

IWG WGWT Concept proposal for addressing wet grip on worn tyre requirements for C2 and C3 tyres

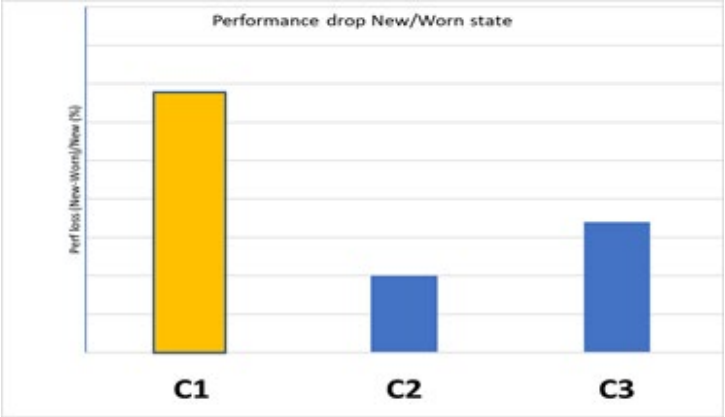
8 February 2022

Outlines

1. Recap: EU Tyre Industry Preliminary assessment presented to GRBP 73rd session (GRBP-73-22)
2. New data: EU Tyre Industry additional C2 Wet Grip on Worn tyres test campaign
3. Proposal: Concept for Wet Grip on Worn tyre evaluation for C2 and C3
4. Conclusions

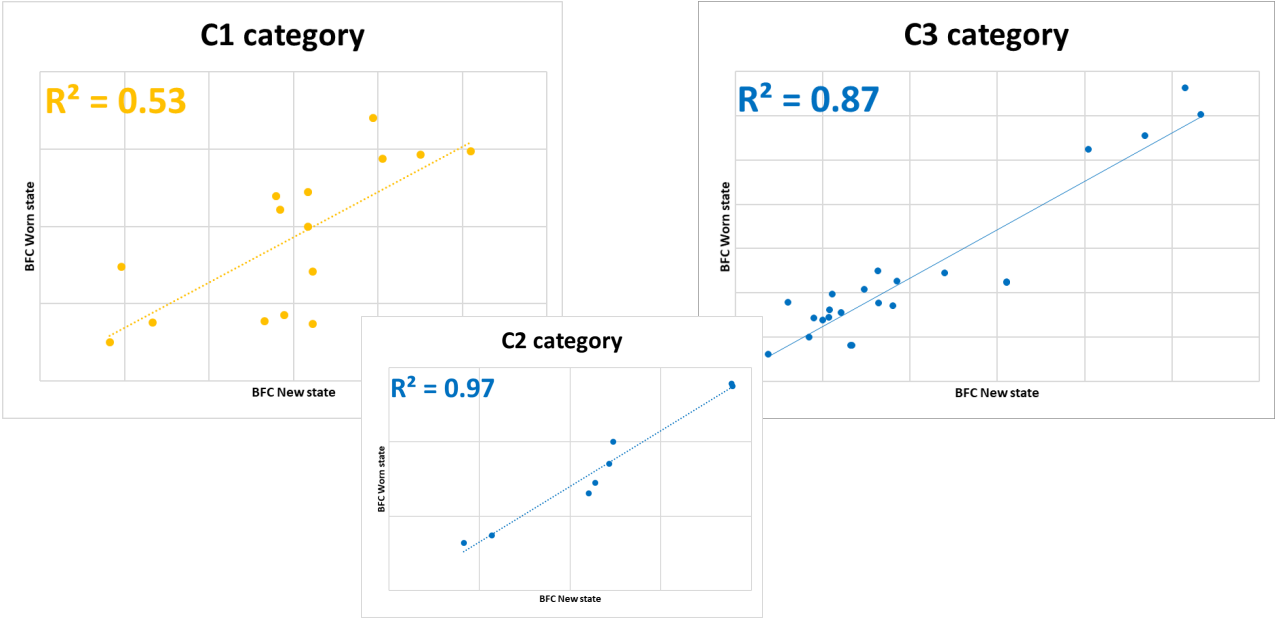
1. Tyre Industry preliminary assessment presented to GRBP 73rd session

a. Comparison of average wet grip performance drop C1 (ref GRB-69-08), C2 and C3 (*)



The wet grip performance drop for C2 and C3 is significantly lower than for C1

b. Comparison of New / Worn ranking assessment for C1 (GRB-69-08, C2 and C3



The correlation factor R² for C2 and C3 is significantly higher than for C1 → strong wet grip performance correlation between new and worn stage

1. Tyre Industry preliminary assessment presented to GRBP 73rd session

- The Wet Grip performance drop over tyre service life for C2 and C3 is significantly lower than for C1
- No significant differences in Wet Grip performance ranking, between New and Worn state, for both C2 and C3 tyres (as found for C1 tyres)

The Wet grip performance in new state of both C2 and C3 tyres is representative of the wet grip performance in worn state.

2. EU Tyre Industry additional C2 wet grip on worn tyre test campaign

To **enrich** the preliminary assesment presented to GRBP 73rd session, EU Tyre Industry performed additional tests with C2 tyres in order to confirm the preliminary assessment presented to GRBP.

Description:	Size cluster:	Tire Size:	Company A	Company B	Company C	Company D	Company E	Company F	Company G
Summer	Large	235/65R16C 121/119	premium	premium				premium	
		235/65R16C 115/113			mid tier		mid tier		
		225/65R16C 112/110T							South East Asia
		225/70R15 112/110				premium			
	205/65R16C	premium	South East Asia						
	Small	195/60R16C 99/97H			premium			premium	premium
		195R14C 106S			South East Asia	premium			
		165/70R14C 89/87R		premium			mid tier		
175/65R14C 90/88T					premium	mid tier			
AS M+S	Large	235/65R16C 121/119		premium				premium	
	Small	265/75R15 113T			premium				
AS 3PMSF	Large	235/65R16C 115/113					mid tier		premium
		205/65R16C	premium			premium			
	Small	195/60R16C 99/97H		premium	premium				
		195/75R16C 107/105 R				South East Asia			premium
		175/65R14 90/88T							premium
195/60R16C 99/97H				premium					
Mid EU Winter	Large	235/65R16C 115/113					mid tier	mid tier	premium
		205/65R16C	premium						
		225/65R16C 112/110						South East Asia	premium
	225/75R16C 121/120			premium					
Small	165/70R14C 89/87R		premium						
	175/65R14 90/88T					mid tier			
Nordic Stud Winter	Large	235/65R16C 121/119		premium				premium	
		205/65R16C 107/105						premium	
	Small	175/65R14C 90/88T				premium			
Worn SRTT			premium	premium					

- premium
- mid tier
- Tier 3
- South East Asia

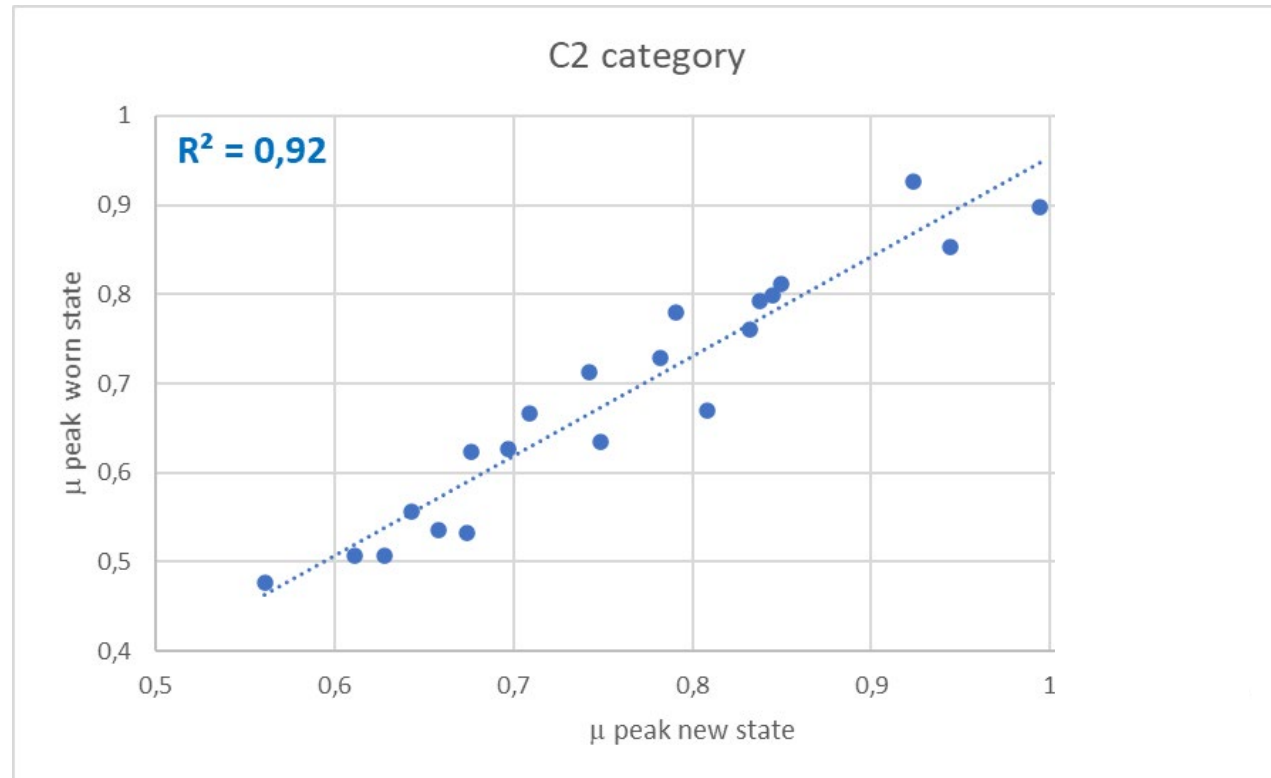
2. EU Tyre Industry additional C2 wet grip on worn tyre test results

Preliminary results based on 21 additional C2 tests

Average drop of performance between wet adhesion (μ peak) in new state and in Worn state: **-10,3%**

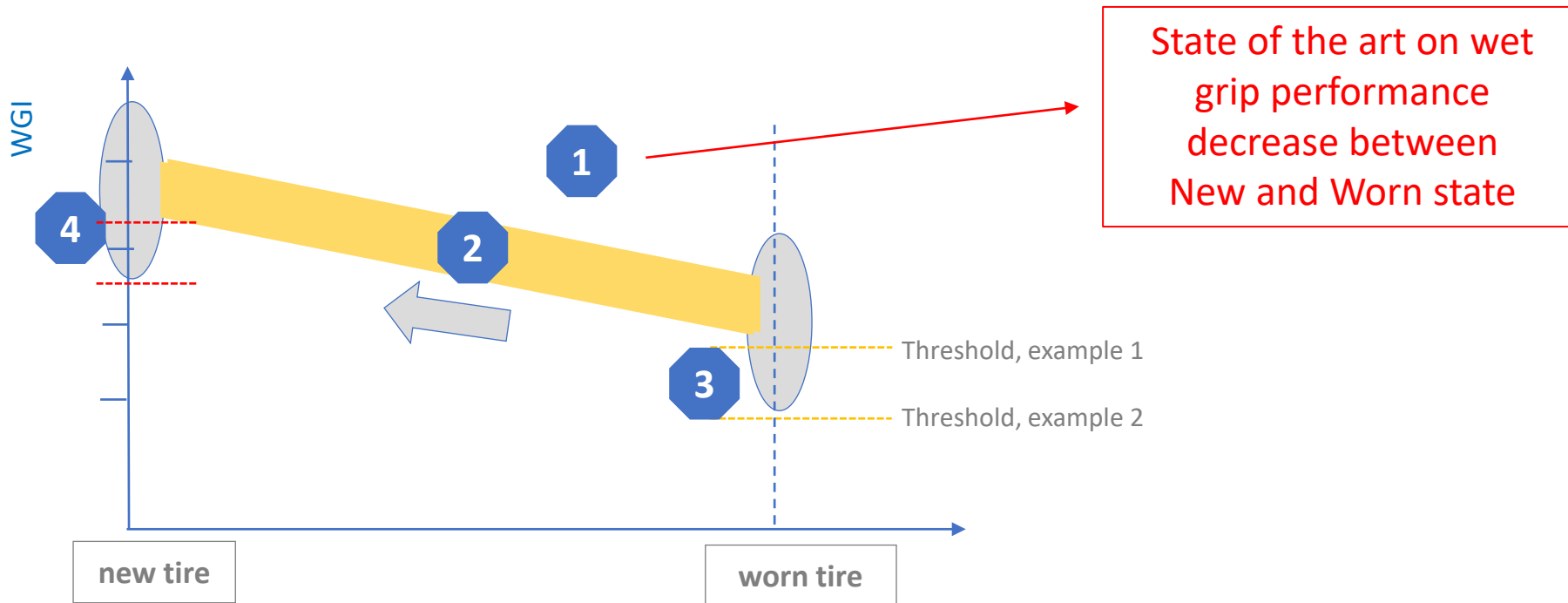
Correlation factor: **$R^2: 0,92$**

EU Tyre Industry additional results confirm the preliminary assessment presented to GRBP 73rd session



3. Concept for Wet Grip on Worn tyre evaluation for C2 and C3

Defining the threshold of a tyre in worn state based on a tyre test in new state



State of the art on wet grip performance decrease between New and Worn state

1. Make a state of the art for a representative number and types of tyres for their Wet Grip performance in both worn state and in new state.
2. Based on point 1, build a model of the performance decrease (state of art of performance decrease).
3. Define acceptable thresholds for Wet Grip of worn tyres based on point 2.
4. Starting from the new thresholds for worn tyres and using the average performance loss from point 2, define adapted thresholds for new tyres.

4. Conclusions and benefits of the IWG WGWT Concept proposal for C2 and C3

- This proposal is based on the already presented specificity of C2/C3 tyres category, for which wet grip performance decrease behaviour between new and worn states is different than for C1. **Additional Tyre Industry data (C2 tyres) is confirming the preliminary assessment presented to GRBP (GRBP-73-22).**
- The concept proposal for C2 and C3 maximizes the efficiency of the regulatory ambition:
 - **By providing an answer to the need to assess the wet grip performance for C2 and C3 tyres at worn state.**
 - **Without adding unnecessary testing and without added value.**
- The regulatory evolution should take into account the new and the worn conditions.
- **European Commission is performing a study on C2 and C3 tyres. The outcome of this study will be considered in the proposal made to GRBP on wet grip on C2 and C3 worn tyre requirements.**

Thank you