 – Uniform Provisions Concerning the</li> </ul>	Currently conducted

- Approval for The Production of Retreaded Pneumatic Tyres for Motor Vehicles and Their Trailers
- IV. UN 109 – Uniform Provisions Concerning the Approval for the Production Of Retreaded Pneumatic Tyres for Commercial Vehicles and Their Trailers

are conducted by the regulatory body in charged (currently the RTD). The certification tests are conducted by the certified testing agencies which:

\*Newly proposed

- I. Malaysian Rubber Board (for E52 certification)
- II. IDIADA
- III. TUV Rheinland
- IV. VCA

Conformity of production for tyres

---

certified to the followings MS:

- I. MS 149 – New Pneumatic Passenger Car Tyres - Specification
- II. MS 1394 – 1394:2008 New Pneumatic Tyres for Highway Vehicles Other Than Passenger Cars
- III. MS 224 – Retreaded Pneumatic Rubber Tyres for Passenger Cars and Commercial Vehicles - Specification

shall be conducted by the certification agency in charged (currently the SIRIM) which is/are recognized and approved by the Department of Standards Malaysia (DSM). The conformity tests shall be conducted by the

---

## Overview of Tyre Ecosystem in Malaysia

				certified testing agencies which currently the MRB.	
4	Distribution	Tyre dealers/distributors	New tyres distributions from manufacturer tyre factories to tyre workshops	All new local and imported tyres shall be distributed to the local tyre workshops and vehicle service centres. Minimum time frame required for a new local manufactured tyres till reaching tyre premises is approximately 4 months.	Currently conducted
5	Inspection of on-market tyres	Enforcement Agency: Ministry of Domestic Trades, Cooperatives and Consumerism (MDTCA)	Enforcement activities to eliminate substandard tyres on-market	The monitoring and inspection shall be conducted by MDTCA at tyre premises to ensure only products adhering to the gazetted law specified under Akta Perihal Dagangan available on the market.	Currently conducted
6	Sales	Tyre workshop	Sales of New Tyres	Tyres are being sold at tyre workshops which also provides tyre services and repair (i.e vehicle tyre alignment setting, tyre puncture repair etc).	Currently conducted
7	Purchase and Usage	Consumer	Purchasing of new tyres	Purchasing of new tyres by consumer. Under the current law, consumer may lodge a	Currently conducted

## Overview of Tyre Ecosystem in Malaysia

				report to the MDTCA regarding any misconduct found in terms of product sales i.e sales of substandard products in the market.	
8	Inspection of on-road tyres	Enforcement agencies: RTD	Kerb site inspection of on-the-road	<p>Kerb-site inspection is conducted by the enforcement division of RTD on vehicle pertaining to the on-the-road tyres. The enforcement activities will focus mainly on detecting any usage of substandard tyres and also the conditions of the tyre tread. RTD has the authority to issue summons for both offences but currently, only enforcement activities related to the usage of substandard tyres is being conducted.</p> <p>For the purpose of these enforcement activities, clear and precise tyre markings need to be ensured by all manufacturers to ease the process and identification of any</p>	<p>Currently conducted</p> <p>*Newly proposed</p>

## Overview of Tyre Ecosystem in Malaysia

				<p>substandard tyre usage. Current standards and regulation, i.e through the improvement of MS standards related to tyre marking shall be one of the initiatives to improve tyre marking.</p> <p>Enforcement on tyre conditions shall also be conducted with proper and reliable tyre inspection devices.</p>	<p>*Newly proposed</p>
9	Inspection of on-road tyres	PUSPAKOM	Vehicle roadworthiness inspection	<p>Tyre inspection is currently one of the items under the vehicle roadworthiness inspection conducted by PUSPAKOM. The types of inspection include <i>Pemeriksaan Tukar Milik</i>, <i>Pemeriksaan Awalan</i> and <i>Pemeriksaan Berkala</i> for commercial vehicles. Current tyre inspection conducted by PUSPAKOM only through observation on the certification</p>	Currently conducted

## Overview of Tyre Ecosystem in Malaysia

				marking and no specific test involved.	
10	Inspection of on-road tyres	Used tyre collector/trader	Collection and sale of used tyres	Used tyres are collected from tyre workshops from used tyre collectors/traders. These tyres are then being filtered and segregated between used tyres for retread or scrap tyres. Tyres for retread will be sold to tyre retreader as for scrap tyres will be sold to scrap tyre processors.	Currently conducted
11	Tyre retreading	Tyre retreader	Retreading process of used tyre casing	<p>Tyre retreading is conducted by tyre retreader on used tyre casings with bearable tyre injuries. The injuries on tyre casing shall be repaired and the old tread shall be buffed before the casing is cured to the new tyre tread.</p> <p>Under the current requirement, only tyre retreaders complying to MS224 is legally allowed to produce retread tyres in Malaysia.</p>	Currently conducted

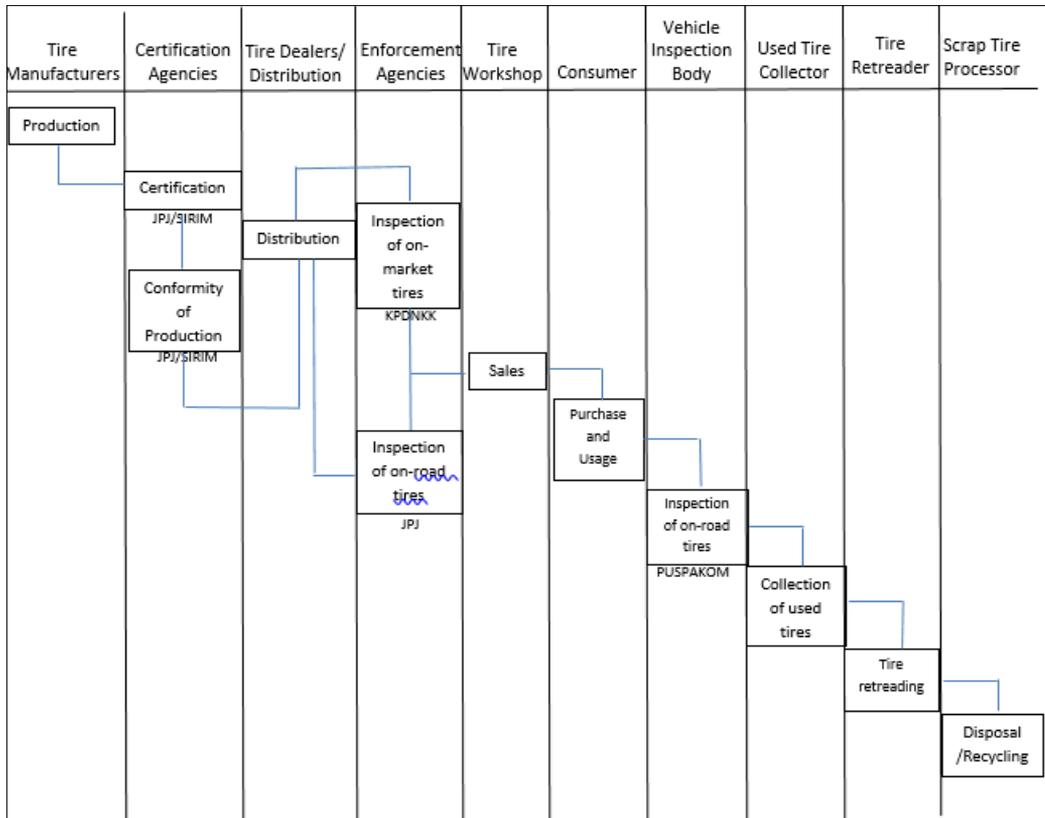
## Overview of Tyre Ecosystem in Malaysia

---

12	Disposal/ Recycling	Scrap tyre processor local authorities	Recycling and disposal of scrap tyres	<p>The scrap tyres shall be undergone recycling process and the usable material will be used for production of other general product. Currently, this process shall only be done by recycling factories.</p> <p>All tyres workshops that shall need to be certified under MS2697 which require each of the tyre workshop to perform recycling of the scrap tyres.</p>	<p>Currently conducted</p> <p>*Newly proposed</p>
----	------------------------	---	---	---	---

---

## Overview of Tyre Ecosystem in Malaysia



**Figure 4** Process flow with agencies in charged for new tyre process

As such for used and retreaded tyres, the process flow involved for each type of tyres are illustrated in Figure 5 and 6, as follows.

## Overview of Tyre Ecosystem in Malaysia

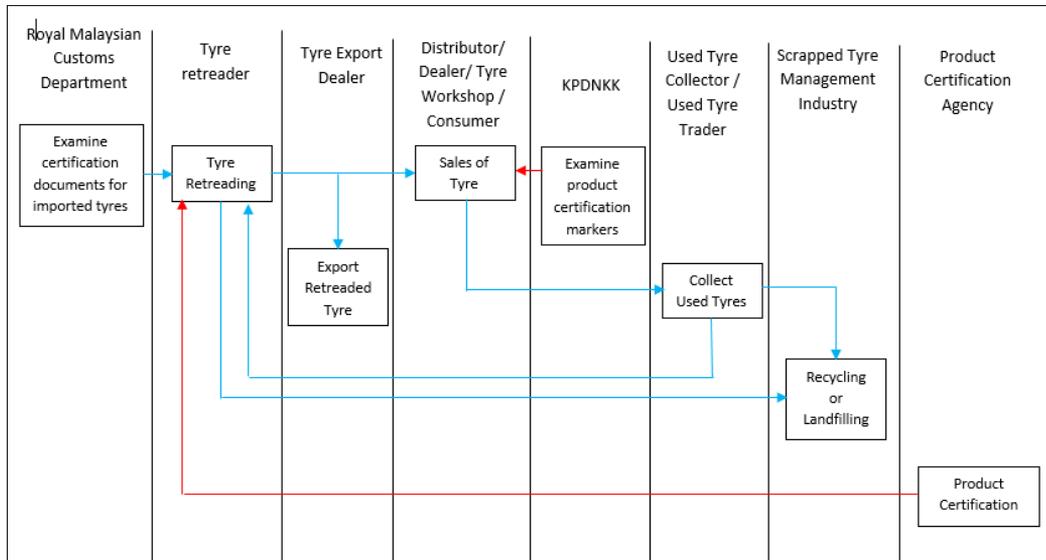


Figure 5 Process flow with agencies in charged for used tyre process

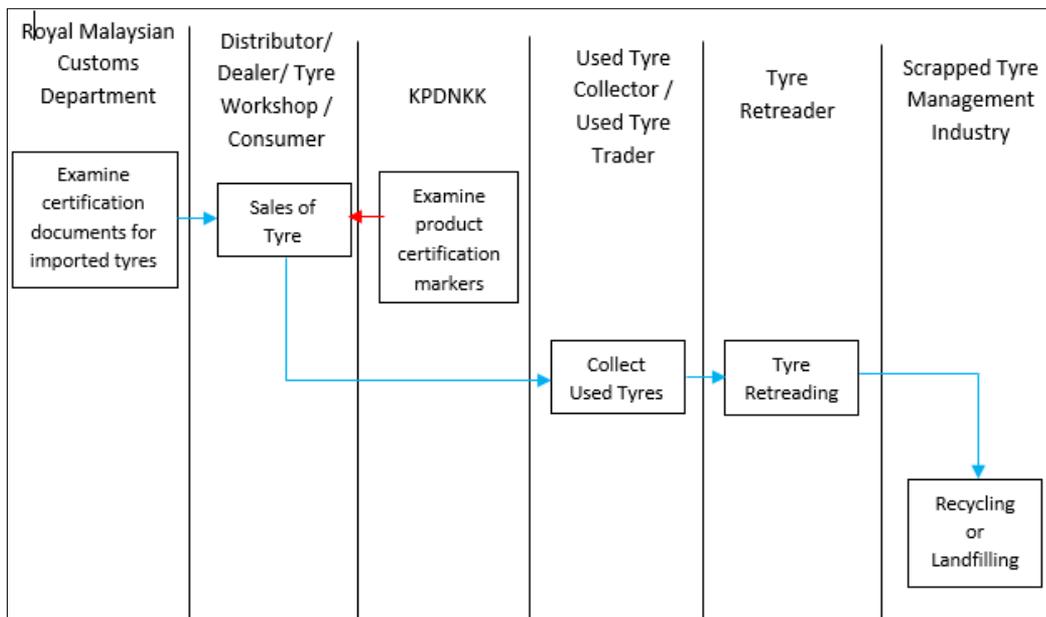
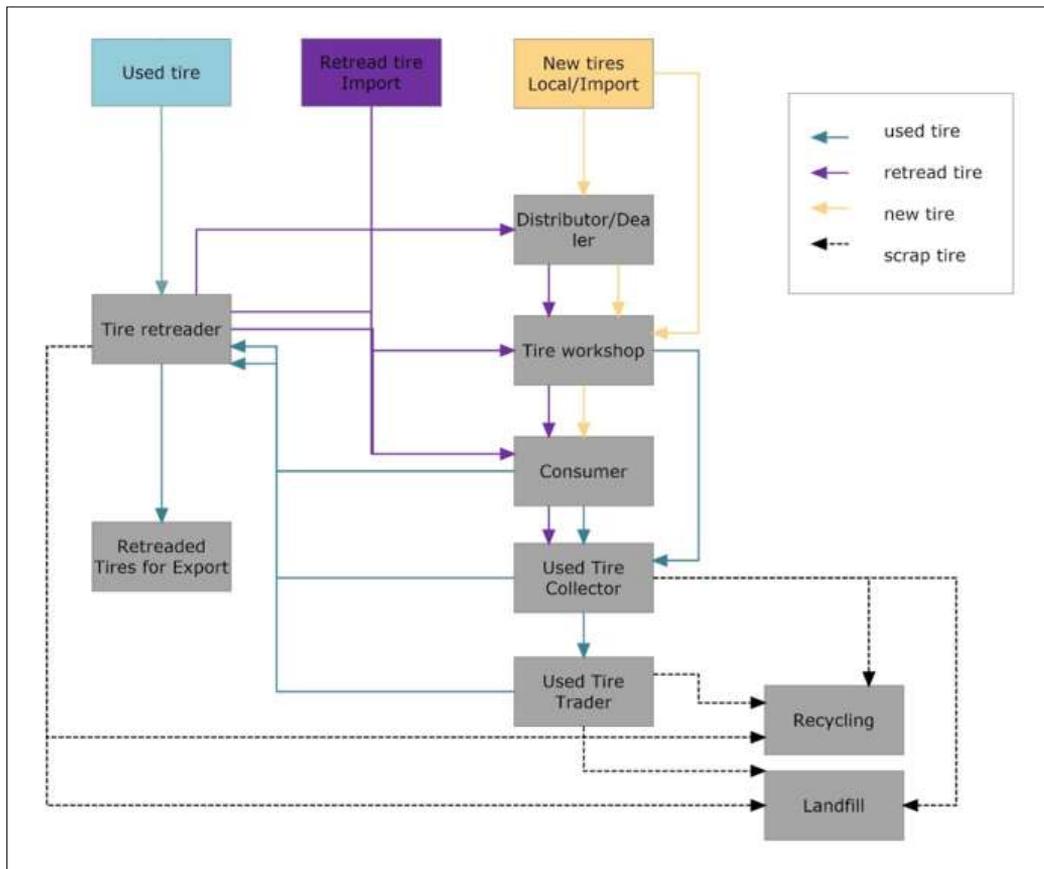


Figure 6 Process flow with agencies in charged for retreaded tyre process

## Overview of Tyre Ecosystem in Malaysia

Based on the findings obtained from the study and the inputs gathered during each stakeholders' engagement session and technical visits, the updated tyre ecosystem process flow diagram was constructed as shown in Figure 7. This process flows consist of import of tyres, production, sales and distribution of tyres, product certification for tyres, tyre retreading and tyre scrapping.



**Figure 7** Updated process flow of overall tyre ecosystem in Malaysia

## 7. Issues and Recommendations

Based on the findings gathered through stakeholders’ engagement and site visits, the following issues are highlighted and relevant recommendations are proposed. The issues and recommendations are divided into each phase of tyre ecosystem and are illustrated in Table 12 to Table 16.

### 7.1 Tyre Importation

**Table 12** Issues and recommendations related to tyre importation

No.	Issue	Recommendation
1	<p>Currently, all types of snow tyre (all season and severe snow) can be imported with the following arrangement:</p> <ol style="list-style-type: none"> <li>I. All season tyre – to be sold as new tyre or retread</li> <li>II. Severe snow tyre – to be used as retread tyre</li> </ol> <p>However, the suitability of usage of both types of snow tyres for Malaysian climate is unclear and the current importation process can be exploited thus increasing the potential for Malaysia to be the dumping ground for the said tyres</p>	<ul style="list-style-type: none"> <li>▪ To come out with clear definition for all types of snow tyres in Akta Pengangkutan Jalan (APJ) 1959. Definition shall be based on the definition used in relevant UN Regulations</li> <li>▪ To improve current requirement stated in Akta Larangan Customs for severe snow tyres</li> <li>▪ To conduct relevant studies on the suitability of usage for all types of snow tyres for Malaysian climate including in regards to its performance, skid resistance etc</li> </ul>
2	<p>The current practice does not require verification process to be conducted for imported new tyres but only required for used imported tyres</p>	<p>To introduce Letter of Acceptance (LOA) for new imported tyres which shall be verified by approval authority (e.g. RTD)</p>

## 7.2 Tyre Certification

**Table 13** Issues and recommendations related to tyre certification

No.	Issue	Recommendation
1	All product testing should be conducted at accredited laboratories (eg MRB for MS). However, in some cases, the testing was conducted in non-accredited laboratories.	All product testing shall be conducted by accredited laboratories.
2	Based on verbal information given by SIRIM representative during stakeholders' engagement, the meaning of MS marking is "meet standard", not "Malaysian Standard".	To consider rebranding MS marking as Malaysian Standard and improve current marking verification and issuance process between SIRIM and Department of Standard Malaysia.
3	For MS marking, tests on tyre samples are only conducted during certification process, while Conformity of Product (COP) test is currently not required to be conducted.	To consider including COP as part of the certification requirement for all types of new tyres with MS markings.

## 7.3 Tyre Retreading

**Table 14** Issues and recommendations related to tyre retreading

No.	Issue	Recommendation
1	Currently, uncertified tyre retreaders to MS 224/UNR 108 and UNR 109 are reported to be in operation	MDTCA to take appropriate action. Tyre retreaders should be required to fulfill MS 224/ UNR 108 and UNR 109 in order to obtain manufacturing license from MIDA.
2	New tyres from China tyre manufacturers with DOT marking are reported to be cheaper than retreaded tyres however the quality is questionable	To impose banning on all tyres with DOT marking.

## Overview of Tyre Ecosystem in Malaysia

---

3	Some certified retreaders are reported selling their MS 224 label marking to other uncertified retreaders	To improve the control and traceability of MS 224 label marking and the marking should only be issued by relevant certification agency.
---	---	---

---

## 7.4 Tyre Sales and Distributions

**Table 15** Issues and recommendations related to tyre sales and distributions

No.	Issue	Recommendation
1	Some dealers were reported to be selling used tyres directly to users due to the reason that the tyres still have 50-60% of available tread.	Relevant authorities shall develop and conduct proper and effective tracking mechanism to track and identify all imported used tyres from the point the tyres enter the country to the point of selling. Royal Customs Department and MDTCA should share relevant information to ensure tracking can be monitored.
2	Currently, all uncertified tyres are still found available in market.	MDTCA to take appropriate action. All uncertified tyres should be banned from market and stringent actions to be taken on tyre premises selling those tyres.

---

## 7.5 Scrap Tyres Management

**Table 16** Issues and recommendations related to scrap tyres management

No.	Issue	Recommendation
1	Currently no regulation is being enforced to manage scrap tyres	All scrap tyres shall be recycled at Authorized Treatment Facility (ATF) complying to MS2697:2018 or be exported to other countries.

---

## 8. Conclusion

In overall, through the engagement sessions conducted with relevant stakeholders and technical visits performed on related premises in regards to tyre ecosystem, several issues have been identified and address accordingly. The issues comprised phases starting from tyre importation phase (for imported tyres) and tyre certification phase (for locally manufactured tyres) until the tyre scrap management phase. To enable a clearer explanation of the issues found and the proposed recommendations, the findings were tabulated separated according to each phase. In order to ensure that the identified issues and loop holes are being address, closer engagement between relevant identified agencies is needed which includes establishing platforms for information sharing among agencies. A dedicated taskforce involving various agencies should be established to continuously monitor and improve the entire tyre ecosystem in Malaysia.

## References

- Al-Tamimi, N. A. M., & Syed Fadzil, S. F. (2011). Thermal performance analysis for ventilated and unventilated glazed rooms in Malaysia (Comparing Simulated and Field Data). *Indoor and Built Environment*, 20(5), 534–542. doi:10.1177/1420326X11411235
- Cheah, H. S., Mohammad, M. S., Ali, N., Din, A. I., & Hakim, A. (2015). *Design and development of the mechanism for run flat tyre, Part 3*. 2nd Integrated Design Project Conference (IDPC).
- Jamaludin, N., Mohammed, N. I., Mohd Faris, K., Suriani, & N. A. W. (2014). Thermal comfort of residential building in Malaysia at different micro-climates. *Procedia Social and Behavioral Sciences*, 170(2015), 613–623. Retrieved from [https://ac.els-cdn.com/S1877042815000786/1-s2.0-S1877042815000786-main.pdf?\\_tid=81c614dc-cf2e-4cf9-af59-eb66b259c60e&acdnat=1526965823\\_16405ab39a799e0a74a10f672256d8a](https://ac.els-cdn.com/S1877042815000786/1-s2.0-S1877042815000786-main.pdf?_tid=81c614dc-cf2e-4cf9-af59-eb66b259c60e&acdnat=1526965823_16405ab39a799e0a74a10f672256d8a)
- Klein, E., & Black, T. (1999). *Anatomy of accidents following tyre disablements*. SAE Technical Paper 1999-01-0446, 1999. <https://doi.org/10.4271/1999-01-0446>
- Kostial, P., Krmela, J., Frydrysek, K., & RuZiak, I. (2012). The chosen aspects of materials and construction influence on the tyre safety, Chapter 13. [www.intechopen.com](http://www.intechopen.com), DOI: 10.5772/48181
- National Highway Traffic Safety Administration. [NHTSA]. (2014). *Tyre ageing: Summary of NHTSA's work*. USA Department of Transport (DOT).
- National Solid Waste Management Department Ministry of Housing and Local Government. (2011). *A study on scrap tyre management in Peninsula Malaysia*.

Oxford Dictionaries Online. (2018). Retrieved from <https://en.oxforddictionaries.com/definition/import>

Syukri A. N., Atiqah S. M. F., Fauziana L., & Rahmat A. A. M. (2012). *MIROS crash investigation and reconstruction – Annual statistic report 2007-2010* (Report no. MRR 05/2012). Selangor: Malaysian Institute of Road Safety Research (MIROS).

TNO. (2016). *TNO report: Study on some safety-related aspects of tyre use*. doi 10.2832/67191 Retrieved from [https://ec.europa.eu/transport/road\\_safety/sites/roadsafety/files/pdf/vehicles/study\\_tyres\\_2014.pdf](https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/pdf/vehicles/study_tyres_2014.pdf)





## Research Report

# Overview of Tyre Ecosystem in Malaysia

Designed by: MIROS



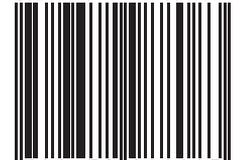
### Malaysian Institute of Road Safety Research

Lot 125-135, Jalan TKS 1, Taman Kajang Sentral  
43000 Kajang, Selangor Darul Ehsan

**Tel:** +603 8924 9200 **Fax:** +603 8733 2005

**Website:** [www.miros.gov.my](http://www.miros.gov.my) **E-mail:** [dg@miros.gov.my](mailto:dg@miros.gov.my)

ISBN 978-967-2988-08-3



9 789672 988083