Informal document GRBP-73-19
Agenda item 5 (a)

ETRTO proposal to introduce in UN Regulation No. 117 an Ice tyre definition for tyres of C1 class

GRBP session 73, January 2021

Outline

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1. Background and rationale

Today, Ice tyres of C1 class are not defined in UN Regulation No. 117, but implicitly included in *snow tyres for use in severe snow conditions* (3PMSF).

Proposal is to segregate Ice tyres in the scope of UN Regulation No. 117 from the other *snow tyres for use in severe snow conditions*.

The introduction of such a definition will help preparing:

- possible regulatory evolution, also in respect with the ongoing activities of the IWG WGWT;
- a future alignment between new EU Tyre Labelling Regulation (EU 2020/740) and the UN type approval Regulation.

ETRTO propose to introduce this new definition in UN Regulation No. 117 based on a test method with a defined threshold.

A test method to measure the Ice grip performance and a threshold to identify Ice tyres have been developed in ISO and can be referred to for that purpose.

The new EU Tyre Labelling Regulation (EU) 2020/740 is also referring to the same ISO standard (i.e. ISO 19447).

A dedicated Ice pictogram, same as the one regulated in EU Tyre Labelling Regulation (EU) 2020/740, will avoid a proliferation of different versions.

2. ISO 19447

ISO 19447 - Passenger car tyres Method for measuring ice grip performance is in its finalization phase (DIS registered and DIS ballot recently closed) and is expected to be published in July 2021

ISO/19447 – Procedure overview (DIS approved on 24/11/2020)

- ISO is addressing tyres of C1 class
- Ice grip performance is evaluated by a 4-wheel ABS braking test method (mean fully developed deceleration) conducted with a commercialized-model passenger car equipped with an ABS system on a specified ice surface.
- The mean fully developed deceleration of a candidate tyre is compared to that of a standard reference tyre (ASTM F2493, SRTT P225/60R16 97S).
- Test shall be repeated at least 3 times (3 non-consecutive sequences).
- The relative performance shall be indicated by an Ice Grip Index (**IGI**).
- A candidate tyre obtaining a minimum value of Ice Grip Index of 1.18 is eligible to be labelled or marked as an Ice Tyre.

3. ETRTO proposal

To introduce, in UN Regulation No. 117, the Ice definition for tyres of C1 class following the requirements as defined in ISO 19447.

To add Ice tyres as a subgroup of tyres under the classification of *snow tyres for use in severe snow conditions.*

To introduce the test method with a threshold **IGI** of 1.18 (same approach as SGI for Snow tyres for use in severe snow conditions).

To introduce a dedicated pictogram* to clearly mark the tyres declared as Ice tyres.

(*) see Annex II of regulation (EU) 2020/740

4. Benefits

The proposal will clearly distinguish Ice tyres within the classification of *snow tyres for use in severe snow conditions*.

This distinction will be made based on a test with a defined threshold.

The benefit for the Regulators of this Ice Tyre definition will be to provide transparency and identification of the Ice tyres with a dedicated Ice pictogram avoiding the proliferation of different pictogram versions.

5. Next steps

ETRTO propose to make use of the momentum of GRBP September 2021 session to submit this amendment proposal to GRBP together with the proposal of introduction of the provisions on wet grip on tyres of C1 class in worn state and other proposals of amendments.

ETRTO would be glad to receive GRBP guidance and comments on this proposal.

Thank you

Back-up ISO 19447 details (DIS approved 24/11/2020)

Overview of Procedure and Test Conditions:

Tyre						Surface		Environment			
Reference	Vehicle Pos.	Inflation pressure*	Load on tyre rate	No. of Tires	Tire Condition	outdoor	indoor	Abient (**) Temp. (1m)	Surface (**) Temp. (-1 cm)	Surface Grip [μ-SRTT); ave.	Humidity %
ASTM/Control		kPa	% of LI	per size	km break-in & cleaning	ice		in °C	in °C	m/s²	%
Reference: 225/60 R 16 Tiger Paw C1-SRTT16) Control: appropriate Ice tire	*all 4 pos.*	SRTT: 230-260 kPa Cand.: 190-270 kPa	*SRTT: 65-75%* *Cand.: same load on tyre rate as SRTT ± 15%*	*4*	*same as for snow test! (100km dry road or aquivalent) Remove snow on the tire surface prior test start*	*flat, smooth, polished ice* *1. if same test lane: Refreshed surface (watering around 1 hour before test) after each test session* *2. additional test lanes can be used if available on the same flat*		*-15° to +4°*	*-15° to -5° (measured on the conditioned line)*	*0,9 - 1,7 for all SRTT runs*	*n.r. no atmos. precipitation*

* see additional table (load and inflation pressure conditions)

(**) to be reported for each tested tire

Test Run						Evaluation				
Vehicle	Start Speed	End Speed	min. # of validated repeats	min. # of test sessions***	Test Sequence	Speed interval for calculation	Recorded Measures	Result Measure for report	Coefficient of Variation	SRTT Evolution (trand)
type	km/h	km/h			%	km/h	div.	m/s²	CV in %	%, delta of average (CV)
commercialized pass-car model with ABS in maintained conditions	*≥ 20 or ≥ 25*	*0*	*7 (out of 9, delete highest and lowest value)*	*3 non consecutive sessions; variations of mean value +/- 6%(average of 3), if outside range than 4th sessions*	*R-T1-T2-R or R-T1-R seperate lane for studded tyres*	*15 - 5 or 20-5 (same speed intervall for entire program)*	*Speed [km/h], deceleration [m/s²] or Distance [m] or Time [s],*	*deceleration (mfdd)*	*for test run **and** test sessions (IGI) ≤ 6*	*≤ 5*

non consecutive = minimum refreshing (new preparation) the ice surface or new test lane or next day

Final test result (for threshold) -> Average out of all 3 (4) test sessions

*** 3 session enough, if all 3 are above threshold

Back-up ISO 19447 details (DIS approved 24/11/2020)

Overview Tyre Load and inflation Pressure Adjustments:

	SRTT Condition	Control tyre condition	Candidate tyre condition
Direct comparison *(the vehicle allows to test the candidate on the same vehicle than the SRTT)*	**Vehicle 1 :** - Load on tyre rate at selected infl. Pressure: 65% to 75% - inflation Pressure : 230 to 260 kPa		**Vehicle 1 :** - Load on tyre rateat selected infl. pressure: SRTT load rate +/- 15% - infl. Pressure : adjusted in the range 190 to 270 kPa
Indirect comparison	**Vehicle 1 :** - Load on tyre rate at selected infl. pressure: 65% to 75% - inflation pressure : 230 to 260 kPa	**Vehicle 1 :** - Control tyre shall pass the ice threshold itself - Load on tyre rate : SRTT load rate +/- 15% - infl. pressure : adjusted in the range 190 to 270 kPa **Vehicle 2 :** - Load on tyre rate at selected infl. pressure: 60% to 90% and same load on tyre rate than on the vehicle 1 with a max. tolerance of 10% - infl. Pressure : adjusted in the range 190 to 270 kPa	**Vehicle 2 :** - Load on tyre rateat selected infl. pressure: 60% to 90% - infl. Pressure : adjusted in the range 190 to 270 kPa

Load on tyre rate = vehicle load / load capacity of the tyre at the test pressure