REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

Assessment of the need to review Regulation (EC) No 1222/2009 of the European Parliament and the Council on the labelling of tyres with respect to fuel efficiency and other essential parameters
1. **INTRODUCTION**

This report presents the results of the assessment of the need to review Regulation (EC) No 1222/2009\(^1\) of the European Parliament and of the Council of 25 November 2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters ('the Tyre Labelling Regulation'). As required by Article 14 of the Regulation, the review focused on:

- the effectiveness of the label in terms of end-user awareness, in particular whether the provisions of Article 4(1)(b) are as effective as those of Article 4(1)(a) in contributing to the objectives of the Regulation;
- the information on tyre parameters provided by distributors (dealers) and vehicle suppliers to end-users;
- whether the labelling scheme should be extended to include re-treaded tyres;
- whether new tyre parameters, such as mileage, should be introduced.

Other relevant issues were also addressed. These include the possibility of adapting the grip grading of tyres primarily designed to perform better than a normal tyre in ice and/or snow conditions, in accordance with Article 11(b) of the Regulation; the possibility of setting up a registration database; and the need to reinforce market surveillance activities.

A specific study\(^2\) was undertaken to support the review of the Regulation.

2. **TYRES LABELLING LEGISLATION**

The Tyre Labelling Regulation was adopted as part of efforts to promote sustainable mobility in the EU.

The Regulation covers tyres for passenger cars (C1 tyres\(^3\)), light commercial vehicles (C2 tyres) and heavy-duty vehicles (C3 tyres). Re-treaded tyres, studded tyres and tyres for a number of specific applications, such as racing and spare tyres, are exempted.

The Regulation includes three interrelated performance parameters: fuel efficiency (based on rolling resistance), wet grip and external rolling noise. The Regulation defines classes for all three parameters.

The fuel efficiency of tyres is defined in terms of the Rolling Resistance Coefficient (RRC). The fuel efficiency is shown on the label as a coloured scale from A to G, with the best fuel efficiency class (class A) having the lowest RRC.

The safety performance of tyres is described by the wet grip, i.e. the capacity of a tyre to brake on a wet road. The wet grip class is determined based on the wet grip index according to an A-G scale, with the best classes having the highest wet grip index values.

External rolling noise refers to the noise of the tyres experienced by a bystander, i.e. outside the car. It is measured in decibels (dB). The external rolling noise class is depicted on the label by between one and three black 'sound waves'.

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\(^{3}\) C1, C2, C3 tyres are legal terms defined in Regulation (EC) No 661/2009. They refer to tyres designed primarily for passenger cars, light commercial vehicles and heavy-duty vehicles.
The level of performance for these three parameters on the label is declared by manufacturers with no third party verification.

For C1 and C2 tyres, the classes are shown on a label or a sticker (a label with a space to show the brand name). For all three tyre types, the information on fuel efficiency class, wet grip class, external rolling noise class and the measured noise value is provided in the technical promotional material, including on suppliers’ websites.

The Tyre Labelling Regulation's main objective is to make road transport more economically and environmentally efficient, as well as safer, by promoting fuel-efficient and safe tyres with low external rolling noise. It also aims to provide greater information to consumers, through a standard label, to influence purchasing decisions. Fuel efficiency is highly relevant to the EU’s concerns about the security of its energy supply, its dependence on energy imports and the need to address climate change.

With the transport sector accounting for one third of EU energy consumption, increasing the fuel efficiency of road transport plays an important role in addressing these challenges. Tyres account for 20-30% of a vehicle’s fuel consumption, due to their rolling resistance. Decreasing rolling resistance is therefore important to increase fuel efficiency and reduce greenhouse gas emissions. Improved wet grip performance of tyres will result in fewer accidents and reduce the number of people killed and injured. Noise from roads is causing the second most dangerous environmental health burden after particulate matter. Using only tyres with the best external rolling noise class in the EU can reduce noise-related health impacts.

3. **SCOPE OF THE ANALYSIS**

The analysis covered whether potential remains, since the application of the Tyre Labelling Regulation, to improve the tyre performance parameters on fuel efficiency, wet grip and external noise.

The examination covered the implementation and enforcement provisions of the Regulation in the EU since its application date in November 2012. The investigation included also the
public procurement requirements included in the Energy Efficiency Directive 2012/27/EU\textsuperscript{4} and referring to the Tyre Labelling Regulation.

The analysis took into consideration, as sources of inspiration, the relevant provisions in the Energy Labelling Directive 2010/30/EU\textsuperscript{5} as revised by the Energy Labelling Regulation (EU) 2017/1369 of the European Parliament and of the Council\textsuperscript{6}.

The investigation also took into account the relevant provisions of the Type Approval Regulation (EC) 661/2009\textsuperscript{7} for tyres. This is designed to exclude from the market products that perform least well on the same parameters (rolling resistance, wet grip and external noise).

In particular, the analysis focused on the following issues:

1. the extent to which the average market performance has improved since the Regulation started to apply;
2. the effectiveness of the label in terms of end-user awareness and of improving energy efficiency, wet grip and noise impact;
3. the clarity and accuracy of the information on tyre parameters provided by vehicle suppliers and distributors to end-users; improvement of pre-sale information, including the visibility of the label;
4. the exemption of certain types of tyres (re-treaded and studded tyres) from the labelling scheme;
5. the non-inclusion of other tyre parameters, such as mileage and abrasion;
6. the non-adaptation of the grip grading system to tyres primarily designed to perform better in ice and/or snow conditions;
7. the creation of a registration database;
8. market surveillance and enforcement.

4. RESULTS

4.1. Market development

The Tyre Labelling Regulation applied since November 2012. For 'fuel efficiency' and 'wet grip', the market showed between 2013 and 2015 a positive trend towards better performing tyres, partly due to the impact of the label. This trend was less pronounced for 'external rolling noise' however.

Both average fuel efficiency and wet grip improved from 2013 to 2015 for all tyre types.

For the best energy efficiency classes (A and B), market penetration is still very low (<1 % for all tyre types). This indicates that large potential for improvement still exists.

On wet grip performance, the market share of class B is high for all tyre types (above 40 %) and satisfactory for class A (around 15 %).

\textsuperscript{4} Article 6 and Annex III.
For external rolling noise there was no real improvement from 2013 to 2015, mainly as industry has put more focus on improving the other parameters. This is because external rolling noise is the parameter rated least important for end-users, as shown by the survey carried out as part of the study to support the review.

Moreover, less than 0.5 % of the tyres placed on the market are labelled A for both fuel efficiency and wet grip due to the higher costs and the technical trade-off between these two parameters.

The impact of the labelling scheme by 2020 has been estimated at 35 PJ (or 0.8 Mtoe) annually with corresponding CO$_2$ emission savings of 2.5 Mton per year.

4.2. User awareness and understanding of the label

The consumer survey carried out as part of the study to support the review showed that more than half of car owners were not aware of the tyre label.

Additionally, end-users of C2 and C3 tyres and some end-users of C1 tyres often do not purchase tyres directly but as part of leasing contracts and fleet solutions.

Awareness campaigns could include a reference to the fuel savings calculator on the EU Commission’s website that lets end-users calculate their potential fuel savings from tyres.

Another awareness-raising issue concerns the public procurement requirements in the Energy Efficiency Directive 2012/27/EU, though this was not specifically pointed to by the survey. To promote the use of energy-efficient tyres, it is important that Member States ensure that their central governments are aware of the requirement to purchase tyres in the highest fuel-efficiency class. They should also include this aspect in their tenders for service contracts in accordance with the requirement in Annex III of the Energy Efficiency Directive 2012/27/EU.

The survey also showed continuous progress in user awareness and understanding of the label.

Consumers’ comprehension of the tyre label is generally good. When shown the label, consumers were able to understand the information given even though they were not familiar with it beforehand. The respondents rated the pictogram on external rolling noise as the least easy to understand (60 % rate of understanding), while wet grip was rated the easiest to understand (81 %) and the fuel efficiency parameter in between (73 %).

The survey showed that safety is the prevailing concern for consumers when purchasing tyres. Most consumers therefore find wet grip the most important of the labelling parameters. Even when non-labelling parameters (such as price and brand) are also considered, wet grip is still the most important, followed by price.

Industry, dealers and consumer organisations recommend organising campaigns promoting the label to increase consumers’ knowledge of it and explain its meaning. The target groups should be end-users in the C1, C2 and C3 tyre segments. However, awareness campaigns targeting end-users of C1 tyres are the most important because they constitute the largest share of tyre sales.

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8 PJ or Peta Joule : $10^{15}$ Joule.  
9 Mtoe: million tons of oil equivalent.  
10 Based on the stock model set up for the study to support the review of the Tyres Labelling Regulation.  
11. Calculator: Savings are based on the energy efficiency performance of the tyre and on the number of kilometres the set of tyres can run.
The awareness campaigns could be run at national level by Member State authorities, at EU level by the Commission, or both. It would be an advantage to include tyre suppliers and distributors in the campaigns in order to reach end-users more effectively. Some Member States have already facilitated awareness campaigns about the tyre label or plan to do so. Experiences and recommendations from these campaigns should be taken into account.

4.3. Accuracy of information, improvement of pre-sale information

In general, consumers find the label useful and clear. A large share of consumers has high or medium confidence in the information the label provides. Many consumers indicated that more market control and more sanctions for non-compliance would increase their confidence. This is also in accordance with the answers from both tyre suppliers and dealer associations, who also requested more market surveillance.

Regarding the accuracy of the information, it is necessary to mention that several consumer organisations have expressed some concerns of the EU tyre label. They claim that the EU label overstates tyre performance and that the values are different from their tests. They do not specify whether this difference applies to all three parameters, however, or only to one or two. They also criticise the fact that the EU tyre label is derived from a ‘self-declaration’ process, so without third party certification.

Additionally, many consumers request more information in the form of independent testing by consumer associations or authorities, or a public database showing the tyre data from the labelling scheme.

Most consumers buy tyres in tyre shops or car workshops but only around one third of them saw the tyres on display before their most recent purchase. Furthermore, market surveillance authorities (MSAs) carrying out shop inspections have observed that only a few tyre models are on display at the point of sale while the rest are placed in the stock. This implies that consumers often do not see the tyre, and hence not the label either, before purchasing it. Moreover, since tyre performance deteriorates with ageing, even on the shelf, it could be considered to inform the consumer on the manufacturing date, for instance in the product information sheet, providing also indications on the average performance degradation that can be expected.

These practices are not compatible with Article 5(2) of the Regulation, under which distributors must provide end-users with information about the label performance parameters when tyres offered for sale are not visible to the end-user. Therefore, it could be considered to extend and clarify these provisions to ensure that the label information is provided before sale.

Vehicle suppliers and distributors should be obliged to provide tyre labelling information for the tyre type(s) to be fitted on the vehicle. This should include situations where the end-user is not offered a choice between different tyres to be fitted on a vehicle offered for sale. The information could be included in the technical promotional material given to the end-user, for example.

At the point of sale, the tyre label can be shown either as a printed label in proximity to the tyre or as a sticker on the tyre. Most of the consumers consider the sticker on the tread of the tyre to be the most visible. However, the relevance of how the label is shown is undermined by the fact that most of the tyres are not on display.
The share of tyre purchases on the internet is increasing, as the survey shows. It is thus becoming increasingly important to show the label and the relevant information when tyres are offered for sale online.

4.4. **Non coverage of certain types of tyres (re-treaded and studded tyres)**

**Re-treaded tyres**

Tyre re-treading is a process used to extend the life of used tyres. When a tyre is re-treaded, the worn-out tread is replaced with a new one. This replacement can be repeated as long as the integrity of the tyre casing is guaranteed. Re-treading results in both energy and material savings.

The performance of re-treaded tyres is determined by the combination of casing, tread and the re-treading process applied. The major challenge of including re-treaded tyres in the labelling scheme is the necessity to establish the three label performance parameters (fuel efficiency, wet grip and external rolling noise) for each combination. Since re-treaded tyres are produced in small series, the cost of testing each combination would make the re-treading business economically unfeasible, in particular for small and medium-sized business.

The measurement methods and tools for calculating the label performance parameters for re-treaded C3 tyres are under development.

A thorough assessment of these methods and tools should be undertaken before considering whether to include re-treaded C3 tyres in the scope of the Tyre Labelling Regulation. The assessment work should involve all relevant stakeholders such as the tyre industry, re-treading companies, MSAs and relevant non-governmental organisations.

**Studded tyres**

Studded tyres are primarily used in Finland, Sweden and Norway, where they constitute 12% of the tyre market (compared to 0.25% in the rest of the EU). In many Member States, the use of studded tyres is prohibited and in most others their use is restricted to the winter months. The small market share limits the fuel saving potential from including studded tyres in the labelling scheme. Furthermore, the main environmental issue arising from studded tyre use is the particle pollution from road wear. This has led the Nordic countries to regulate the tyre design to limit this impact.

Testing rolling resistance and wet grip for studded tyres is not possible with the current test standards. In both the rolling resistance and the wet grip test, there is a limited roughness of the surface (road or machine drums) allowed. Using studs on these surfaces during the test would damage them to such an extent that the surfaces would no longer comply with the test standards.

4.5. **Mileage and abrasion**

**Mileage**

The environmental and economic impact of increasing tyre mileage depends solely on how it will affect the rolling resistance. If increased mileage is obtained at the expense of increased rolling resistance, the impacts will most likely be negative due to an increase in the fuel consumed in the use phase. Additionally there is also a risk that wet grip might be weakened.
Mileage is an important parameter for end-users but its inclusion is not feasible for the time being as there is no reliable, accurate and reproducible standardised test method for identifying the number of kilometres achievable by the tyres. Such a method would be needed to be developed to provide consumers with this important information though it is recognised that mileage measured using a standardised test method can deviate significantly from the mileage experienced by consumers in real life. If this happens, there is a risk that consumers would lose confidence in the label.

Whereas mileage is directly related to the tread wear in use of the tyre (which can depend on tyre pressure, road surface, load and driving style), tyres also degrade with age or through exposure to sunlight (UV), heat, rain, etc. Hence, the durability of tyres is also dependent on exposure to, and the severity of, the climate in which they are used, which is however true also for other parameters reported in the label, such as fuel economy.

Therefore, consumers should be made aware of the potential causes of these deviations and the way to reduce them (better inflation control, driving style etc.) to maintain their confidence in the label.

The Uniform Tire Quality Grading (UTQG) standards provide the only standardised test method, which applies only to C1 tyres. The test method requires tyres to be driven for a total of 7 200 miles (11 600 km), which makes it very costly (a more economic lab-test methodology could be considered). The mileage measured will deviate from the mileage experienced in real life by the end-user, since external factors such as tyre pressure, road surface, load and driving style have a strong influence on tyre wear and mileage.

The industry and MSAs all agree that it is not possible to measure mileage with the accuracy required for labelling, and MSAs do not consider it possible to perform market surveillance on such a requirement. Furthermore, the tyre industry, MSAs and tyre organisations all agree that introducing mileage as a parameter in the tyre labelling scheme would be very costly and would not help the consumers choose better tyres. However, this issue, which is strictly related to abrasion could be further investigated in a future revision of the Regulation.

Abrasion

Abrasion, which is the removal of materials from the tyre when it interacts with the road surface, is related to tyre mileage. The materials removed, called Tyre Road Wear Particles (TRWP), contribute to particulate pollution of the air. As other air pollution sources, such as vehicle emissions, are being regulated, the relative importance of TRWP is likely to increase. However, the contribution of TRWP to air pollution and to microplastic pollution of the oceans is still uncertain, and a standardised measurement method has not yet been developed. A number of recent studies point to tyres as a potentially important source of microplastic pollution of the oceans.\(^\text{12}\)

As with mileage, abrasion depends largely on external factors (i.e. tyre pressure, road surface, load, driving styles, etc.). The tyre labelling scheme might not necessarily be appropriate for regulating emissions of TRWP. However, this issue could be further explored in a future revision of the Regulation. This should take into account the growing concerns about air pollution and microplastics in the oceans and the consequences for the environment and human health.

\(^{12}\) Study on primary microplastic-pollution, p. 31 and study on marine litter sources, p. 365.
The chemical content of tyre materials, which is important for the health effects of TRWP, is already regulated through the REACH Regulation\textsuperscript{13}.

In addition, it appears relevant to mention that this issue could also be explored under the type approval legislation for tyres\textsuperscript{14}.

4.6. Snow and ice grip

In the tyre labelling scheme, the wet grip index is used as a measure of safety. However, this carries a risk of misleading consumers purchasing tyres for winter conditions, since tyres designed to perform better on snow and ice often have a poorer wet grip than standard summer\textsuperscript{15} tyres. The inclusion of snow and ice performance in the labelling scheme would address a safety concern and would provide more complete information to consumers, which could ultimately lead to increased confidence in the label, especially in Nordic regions. In this context, it could also be considered to inform the consumer about the importance of the age of the tyre, as performance of tyres at low temperatures strongly degrades with age.

The term ‘snow tyre’ is defined in Regulation (EC) 661/2009 and in UNECE Regulation 117 as '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'. Such tyres can be labelled with the 'M+S' marking, which is a manufacturer self-declaration for tyres supposed to better perform on mud and/or snow. However, there are currently no further requirements or tyre performance tests needed for the 'M+S' marking.

The term ‘severe snow tyre’ is also defined in UNECE Regulation 117 as 'a snow tyre whose tread pattern, tread compound or structure is specifically designed to be used in severe snow conditions' and that fulfils certain requirements in order to use the 3-PMSF (3 Peak Mountain Snow Flake) marking on the sidewall of the tyre. These tyres are also known as 'winter tyres' and are mandatory in various Member States under winter conditions.

Both the terms 'snow tyre' and 'severe snow tyre' apply to tyre types C1, C2, and C3 alike. Another category of tyres for winter conditions is 'Nordic winter tyres', which are non-studded tyres designed for ice and wet ice conditions. There is currently no legal definition of Nordic winter tyres, but an ISO standard for an ice performance test similar to the snow performance test used for severe snow tyres is currently being prepared and is expected to be ready in the course of 2017. The ice performance test applies only to C1 tyres.

For snow grip performance, the 3-PMSF test and marking is the most suitable solution since it is already widely used by the tyre industry and thus would have low implementation costs. This additional information compensates for the usually poor middle-range wet grip score on the EU label.

For 'Nordic winter tyres' (i.e. ice conditions tyres), the expected ISO standard, in combination with a threshold value and a corresponding pictogram, could likewise be a useful solution. These tyres often have the lowest wet grip values on the label.

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\textsuperscript{15} 'Summer tyre' does not correspond to a legal definition of a specific product. It refers to a normal tyre to be used preferably under non-severe wintry weather conditions. For information, there are 'all-season tyres' which also does not correspond to a legal definition and are tyres that can be used under both summer and winter conditions according to the manufacturer's declaration. They are generally marked 'M+S' but do not necessarily respond to an approved 3-PMSF (3 Peak Mountain Snow Flake) certification as the legally defined 'severe snow tyre'. All these different terms of tyres ('summer' and 'all-season') correspond to the manufacturer's declaration with no further requirements or tyre performance tests.
In both cases (snow and ice conditions tyres), the additional information, if any, on the label should apply only to tyres certified by a third party against the standard test procedure. This is necessary to maintain and reinforce consumer confidence in the label.

4.7. Registration database

The review study investigated the appropriateness of setting up a registration database for tyre labels and related technical documentation at EU level to improve enforcement. The analysis found that this could be useful to provide market information for policy decisions and facilitate market surveillance, and it could serve as a tool for consumer information. It could also be a good instrument to obtain more transparency regarding test methods and conditions used by suppliers, which according to some MSAs is currently lacking. For end-users, a registration database could provide pre-sale information on the labelling parameters.

Any possible database would have to be complementary to the existing Information and Communication System for Market Surveillance (ICSMS)\textsuperscript{16} database which covers products in circulation in the EU which are not in conformity with the EU product legislation, as well as the database to be established under the revised Energy Labelling Regulation (EU) 2017/1369. The reflection on a possible registration database for tyres will benefit from experience with the future energy labelling database.

4.8. Market surveillance and enforcement

Market surveillance activities vary between Member States, which are responsible for conducting the surveillance. The prevailing type of market surveillance is 'point of sale' inspections. Some authorities have inspected technical documentation but only very few have performed laboratory tests to verify the label values. According to MSAs, high cost and an insufficient number of accredited test facilities are the greatest barriers to laboratory testing of tyres.

The low level of market surveillance undermines consumer confidence and has given retailers the impression that tyre labelling is a low priority for the authorities.

Most Member States see the EU co-funded joint action test programme on tyres labelling\textsuperscript{17} as an opportunity to start performing laboratory tests on tyres. The purpose of the joint action is both to obtain more test data and to develop best practices for market surveillance testing.

Some of the tyre tests conducted by MSAs show that the results could diverge from the label values, even when the same tyre model was tested on different accredited test tracks/laboratories, without it being possible to identify exactly whether the issue is equal for all three parameters or only for some of them. The same issue has been reported by numerous car magazines and consumer organisations performing tests. Without being able to quantify the various causes, MSAs believe a large part of this issue might be due to:

- the measurement method itself (in particular for wet grip);
- the different conditions under which the tests were conducted;
- incorrect application of the test methods; and

\textsuperscript{16} This is a cross-EU database owned by the European Commission for archiving and exchanging information between Member States and Commission on issues relating to enforcement activities.

\textsuperscript{17} EC Market Surveillance project MSTyr15, funded under Horizon 2020 to improve the enforcement of the Tyre Labelling Regulation (EC) 1222/2009 with more effective market surveillance authorities (training, guidelines, etc.). See www.mstyr15.eu.
• a lack of transparency in the conditions used for the tests and for calculating the label values.

The experience accumulated so far by the industry and the MSAs on wet grip test standards indicates an opportunity to further improve the accuracy of the test method. This could be achieved, for example, by reviewing the set of test conditions ranges and/or of the mathematical formulas which allow the results to be aligned when the tests are performed under different conditions, for example due to different test locations or at different periods of the year. This is an important aspect to be addressed in the future given that safety is the prevailing concern among consumers when purchasing tyres. On noise and rolling resistance tests, the situation is less sensitive. For measuring the rolling resistance of tyres (which gives indication of the fuel efficiency), a network of ‘reference laboratories’ has been set up to optimise the accuracy and reproducibility of the results through a procedure to align the testing machines.

The Tyre Labelling Regulation itself does not include detailed provisions on market surveillance and enforcement. Instead, the Regulation refers to the provisions in Regulation (EC) 765/2008, which includes the general rules on market surveillance and controls of products entering the EU market. This is different from the EU Energy Labelling Regulation (EU) 2017/1369, which does include more detailed provisions on market surveillance, in addition to those included in Regulation (EC) 765/2008. In addition, the implementing measures under the Energy Labelling Regulation must include a detailed description of the content of the technical documentation to be required by MSAs for market surveillance purposes.

Even though the enforcement provisions are less detailed in the Tyre Labelling Regulation, MSAs in general do not report a lack of empowerment to make inspections and apply sanctions regarding the tyre labelling scheme.

MSAs and consumer organisations are more concerned about testing costs, unclear test methods and inaccurate test results.

5. CONCLUSIONS

The review study highlighted potential for simplification, and increased effectiveness of the current legislation. In particular, a large potential for further fuel savings exists, and road safety and rolling noise aspects could also be further improved.

The review study - and the underlying interviews with tyre suppliers, distributors (dealers) market surveillance authorities, consumer organisations and environmental NGOs - has pointed to a number of issues that could improve the Regulation and its implementation.

There is scope for improving the clarity, accuracy, reliability and representativeness of the label and for better enforcement by Member States. For example, this could be done by refining measurement tests, reinforcing market surveillance and considering other options.

There is a lack of awareness of the label amongst end-users and there are several other aspects that could deliver considerable energy savings while avoiding a disproportionate increase of the costs and complexity of the scheme.

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18 Commission communication 2012/C 86/03
The potential impact is substantial. Addressing the issues identified in this report could drive the market towards better-performing tyres. If by 2030, all tyre types were to reach fuel efficiency class B (instead of class C, as currently predicted), the potential energy savings could be at the level of 256 PJ (or 6.1 Mtoe) annually in 2030, corresponding to 18.6 Mton CO₂ emission savings per year.

The Commission will investigate further the issues addressed in this report and may propose a revised Tyre Labelling Regulation in due course.