

28 November 2023

Agreement

Concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations*

(Revision 3, including the amendments which entered into force on 14 September 2017)

Addendum 116 – UN Regulation No. 117

Revision 4 - Amendment 8

Supplement 15 to the 02 series of amendments – Date of entry into force: 24 September 2023.

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

This document is meant purely as documentation tool. The authentic and legal binding text is: ECE/TRANS/WP.29/2023/5.



UNITED NATIONS

* Former titles of the Agreement:

Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958 (original version); Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, done at Geneva on 5 October 1995 (Revision 2).

Table of contents, Annexes, amend to read:

"7 Procedures for snow performance testing relative to tyres for use in severe snow conditions...

[...]

8 Procedures for ice performance testing relative to ice grip tyres of class C1..."

Paragraph 2.1., item (e), amend to read:

" (e) Whether tyre for use in severe snow conditions or not;"

Paragraph 2.13.1., amend to read:

"2.13.1. "Tyre for use in severe snow conditions" means a snow tyre or a special use tyre whose tread pattern, tread compound or structure is specifically designed to be used in severe snow conditions and that fulfils the requirements of paragraphs 6.4. and 6.4.1. of this Regulation."

Paragraph 2.13.1.1., amend to read:

"2.13.1.1. "Ice grip tyre" means a class C1 snow tyre that is classified as tyre for use in severe snow conditions and additionally designed to be used on road surfaces covered with ice and that fulfils the requirements of paragraph 6.4.2. of this Regulation."

Paragraph 3.1.1., amend to read:

"3.1.1. The performance characteristics to be assessed for the type of tyre; "rolling sound emissions level" and/or "adhesion performance level on wet surfaces" and/or "rolling resistance level"; "snow performance level" in case of tyre for use in severe snow conditions and additionally "ice performance level" in case of ice grip tyre;"

Paragraph 3.1.5.1., amend to read:

"3.1.5.1. Whether tyre for use in severe snow conditions or not;"

Paragraph 4.2.6., amend to read:

"4.2.6. The "Alpine Symbol" ("3-peak-mountain with snowflake" conforming to the pictogram described in Annex 7, Appendix 1) if the snow tyre or the special use tyre is classified as tyre for use in severe snow conditions;"

Paragraph 4.2.6.1., amend to read:

"4.2.6.1. The "Ice Grip Symbol" (conforming to the pictogram described in Annex 8, Appendix 1) if the tyre for use in severe snow conditions is additionally classified as ice grip tyre;"

Add a new paragraph 4.2.6.2., to read:

"4.2.6.2. The inscription "M+S" or "M.S" or "M&S" if the special use tyre is classified as tyre for use in severe snow conditions in addition to the "Alpine Symbol";"

Paragraph 6.1.1., footnote below the table of limits for Stage 2, amend to read:

"The above limits shall be increased by 1 dB(A) for snow tyres that are classified as tyre for use in severe snow conditions, extra load tyres or reinforced tyres, or any combination of these classifications."

Paragraph 6.1.2., table of limits for Stage 2, amend to read:

"

Stage 2		
Category of use	Limit dB(A)	
	Other	Traction tyres
Normal tyre	72	73
Snow tyre	72	73
	Snow tyre that is classified as tyre for use in severe snow conditions	73
Special use tyre	74	75
	Special use tyre that is classified as tyre for use in severe snow conditions	74

"

Paragraph 6.1.3., table of limits for Stage 2, amend to read:

"

Stage 2		
Category of use	Limit dB(A)	
	Other	Traction tyres
Normal tyre	73	75
Snow tyre	73	75
	Snow tyre that is classified as tyre for use in severe snow conditions	74
Special use tyre	75	77
	Special use tyre that is classified as tyre for use in severe snow conditions	75

"

Paragraph 6.2.1., table of limits, amend to read:

"

Category of use	Wet grip index (G)	
Normal tyre	≥ 1.1	
Snow tyre	≥ 1.1	
	Snow tyre that is classified as tyre for use in severe snow conditions and with a speed symbol ("R" and above, including "H") indicating a maximum permissible speed greater than 160 km/h	≥ 1.0
	Snow tyre that is classified as tyre for use in severe snow conditions and with a speed symbol ("Q" or below excluding "H") indicating a maximum permissible speed not greater than 160 km/h	≥ 0.9

<i>Category of use</i>		<i>Wet grip index (G)</i>
Special use tyre		Not defined
	Special use tyre that is classified as tyre for use in severe snow conditions	Not defined

Paragraph 6.2.2., table of limits, amend to read:

<i>Category of use</i>		<i>Wet grip index (G)</i>	
		<i>Other</i>	<i>Traction tyres</i>
Normal tyre		≥ 0.95	≥ 0.85
Snow tyre		≥ 0.95	≥ 0.85
	Snow tyre that is classified as tyre for use in severe snow conditions	≥ 0.85	≥ 0.85
Special use tyre		≥ 0.85	≥ 0.85
	Special use tyre that is classified as tyre for use in severe snow conditions	≥ 0.85	≥ 0.85

Paragraph 6.2.3., table of limits, amend to read:

<i>Category of use</i>		<i>Wet grip index (G)</i>	
		<i>Other</i>	<i>Traction tyres</i>
Normal tyre		≥ 0.80	≥ 0.65
Snow tyre		≥ 0.65	≥ 0.65
	Snow tyre that is classified as tyre for use in severe snow conditions	≥ 0.65	≥ 0.65
Special use tyre		≥ 0.65	≥ 0.65
	Special use tyre that is classified as tyre for use in severe snow conditions	≥ 0.65	≥ 0.65

Paragraph 6.3.1, last sentence, amend to read:

"For snow tyres that are classified as tyre for use in severe snow conditions, the limits shall be increased by 1 N/kN."

Paragraph 6.3.2, last sentence, amend to read:

"For snow tyres that are classified as tyre for use in severe snow conditions, the limits shall be increased by 1 N/kN."

Paragraph 6.4., amend to read:

"6.4. In order to be classified as a tyre for use in severe snow conditions the tyre shall meet the performance requirements of paragraph 6.4.1. below. The tyre shall meet these requirements based on a test method of Annex 7 by which:

[...]"

Paragraph 6.4.2., amend to read:

"6.4.2. Ice performance requirements for class C1 tyres classified as ice grip tyre

In order to be classified as ice grip tyre, a tyre for use in severe snow conditions shall meet the minimum ice grip index value, as calculated in the procedure described in Annex 8 and compared with the respective Standard Reference Test Tyre (SRTT) shall be as follows:

[...]"

Paragraph 12., add a new subparagraph 12.13. to read:

"12.13. Until 60 months from the entry into force of Supplement 15 to the 02 series of amendments, Contracting Parties applying this Regulation shall continue to grant type approvals and extension to existing type approvals according to the Supplement 14 to the 02 series of amendments to this Regulation, based on tyre-rolling sound emissions tests performed on test sites the surface and the dimensions of which are in accordance with ISO 10844:2014."

Annex 1, item 4.1, amend to read:

"4.1. Tyre for use in severe snow conditions (Yes/No)²"

Annex 1, footnote 6, amend to read:

"⁶ In the case of tyre for use in severe snow conditions a test report according to Appendix 2 or Appendix 3, as applicable, to Annex 7 shall be submitted. Additionally in the case of ice grip tyre a test report according to Appendix 2 to Annex 8 shall be submitted."

Annex 3, paragraph 2.1., replace "ISO 10844:2014" by "ISO 10844:2021".

Annex 3, Appendix 1, item 6.1, amend to read:

"6.1. Tyre for use in severe snow conditions (Yes/No)¹"

Annex 5, paragraph 3.3., table of temperatures, amend to read:

"

Category of use	Wetted surface temperature	Ambient temperature
Normal tyre	12 °C – 35 °C	12 °C – 40 °C
Snow tyre	5 °C – 35 °C	5 °C – 40 °C
	Snow tyre that is classified as tyre for use in severe snow conditions	5 °C – 20 °C
Special use tyre	not applicable	not applicable
	Special use tyre that is classified as tyre for use in severe snow conditions	not applicable

"

Annex 5, paragraph 4.1.6.4., table 2, amend to read:

"

Table 2

Category of use	g_0 (°C)	a	b (°C ⁻¹)	c (°C ⁻²)	d (mm ⁻¹)
Normal tyre	20	+0.99382	+0.00269	-0.00028	-0.02472
Snow tyre	15	+0.92654	-0.00121	-0.00007	-0.04279
	Snow tyre that is classified as tyre for use in severe snow conditions	10	+0.72029	-0.00539	+0.00022

Category of use	ϑ_0 (°C)	a	b (°C ⁻¹)	c (°C ⁻²)	d (mm ⁻¹)
Special use tyre	not defined				
Special use tyre that is classified as tyre for use in severe snow conditions	not defined				

"

Annex 5, paragraph 4.2.8.4., table 4, amend to read:

"

Table 4

Category of use	ϑ_0 (°C)	a	b (°C ⁻¹)	c (°C ⁻²)	d (mm ⁻¹)
Normal tyre	20	+0.99757	+0.00251	-0.00028	+0.07759
Snow tyre	15	+0.87084	-0.00025	+0.00004	-0.01635
Snow tyre that is classified as tyre for use in severe snow conditions	10	+0.67929	+0.00115	-0.00005	+0.03963
Special use tyre	not defined				
Special use tyre that is classified as tyre for use in severe snow conditions	not defined				

"

Annex 5, part (B), paragraph 2.1.2.1., amend to read:

"2.1.2.1. [...]

$$P_t = P_r \cdot \left(\frac{Q_t}{Q_r}\right)^{1.25}$$

Where:

P_r = Inflation pressure corresponding to the indication of the inflation pressure marked on the sidewall as required by paragraph 4.1. of this Regulation.

Q_t = The static test load of the tyre

Q_r = The maximum mass associated with the load capacity index of the tyre"

Annex 6, Appendix 3, item 6.1, amend to read:

"6.1. Tyre for use in severe snow conditions (Yes/No)²"

Annex 7, title, amend to read:

"Procedures for snow performance testing relative to tyres for use in severe snow conditions"

Annex 7, paragraph 3.1.4.2., amend to read:

"3.1.4.2. For class C2 tyres, the vehicle load shall be such that the resulting loads on the tyres are between 60 per cent and 100 per cent of the load corresponding to the tyre load capacity index.

[...]

$$P_t = P_r \cdot \left(\frac{Q_t}{Q_r}\right)^{1.25}$$

Q_r is the maximum load associated to the load capacity index of the tyre written on the sidewall

P_r is the inflation pressure corresponding to the indication of the inflation pressure marked on the sidewall as required by paragraph 4.1. of this Regulation

Q_t is the static test load of the tyre

For a vertical load lower than 75 per cent of the load capacity of the tyre, a constant inflation pressure is applied, hence the test inflation pressure P_t shall be calculated as follows:

$$P_t = P_r \times (0.75)^{1.25} = 0.7 P_r$$

P_r is the inflation pressure corresponding to the indication of the inflation pressure marked on the sidewall as required by paragraph 4.1. of this Regulation.

Check the tyre pressure just prior to testing at ambient temperature."

Annex 8, title, amend to read:

"Procedures for ice performance testing relative to ice grip tyres of class C1"

Annex 8, paragraph 2.4.2.2., table 3, amend to read:

"Table 3

Calculation of the adjusted mean fully developed deceleration $d_{m,adj}(R)$ of the reference tyre

<i>If the number and the sequence of candidate tyres within one braking test cycle is</i>	<i>and the candidate tyre to be qualified is</i>	<i>the corresponding adjusted mean fully developed deceleration $d_{m,adj}(R)$ of the reference tyre is calculated as follows</i>
1 $R_i - T_1 - R_f$	T_1	$d_{m,adj}(R) = 1/2 \cdot [d_{m,ave}(R_i) + d_{m,ave}(R_f)]$
2 $R_i - T_1 - T_2 - R_f$	T_1	$d_{m,adj}(R) = 2/3 \cdot d_{m,ave}(R_i) + 1/3 \cdot d_{m,ave}(R_f)$
	T_2	$d_{m,adj}(R) = 1/3 \cdot d_{m,ave}(R_i) + 2/3 \cdot d_{m,ave}(R_f)$

Annex 8,

Second occurrence of paragraph 2.4.2.2., renumber to 2.4.2.3.

Second occurrence of paragraph 2.4.4.4., renumber as 2.4.4.5.

Paragraph 2.4.4.5. (former), renumber as 2.4.4.6.

Paragraph 2.4.5.2.1., replace "2.4.4.5." by "2.4.4.6."