

**Economic and Social Council**Distr.: General
16 June 2022

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

Working Party on Noise and Tyres

Seventy-sixth session

Geneva, 5–7 September 2022

Item 4 (c) of the provisional agenda

Tyres: UN Regulation No. 117 (Tyre rolling resistance, rolling noise and wet grip)

**Proposal for a Supplement to the 03 series of amendments to
UN Regulation No. 117****Submitted by the experts from the European Tyre and Rim Technical
Organisation***

The text reproduced below was prepared by the experts from the European Tyre and Rim Technical Organisation (ETRTO). The modifications to the existing text are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2022 as outlined in proposed programme budget for 2022 (A/76/6 (Sect.20), para 20.76), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



I. Proposal

Table of contents, Annexes, amend to read:

"7 Procedures for snow performance testing relative to ~~snow~~-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 ~~snow~~-tyre for use in severe snow conditions or not;"

Paragraph 2.13.1., amend to read:

2.13.1. "~~Snow tyre~~**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 6.5. and 6.5.1. of this Regulation.

2.13.1.1. "*Ice grip tyre*" means a class C1 snow tyre **that is classified as tyre** for use in severe snow conditions ~~that is~~**and** additionally designed to be used on road surfaces covered with ice and that fulfils the requirements of paragraph 6.4**5.2.** 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" of a tyre in new state" and/or "adhesion performance level on wet surfaces of a tyre in worn state" and/or "rolling resistance level"; "snow performance level" in case of "~~snow~~ 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 ~~snow~~-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 "~~snow~~-tyre for use in severe snow conditions";

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

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** "~~snow~~ 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

<i>Stage 2</i>			
Normal tyre		72	73
Snow tyre		72	73
	Snow tyre that is classified as tyre for use in severe snow conditions	73	75
Special use tyre		74	75
	Special use tyre that is classified as tyre for use in severe snow conditions	74	75

"

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

"

<i>Stage 2</i>			
<i>Category of use</i>	<i>Limit dB(A)</i>		
	<i>Other</i>	<i>Traction tyres</i>	
Normal tyre	73	75	
Snow tyre		73	75
	Snow tyre that is classified as tyre for use in severe snow conditions	74	76
Special use tyre		75	77
	Special use tyre that is classified as tyre for use in severe snow conditions	75	77

"

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

"

<i>Category of use</i>	<i>Wet grip index (G)</i>	
Normal tyre	≥ 1.1	
Snow tyre	≥ 1.1	
	" Snow 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 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
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:

"

Category of use	Wet grip index (G)	
	Other	Traction tyres
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
Special use tyre	≥ 0.85	≥ 0.85
	Special use tyre that is classified as tyre for use in severe snow conditions	≥ 0.85

"

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

"

Category of use	Wet grip index (G)	
	Other	Traction tyres
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
Special use tyre	≥ 0.65	≥ 0.65
	Special use tyre that is classified as tyre for use in severe snow conditions	≥ 0.65

"

Paragraph 6.3., last sentence, amend to read:

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

Paragraph 6.4.1, table of limits, amend to read:

"

Category of use	Wet grip index (G _B)	
Normal tyre	≥ 0.88	
Snow tyre	≥ 0.80	
	"Snow Snow tyre that is classified as tyre for use in severe snow conditions" and with a speed category symbol ("R" and above, including "H") indicating a maximum permissible speed greater than 160 km/h	≥ 0.80
	Ice grip tyre	≥ 0.70

Category of use		Wet grip index (G_B)
	"Snow tyre tyre that is classified as tyre for use in severe snow conditions" and with a speed category symbol ("Q" or below excluding "H") indicating a maximum permissible speed not greater than 160 km/h	≥ 0.70
		Ice grip tyre ≥ 0.70
Special use tyre		Not defined
	Special use tyre that is classified as tyre for use in severe snow conditions	Not defined

For normal tyres with speed category symbol indicating a maximum permissible speed equal to or greater than 300 km/h and aspect ratio equal to or lower than 40, the limit shall be decreased by 0.08.

"

Paragraph 6.5., amend to read:

"6.5. In order to be classified as a ~~snow~~ tyre for use in severe snow conditions" the tyre shall meet the performance requirements of paragraph ~~6.4.1.6.5.1.~~ below. The tyre shall meet these requirements based on a test method of Annex 7 by which:

- (a) The mean fully developed deceleration ("mfdd") in a braking test,
- (b) Or alternatively an average traction force in a traction test,
- (c) Or alternatively the average acceleration in an acceleration test

of the candidate tyre is compared to that of a Standard Reference Test Tyre (SRTT).

The relative performance shall be indicated by a snow grip index."

Paragraph 6.5.2., amend to read:

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

In order to be classified as ice grip tyre, a ~~snow~~ 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:

Class of tyre	Ice grip index
	Ref. = SRTT16
C1	1.18

"

Annex 1, item 4.1, amend to read:

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

Annex 1, footnote 6, amend to read:

⁶ In the case of ~~snow~~ 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, Appendix 1, item 6.1, amend to read:

"6.1. ~~Snow tyre~~ **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	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	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	-0.03037
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		g_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 6, Appendix 3, item 6.1, amend to read:

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

Annex 7, title, amend to read:

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

Annex 8, title, amend to read:

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

Annex 9, paragraph 2.3.3., table of temperatures, amend to read:

"

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

"

Annex 9, paragraph 2.4.1.1.4., 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	+0.90996	-0.00179	-0.00013	-0.10313
Snow tyre	15	+0.81045	-0.00004	-0.00019	-0.05093
Snow tyres that is classified as tyre for use in severe snow conditions	10	+0.71094	+0.00172	-0.00025	+0.00127
Special use tyre	not defined				
Special use tyre that is classified as tyre for use in severe snow conditions	not defined				

"

Annex 9, paragraph 2.4.2.1.4., table 4, amend to read:

"

Table 4

Category of use	g_0 (°C)	a	b (°C ⁻¹)	c (°C ⁻²)	d (mm ⁻¹)
Normal tyre	20	+0.99655	-0.00124	+0.00041	+0.06876
Snow tyre	15	+0.94572	-0.00032	-0.00020	+0.08047

Category of use		g_0 (°C)	a	b (°C ⁻¹)	c (°C ⁻²)	d (mm ⁻¹)
	Snow tyres that is classified as tyre for use in severe snow conditions	10	+0.89488	+0.00061	-0.00080	+0.09217
Special use tyre		not defined				
	Special use tyre that is classified as tyre for use in severe snow conditions	not defined				

II. Justification

1. This proposal aims to introduce provisions to allow type approval of special use tyres that fulfil the requirements for snow performance as laid out in Annex 7. The respective marking related to the “Alpine” symbol has been considered for tyres complying with these requirements.

2. Based on preliminary technical assessment submitted through informal document GRBP-71-26, allowances for rolling sound emission and rolling resistance could be needed for special use tyres that are classified as tyres for use in severe snow condition. However, special use tyres that are classified as tyres for use in severe snow condition currently do not exist. Therefore, in this document allowances for rolling sound emission and rolling resistance are not proposed, considering that the performance of such tyres cannot be assessed until they are developed.