I.   Proposal to amend documents ECE/TRANS/WP.29/GRBP/2022/17

The changes are marked in **bold** for added text and ~~strike through~~ for deleted text, all in red font.

I.   Proposal

Paragraph 6.6. and its subparagraphs, amend to read:

"6.6.   In order to be classified as a "traction tyre", a tyre is required to meet **at least one of the below reported conditions of paragraph 6.6.1. or 6.6.2.** ~~condition of paragraph 6.6.1. below~~ **A tyre may be classified as a traction tyre, if the** ~~total number (n_{TE}) of traction elements of its tread pattern is equal to or greater than a limit that is calculated based on the deformation potential (P_{def}) of its tread pattern pursuant to paragraph 6.6.3.~~

6.6.1.   The tyre shall have a tread pattern with minimum two circumferential ribs, each containing a minimum of 30 block-like elements, separated by grooves and/or sipe elements the depth of which has to be minimum of one half of the tread depth. ~~The use of an alternative option of a physical test will only apply at a later stage following a further amendment to the Regulation including a reference to appropriate test methods and limit values.~~

6.6.2.   The tyre shall have a total number (n_{TE}) of traction elements of its tread pattern is equal to or greater than a limit that is calculated based on the deformation potential (P_{def}) of its tread pattern pursuant to paragraph 6.6.2.3.

6.6.2.1.   Calculation of the deformation potential of the tread pattern

The "deformation potential" (P_{def}) is calculated as follows:

$$P_{def} = R_{void} \cdot d_{tr}{}^3$$

where:

R_{void} is a dimensionless figure between 0 and 1 representing the void to fill ratio of the tread pattern according to the definition in paragraph 2.17.;

d_{tr} is the maximum of the tread depths as defined in paragraph 2.16. of this Regulation expressed in millimetres.

The deformation potential P_{def} is expressed in mm^3.

6.6.2.2.   Calculation of the number of traction elements

"Traction elements" (TE) are elements of the tread pattern which are completely separated from each other by grooves and/or sipes, on all their edges, at tread surface.

The total number n_{TE} of traction elements is calculated as follows

$$n_{TE} = \frac{1}{2} \cdot \left(n_{TE,50} + n_{TE,70} \right)$$

where:

$n_{TE,50}$ is the number of traction elements separated by grooves/sipes with a depth equal to or greater than 50% of the maximum tread depth;

$n_{\text{TE,70}}$ is the number of traction elements separated by grooves/sipes with a depth equal to or greater than 70% of the maximum tread depth.

For the avoidance of doubt, each traction element counted within $n_{\text{TE,70}}$ is also counted within $n_{\text{TE,50}}$.

6.6.2.3. In order to be classified as a traction tyre, the total number of traction elements in the tread pattern of a tyre shall, depending on tyre class and, for class C3 tyres, nominal rim diameter, fulfil the respective condition:

For class C2 tyres:

$$n_{\text{TE}} \geq -\frac{2}{25\ \text{mm}^3} \cdot P_{\text{def}} + 100$$

For class C3 tyres with nominal rim diameter code less than 20:

$$n_{\text{TE}} \geq -\frac{1}{10\ \text{mm}^3} \cdot P_{\text{def}} + 200$$

For class C3 tyres with nominal rim diameter code equal to or greater than 20:

If $P_{\text{def}} < 1400\ \text{mm}^3$:

$$n_{\text{TE}} \geq -\frac{17}{70\ \text{mm}^3} \cdot P_{\text{def}} + 400$$

If $P_{\text{def}} \geq 1400\ \text{mm}^3$:

$$n_{\text{TE}} \geq -\frac{1}{10\ \text{mm}^3} \cdot P_{\text{def}} + 200\ ''$$

Add new paragraphs 12.14. to 12.16., to read:

"12.14. As from 7 July 2024, Contracting Parties applying this Regulation shall not be obliged to accept type approvals issued according to the 04 series of amendments to this Regulation, first issued after 7 July 2024, if, in the case of classes C2 and C3 traction tyre, the requirements for traction classification set out in paragraph 6.6.2. are not complied with.

12.15. Until 31 August 2030, Contracting Parties applying this Regulation shall accept type approvals and grant extension to type approvals issued according to the 04 series of amendments to this Regulation, first issued before 7 July 2024, if, in the case of classes C2 and C3 traction tyre, the requirements for traction classification set out in paragraph 6.6.2. are not complied with.

12.16. As from 1 September 2030, Contracting Parties applying this Regulation shall not be obliged to accept type approvals of tyres issued according to the 04 series of amendments to this Regulation if, in the case of classes C2 and C3 traction tyre, the requirements for traction classification set out in paragraph 6.6.2. are not complied with."

II. Justification

1. The working document ECE/TRANS/WP.29/GRBP/2022/17, proposes a revised definition of traction tyres and removes the definition of traction tyre currently implemented in the 02 and 03 series of amendments to this regulation which can be still used between the entry into force date of the 04 series of amendments and 7 July 2024. Therefore, current definition of traction tyre is reintroduced in document ECE/TRANS/WP.29/GRBP/2022/17.

2. Specific transitional provisions are proposed to allow a smooth transition between the two definitions. Commercial vehicle tyre lines have an average life longer than passenger car tyres. Among commercial vehicle tyres, traction tyres regulated properties are achieved through mould hardware only which requires a longer time to develop and

industrialize the product than other performances that can be tuned through other parameters.

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