

Proposal to amend document ECE/TRANS/WP.29/GRBP/2023/20

This proposal concerns amendments to Annex 4 of UN Regulation No. 124 only. The intention is to keep unchanged the provisions applicable to the steel wheels.
 The changes are marked in **red font** and **stricken through** for deleted text.

I. Proposal

Annex 4, the Table, amend to read (to delete test (b) for the case of aluminum alloy and magnesium alloy wheels):

Material	Tests
Aluminium alloy	a, b , c, e
Magnesium alloy	a, b , c, e
Steel	a, b, d

Annex 4, paragraphs (a) – (e), amend to read:

- «(a) Chemical analysis of the ~~raw~~ material, **which the wheels are made of**.
- (b) ~~Reserved~~ (*Remains unchanged*) Check of the following mechanical characteristics ($R_{p0.2}$, R_m , and A) relevant to the materials:
- (i) percentage elongation after fracture (A): Permanent elongation of the gauge length after fracture ($L_u - L_o$), expressed as a percentage of the original length (L_o).
- Where:
- original gauge length (L_o): Gauge length before application of force.
 - final gauge length (L_u): Gauge length after rupture of the test piece.
- (ii) proof strength, non-proportional extension (R_p): Stress at which a non-proportional extension is equal to a specified percentage of the extensometer gauge length (L_e). The symbol used is followed by a suffix giving the prescribed percentage of the extensometer gauge length, for example: $R_{p0.2}$.
 - (iii) tensile strength (R_m): Stress corresponding to the maximum force (F_m).
- (c) Check of the material characteristics ($R_{p0.2}$, R_m and A) of specimen taken from critical zones (~~such as the spoke, for example~~ **hub, inner and/or outer rim flange, if the wheel design allows the take-off of the appropriate specimen**), **designated by the manufacturer and/or specified by the technical service, as well as the inner and the outer rim flange**. The take-off points and position of the samples must be depicted in the drawing **and specified in the manufacturer's technical description**:

~~(i) percentage elongation after fracture (A): Permanent elongation of the gauge length after fracture ($L_u - L_o$), expressed as a percentage of the original length (L_o).~~

~~Where:~~

~~original gauge length (L_o): Gauge length before application of force.~~

~~final gauge length (L_u): Gauge length after rupture of the test piece.~~

~~(ii) proof strength, non-proportional extension (R_p): Stress at which a non-proportional extension is equal to a specified percentage of the extensometer gauge length (L_e). The symbol used is followed by a suffix giving the prescribed percentage of the extensometer gauge length, for example: $R_{p0,2}$~~

~~(iii) tensile strength (R_m): Stress corresponding to the maximum force (F_m).~~

- (d) **Reserved** (*Remains unchanged*) Analysis of the defects and of the new material structure.
- (e) Analysis of the metallurgic defects and structure taken from the transition zone of the wheel disc and rim, **as well as other most loaded spots specified in the manufacturer's documentation or determined by the technical service and/or from the fracture zone, if applicable, for compliance with the acceptable defects specified by the manufacturer.**»

II. Justification

...

Annex 4, paragraph (a)

7. The language of the provision is clarified.

Annex 4, ~~paragraphs (b) and (d)~~ the Table

8. Deleted **test (b) for the case of aluminum alloy and magnesium alloy wheels**, since the existing experience of testing confirms that the mechanical properties of the raw materials are not comparable with the mechanical properties of finished products (wheels). In this regard, there is no need to test the raw materials.

Annex 4, paragraph (c)

9. The list of critical zones on wheels where to take the material to check its characteristics is clarified. These critical zones shall be specified by the manufacturer in the application documentation, and they can also be specified by the technical service.

Annex 4, paragraph (b)

10. ~~A description of the characteristics of the material taken from paragraph (b) is provided, since this paragraph is deleted.~~ Only in the Russian language the terms concerning the measured values have been changed.

Annex 4, paragraph (e)

11. It is specified that the analysis of metallurgical defects is carried out in the most loaded spots of the wheels. These spots shall be specified by the manufacturer in the application documentation, and they can also be specified by the technical service. The analysis shall be carried out in comparison with the permissible defects specified by the manufacturer.

...
