Brussels, 24 of September 2021

ETRMA comments to the Platform on Sustainable Finance report on a proposal for a Delegated Act on environmental objectives 3-6 for the Taxonomy regulation

Introduction

The European Tyre & Rubber Manufacturers' Association (ETRMA) and its members count around 4.400 companies in the EU, employing directly 370.000 people. ETRMA tyre company members represent 70% of the global tyre sales. We have strong presence in the EU and candidate countries with 93 tyre-producing plants and 16 R&D centers.

Tyres are essential to the functioning of multiple elements within the mobility system – they have an important role in road safety, they can contribute to CO2 reduction from transport as well as to the optimization of other performances (e.g. traffic noise), and through more recent technological developments around tyre's digitalization they can enable predictive maintenance and reduce traffic congestion, amongst other benefits.

Tyres are high-tech engineered articles, requested to perform under various conditions without compromising key environmental performances (e.g. energy efficiency) nor the key role of tyre on road safety. Therefore, an element of tyre's sustainability is the equilibrium between its environment- and safety-related performances and attributes.

In order to unleash the full potential of the Tyre industry to contribute to the transition to circular economy and the objectives of the Green Deal, ETRMA suggests the following modifications on the proposal of the Platform on Sustainable Finance on the technical screening criteria and economic activities for environmental objectives: *circular economy* and *pollution prevention*

- Recognize and include retreaded tyres as an enabler for the environmental objective of circular economy;
- Recognize and include the business model of Tyre-as-a-Service as an enabler for the environmental objective of circular economy;
- Modify the *technical criteria* on tyre´s noise under the environmental objective of pollution prevention;
- Recognise rubber asphalt as aggregate substitute or as asphalt binder as an enabler for circular economy on construction and maintenance of roads.

1. Necessary inclusion of retreaded tyres as an activity contributing to the environmental objective of Circular Economy

This suggestion builds on recital 28 of the Taxonomy Regulation which states than an economic activity can contribute substantially to circular economy by developing circular value chains with the aim of keeping products and materials at their highest utility and value as long as possible. We also recall Article 13.1 (d) whereby an activity prolongs the use of products

Retreading consists of replacing the tread on worn tyres, preserving the structure of the tyre, called the casing, and reintroducing it into the distribution circuit of tyres. For tyres that are designed to be retreaded, it is possible to replace the tread with a new one while preserving the casing and avoid it being discarded. Retreading is *de facto* product's life extension for certain tyres and whose casings demonstrate performance for a new cycle of use, if certain conditions are met. Retreading optimizes the use of raw materials and energy for production, while also reducing waste. What is more, certain tyre types and tyre carcasses are suitable

for multiple retreading activities, i.e. several life extensions resulting in several additional hundreds of thousands km with the same carcass.

For a large part, retreading relies on short economic circuits, that collect worn tyres from their distribution and maintenance, and has a strong local component, thereby sustaining the business of thousands of SMEs. To exemplify these benefits, it is estimated that the production of a retreaded tyre uses 70% less new material and 80% less energy than manufacturing a new tyre. Further compared to a non-retreaded tyre, a retreaded one depending on the size and application could enable savings of about 70% natural resource extraction (ore, oil…), mainly because of the avoided consumption of steel casings, 29% land use, 24% CO2 emissions and 21% air pollution, as measured by particulate matter emissions[1]. Yearly, retreading a heavy duty vehicle tyre reduces approximately 160 kg of waste for each tyre retreaded twice and saves 104 kg raw materials, all whilst achieving CO2 savings.

Tyres for truck, bus, aircraft, off-road and earth moving machinery, as well as for agricultural vehicles are often designed to have more than one life by means of retreading and/or regrooving[2] process.

Tyre retreading is performed in accordance with strict technical regulations referenced also by the EU legislation, namely UNECE Regulation 108 (passenger cars) and UNECE Regulation 109 (commercial vehicles). These regulations specify the key requirements in the retreading process, lay down the requirements for approval of the retreading production unit and state which marks must be displayed on tyres.

In order to be granted and to maintain the approval mark pursuant to Regulations 108 and 109, the retreading plant is subjected to checks and it must have 0,01 % of the total annual production but in any case not less than 2 and not necessarily more than 10 tyres tested for load and speed index. At the EU level, these norms are recognised by the EU 2019/2144 [3]. Retreaded tyres can be unequivocally identified through the respective type approval marking.

As a result, **retreading of tyres is an economic activity that should be regarded as meeting the requirements established in the Taxonomy regulation Article 13**, in order to be considered as substantially contributing to the transition to a circular economy.

- It expands the tyre life, reduces the use of natural and energy resources, and reduces waste generation.
- At the end of their life and for the purpose of tyre recycling, retreaded tyres do not exhibit disadvantageous characteristics in comparison to end-of-life tyres that have not undergone a retreading process. The suitability to enter recycling or energy recovery routes is not determined

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[1] EY report: the Socio Economic impact of truck tyre retreading in Europe, based on the results of the Life Cycle Assessment study: Comparison of Environmental Impacts different truck tyres scenarios conducted by Group Michelin in February 2016, certified ISO 14040:2006 and ISO 14044:2006 by Quantis. https://www.etrma.org/key-topics/circular-economy/

[2] Regrooving or recutting consists of cutting a pattern in the tread, deeper than the original pattern, in order to extend the tyre life. Care should be taken to ensure that the regrooving process does not expose the tyre casing, breakers or belts and that sufficient rubber is left for its protection. Tyre manufacturers publish instructions regarding the patterns to follow when regrooving their tyres as well as the relevant recommended widths and permitted depths below the base of the original pattern. SOURCE: Recommendations Edition, 30 April 2020 by ETRTO, The European Tyre and Rim Technical Organisation.

[3] "Retreading" means the generic term for reconditioning a used tyre by replacing the worn tread with new material. Reference to EU 2019/2144 *Regulation on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/858 of the European Parliament and of the Council and repealing Regulations […]*

specifically for retreaded tyres by the technologies, materials or processes used for their production. In other words, end-of-life retreaded tyres are collected, treated and recovered as any other end-of-life tyres. According to the most recent available statistics, 91% of ELTs were collected and treated for material recycling and energy recovery in 2018[4].

T**herefore, ETRMA urges that the Taxonomy delegated act for the environmental objective of *circular economy* includes the activity of retreaded tyres** across the value chain by including :

- The manufacturing of retreaded tyres and the installation of retreaded tyres
- The mounting of retreaded tyres on vehicles and the purchasing of retreaded tyres, among others.

For the latter, we consider it essential that public services and transport fleets are considered enablers for the Taxonomy objective of circular economy under the upcoming delegated act.

1.1 Proposed changes to include retreading as an enabler for circular economy

Manufacturers of retreaded tyres and pre-cured treads for retreading, installers of retreaded tyres:

There is a specific NACE code for retreading but not specifically to the manufacturing of pre-cured treads for retreading. Currently there are only two codes for rubber products under C22:

C22.1: Manufacture of rubber products

- C22.11: Manufacture of rubber tyres and tubes; **retreading** and rebuilding of rubber tyres
- C22.19: Manufacture of other rubber products

We propose that under activity *2.12 Manufacture of machinery, equipment and solutions enabling a substantial contribution to the circular economy*, code C22 is included, to consider retreading of tyres and the pre-cured treads for retreaded **as an activity enabling the objective of circular economy.** Indeed, under PART A of the document *Technical Report* at page 93, Code 22 is included under the activity *Manufacture of machinery, equipment and solutions enabling a substantial contribution to the circular economy* at table 8. However, in PART B, the annex, the reference to C22 is missing.

Users of retreaded tyres

We propose that the following activities are included as enablers of circular economy and that the following technical screening criteria are included:

- **Urban, suburban and road passenger transport**: The economic activities in this category could be associated with several NACE codes, in particular H49.31, H49.3.9, N77.39 and N77.11 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.

  Technical Screening Criteria for the environmental objective circular economy

  Vehicles of category M, N or O have installed, when feasible, retreaded tyres as defined in EU 2019/2144

[4] Source: ETRMA https://www.etrma.org/library/europe-91-of-all-end-of-life-tyres-collected-and-treated-in-2018/

- **Freight transport services by road**: The economic activities in this category could be associated with several NACE codes, in particular H49.4.1, H53.10, H53.20 and N77.12 in accordance with the statistical classification of economic activities established by Regulation (EU) 2019/2144

  Technical Screening Criteria for the environmental objective circular economy

  Vehicles of category M, N or O have installed, when feasible, retreaded tyres as defined in EU 2019/2144

- **Air transport passengers and freight :** The economic activities in this category could be associated with several NACE codes, in particular H51.1, H51.2

  Technical Screening Criteria for the environmental objective circular economy

  When applicable aircrafts have installed retreaded tyres as defined in Council Decision EU 2019/2144

ETRMA notes that on the Delegated Acts Climate Change Mitigation and Adaptation[5] provisions for Tyres are included under DNSH criteria for pollution referring to the Tyre Label[6] highest populated classes for *rolling resistance coefficient* and *external rolling noise*[7].

It is not possible at this stage to add similar provisions for retreaded tyres as the Tyre Label Regulation still has to develop the provisions for a label on retreaded tyres[8].

2. Tyres-as-a-Service can contribute to the environmental objective of circular economy.

Tyre as a Service (TaaS) is a wide concept, describing tyre manufacturers shifting from standalone tyre selling to providing a wide range of tyre related services that deliver outcomes and data-based solutions. TaaS, in a narrower sense, describes the concept of providing tyres and the associated services under an integrated model with strong consideration of all direct and indirect economical, ecological, safety and usability impact for the customers and the society. Tyres are delivered to customers and remuneration is calculated according to multiple schemes that may vary in relation to the customer category, a generic consumer, a professional or a full fleet. Beyond the physical product, TaaS comes with a full range of other possible solutions, most of them in the digital domain, that help maintaining the performance of the tyre at its highest level and maximizing the efficiency of the product use. The benefits of a TaaS business model are concrete for both the user of the product (reduced cost of operation, enhanced driving safety, peace of mind, affordability of premium products, etc) and the society at large (optimization of performances, e.g. less CO2 from vehicles, increased road safety and traffic disturbances, less waste, etc). TaaS goes in the direction of an ecological–economic decoupling, that is a key objective of the European Green Deal.

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[5] EU 2021/2800. Commission delegated regulation (EU) of 4.6.2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining […]

[6] https://www.etrma.org/key-topics/tyre-regulations/

[7] i.e. *For road vehicles of categories M, tyres comply with external rolling noise requirements in the highest populated class and with Rolling Resistance Coefficient (influencing the vehicle energy efficiency) in the two highest populated classes as set out in Regulation (EU) 2020/740 and as can be verified from the European Product Registry for Energy Labelling (EPREL).*

[8] New EU rules on labelling of tyres - European Parliament Briefing

https://www.eerstekamer.nl/eu/documenteu/pe_625144_europees_parlement_new/f=/vl5hcqoo9vbm.pdf

Commission report - *Categorisation System for the Circular Economy*[9] already describes Product-as-a-Service, PaaS as a business model that contributes to a circular economy when certain conditions are met. Those conditions are: *1) the contractual model shows that the entity carrying out the activity retains responsibility for the upkeep, maintenance and end of life management of the product; 2) the business model enables circular economy strategies and; 3) the activity increases the overall resource efficiency of the product.* TaaS is an example of Product-as-a-Service, PaaS, which meets all the conditions to contribute to the objective circular economy on the taxonomy:

- Tyres-as-a-Service represents a full package of activities that span from the mounting of the tyre until its disposal. The fee paid by customers subscribing to TaaS, includes the tyres, the tyres mounting on the vehicle, balancing and valve replacement and recycling fee. The wheel alignment is carried out on the vehicle at the same time as the fitting of the new tyres.

  A well-adjusted wheel alignment minimizes the wear of the tyres and optimizes the comfort of the driver and passengers. In case of puncture or accidental damage, it may include also repairing the tyre, or getting it replaced if the repair is not possible. The end of life management of the tyre is fully included in the activities covered by the subscription. The conditions that qualify a tyre as at the end of its useful life are carefully assessed by a professional operator. This expert judgement helps avoiding that tyres, still fully suitable for operating and performing under the vehicle, are prematurely discarded.

- When applied to certain vehicle categories, like trucks, buses, mining machines, or agriculture tractors, Tyres-as-a-Service encompasses the possibility to integrate retreading and regrooving[10] processes, expanding significantly the life span of still reusable parts of the tyres (i.e. the carcass) while optimizing costs for users and resources needed per functional unit (e.g. km driven). The evolution of digital capabilities in tyres control, through for example radio-frequency identification technology could enable a punctual and seamless traceability of the products (where the tyre is). An enhanced traceability coupled with tyre digital diagnosis tools through in-vehicle data analysis (what are the conditions of the tyre), allow the targeted and efficient recovery and reuse of carcasses for retreading avoiding their wasting.

- Hence, technologies for traceability of tyre's conditions and use also contribute to the model of connectivity with various benefits for tyre's maintenance and optimal use, that ultimately can benefit fuel economy, product's lifespan, and digitalization.

- Tyres being part of a TaaS business model increase the overall resource efficiency of the product or asset, on a lifecycle basis, as compared to existing use practice, by enhancing both the product maintenance and correct use.

For the reasons explained above, **ETRMA urges that the upcoming delegated act for the environmental objective of *circular economy* recognizes the TaaS model**. This includes the manufacturer of tyres that could be used for leasing purposes, the provider of the leasing service that could be, for instance, the retailer of the tyres or the Tyre manufacturer itself, and, in a later stage the users of the service. Since there are no

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[9] Categorisation system for the circular economy, March 2020, European Commission Research and Innovation Identification 978-92-76-10527-5 KI-04-20-074-EN-N

[10] Regrooving or recutting consists of cutting a pattern in the tread, deeper than the original pattern, in order to extend the tyre life. Care should be taken to ensure that the regrooving process does not expose the tyre casing, breakers or belts and that sufficient rubber is left for its protection. Tyre manufacturers publish instructions regarding the patterns to follow when regrooving their tyres as well as the relevant recommended widths and permitted depths below the base of the original pattern. SOURCE: ETRTO, The European Tyre and Rim Technical Organisation. RECOMMENDATIONS Edition, 30 April 2020

specific NACE codes for these activities, we suggest the following: 2.1 Proposed changes to include Tyres-as-a-Service (TaaS) as an enabler of circular economy

Manufacturers of tyres to be used under a TaaS system:

There is no NACE code for this specific tyre segment, as explained before only code C22.11 and C.22.19 refer to tyre manufacturing.

We propose that under activity *2.12 Manufacture of machinery, equipment and solutions enabling a substantial contribution to the circular economy*, code C22 is included, to allow producers of Tyres that are meant to be used under a TaaS system to be considered enablers of circular economy.

As raised before, under PART A of the document *Technical Report* at page 93, Code 22 is included under activity *Manufacture of machinery, equipment and solutions enabling a substantial contribution to the circular economy* at table 8. However, in PART B, the annex, the reference to C22 is not included.

Providers of the leasing TaaS system.

There is no specific code that describes the service of TaaS. While TaaS could be considered under traditional leasing service, it cannot be exclusively defined as such because it has to comply with the requirements established in Art 13 of the Taxonomy regulation, describing contributing activities to circular economy. A traditional leasing does not secure that the leasing party will conduct adequately end of life management or that the business model provides the necessary information for the users to reduce CO2 emissions and enhance resource use.

Thus, the economic activity *leasing service* necessary requires the commitment to provide support to users to optimise the use of tyres and a system to end of life management in order to be considered a PaaS.

Therefore, we suggest the inclusion of activity N77 - Rental and leasing activities, including code N77.3.9 - Renting and leasing of other machinery, equipment and tangible goods with the following compulsory technical screening criteria.

- **Product-as-a-service, reuse and sharing models based on, inter alia, leasing, pay-per-use, subscription or deposit return schemes, that enable circular economy strategies**: The economic activities in this category could be associated with several NACE codes, in particular N 77, N77.11, N77.1.1, N77.1.2, N77.3.5, N77.3.9.

  <u>Technical Screening Criteria for the environmental objective circular economy</u>

  The activity makes a substantial contribution to the environmental objective, by proving that the equipment and/or related services and/or components is essential and material to achieve the substantial contribution criteria in another activity substantially contributing to the transition to the circular economy, e.g. tyre-as-a-service in transport. In particular, the activity proves that:

  1) The contractual model shows that the entity carrying out the activity retains responsibility for the upkeep, maintenance and end of life management of the product;

  2) The business model enables circular economy strategies; and

  3) The activity increases the overall resource efficiency of the product.

Users of Tyres-as-a-service

We propose that the following activities are included as enablers of circular economy and that the following technical screening criteria are included:

- **Urban, suburban and road passenger transport**: The economic activities in this category could be associated with several NACE codes, in particular H49.31, H49.3.9, N77.39 and N77.11 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.

  Technical Screening Criteria for the environmental objective circular economy

  a) Vehicles of category M, N or O have installed, when feasible, retreaded tyres as defined in EU 2019/2144

  or

  b) have in place a Tyre-as-a-Service system that meets the conditions established at *[insert reference to technical screening criteria on PaaS of the delegated act on circular economy]*

- **Freight transport services by road**: The economic activities in this category could be associated with several NACE codes, in particular H49.4.1, H53.10, H53.20 and N77.12 in accordance with the statistical classification of economic activities established by Regulation (EU) 2019/2144.

  Technical Screening Criteria for the environmental objective circular economy

  a) Vehicles of category M, N or O have installed, when feasible, retreaded tyres as defined in EU 2019/2144

  or

  have in place a Tyre-as-a-Service system that meets the conditions established at *[insert reference to technical screening criteria on PaaS of the delegated act on circular economy]*

3. Removal of suggested requirements on Tyre *noise* in relation to pollution impact

The European tyre industry has made significant efforts to effectively reduce tyres' noise performance, in accordance to regulation[11] that have reduced 3 to 5 decibel (dB) the tyre rolling noise emissions, corresponding to a sound energy reduction of 50% to 70%. However, largely due to the stringent EU requirements on tyre and vehicle noise emissions, tyres have approached the physical limits of noise optimization without hampering other essential performances as explained hereunder.

The sound pressure level (SPL) is a ratio between the sound emitted by a source and the reference human audibility. SPL is written in a decibel logarithmic - not linear - scale. Reducing SPL by 3 dB is the same as halving the sound energy. Thus, noise reductions expressed in dB although may appear limited; they have a major impact on the sound energy and the product design. As mentioned, a 3 dB reduction of the SPL corresponds to reducing sound energy by a factor 2, and a 5 dB reduction corresponds to reducing sound energy by factor 3.

The tyre industry has made a considerable effort over the lasts years to reduce the noise in different types of tyres as seen in the figure hereunder that compares the noise emission between 2001 and nowadays among types of tyres in categories C1, C2 and C3. The reduction of 2 to 5 dB, corresponds to a large improvement in terms of sound energy reduction.

[11] (EU) Directive 2001/43 and (EU) 2019/2144

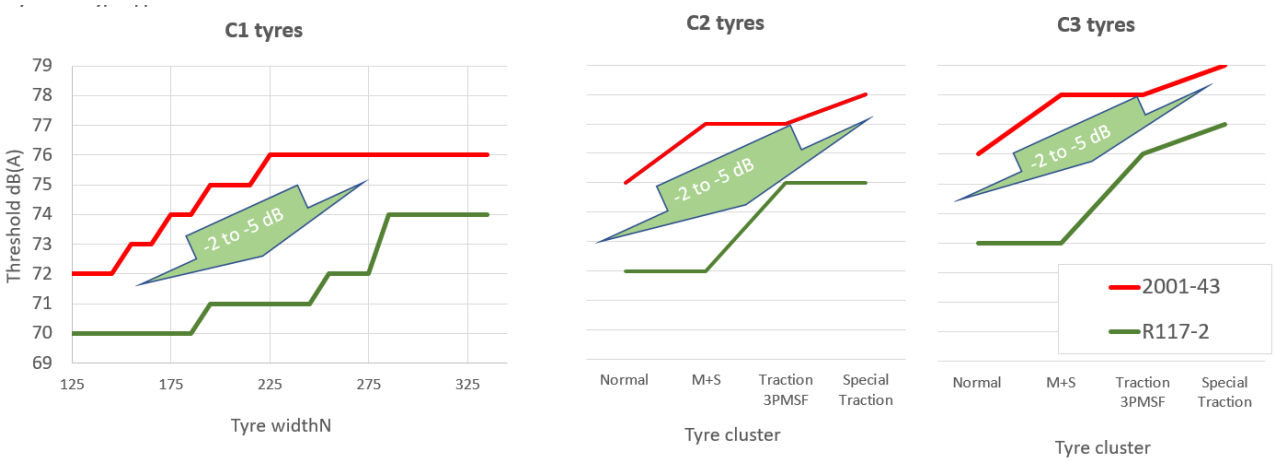


Figure 1: Noise SPL emitted by tyres in db (A) for types of tyres in categories C1, C2 and C3 where the red line represents the 2001 levels and the green line represents the established limits under regulation R117.

Moreover, tyres have to comply with various technical requirements. The European Tyre Label[12] is a good indicator of the essential tyre performances of wet grip, rolling resistance and exterior noise. However, both tyre safety and comfort also depend on other performances in all conditions and for their entire lifespan. There are many other tyre parameters continuously tested and optimized: for example, wet-weather handling, dry braking performance, high-speed stability, aquaplaning, wear resistance, comfort and interior noise… . It is not possible nor appropriate to list them all in a consumer label; however, it is important to be conscious of the important role they play for the ultimate configuration of performances in a tyre.

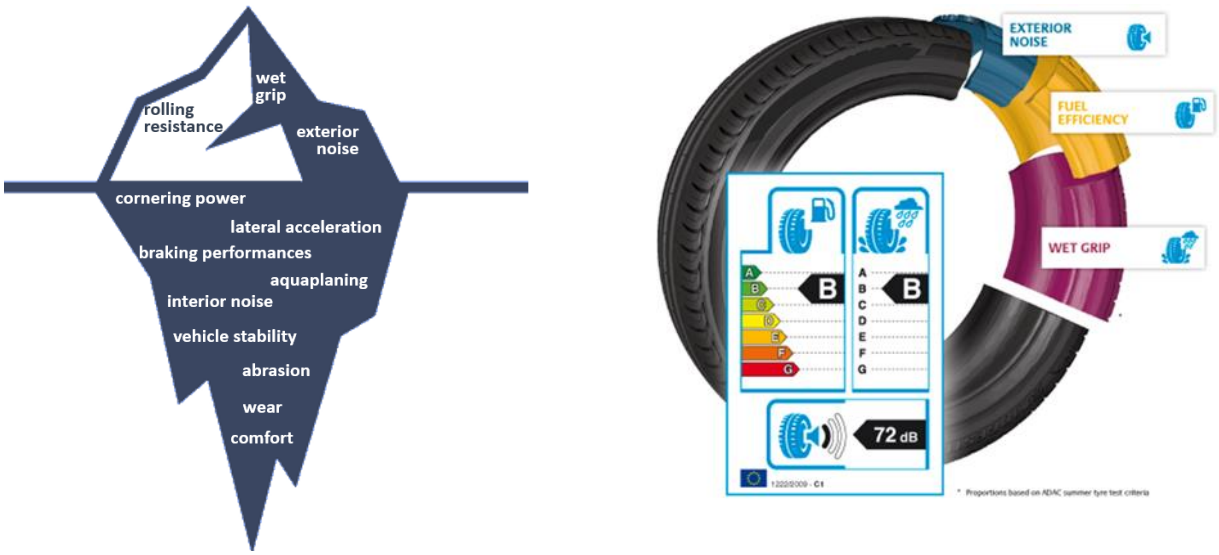


Figure 2: Graphical representation of the total tyre performance requirements. On the bottom of the ´iceberg´ tyre performances requirements not included in the Tyre label, on the top of the ´iceberg´ tyre performance requirements included in the Tyre Label

[12] Regulation (EU) 2020/740

Improving some tyre performances impacts many others – this is the so called "trade-off", or the need to achieve a balanced overall performance in function of the tyre application. The figure hereunder shows the results of a study conducted by ETRTO[13].

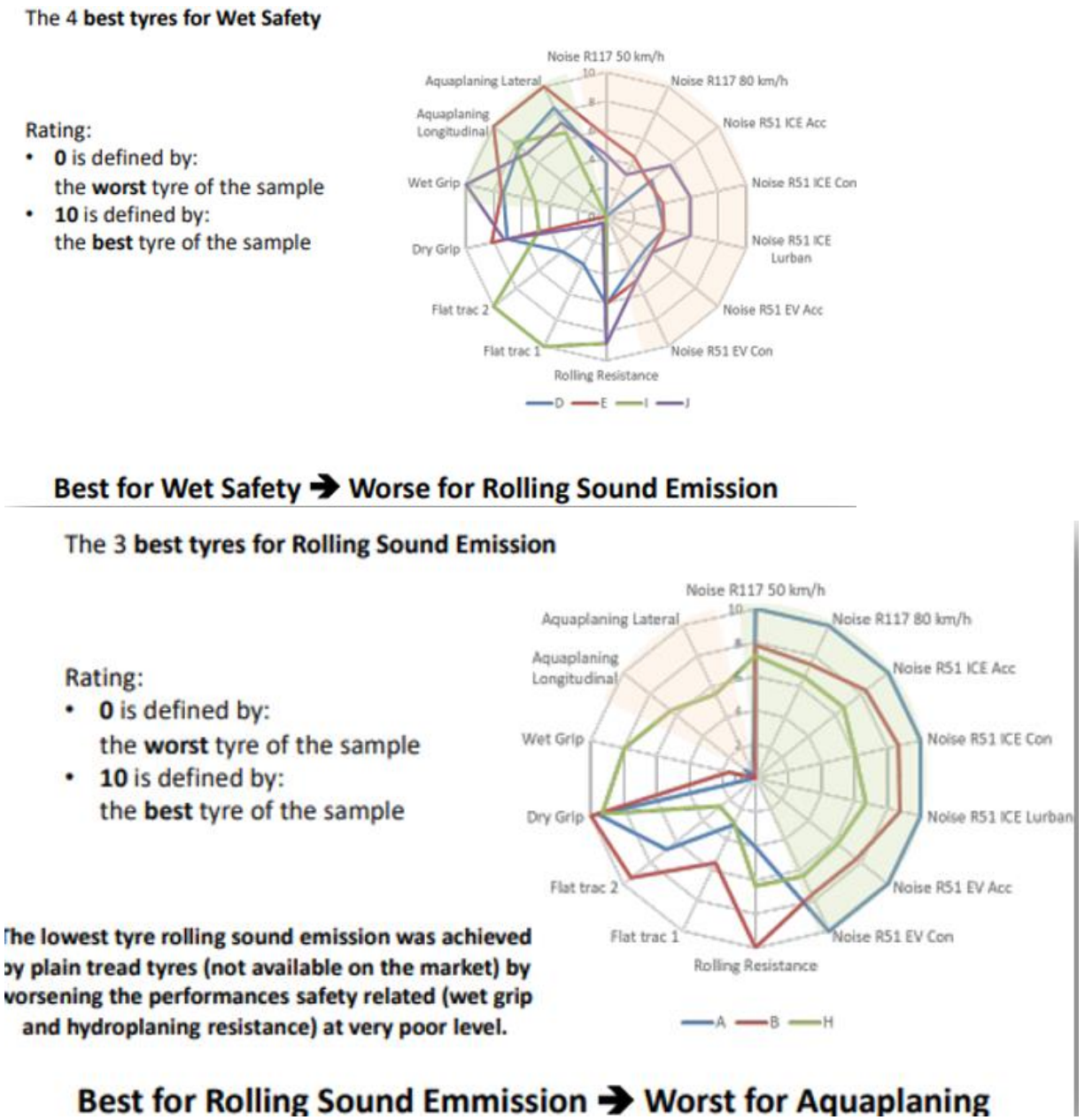


Figure 3: Two examples that compare tyre performances for best performant wet grip and best performant rolling resistance

Any proposal for further improvement of tyre rolling noise performance needs to undergo a sound feasibility technical assessment taking into consideration the trade-offs with other tyre performances, as well as parallel challenges introduced by other policies. The current physical limit makes it impossible to further reduce noise without affecting fuel efficiency, wet grip and other performances.

[13] European tyre and Rim Technical Organization

On the other hand, tyre noise has already underpinned the technical criteria for the Taxonomy climate-related delegated acts. Over-representation of a tyre criterion throughout the Taxonomy environmental objectives and their technical criteria might pose risks to the necessary balance between tyre performances for the purposes of both road safety and the environment.

What is more, the potential benefits of tyre noise reduction on noise pollution must be explored in the context of other transport noise sources and single events (e.g. noise peak). Local peaks noise represents a major part of local sound emission and annoyance sources, while tyres do not generate peak noise events.

Another example of the need for comprehensive and sustainable solutions to effectively reduce road traffic noise is road and pavement provisions. Establishing road requirements to boost the full potential of traffic noise would address the biggest contributor to road traffic noise, as seen hereunder.

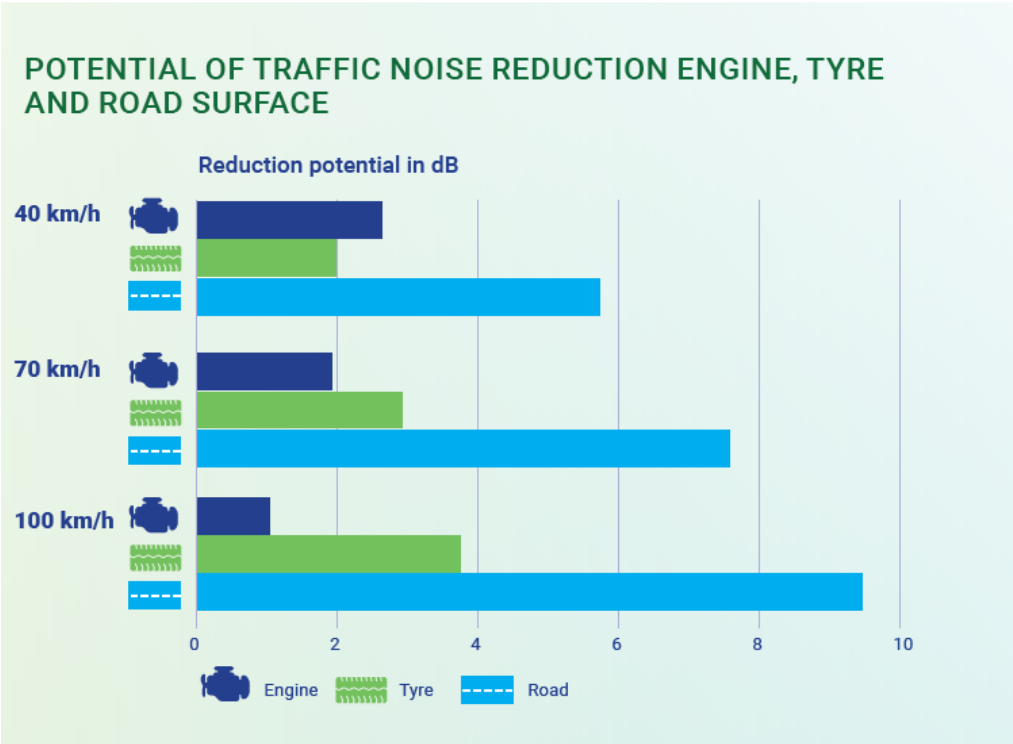


Figure 4: Source: VROM, Geneve 2006 " Low noise road surfaces in the Netherlands"

Last but not least, at present there are limitations in the accuracy of the tyre noise test method established in the UNECE regulation R117[14]. Concretely, R117 has variations in the range of +- 2,3 dB caused by large variations of the test tracks defined in ISO10844:2014. In the worst case this can result in type approvals of tyres in the range of up to 2,3 dB above the current limits. Consequently, 1 out of 3 tyres that is approved as compliant with the limit might be measured above the limits if tested on a different test track. This gives the false impression that the current noise limit is not stringent enough.

[14] Regulation No 117 of the Economic Commission for Europe of the United Nations (UNECE) — Uniform provisions concerning the approval of tyres with regard to rolling sound emissions and/or to adhesion on wet surfaces and/or to rolling resistance [2016/1350]

The industry is conscious about the problem, and has set a plan to increase the accuracy of R117. By 2024, R117 will be reviewed with amendments and improvements on uncertainty factors, that we expect would reduce the uncertainly by 0.4 dB(A), thus setting variations to +-1,9 dB(A). Further, it is already established a plan to revise ISO 10844:2014 by 2026 that will reduce R117 to +- 1d(dB) the uncertainty of the noise measurement. Before these changes are implemented, it is premature and counterproductive to increase the requirements on noise for tyres

For all the above-explained reasons, noise thresholds for Tyres under the delegated act to prevent pollution should reiterate the current type approval limits but not go beyond.

The minimum performance level must be met. However, due to the reported measurement uncertainties, requiring highest populated label class[15] might create false expectations on noise performance.

3.1 Proposal to amend noise requirements from Tyres

8.7 Urban and suburban passenger land public transport

Substantial contribution to pollution prevention and control

2. The activity complies with one or more of the following criteria for noise pollution:

~~a) For road vehicles of categories M and N, tyres comply with at least X dB less than the limit value LV (X between -6dB and -3dB) as outlined in UNECE Regulation No. 117 for the corresponding period of its application.~~

a) Where applicable, tyres comply with the noise requirements laid down in Regulation EU GSR 2019/2144 of the European Parliament and of the Council

8.8 Transport by motorbikes, passenger cars and light commercial vehicles

Substantial contribution to pollution prevention and control

2. The activity complies with one or more of the following criteria for noise pollution:

a) vehicles (M, N) with silencing systems compliant with dB level set in EU reg. 540/2014;

~~b) For road vehicles of categories M and N, tyres comply with at least X dB less than the limit value LV (X between -6dB and -3dB) as set in part C of Annex II, EU reg. 661/2009~~

b) Where applicable, tyres comply with the noise requirements laid down in Regulation EU GSR 2019/2144 of the European Parliament and of the Council

c) L vehicle category (mopeds, motorbikes, tri-cycles and quadricycles)– Noise For L category vehicles, the Sound-level limits as set in Reg. 168/2013, under Annex VI (D) for Euro 4 sound level (dB(A)) reduced by 2 dB.

[15] See footnote 7 on this document.

3.2 A test method to measure abrasion in tyres is still in the process of development and feasibility verification

ETRMA welcomes the Platform's conclusion on tyre abrasion and reduction of Tyre Wear Particles, TWP.

The tyre industry is proactively engaged in the exploration to reducing TWP and has already committed to develop by 2023 a reliable and reproducible method to measure tyre abrasion rate for passenger car (C1) tyres, representative of European usage.

Similarly, to our abovementioned arguments on noise, we are of the opinion that a reference in Taxonomy to tyre abrasion must await the outcome of other ongoing and planned EU regulatory activities.

4. Inclusion of rubber asphalt as an enabler for circular economy for road construction

In Europe every year, more than three million tons end-of-life tyre are collected and treated through various recycling and recovery processes. In 2018, 91%[16] of ELTs were collected and treated for material recycling and energy recovery. One of the applications for the secondary raw materials deriving from this processing is Rubber modified asphalt. Alfayez S. et al 2020[17], have performed a comprehensive literature review on the types of rubber asphalt: *´There are two methods, namely the wet and dry processes, for asphalt-rubber mixture production. In the wet process, crumb rubber is added to the asphalt cement in order to modify the chemical and physical properties of the asphalt cement used to produce rubberized pavements […] 18% to 22% of ground crumb rubber by weight of binder is mixed with hot asphalt cement and diluted with an oil extender for ease of application.[…] In the dry process, part of the aggregate in the asphalt mixtures is replaced with crumb rubber waste, […] typically uses 3%, by weight of total mix…´*

[16] Source: ETRMA

[17] Alfayez, Saud A., Ahmed R. Suleiman, and Moncef L. Nehdi 2020. "Recycling Tire Rubber in Asphalt Pavements: State of the Art" Sustainability 12, no. 21: 9076. https://doi.org/10.3390/su12219076

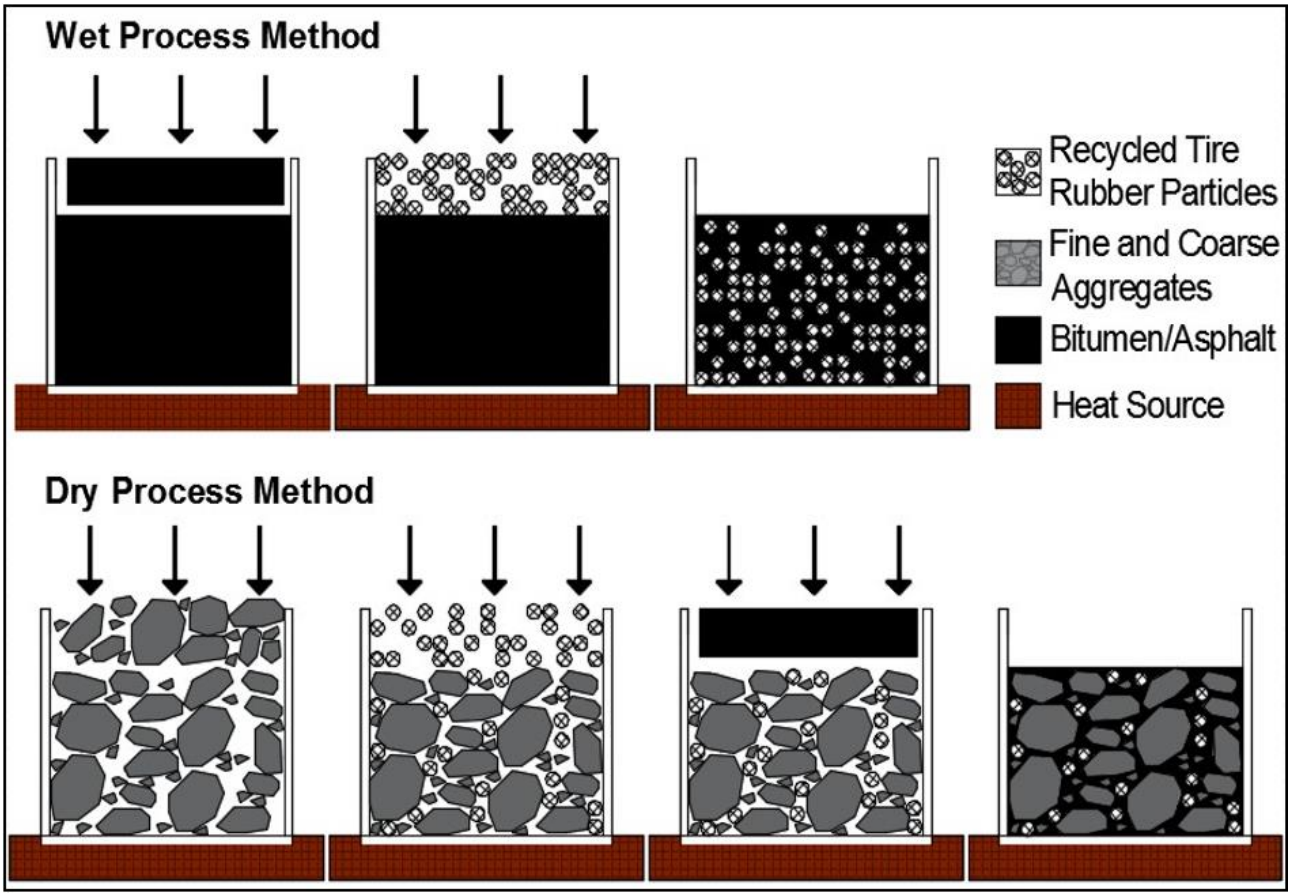
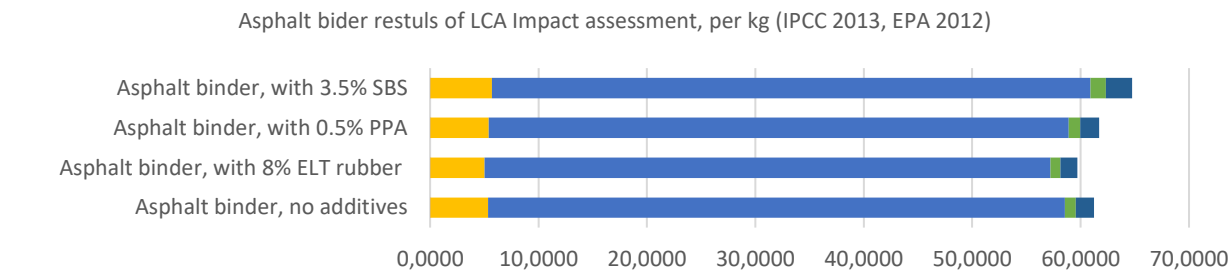


Figure 5: Wet and dry process methods of asphalt-rubber mixture production. Source. Figure 2 of Alfayed S. et al 2020.

The most widely used and developed use of ELT derived rubber powder is as binding agent in asphalt; *Rubberized asphalt concrete* (wet process). The advantages of mixing asphalt rubber in the bitumen are notorious. Alfayez S. et al 2020, concluded that the use of rubberized asphalt *can improve the resistance to rutting and permanent deformation of the pavement (owing to an increase in viscosity), reduce fatigue cracking, improve durability against traffic loads, and enhance pavement sustainability by saving energy and natural resources and lowering the maintenance and repair costs of asphalt pavements […] enhance the asphalt's resistance to age hardening and […] withstand colder temperatures than the conventional hot mix asphalt.*

Rubberized asphalt concrete also improves the CO2 footprint compared to conventional blends. In 2019 a comparative Life Cycle Assessment study conducted by Think Step up on request of the Asphalt Institute[18] covered several asphalt binders for asphalt concrete manufactured in North America: A) Asphalt binder without additives, B) Asphalt binder with 3.5% styrene-butadiene-styrene (SBS), C) Asphalt binder with 8% ground tyre rubber (GTR) (terminal blend) and D) Asphalt binder with 0.5% polyphosphoric acid (PPA). The results are available at Figure 6. The Asphalt binder with 8% rubber content performed overall better in all impact categories studied.

[18] Life Cycle Assessment of Asphalt Binder, Version: v2.1, ThinkStep, for the Asphalt Institute, ISO 14040:2006 and ISO 14044:2006, March 2019

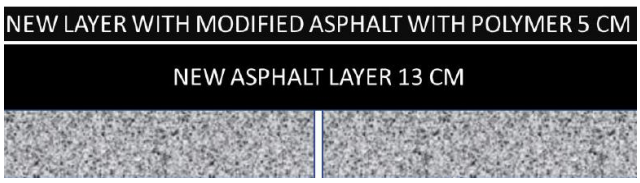


	Asphalt binder, no additives	Asphalt binder, with 8% ELT rubber	Asphalt binder, with 0.5% PPA	Asphalt binder, with 3.5% SBS
Eutrophication potential (EP) kg N eq	0,0002	0,0002	0,0002	0,0002
Smog formation potential (SFP) kg O3 eq	0,0360	0,0347	0,0365	0,0427
Fossil fuel consumption (FF) MJ (NCV)	5,3200	4,9800	5,3600	5,6600
Total use of non-renewable primary energy resources (PED) MJ (NCV)	53,2000	52,2000	53,5000	55,2000
Use of net fresh water (excl. rain water) L	1,0100	0,9200	1,0600	1,4400
Use of net fresh water (incl. rain water) L	1,6800	1,5700	1,7600	2,4000

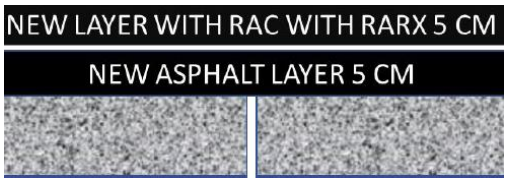
Figure 6: Results of the total cradle-to-gate environmental impact results for all four products of rubber asphalt binders.

Further, the use of rubber asphalt has shown advantages in renovation and rehabilitation of concrete pavements. Study *Comparative life cycle analysis study of concrete firm rehabilitation between conventional asphalt mixtures and asphalt mixture with RAR-x additive*[19], based on a real case study of the rehabilitation of highway Pirámides – Tulancingo, Mexico, compares the Life Cycle Impacts of several solutions, among those solutions are:

A) two-layer chipboard treatment, with a first layer of great thickness, which acts as a barrier to the reflection of cracks and a second upper layer of rolling through the use of modified bitumens.



b) flexible firm of asphalt on old firm of concrete, with asphalt rolling with high betun content and rubber asphalt powder with RARX. This solutions allows to reduce the width of the lower layer to 5 cm, following the recommendations of Caltrans[20], California office of transport



The assessment concludes that the *pavement that uses an intermediate layer of 13 cm and a conventional tread layer of 5 cm has a much higher environmental load than the combinations that use RAR-X, since the use of the RAR-X additive allows reducing the amount of material used and dispense with repair for wear after*

[19] Estudio de análisis de ciclo de vida comparativo de rehabilitación de firmes de hormigón entre mezclas asfálticas convencionales y mezcla asfáltica con aditivo RAR-X, Proyecto autopista de Pirámides a Tulancingo (méxico), COCIR, ISO 14021 y UNE-EN 15804. Madrid 2020

[20] https://dot.ca.gov/Configuration/Error-Pages/Error-404-Page

5 years of use, a necessary action in the case of conventional tread layers. […] *Therefore, when using the mixture with RAR-X for a section of track 1 km long and 10 meters wide, the total impact is reduced by 13,877.27 mPt, and the Climate Change category by 1,247.89 mPt. […] In other words, with the Environmental Footprint that involves building 1 km of 10 m wide road with a conventional mix, almost 2 km of the same road can be built, if it is done using the RAR-X mix.*

Rubber asphalt concrete use in road construction and rehabilitation shall be considered as an enabler for circular economy. In terms of technical performance, when compared with traditional binders, rubber asphalt performs equal and even outstanding, increasing the durability of the road. It also shows lower impacts across the life cycle of the products and uses less natural resources as some are substituted by End-of-Life-Tyre rubber.

The technical criteria on road construction to enable a circular economy shall be technology independent and support the use of recycled material in every stage of the road construction, not limiting the benefits to substitute raw materials for aggregates in new roads.

4.1 Proposal to amend the report of the platform to recognise the use of rubber asphalt as enabler for circular economy

ETRMA understands that under activities *4.1 Construction of civil engineering objects*, *4.3 Maintenance of roads and motorways and 4.4 Maintenance of bridges and tunnels (railway, road and cycling infrastructure)*

Point 3, as written hereunder, includes the use of rubber asphalt binder and rubber asphalt as substitute of aggregate.

*3. The asset contains at least 30% (by weight) of recycled content, re-used content, re-manufactured content and/or by-products: - provided that this is in accordance with technical standards and;- provided that the CO2 emissions generated through the production process and the transportation of the recycled or re-used material are not higher than the CO2 emissions generated through the production process and the transportation of virgin material.***

ETRMA suggests that the report is amended to include under the explanatory parts rubber asphalt as candidate to meet the recycling target established in the technical screening criteria of 30% of recycling content

ETRMA remains at the disposal of the Platform on Sustainable Finance and of the EC for further exchanges and contributions.

About ETRMA*

The European Tyre & Rubber Manufacturers Association (ETRMA) represent nearly 4.400 companies in the EU, directly employing about 370.000 people. The global sales of ETRMA's corporate members represent 70% of total global sales and 7 out of 10 world leaders in the sector are ETRMA Members[21]. The product range of its members is extensive from tyres to pharmaceutical, baby care, construction and automotive rubber goods and many more applications. We have a strong manufacturing and research presence within the EU and candidate countries, with 93 tyre plants and 16 R&D centres.

***The position expressed by ETRMA does not reflect the position of Michelin**

[21] ETRMA's membership: APOLLO VREDESTEIN, BRIDGESTONE EUROPE, BRISA, COOPER TIRES, CONTINENTAL, GOODYEAR, HANKOOK, MARANGONI, MICHELIN, NOKIAN TYRES, PIRELLI, PROMETEON, SUMITOMO RUBBER INDUSTRIES and TRELLEBORG WHEEL SYSTEMS. Furthermore, members include Associations in the following countries: Finland, France, Germany, Hungary, Italy, the Netherlands, Poland, Spain and the UK.