

**SWISS-POLISH**  
Cooperation Programme



**NCBR**  
National Centre for Research  
and Development

# ECOLABEL

## Kick-off Seminar



++G+P  
ENGINEERS





# Chapter 1 – Preface

Welcome and opening remarks

# Welcome to all participants



## ONLINE

37 participants



### Research & Academia

- Luc Goubert
- Truls Berge
- Beata Świczko-Żurek
- Michał Wasilczuk
- Mariusz Deja
- Gerardo Gravante
- Janusz Bohatkiewicz



- Sławomir Sommer
- Grzegorz Ronowski
- Wojciech Owczarzak
- Marek Motylewicz
- Ulf Sandberg
- Aleksandra Ziębińska





### Public Authorities & Road Agencies

- Renez Nota
- Thomas Asp
- Michael Strickler
- Cécile Nussbaumer
- Christian Brunner
- Philipp Cohrs
- Barbara Vanhooreweder



- Peter Wilbers
- Mirosław Musiel
- Izabela Wójcikowska
- Magdalena Kawończyk
- Laura Peruzzi
- Beata Grzelczak
- Joanna Pach





### Industry & Technical Experts

- Bert Peeters
- Tim Alte-Teigeler
- Claudio Scanziani Barranco
- Tomasz Gawlas
- Łukasz Świątek
- Sonia Alves





### Funding & Programme Bodies

- Virginija Šimkūnaitė
- Anita Lasocka






### Associations & Civil Society


- Sam Lanners
- Gabriela Suter






## ON-SITE


22 participants



### Research & Academia


- Piotr Mioduszewski
- Jerzy Ejsmont






### Funding & Programme Bodies


- Raphaela Kübler






### Associations & Civil Society


- Gregory Germann
- Sascha Grunder






### Public Authorities & Road Agencies


- Mario Gabriel
- Daniel Fischlewitz
- Christoph Kirsch
- Andreas Stoecklin
- Dominique Schneuwly
- Urs Waldner
- Gianni Fasciati





### Industry & Technical Experts

- Felix Schlatter
- Erik Bühlmann
- Dominic Stickle
- Thomas Singer
- Tina Saurer
- Maciej Hatucha
- Stefanie Conrad
- Barbara Locher
- Manuel Kunz
- Thomas Boss





# Objectives of the Kick-off Seminar

By the end of today, we will have:

1

## Aligned on why ECOLABEL matters

A shared vision for a credible tyre label that connects real-world noise, rolling resistance, safety and consumer trust.

2

## Translated evidence into a robust method

STEER and ELANORE insights turned into ECOLABEL's indoor testing, reference-surface and labelling roadmap.

3

## Mobilised the path to implementation

Stakeholder priorities, roles and next steps clarified from research to market uptake and policy impact.

Today's focus

**from realistic  
testing  
to reliable labels  
to useful policy**

Energy • Noise • Trust

# Welcome from the project consortium and organizers

## Speakers:



**Erik Bühlmann** - Head of Business Development, Team Leader of Research and Development, expert in tyre-road noise, *Grolimund + Partner AG*, Kick-off Seminar Organizer, **Work Package Leader in ECOLABEL Project**

**Piotr Mioduszewski**, Scientist and Researcher, Associate Professor at *Gdańsk University of Technology*, Academic Teacher, expert in tyre-road noise, **ECOLABEL Project Coordinator, Principal Investigator**



# Welcome from the project consortium and organizers

## Speakers:



**Jerzy Ejsmont** – Scientist and Researcher, Professor at *Gdańsk University of Technology*, expert in rolling resistance and tyre-road noise, **Work Package Leader in ECOLABEL Project**

**Maciej Hałucha** – Project Director, Procurement Holder, acoustics researcher, expert in road traffic noise, works at *EKKOM Sp. z o.o.*, **Work Package Leader in ECOLABEL Project**



**Felix Schlatter** – Team Member of Research and Development, expert in tyre-road noise, *Grolimund + Partner AG*, Kick-off Seminar Organizer, **Key Researcher in ECOLABEL Project**

# Welcome from Innosuisse

## Speaker:



**Raphaela Kübler** – Project Manager  
“Polish-Swiss Applied Research Cooperation”,  
Innosuisse – Swiss Innovation Agency,  
Advisory Networks and Strategy

# Welcome from the Swiss Contribution Office

## Speaker:

**Virginija Šimkūnaitė**

– National Programme Officer  
at the Swiss Contribution Office,  
Embassy of Switzerland in Poland



# Welcome from the host region

## Speaker:

**Dominik Studer** - Chief Engineer, Canton of Aargau,  
President of the Conference of Cantonal Engineers (KIK)





DEPARTEMENT  
BAU, VERKEHR UND UMWELT

# Welcome address Kick-off seminar ECOLABEL

**Dominik Studer**  
**Chief Engineer, Canton of Aargau**

12. Mai 2026

## **Welcome from the host region**

- > Canton of Aargau as host. Where innovation meets infrastructure.
- > Welcome to the ECOLABEL kick-off seminar



## Why it matters

- > Public authorities need realistic evidence



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra



2019 rolling resistance measurements on Swiss and Canton of Aargau pavements by G+P and Gdansk University of Technology.

## Why it matters

- > Public authorities need realistic evidence



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra



48 test runs and 18 tyre changes to evaluate the noise reduction potential of quiet tyres on Swiss and Aargau cantonal pavements in 2017.

## Aargau turns knowledge into impact

- > Applied research, digital innovation and multilingual knowledge sharing

The screenshot shows a website interface for 'Leise Strassen' (Silent Roads). The header is blue with the title 'Leise Strassen' and a search bar containing 'Suchen'. Below the header, the page is titled 'Bücher' (Books). There are three book cards, each with a photo of a road surface and text in three languages: German, English, and French. The German text describes the benefits of semi-dense asphalt (SDA) based on 10 years of experience. The English text states that road traffic is a significant noise source in Switzerland and that SDA is an effective noise-reducing measure. The French text notes that road traffic is the main noise source in Switzerland and that SDA is one of the most effective measures to reduce noise at the source. A 'Sortieren' (Sort) dropdown menu is visible above the cards, currently set to 'Name'.

**Leise Strassen**

**Bücher** Sortieren

**Leise Strassenbeläge - semi-dichte Asphalte (SDA)**  
Über 10 Jahre Erfahrung in Planung, Umsetzung & Unterhalt: Strassenverkehr ist die bedeutendste Lärmquelle in der Schweiz. Über eine Million Menschen sind gesundheitsrelevant betroffen. Lärm-mindernde Beläge, insbesondere semi-dichte Asphalte (SDA), sind eine der wirksamsten Massnahmen, um Lärm direkt an der Quelle zu reduzieren – flächendeckend und dauerhaft. Der

**Low-noise road surfaces – semi-dense asphalt (SDA)**  
Over 10 years of experience in planning, implementation & maintenance: Road traffic is the most significant source of noise in Switzerland, affecting the health of over a million people. Noise-reducing surfaces, especially semi-dense asphalts (SDA), are one of the most effective measures to reduce noise directly at the source – comprehensively and protractedly. The use of quiet road

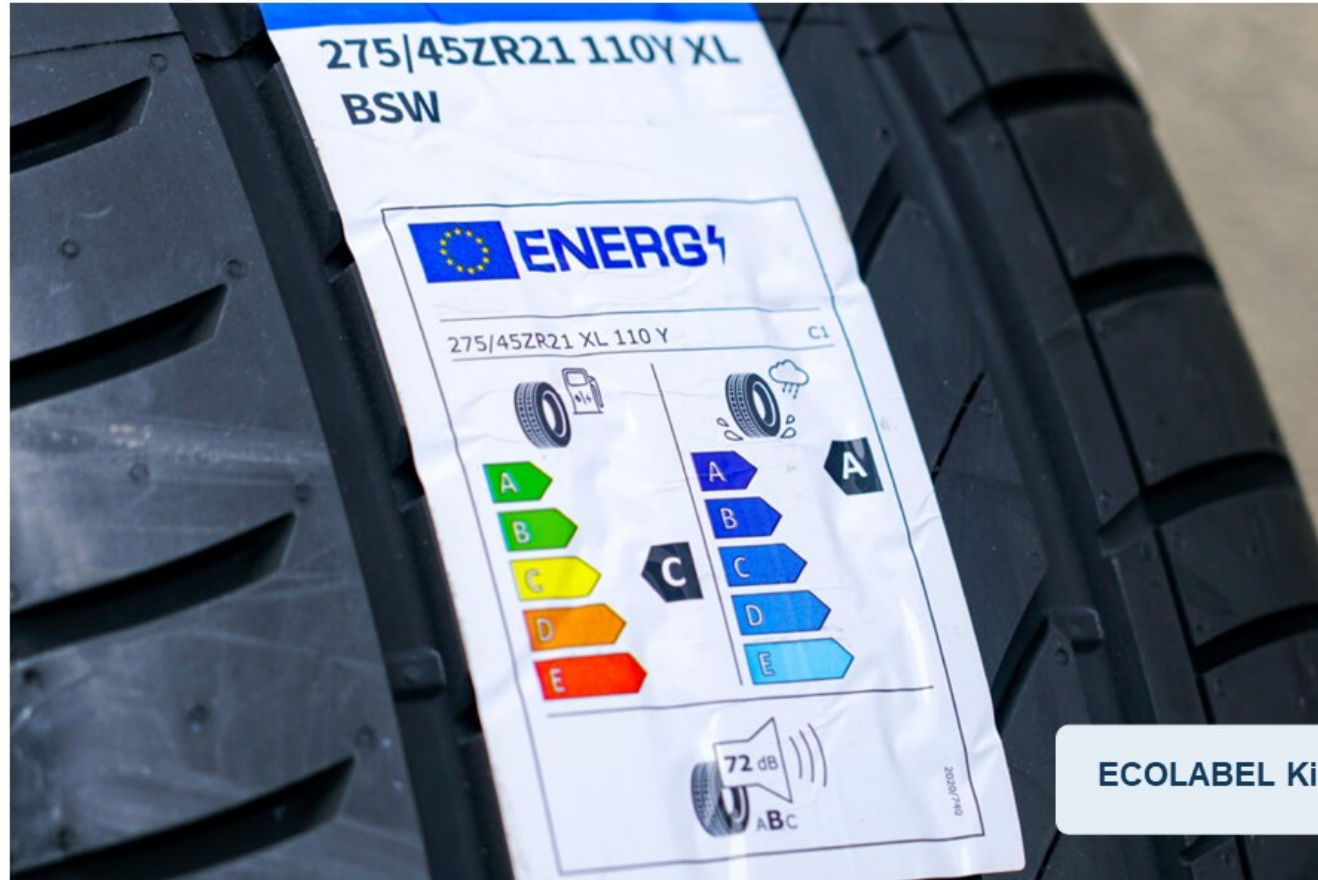
**Revêtements routiers silencieux - asphaltes semi-denses (SDA)**  
Plus de 10 ans d'expérience en planification, mise en œuvre & entretien: Le trafic routier est la principale source de bruit en Suisse. Plus d'un million de personnes sont affectées sur le plan de la santé. Les revêtements réduisant le bruit, en particulier les asphaltes semi-denses (SDA), sont l'une des mesures les plus efficaces pour réduire le bruit directement à la source – de manière étendue et



[silentroads.ch](https://www.silentroads.ch)

## From realistic testing to useful policy

- > Launching a project for a reliable and real world tyre label



ECOLABEL Kick-off



# Chapter 2 – Introduction

Why ECOLABEL now?

# What is the tyre label?

Tyre labels were introduced in 2012, providing clear and relevant information about the quality of the tyres regarding to 3 parameters:

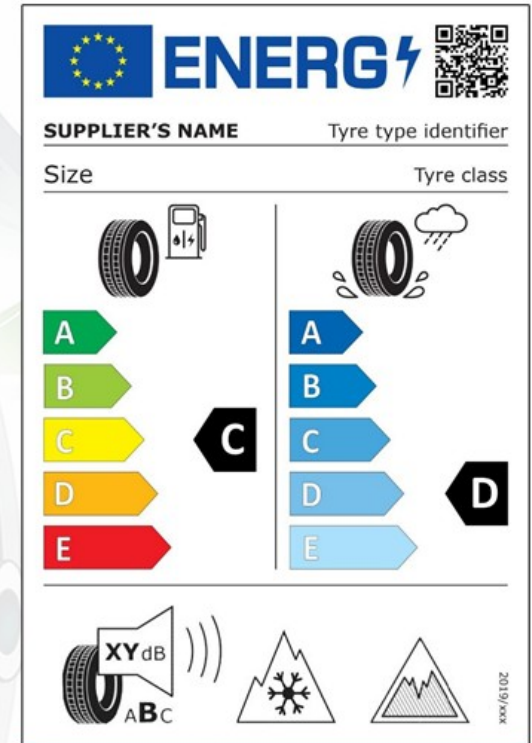
- **fuel efficiency** (rolling resistance) – affecting *Environmental Protection*,
- **wet grip** (breaking distance, handling) – affecting *Safety*,
- **external rolling noise** – affecting *Health Protection*.

*Labelling obligation only applied to passenger car (C1) and van (C2) tyres.*

Since 2021 tyre labels include also options showing if the tyres are suitable for use:

- in severe snow conditions (*Snow Grip Marking*),
- in extreme climatic situations (*Ice Grip Marking*).

*The obligation of labelling was extended to cover bus and truck tyres (C3).*



# Why is the tyre label important?

## Consumer perspective

- Because it **turns several hidden tyre properties into clear, comparable information** before purchase. I don't have to be a tyre expert to be able to compare different tyres that look similar or the same.
- **Makes the tyre market more transparent.** Without it, consumers would compare tyres mainly by price, brand, advertising, unproven reviews, opinions, rumors...
- One **can easily see** whether a cheaper tyre may cost more fuel or provide shorter driving range, might be worse in wet braking, less safe, might be noisier...
- Because I **care about the environment** and I will be able to choose a tyre that can reduce energy consumption, CO<sub>2</sub> emissions, and traffic noise exposure.
- Finally, because I will **feel good, satisfied**, when I can make an **informed purchasing decision** when I have to buy new tyres for my car.



# Why is the tyre label important?

## Tyre and vehicle industry perspective

- **Creates a „common market language” between manufacturers, retailers, consumers and regulators.** The label provides a standardized way for presenting tyre performance parameters.
- **Supports regulatory compliance and market access.** Manufacturers need reliable test procedures and documented performance values to place their products on the market.
- **Drives innovation.** The label encourages industry investment in tread design, rubber compounds, tyre structure, and manufacturing technologies that improve energy efficiency, safety, and noise performance. Label can be used to demonstrate technological advantage of the tyres.
- **Improves transparency and trust.** A credible labels helps protect serious manufacturers from unclear marketing claims and unfair competition. It allows companies to compete on verified performance, not only on price or brand image.
- **Helps to align their products with environmental and mobility trends.** Lower rolling resistance supports CO<sub>2</sub> reduction and electric vehicle range, while lower tyre/road noise supports noise reduction policies.



# Why is the tyre label important?

## Environmental perspective

- **Helps to reduce energy consumption and CO<sub>2</sub> emissions.**  
Tyres with lower rolling resistance require less energy to move the vehicle. This can reduce fuel and electricity consumption in vehicles.
- **Helps to lower traffic noise exposure.**  
Quieter tyres can help reduce environmental noise, especially in urban areas and along busy roads.
- **Creates market pressure for cleaner and quieter technologies.**  
When tyre labelled performance becomes visible and comparable, manufacturers have stronger incentives to develop tyres that are more energy-efficient, quieter, and safer.



# Why is the tyre label important?

## Societal perspective

- **Helps to improve quality of life.**  
Reducing tyre/road noise can improve comfort, sleep quality, and overall well-being of people living, working, or studying close to roads.
- **Helps to promote safer mobility.**  
The wet grip class supports road safety by informing users about braking performance on wet roads. Better-informed tyre choices can contribute to fewer accidents.
- **Helps to encourage responsible consumption.**  
The label helps society move away from decisions based only on price.



# Why is the tyre label important?

## Road owners perspective

- **Can help to reduce traffic noise.**  
Quieter tyres can lower tyre/road noise at the source, which is especially relevant on roads where noise barriers, façade insulation, or pavement replacement are expensive or difficult to implement.
- **Can support noise action plans and environmental obligations.**  
Road owners are often responsible for managing noise exposure near major roads. Incentives for the use of quieter tyres can help reduce the environmental impact of noise.
- **Can help leverage the effect of quiet road surfaces.**  
Better tyre information resulting in choosing quieter tyres increases effectiveness and benefit of a low-noise surface as a noise reduction measure.
- **Can help to reduce complaints and improve public acceptance of road traffic.**  
The informed decisions to purchase quieter tyres will result in improved quality of life for residents living near roads.



# What are the main expectations for tyre labels?

## Consumers:

- Labels should help buyers **easily compare tyres** in terms of safety, energy efficiency, noise and price-performance balance.
- Labels should be **simple, logical, understandable and trustworthy**, so they can make an informed purchase instead of relying only on brand, price or advertising.



# What are the main expectations for tyre labels?

## Tyre and vehicle industry:

- Labels should provide a **fair, standardized and repeatable framework** for demonstrating tyre performance.
- Label should **better reflect real-world performance**, which can help industry develop tyres that perform well not only in certification tests, but also in actual use.
- Testing **methodology should be reliable, cost-effective, representative and not misleading.**

Labelling influence not only testing costs but also development strategy because the label values affect market position.



# What are the main expectations for tyre labels?

## Concluding:

Tyre labels should provide:

- clear,
- reliable,
- practically useful

information about tyre performance, so that different stakeholders can make better decisions.

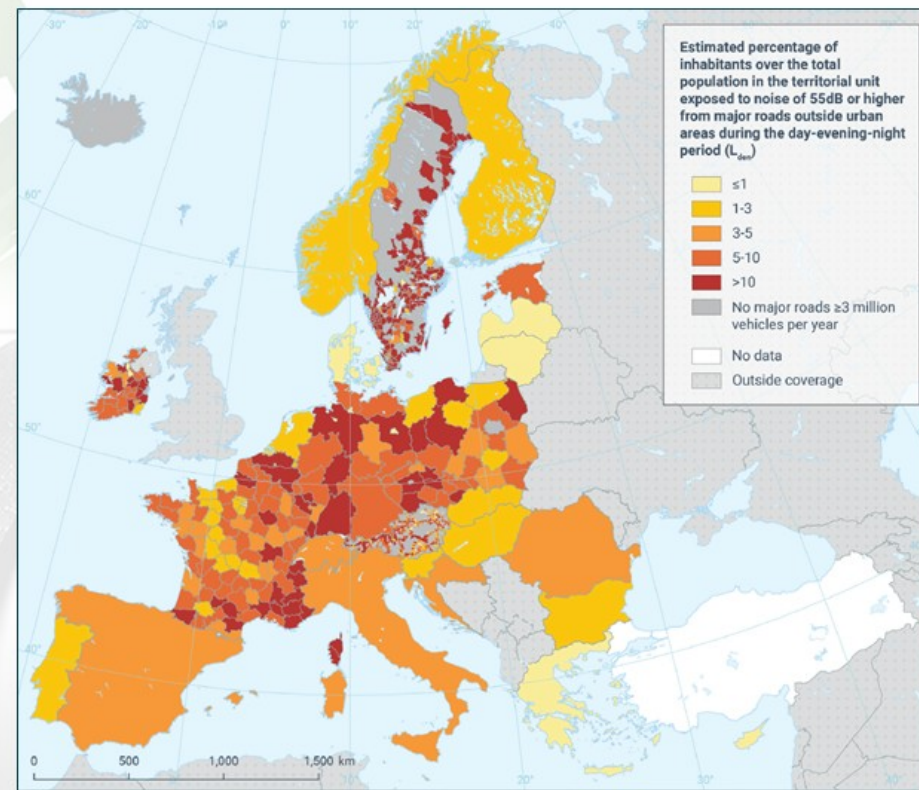
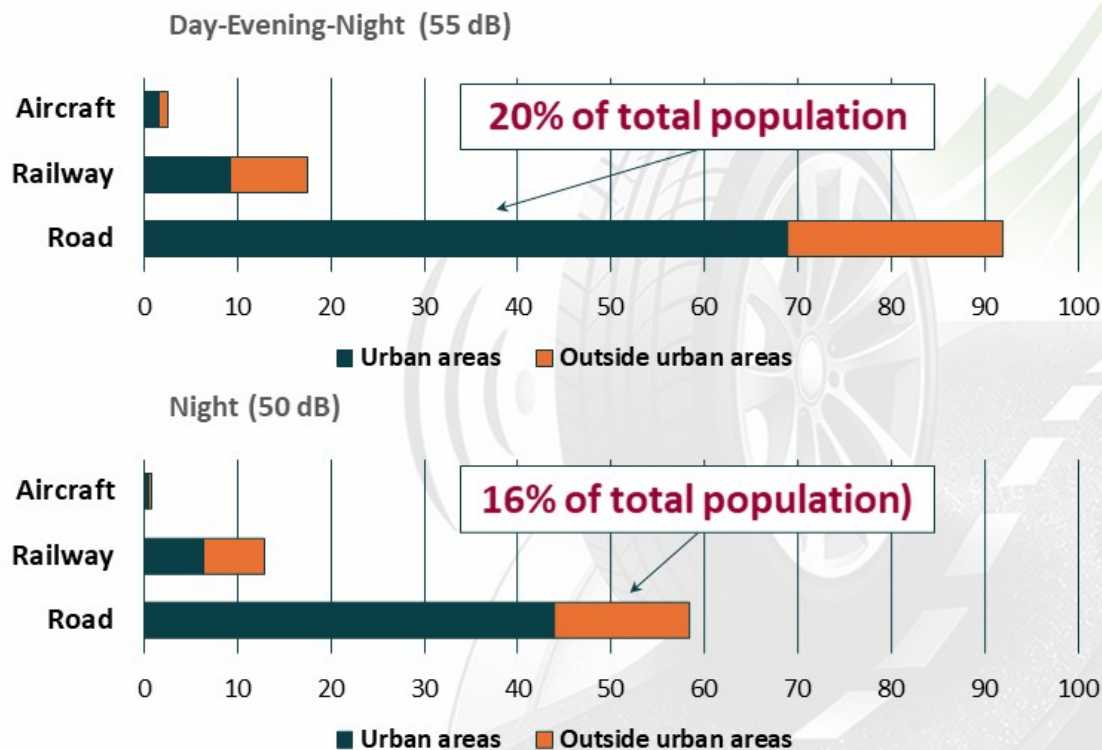




## Chapter 3

# Environmental benefits of low-noise and low-rolling resistance car tyres

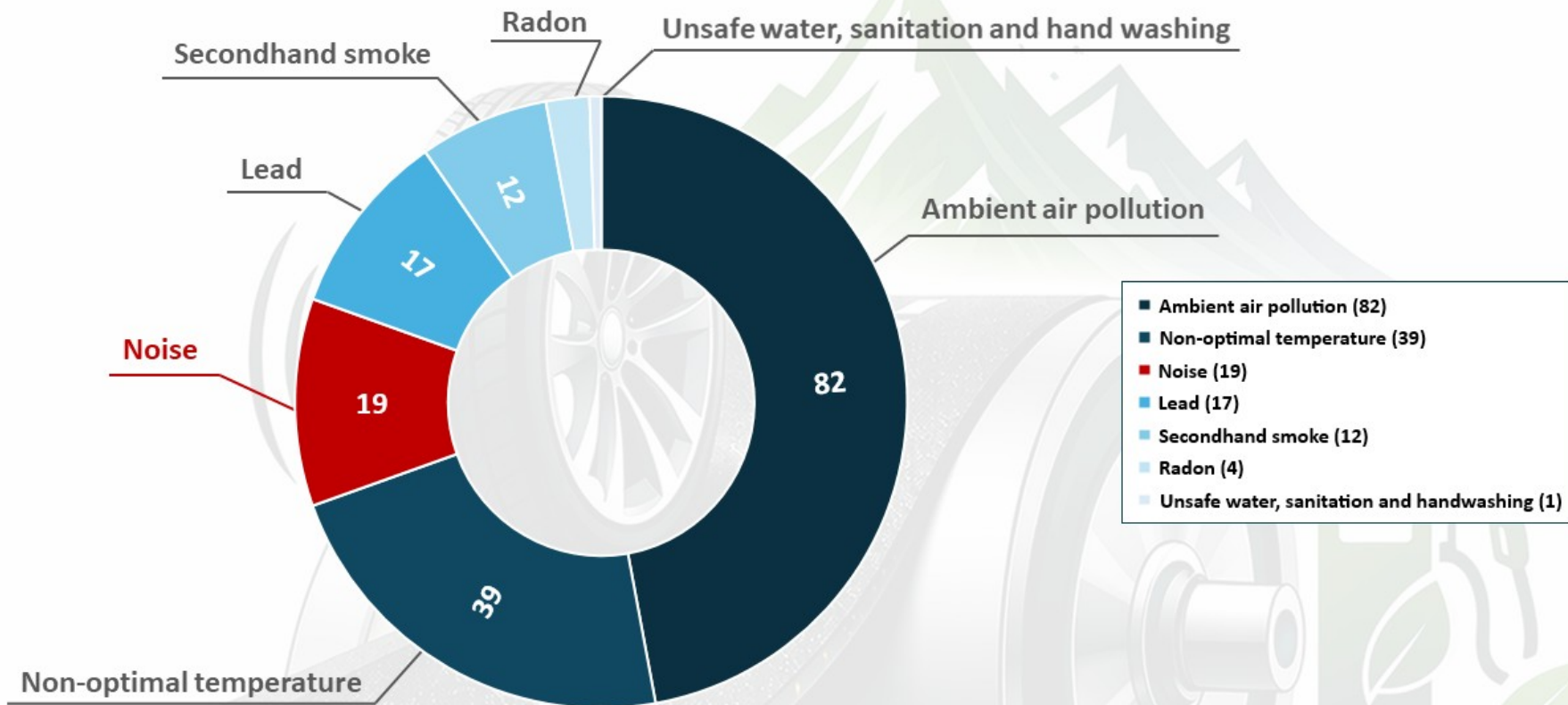
# Population exposed to noise in Europe



1. European Environment Agency. Environmental noise in Europe 2025. EEA Report 05/2025, Copenhagen (2026), DOI: 10.2800/5134480

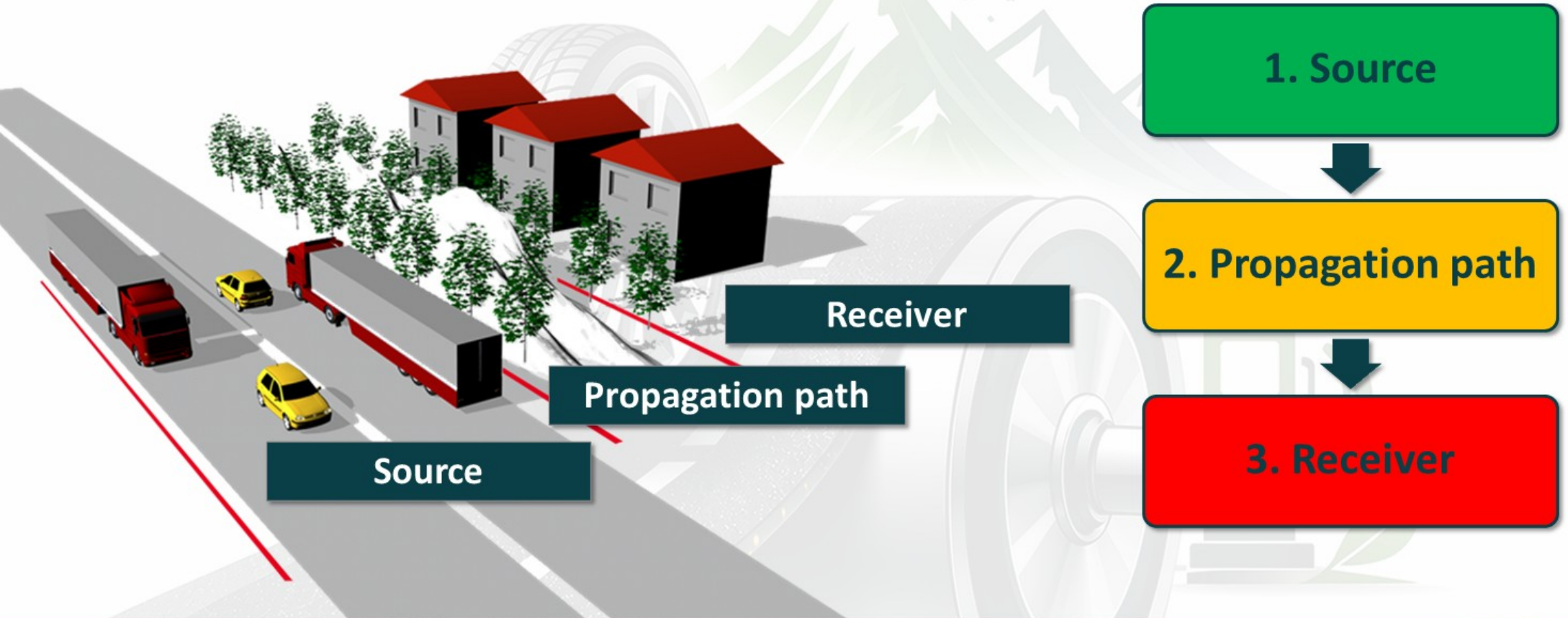
2. Engemann, N., Blanes Guàrdia, N., Fons-Estève, J., Vienneau, D., Peris E., Röösli M. Environmental noise health risk assessment: methodology for assessing health risks using data reported under the Environmental Noise Directive (Eionet Report – ETC HE 2023/11, version 3). European Topic Centre on Human health and the environment (2023), DOI: 10.5281/zenodo.15641306

# The premature deaths per 100,000 inhabitants

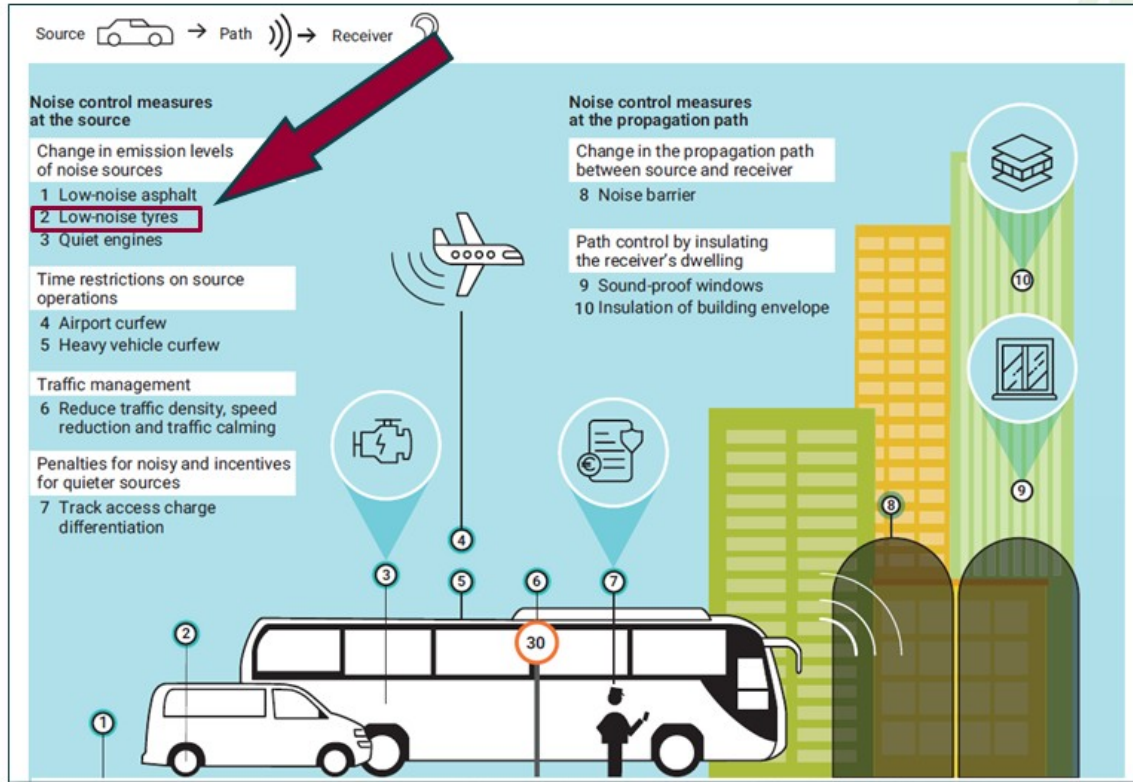


1. European Environment Agency. Environmental noise in Europe 2025. EEA Report 05/2025, Copenhagen (2026), DOI: 10.2800/5134480
2. Institute for Health Metrics and Evaluation. GBD Results. Institute for Health Metrics and Evaluation (2021), <https://vizhub.healthdata.org/gbd-results>
3. European Environment Agency. EEA geospatial data catalogue, Burden of disease of air pollution (Countries, NUTS regions and cities) (2024)

# Areas where noise-reduction measures are used



# Actions taken at the EU level to reduce noise



## Low-noise tyres

### 7.3.5 Tyre noise labelling

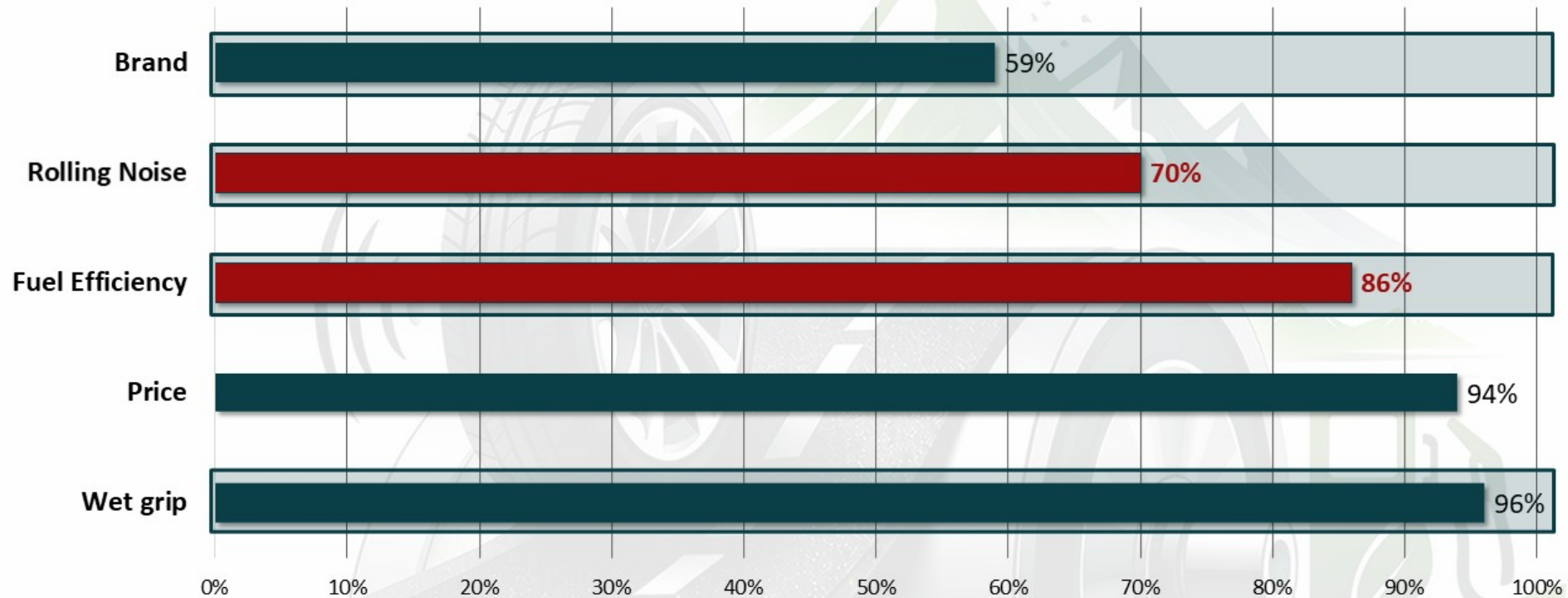
The EU introduced tyre noise labelling under Regulation (EU) 2020/740 (EU, 2020b) to provide consumers with information about tyre noise performance, alongside fuel efficiency and wet grip. The label indicates external rolling noise in dB and classifies tyres into three categories: low, medium, or high noise.

This system aims to help consumers make informed choices while encouraging manufacturers to develop quieter tyres.

Data on labels must be **reliable** to make the system **effective**

1. European Environment Agency. *Environmental noise in Europe 2025*. EEA Report 05/2025, Copenhagen (2026), DOI: 10.2800/5134480
2. European Environment Agency. *Environmental noise in Europe 2020*. EEA Report 22/2019, Copenhagen (2020), DOI: 10.2800/686249

# Drivers' criteria for choosing tyres

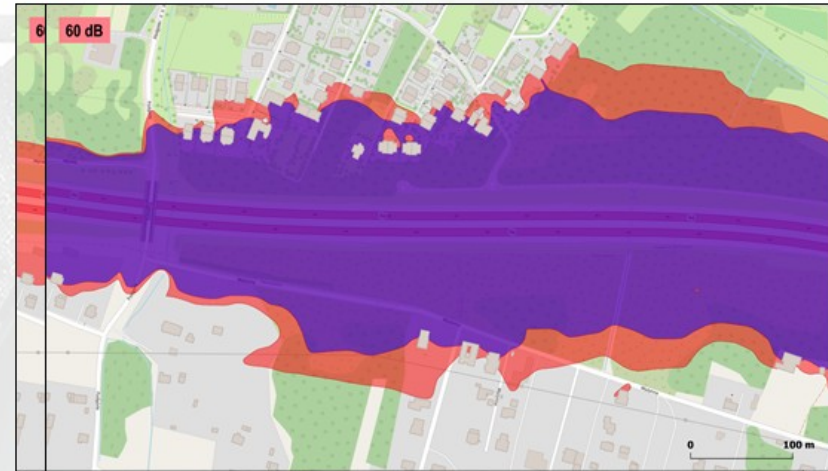
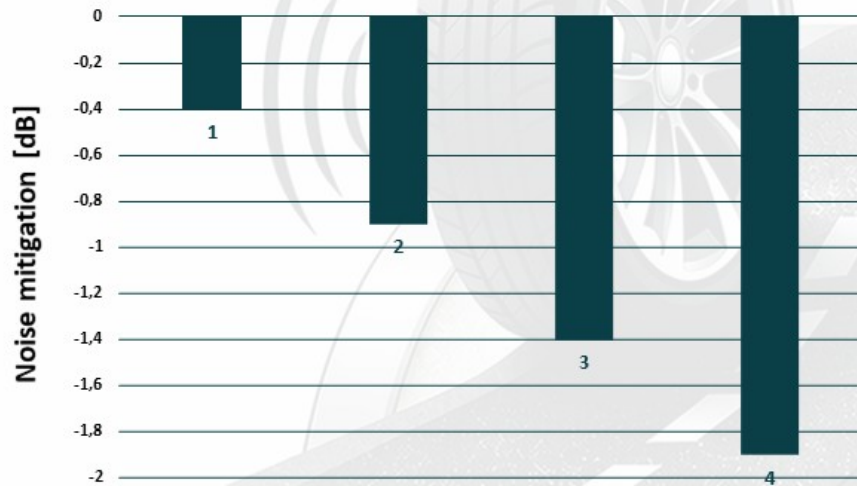


1. Viegand Maagøe: Final Report—Review study on the Regulation (EC) No 1222 / 2009 on the labelling of tyres. Prepared by Viegand Maagøe A / S 1–152, Copenhagen, Denmark (2016)

2. Bühlmann E., Sandberg U., Berge T., Goubert L., Schlatter F.: Call 2018 Noise and Nuisance STEER Project Final Report. CEDR Contractor Report 2022-07 (2022)

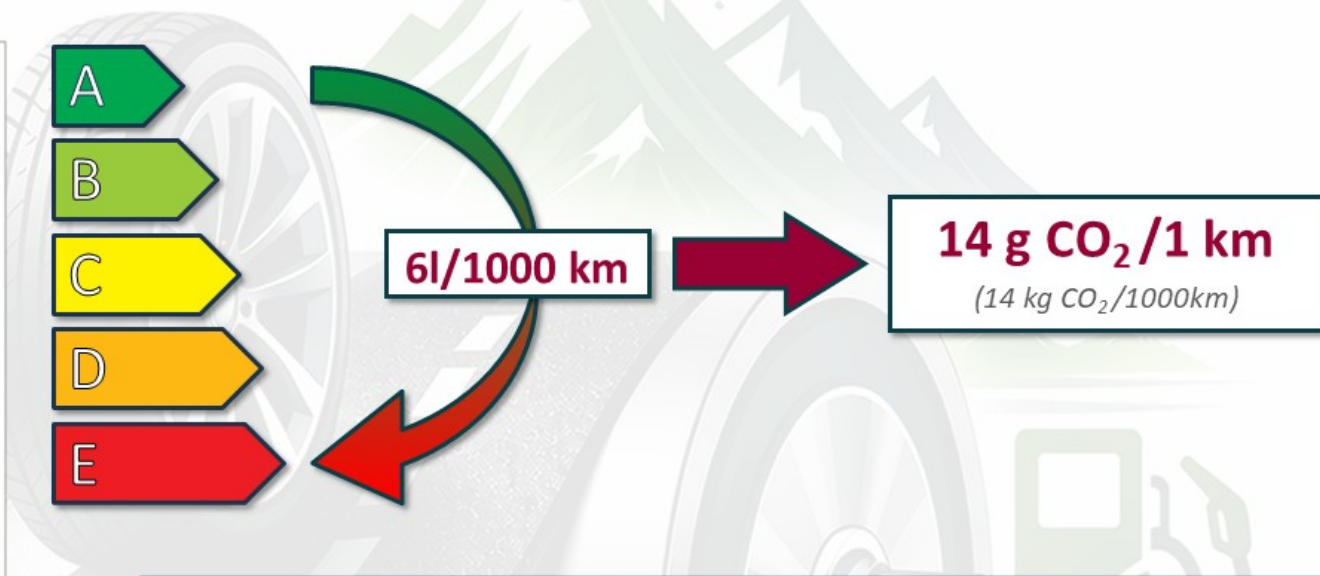
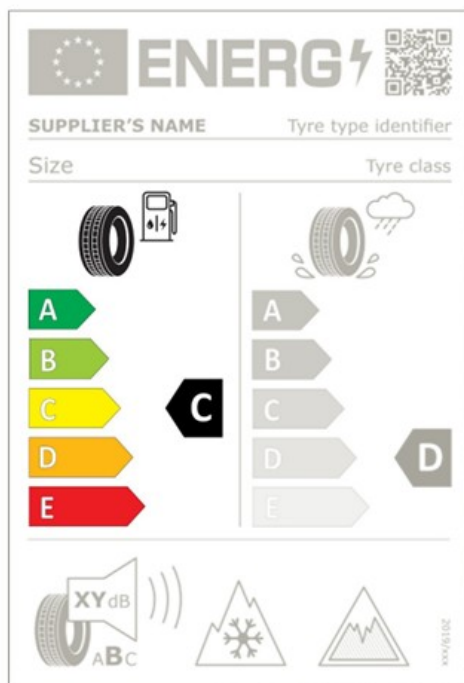
# The influence of quiet tyres on noise mitigation

1. Removal from the market of the noisiest tyres with sound levels above the limits
2. Removal from the market of the noisiest tyres with sound levels equal to and above the limits
3. Additional promotion of the use of quiet tyres by consumers (sustainable)
4. Additional promotion of the use of quiet tyres by consumers (optimistic)



1. Bohatkiewicz J., Hałucha M. et al. (2024), Impact of the new tyre labelling method on the analyses of environmental noise in the vicinity of a road. Technical Report TR19-ELANORE-EKKOM-01, <https://elanore.mech.pg.gda.pl/en/documents/open-documents>
2. Hałucha M., Bohatkiewicz J., Mioduszewski P., Berge T. Tyre Labelled Noise Values in the Context of Environmental Protection: Weaknesses of the Method and Benefits of Silent Tyres. Archives of Acoustics, Vol. 50, No. 1, pp 47-58 (2025). DOI:10.24425/aaa.2025.153651

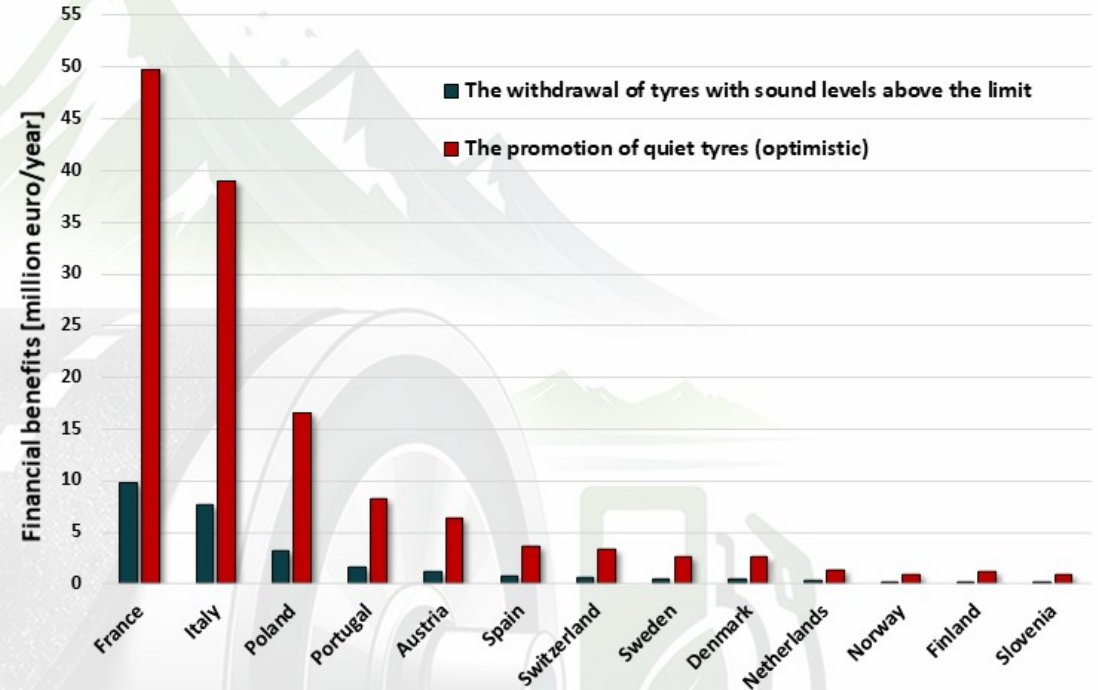
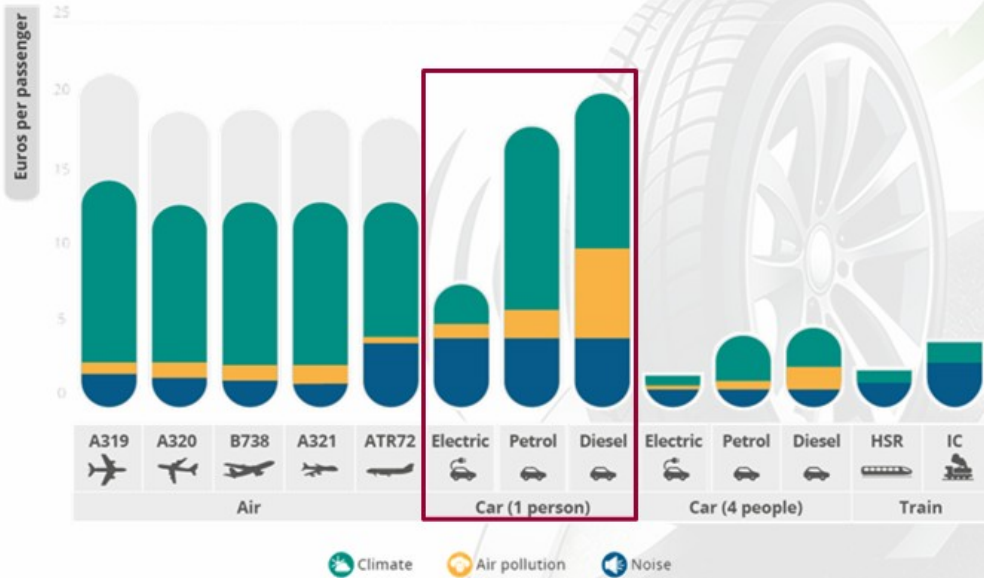
# The influence of low rolling-resistance tyres on air pollution



Reducing tyre rolling resistance by **8%** reduces exhaust emissions equivalent to those from **65,000 cars**

<https://www.nokiantyres.com> – access: 30.04.2026

# The financial benefits of using low-noise tyres



<https://www.eea.europa.eu/en/analysis/maps-and-charts/what-are-the-emission-costs> - access: 24.04.2026

- Bohatkiewicz J., Hałucha M. et al. (2024), Impact of the new tyre labelling method on the analyses of environmental noise in the vicinity of a road. Technical Report TR19-ELANORE-EKKOM-01, <https://elanore.mech.pg.gda.pl/en/documents/open-documents>
- Hałucha M., Bohatkiewicz J., Mioduszewski P., Berge T. Tyre Labelled Noise Values in the Context of Environmental Protection: Weaknesses of the Method and Benefits of Silent Tyres. Archives of Acoustics, Vol. 50, No. 1, pp 47-58 (2025). DOI:10.24425/aaa.2025.153651





## Chapter 4

**How tyres are labelled now?  
What says UNECE Regulation No 117**

# Reg. 117 external noise measuring procedure

The **controlled vehicle coast-by method** is used. Test speed is **80 km/h**.

Road surface is a **smooth dense asphalt concrete** specified in ISO 10844.

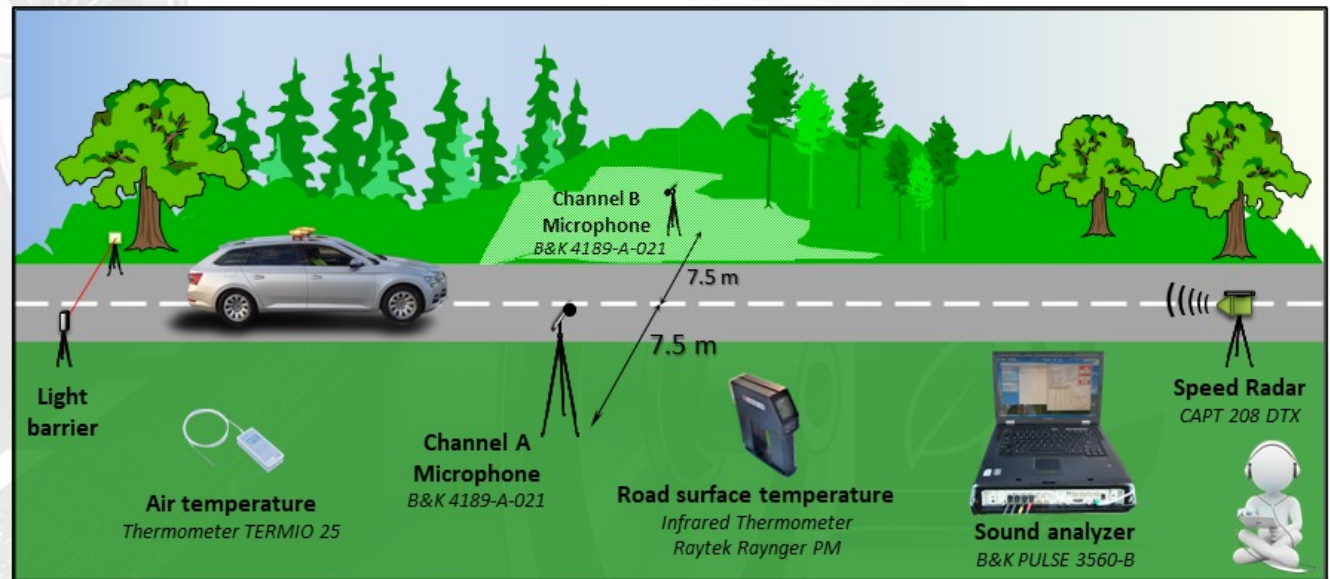
**Tyre load** and inflation pressure are determined by tyre load **capacity index**.

Test results are **corrected for road surface temperature** to the reference temperature of **+20 °C**.

Obtained values are reduced by 1 dB to take into account possible measuring instrument inaccuracies.

The final result is rounded down to the nearest lower integer.

The resulting external rolling noise label value in dB **is assigned to the entire line of a tested tyre**.



# Reg. 117 rolling resistance measuring procedure

The **laboratory drum method** is used. Test speed is 80 km/h.

Drum surface is **smooth steel**.

**Tyre load** and **inflation pressure** are determined by its load capacity index. Tyre is tested with **capped air**.

Rolling resistance is measured using one of the **4 permitted methods**: force, torque, power or deceleration.

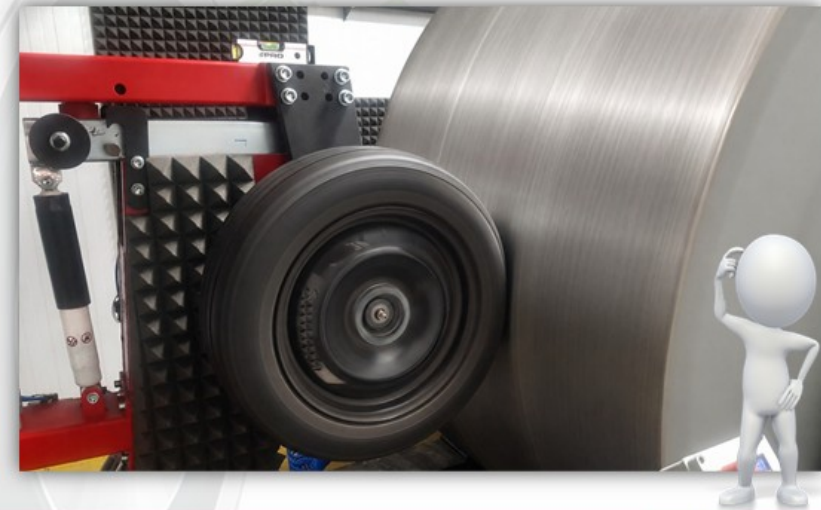
The measured value is **processed to obtain the rolling resistance force** of the tyre.

The **rolling resistance coefficient (RRC)** is calculated by **dividing rolling resistance force by tyre load**.

The obtained RRC is **corrected for air temperature** to the reference temperature of **+25 °C**.

It is then **corrected** to the reference **drum diameter of 2 m**.

The final RRC value is used to assign the fuel/energy efficiency class **to all tyres of the type represented by the tested tyre**.





## Chapter 5

Findings of predecessor projects:  
what STEER and ELANORE revealed



## Chapter 5.1

# Findings from STEER Project Tyre external noise

# STEER Project (2019-2022)

Strengthening the Effect of quieter tyres on European Roads

**vti**

 **SINTEF**

**nokian<sup>®</sup>  
TYRES**

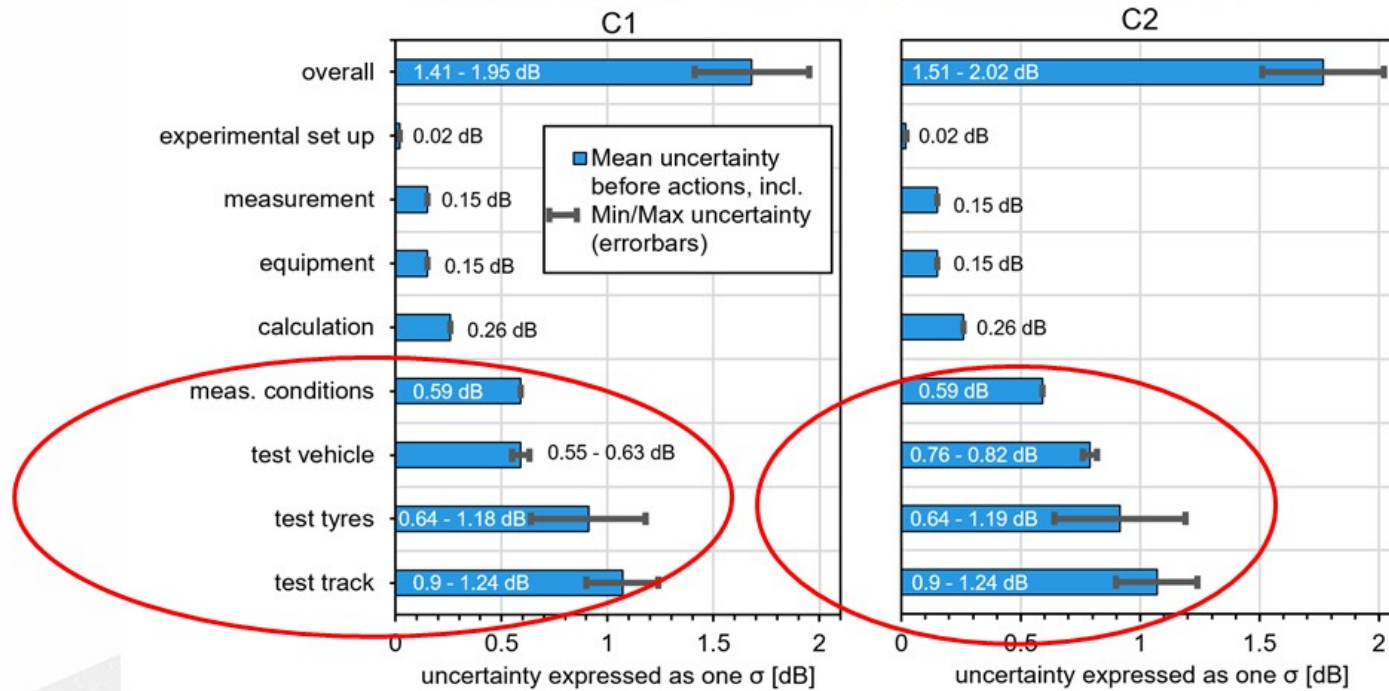
**++ G+P**  
INGENIEURE



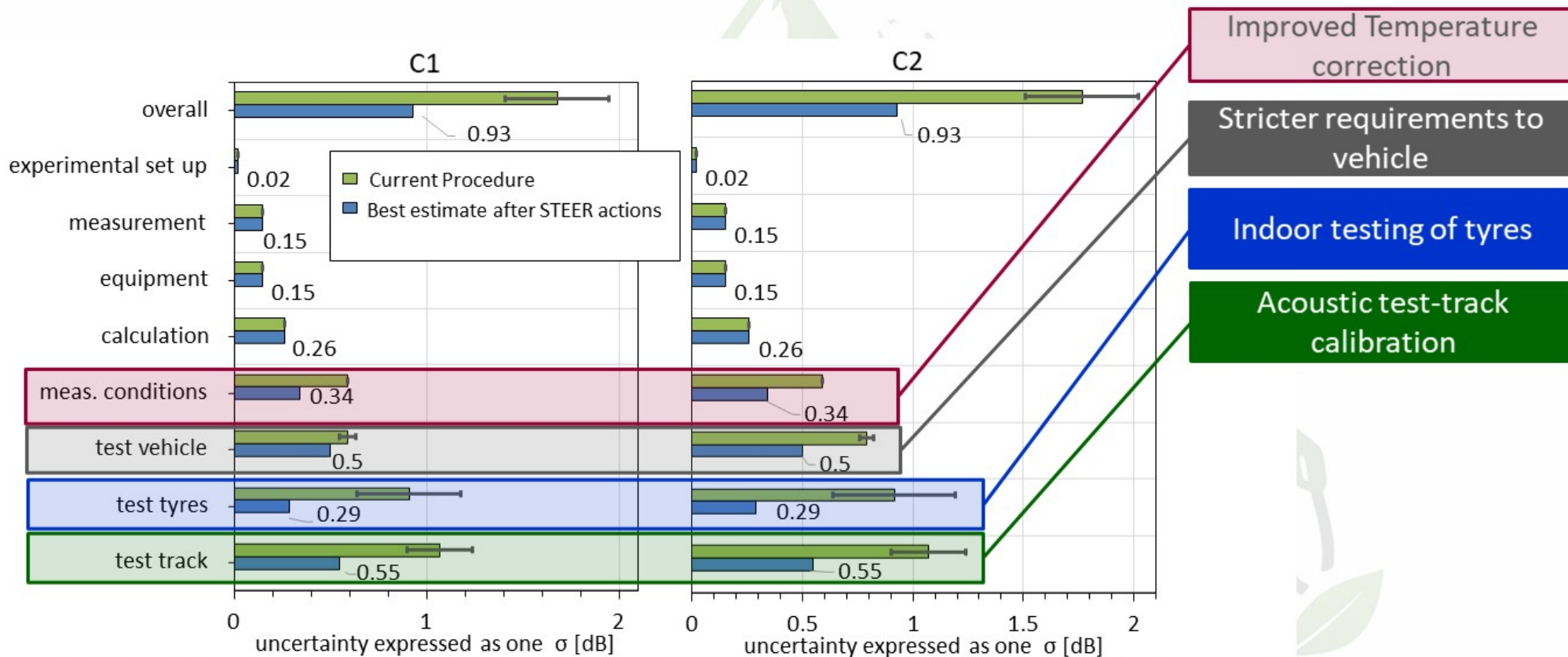
**Belgian Road Research Centre**  
Together for sustainable roads



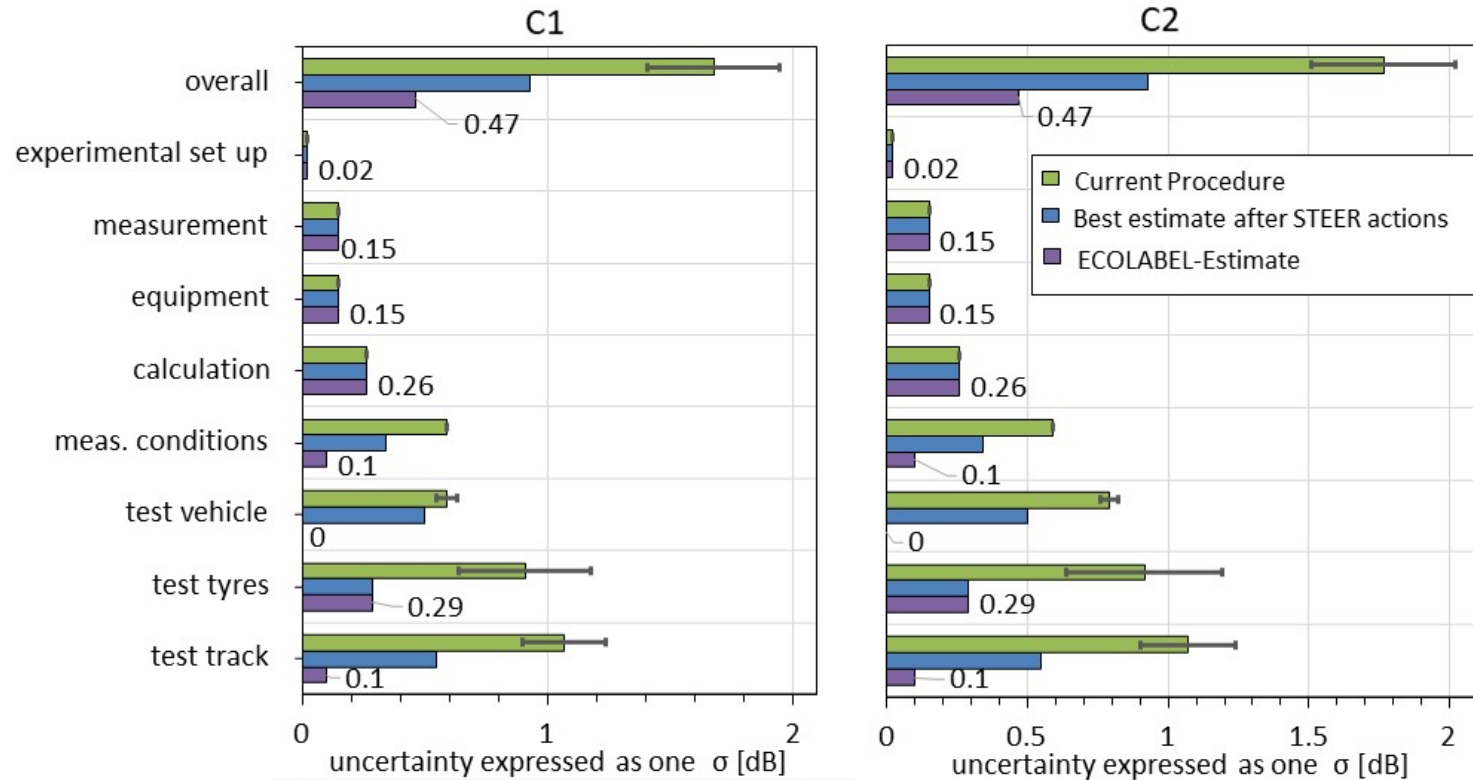
# STEER: Uncertainty of the current procedure



# STEER: Uncertainty after Measures

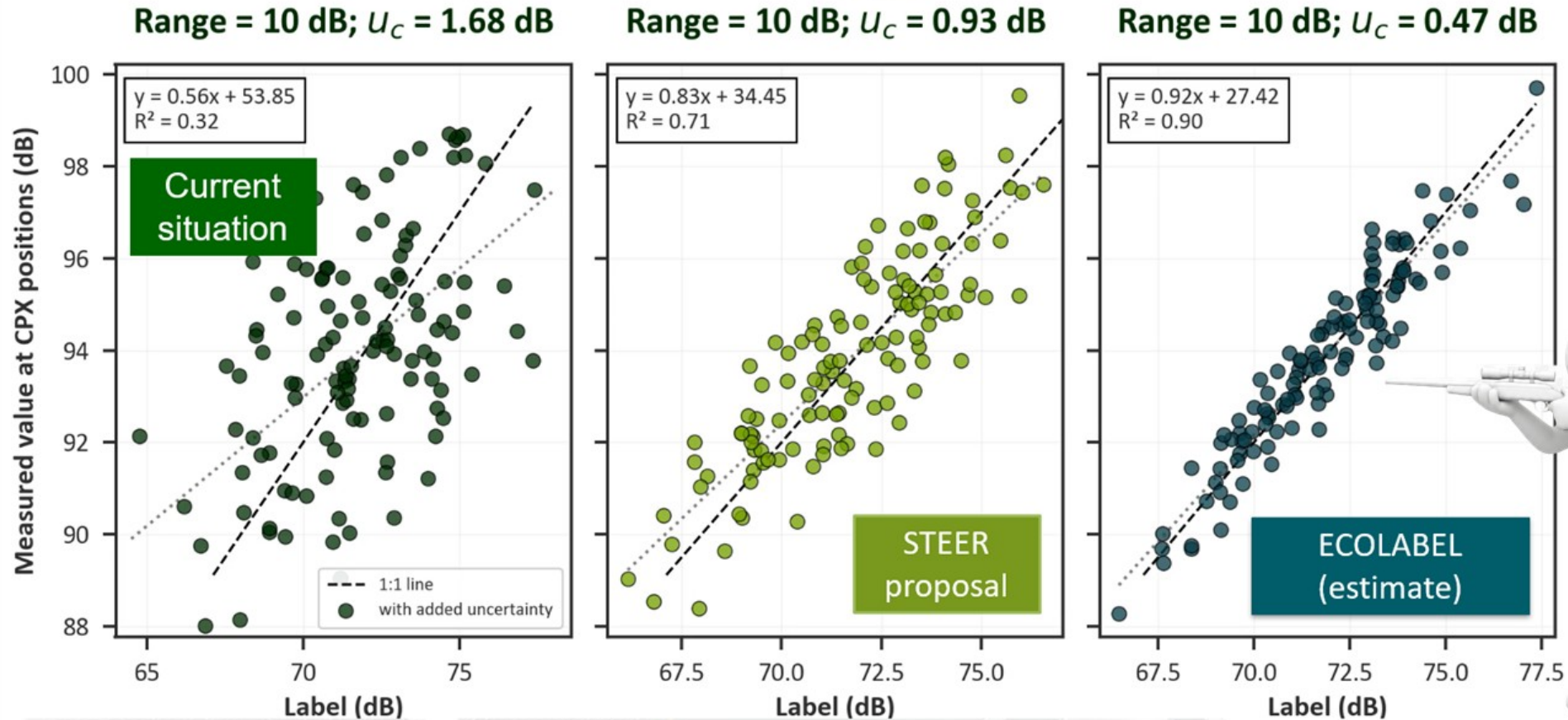


# ECOLABEL: Expected uncertainty (estimate)



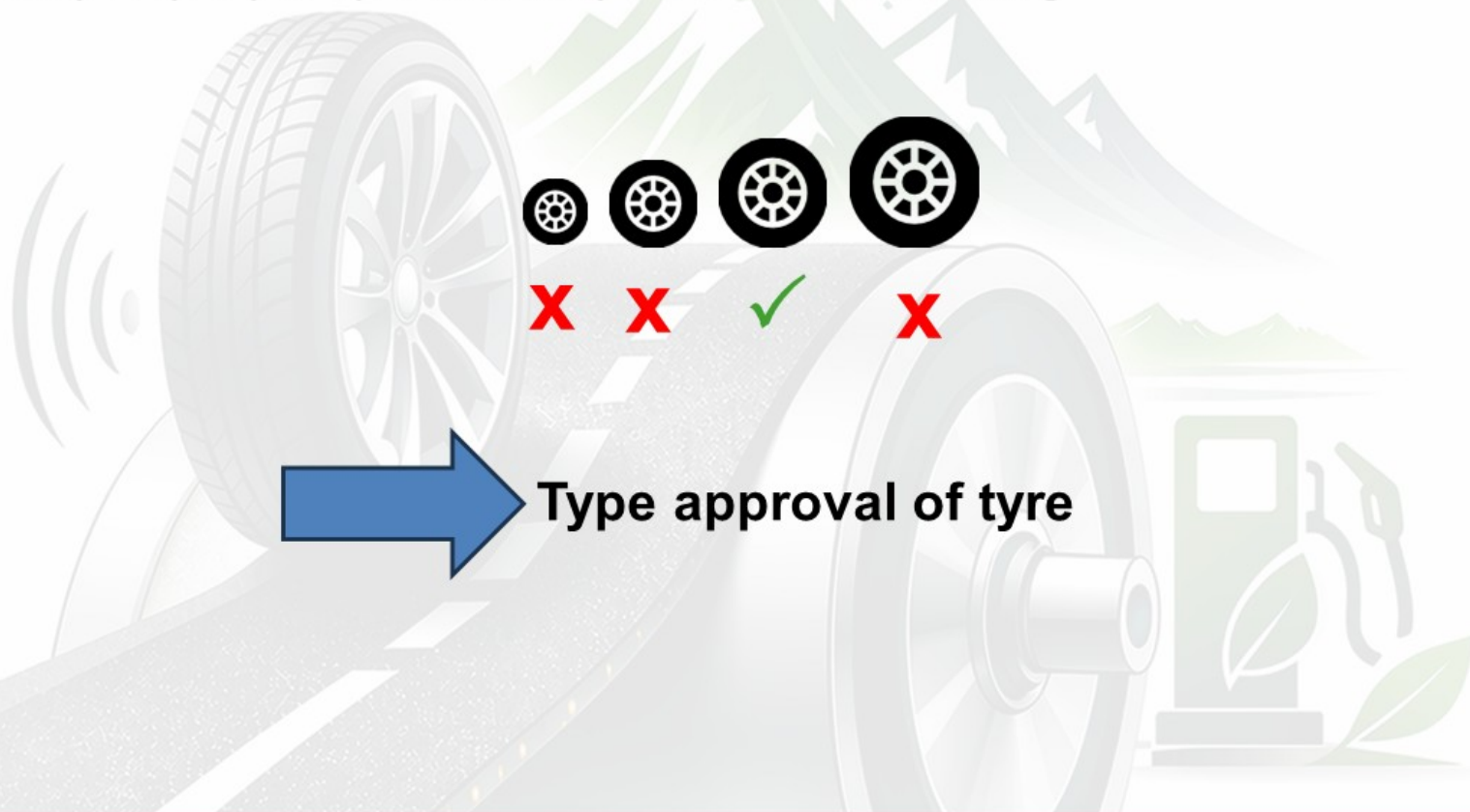
Uncertainty can be further reduced from (**currently 1.7 to 0.5 dB!!**)

# Implication of ECOLABEL on label-correlations

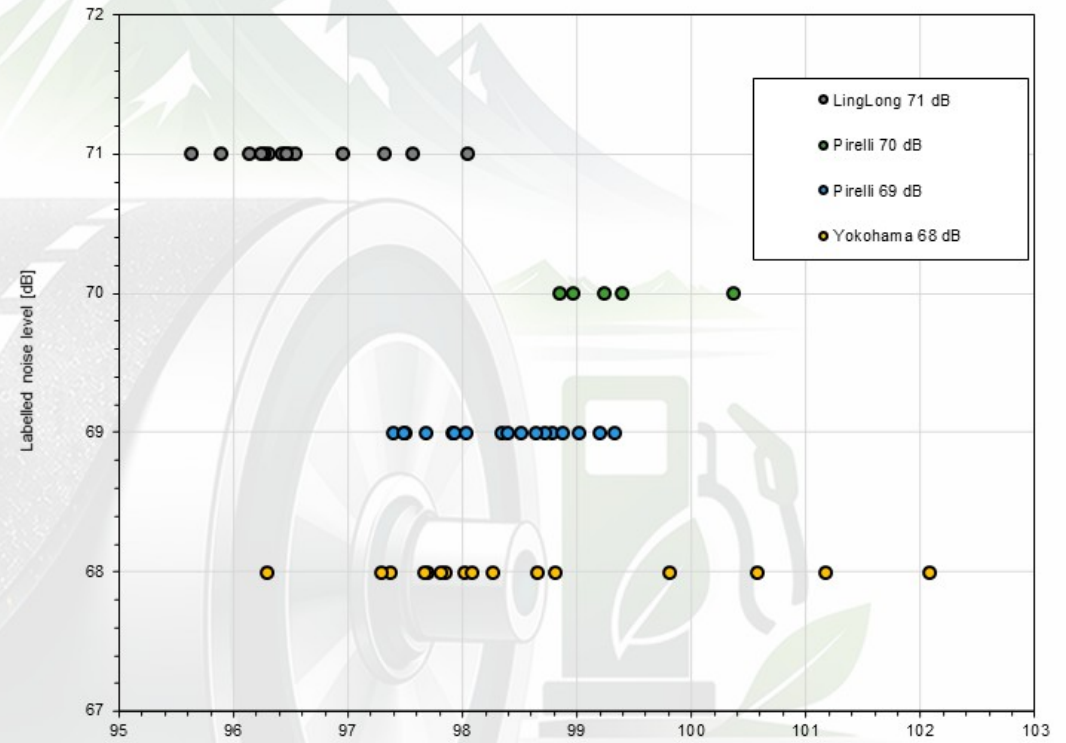


# Test tyres

- Currently only 1 tyre per tyre line may be used for labelling



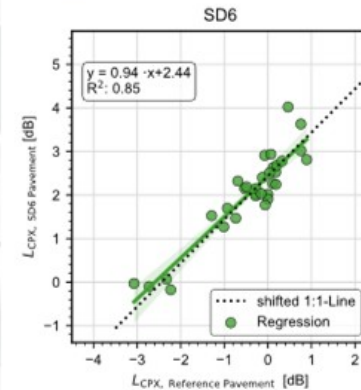
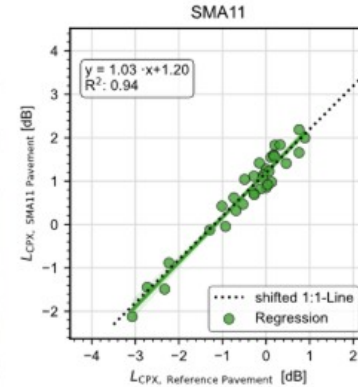
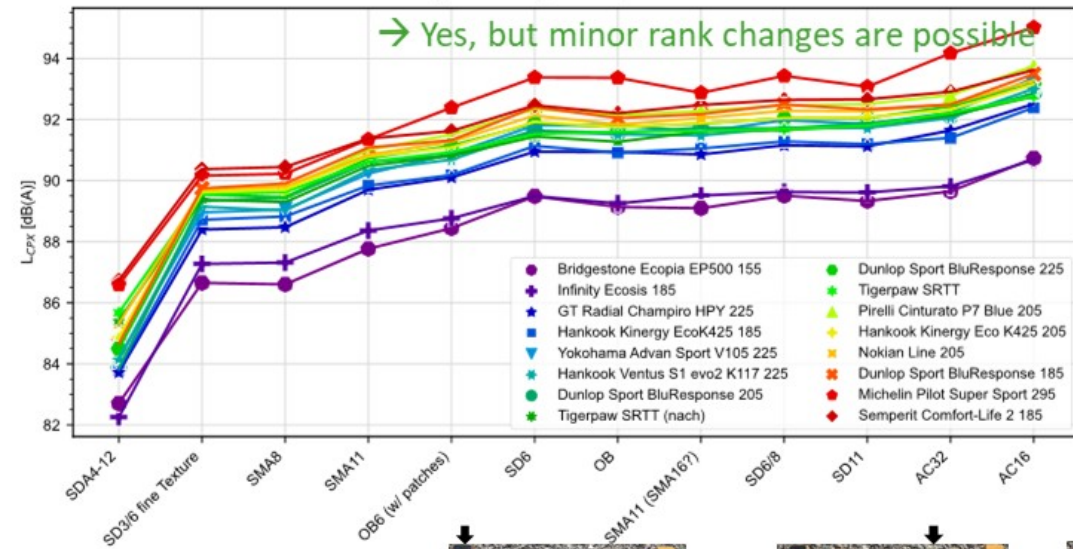
# Testing entire tyre lines



# Representativity of tyre label

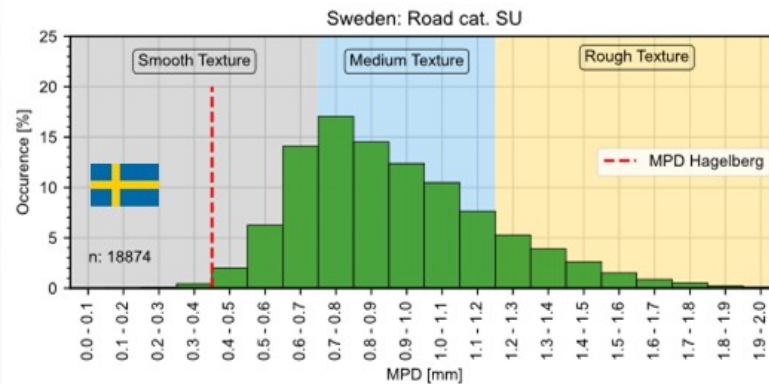
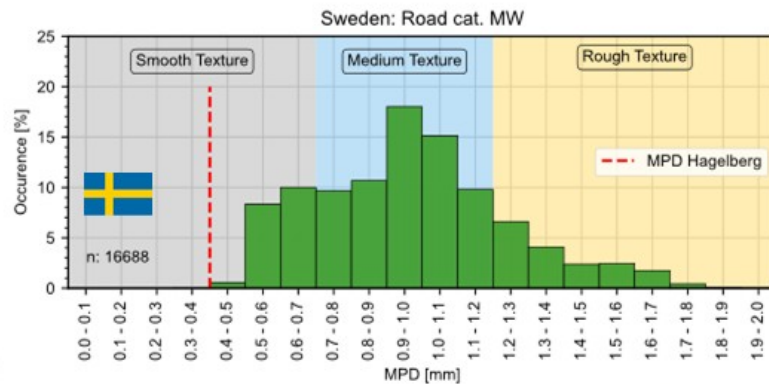
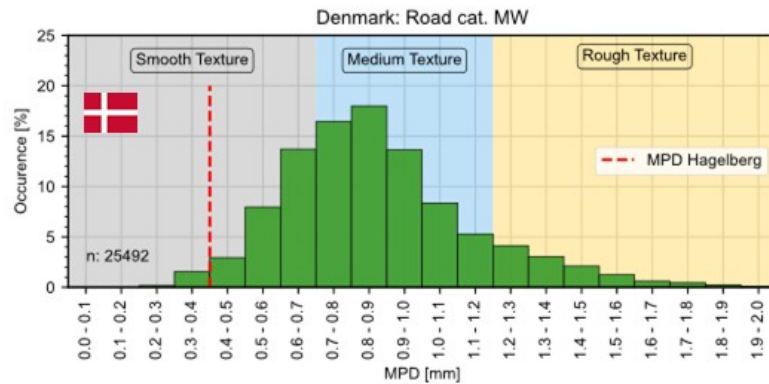
Is a quiet tyre quiet on all surfaces?

→ Yes, but minor rank changes are possible



noise level / roughness

# Roughness of Real-World surfaces (selection) <sup>++</sup> G+P ENGINEERS



# Synthesis

## ✓ STEER Insights

Uncertainties identified in labelling procedure **can be reduced**

## 🧪 New Approach

ECOLABEL adopts STEER suggestions with indoor test method

## 📈 Impact

Much **lower uncertainty** → Better correlations expected



## Chapter 5.2

# Findings from ELANORE Project Tyre external noise

# The ELANORE Project

## *Improvement of the EU tyre labelling system for noise and rolling resistance*

This international **Polish-Norwegian** project under the **Norwegian Financial Mechanisms** was carried out by a consortium consisting of:

 Norway grants	Programme "Applied research" under the Norwegian Financial Mechanisms 2014 - 2021  Contract No. NOR/POLNOR/ELANORE/0001/2019-00	 National Centre for Research and Development
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- Gdańsk University of Technology (Poland),
- SINTEF (Norway),
- EKKOM (Poland).



Project main goal: to improve the efficiency of the EU tyre label, concerning both rolling resistance and noise.

Project implementation period: 2020 – 2023 (36 months)



# Tyres tested within the ELANORE project

## Tyre external rolling noise tests were performed for:

**9 tyre types** of the same size covering the range of EU label noise values **from 66 dB up to 74 dB** with 1 dB step, labelled **1 to 3 noise bars** (acc. to Reg.117 2012) consisted of:



- **4 summer** tyres
- **3 winter** tyres
- **2 all-season** tyres



Manufacturer	Tread pattern	Season	Tyre size	Load index	Speed rating	Remarks	EU Tyre Label			Noise level	Tests performed		
							FUEL EFFICIENCY	WET GRIP	ROAD NOISE		CPB	CPX	DRUM
Dębica	PRESTO UHP	Summer	215/55R17	94	W		E	C	» A	66 dB		CPX	DRUM
Yokohama	Advan Fleva V701	Summer	215/55R17	94	W		C	A	» A	67 dB	CPB	CPX	DRUM
Kenda	KR501	Winter	215/55R17	98	V	XL	E	C	» A	68 dB		CPX	DRUM
Michelin	CrossClimate+	All season	215/55R17	98	W	XL	C	B	» A	69 dB	CPB	CPX	DRUM
Vredestein	Ultrac Satin	Summer	215/55R17	98	W	XL	B	A	» B	70 dB		CPX	DRUM
Bridgestone	Blizzak LM005	Winter	215/55R17	98	V	XL	C	A	» B	71 dB	CPB	CPX	DRUM
Continental	AllSeasonContact	All season	215/55R17	98	H	XL	A	B	» B	72 dB		CPX	DRUM
Momo	W-2 NORTH POLE	Winter	215/55R17	98	V	XL	E	C	» C	73 dB		CPX	DRUM
Evergreen	EH23	Summer	215/55R17	98	V	XL	E	C	» C	74 dB	CPB	CPX	DRUM

# Road surfaces used when tested the tyres

## Noise tests were performed on:

- **4** test tracks with **the ISO reference surface** (CPB and CPX measurements)
- **5** test sites with **SMA8, SMA11, EACC8, MA11** and **SMA16** (CPB and CPX tests)
- **2** test sites with **DAC11** and **BBTM8** (CPX tests only)
- **3** replicas of road surfaces of **ISO, SMA8** and **DAC16** (DRUM tests only)



CPB – Controlled Pass-by method

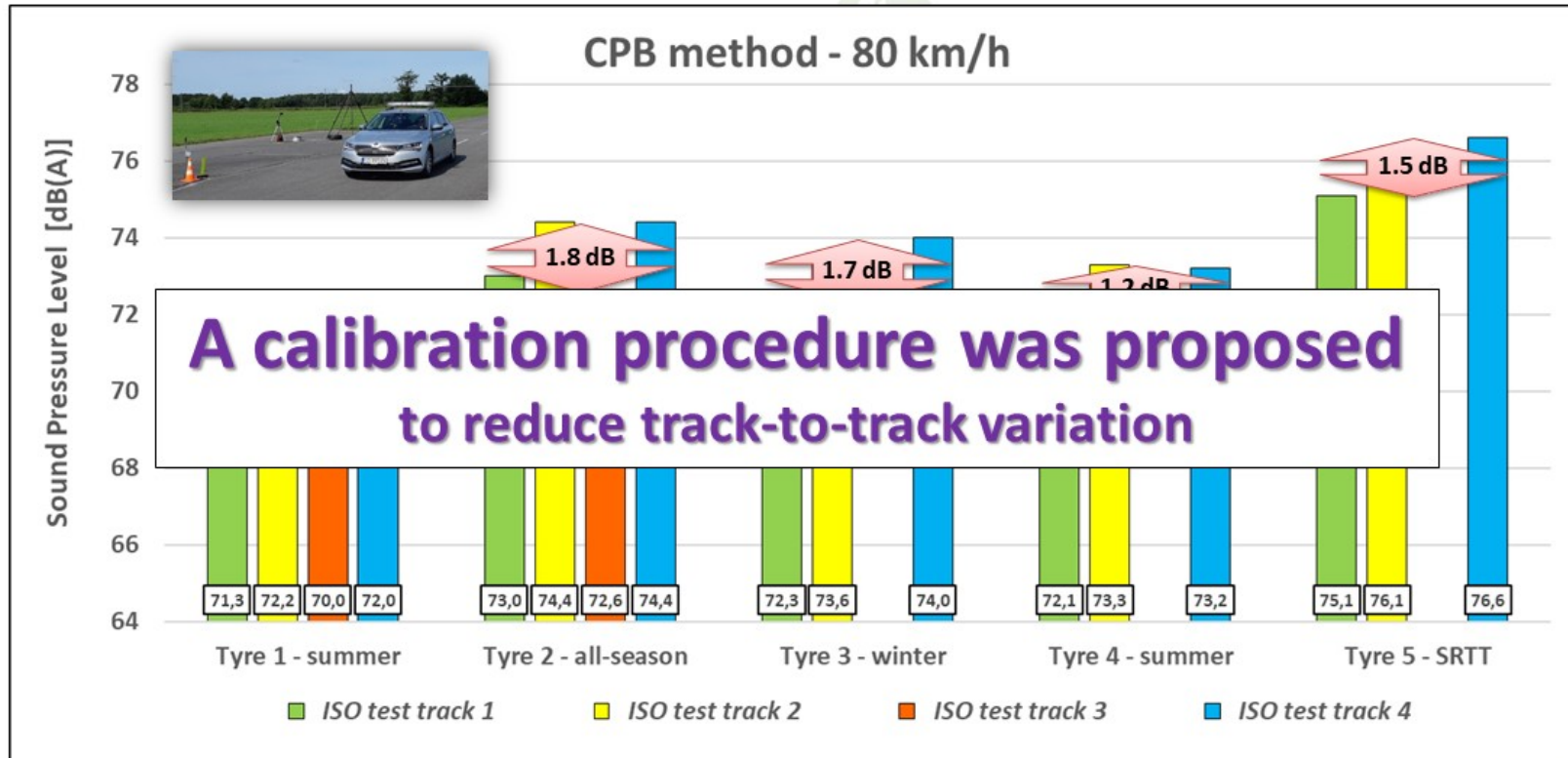


CPX – Close Proximity method



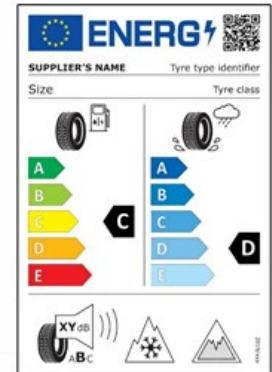
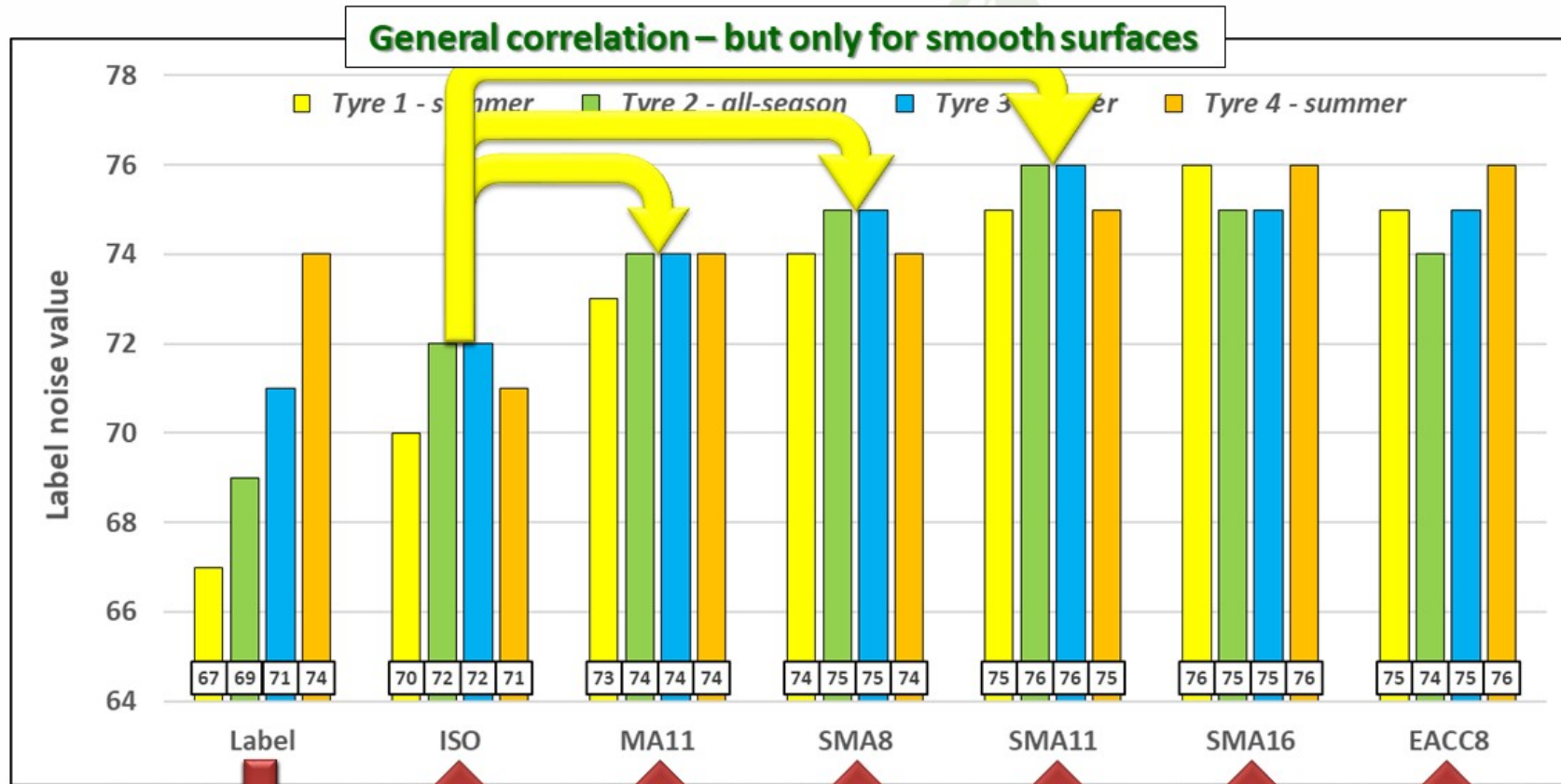
DRUM – Laboratory drum method

# ISO Test Track variability – CPB method



Differences in SPL: from **1.2 dB** up to **2.2 dB** (aver: **1.7 dB**) depending on a tested tyre

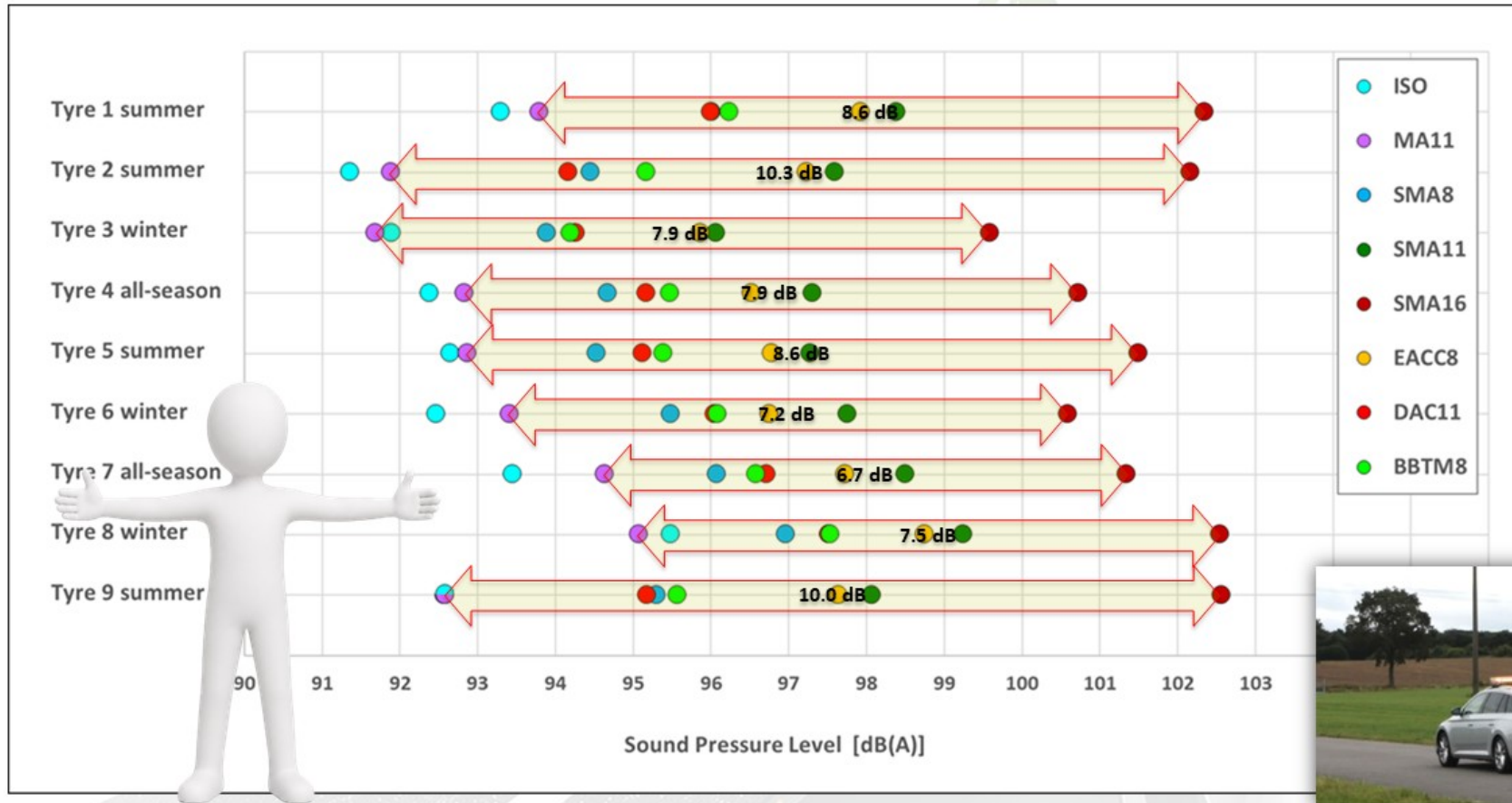
# Representativeness of labelling procedure



**No correlation**



# Representativeness of ISO reference surface



**Differences in SPL**  
for tyres when  
tested using  
CPX method  
on various  
conventional  
road surfaces  
**are up to 10.3 dB**  
(average: 8 dB)

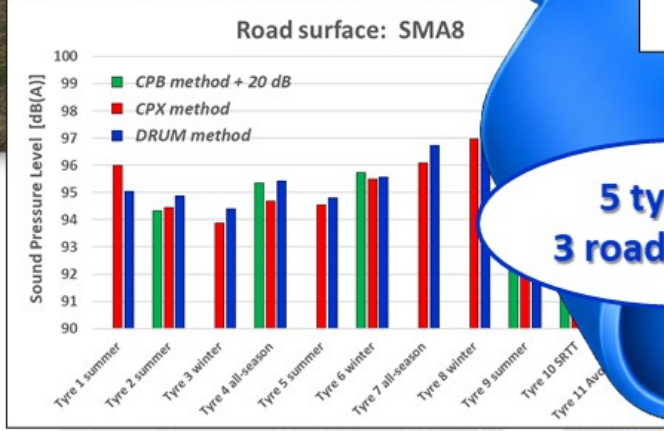


# Comparison of measurement methods



**5 tyres on  
6 road surfaces**

**There is a good correlation  
between all measurement methods**



**5 tyres on  
3 road surfaces**

**11 tyres on  
3 road surfaces**



# Test conditions – reference temperature

1. It is at least **strange to test winter and all-season tyres** at the reference surface temperature of **+20 °C**.
  - *The temperature influence on tyre/road noise is of about  $-1 \text{ dB} / 10 \text{ °C}$ .*
2. It would be **more convenient** to use **air temperature** rather than road surface temperature as a reference.
3. The following **reference air temperatures** were proposed in ELANORE:
  - +20 °C** – for summer tyres
  - +10 °C** – for all-season tyres
  - 0 °C** – for winter tyres (or even better: **-5 °C**)



# Test conditions – tyre load and inflation pressure

**Test conditions should be representative for a typical normal use of a vehicle!**

- Tyre load and inflation pressure according to the Regulation No. 117 **do not correspond** to the values of everyday use of the vehicle

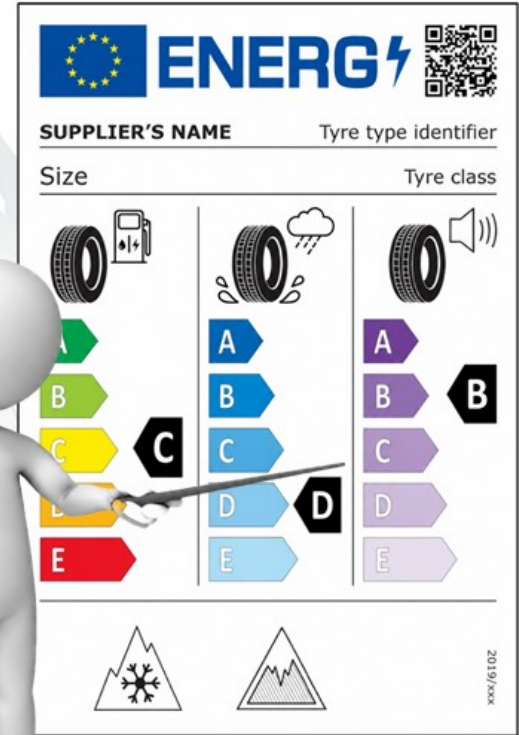


Test vehicle was almost fully loaded and tyres were highly underinflated.



# Noise classes on the tyre label

1. Labelled tyre should be assigned to an appropriate **noise class** within a range **from A to E** (similar in appearance to the classes of rolling resistance and wet grip)
2. Each specific tyre should be tested



Currently:



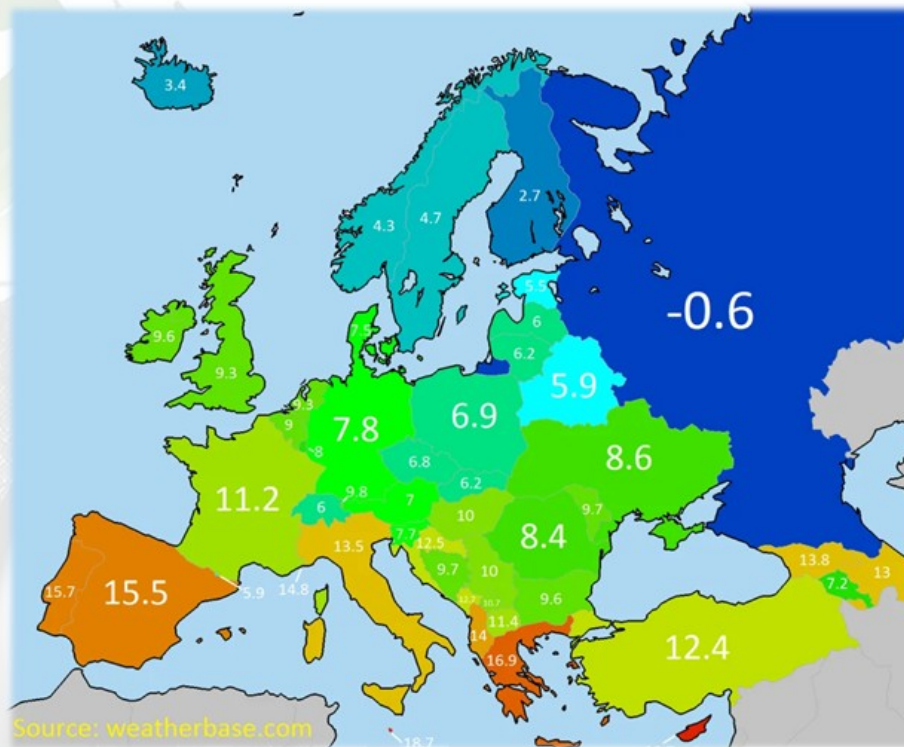


## Chapter 5.3

# Findings from ELANORE Project Tyre rolling resistance

# How rolling resistance is currently tested according to R117

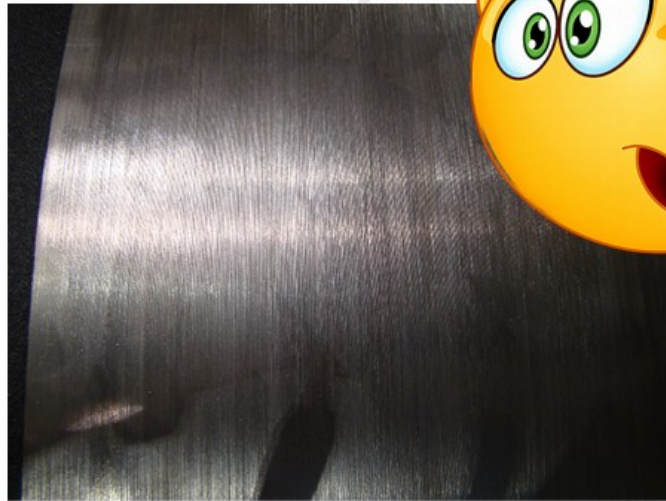
Temperature 25°C



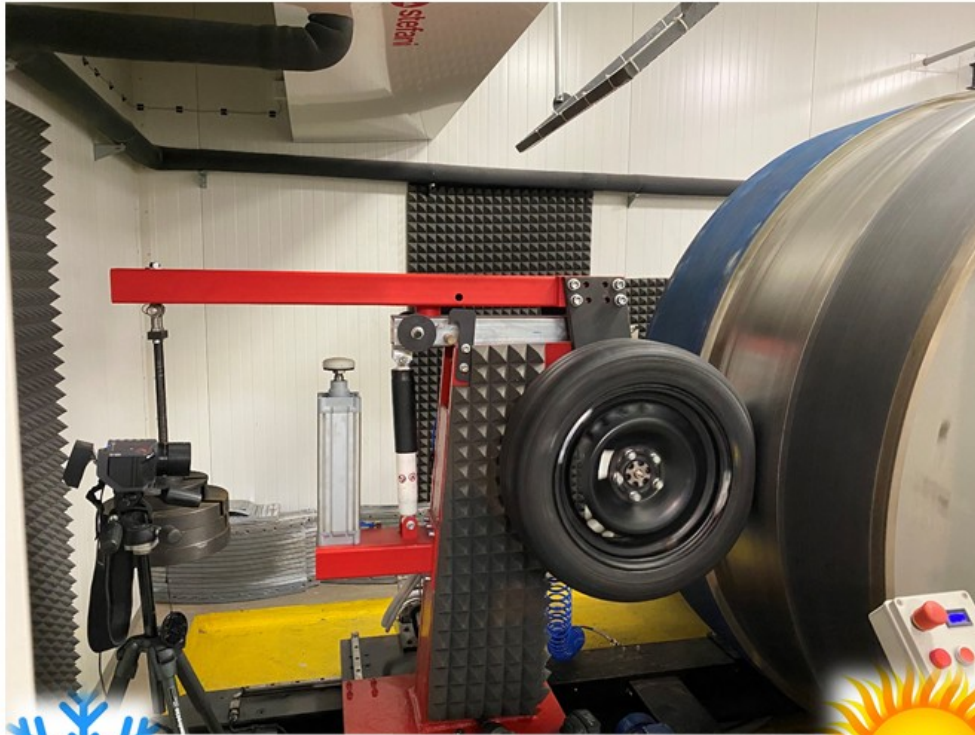
Average annual temperatures

# How rolling resistance is currently tested according to R117

Smooth steel drum



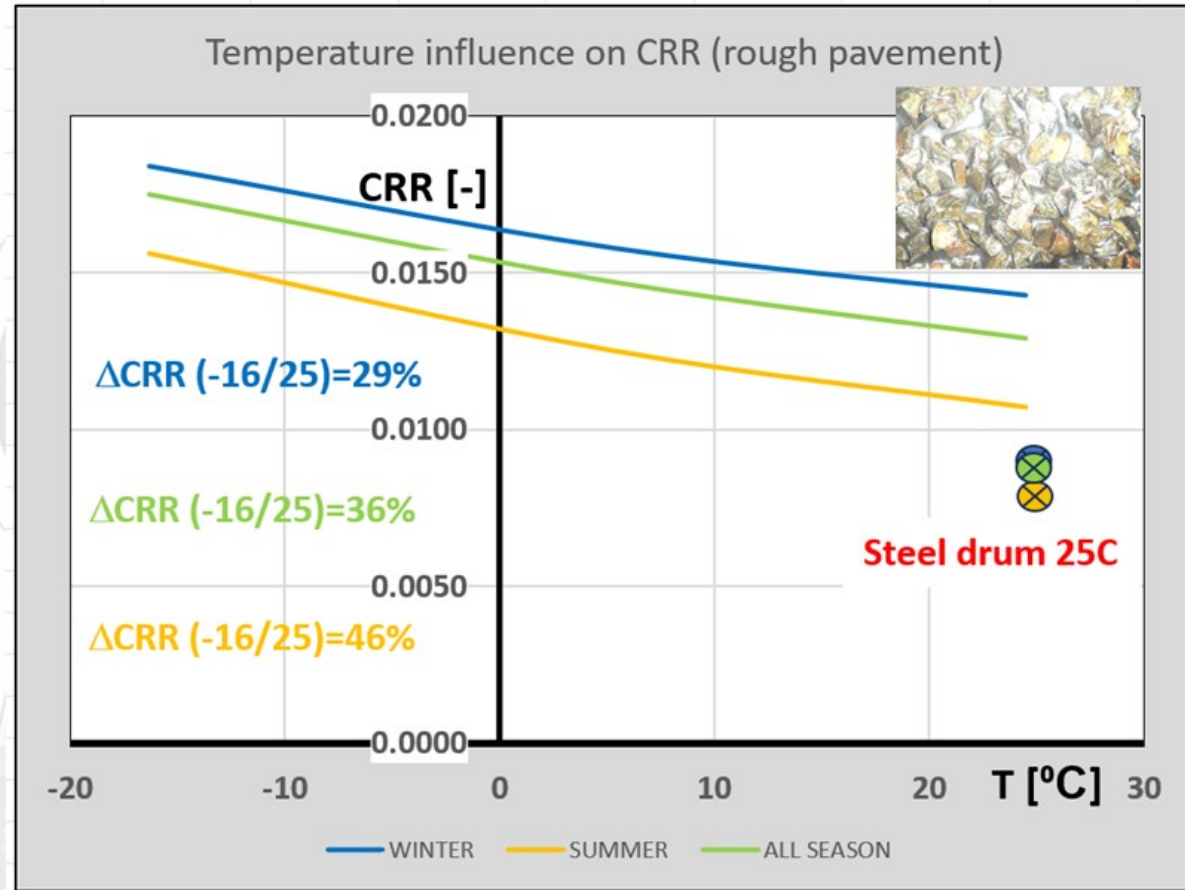
# How rolling resistance is tested at GUT



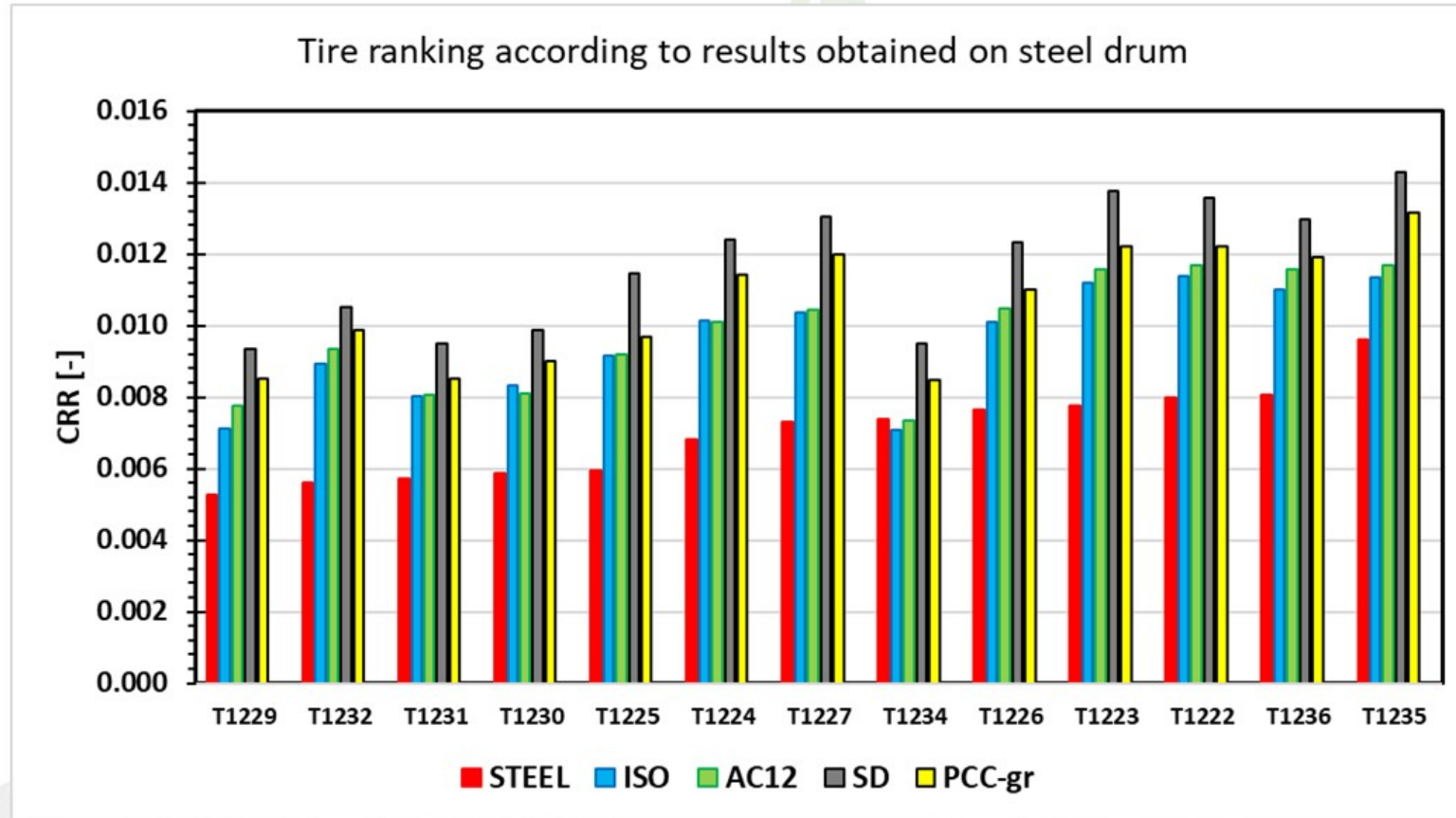
-15 °C ÷ +35 °C



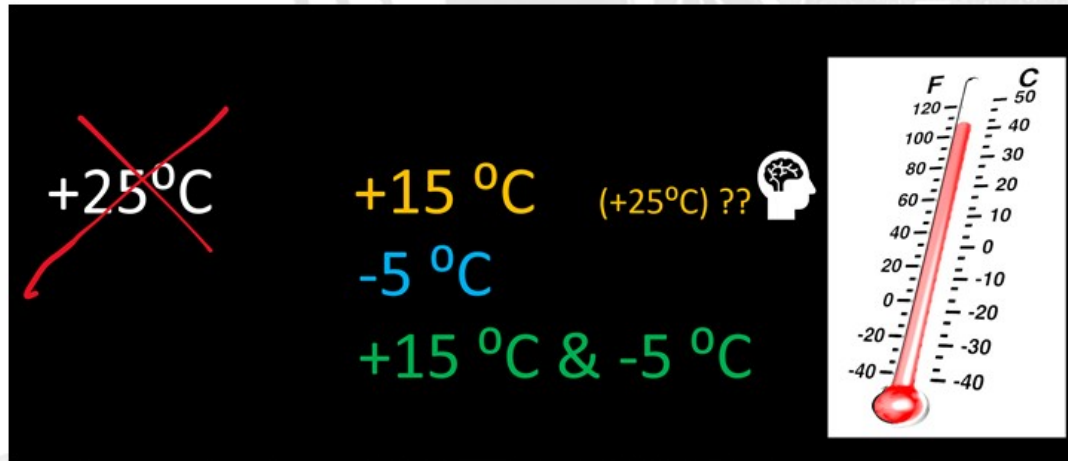
# Temperature influence on CRR



# Steel drum versus „on the road” CRR



# How to make Rolling Resistance measurements more representative?





## Chapter 6

# ECOLABEL Project



## Chapter 6.1

# ECOLABEL Project: Objectives and Innovations

# Objectives of the ECOLABEL project

## Project objectives:

- 1. To develop an improved, consumer-oriented methodology for testing and classifying tyres** with better real-world representativeness in terms of energy efficiency and external noise.
- 2. To develop advanced indoor testing procedures** for tyre noise and rolling resistance that better reflect real-world tyre behaviour under controlled, reproducible laboratory conditions.
- 3. To develop a reproducible 3D-model-based reference road surface** for indoor tyre testing, improving comparability and reproducibility between different laboratories.
- 4. To support the market uptake of eco-friendly tyres** by improving the reliability of label values, reducing testing costs of labelling and certification time, and strengthening innovation in the tyre industry.



# ECOLABEL Core Methodological Innovations

## 1. Consumer-oriented and stakeholder-inclusive tyre labels

Development of a clear, intuitive and behaviourally informed tyre label in a consumer-friendly format, designed with input from tyre manufacturers, research institutions, regulators and other stakeholders.

## 2. Advanced indoor tyre testing methodology with cost-effective and time-saving testing procedures

Development of advanced laboratory testing methods that also reduce testing costs and enable a larger number of tyres to be assessed.

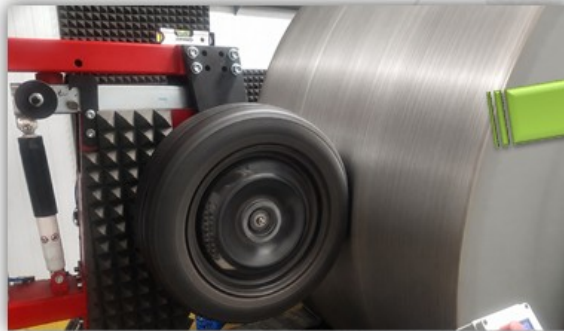
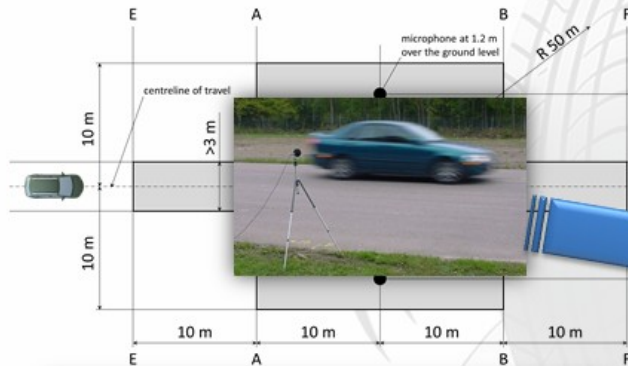
## 3. 3D-model-based reference road surface replicas ensuring real-world tyre performance and improved cross-laboratory reproducibility

Use of high-resolution 3D surface modelling and production technologies to develop durable, reproducible replicas of the reference road surface for indoor tyre testing, improving real-world representativeness and cross-laboratory comparability.



# ECOLABEL Core Methodological Innovations

**Moving all labelling tests indoors** and testing tyres for noise emissions and rolling resistance on a drum equipped with **replica of the reference road surface**.









## Chapter 6.2

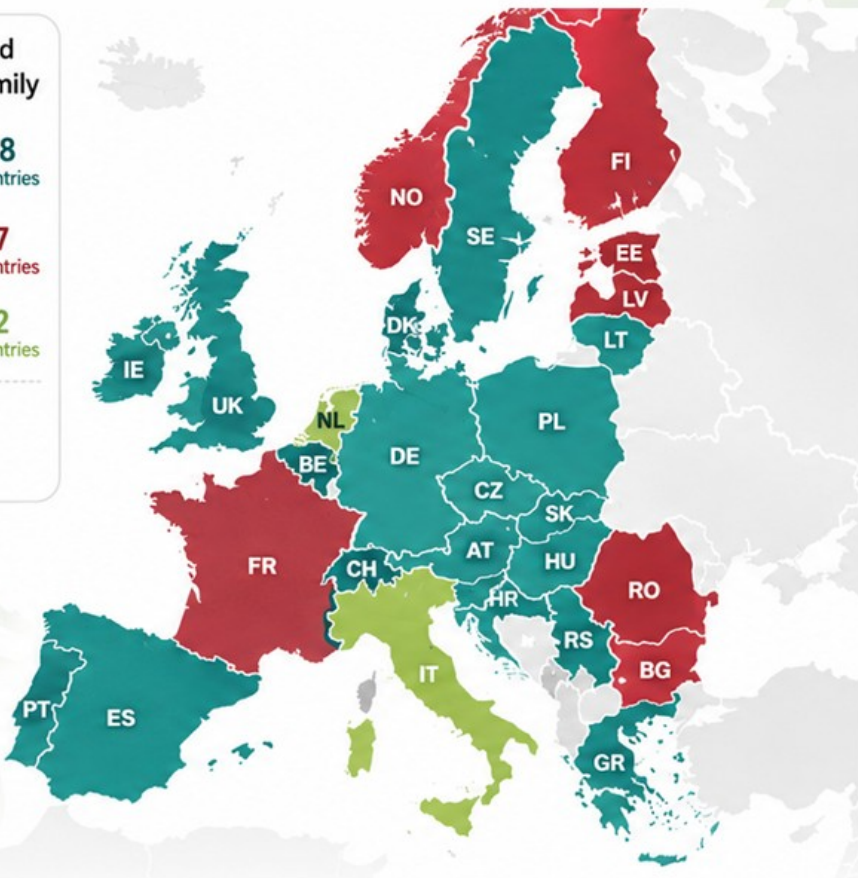
# ECOLABEL Project: Work Plan

# Selecting a Representative European Road surface

From national pavement practice to reference surface for ECOLABEL

## Dominant primary-road (motorway) surface family

	Gap-graded / thin surfacing	18 countries
	Dense asphalt	7 countries
	Porous	2 countries
	Not in scope or no data	



-  1. Map current national practice
-  2. Cluster by surface family and aggregate size
-  3. Filter by representativeness, acoustic relevance and reproducibility
-  4. Shortlist and test the reference surface

## What the country review shows

- ✓ Gap-graded / thin surfacings dominate European motorways
- ✓ Dense asphalt remains common in Nordic and eastern countries
- ✓ Porous surfaces are concentrated in the Netherlands and Italy
- ✓ Most countries trend toward smaller chipping sizes for quieter pavements



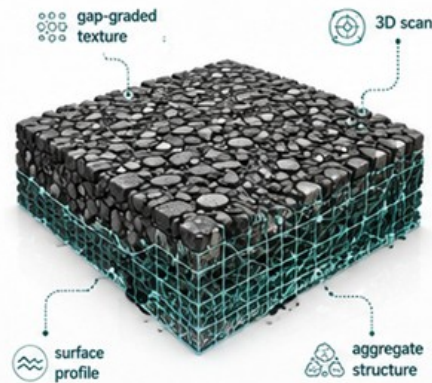
**Selection goal: one reference surface that reflects European reality and is reproducible for indoor testing.**



# From 3D Surface Model to Digital Conformity of Production

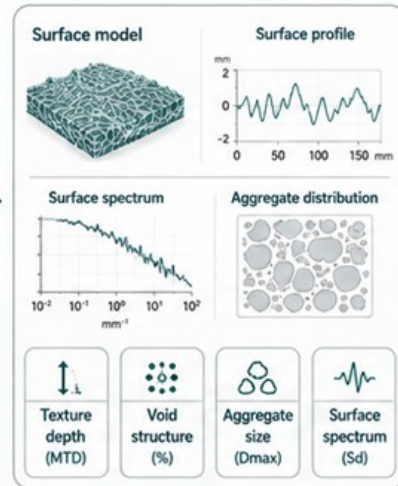
How the ECOLABEL reference surface becomes a reproducible indoor test standard

## 1. Reference surface definition



Capture the representative road surface as a high-resolution 3D model and digital surface specification.

## 2. Digital surface description



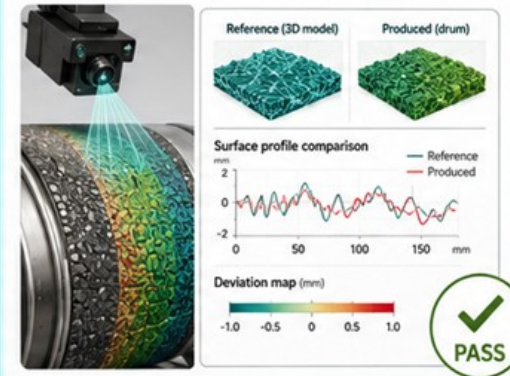
Translate the surface into measurable digital descriptors and acceptance criteria.

## 3. Produce the laboratory drum surface



Manufacture the reference surface on the test drum for controlled indoor tyre noise and rolling-resistance testing.

## 4. Digital conformity of production test



Verify every produced drum surface digitally against the reference model to ensure reproducibility, consistency and traceable quality control.

**Core innovation: Digital conformity of production test**  
A digital pass/fail check that confirms the produced test surface matches the defined reference surface.

### Why it matters

- ✓ Objective and traceable quality assurance
- ✓ Comparable surfaces across laboratories
- ✓ Reproducible tyre testing conditions
- ✓ Faster and more reliable conformity checks



**Outcome: one digitally defined reference surface and one digital conformity workflow for reproducible indoor tyre testing.**

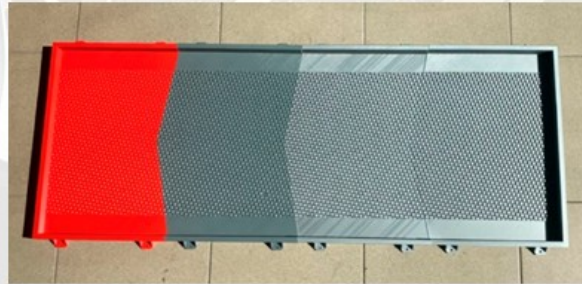


# How to produce replica road pavement

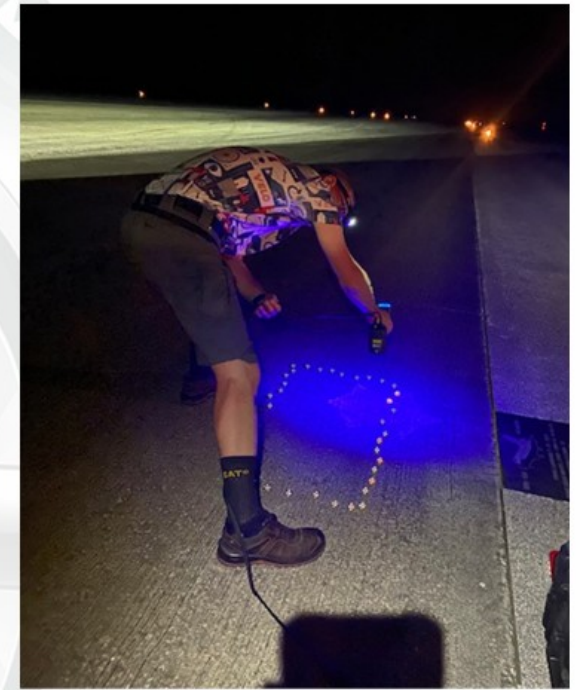
## Step 1 – Pavement Negative



Or



Or



# How to produce replica road pavement

## Step 2 – Upper part of the mold



# How to produce replica road pavement

## Step 3 – Casting



# How to produce replica road pavement

Final result

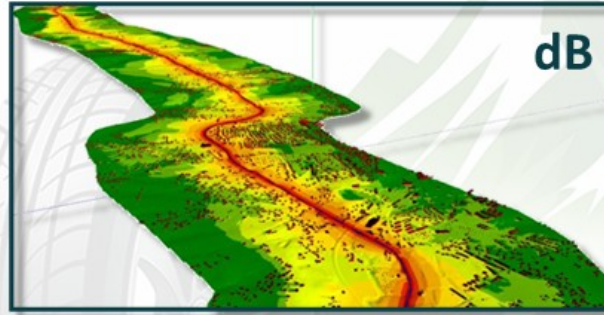
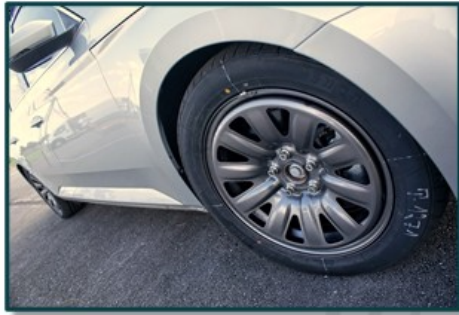


# Replica related activities planned in ECOLABEL

- Selection of representative tyres for testing (summer, winter, all-season).
- Selection of a representative surface that will be the base surface for the production of replicas.
- Making replicas using various methods.
- Carrying out external noise and rolling resistance tests for selected tyres on replicas and analyzing the results.
- Determining acceptance criteria for a representative replica.
- Comparison of measurement results on a representative replica with road test results.



# Environmental impact and cost-benefit analyses



CO<sub>2</sub>



CBA

**Task 1.** State of art studies on the impact of tyres parameters on environmental noise and air pollution associated with fuel consumption

**Task 2.** Determination of the relationship between tyre labelling and the environmental noise level and air pollution

**Task 3.** Calculation of noise and air pollution values representing the impacts caused by selected tyres on the reference surface

**Task 4.** Determination of the costs of measurements on ISO test tracks and by the indoor method

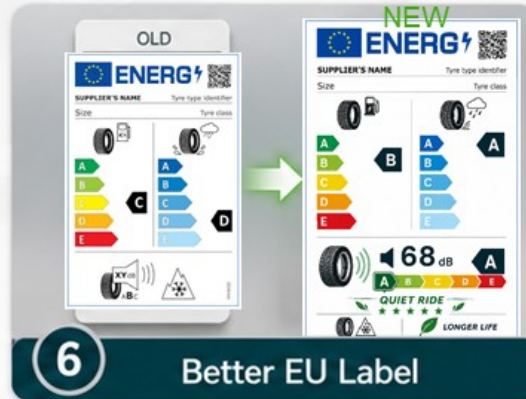
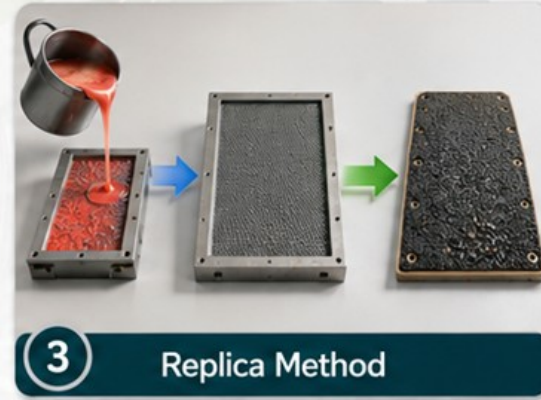
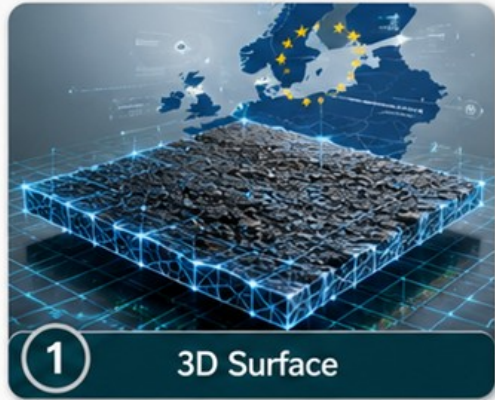
**Task 5.** Cost-benefit analyses of the introduction of new tyre labelling method



## Chapter 6.3

# ECOLABEL Project: Expected Outputs

# ECOLABEL Outputs

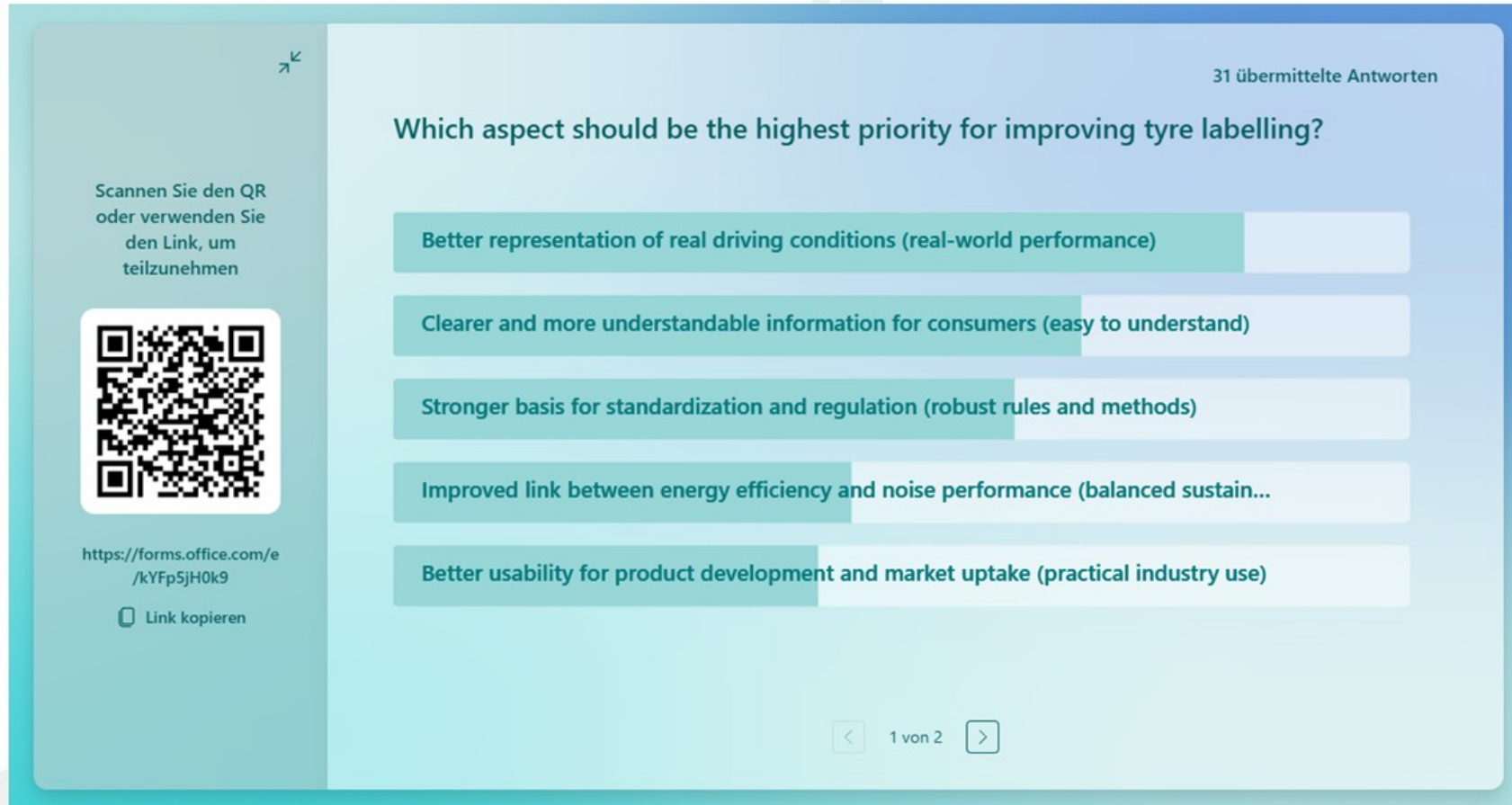




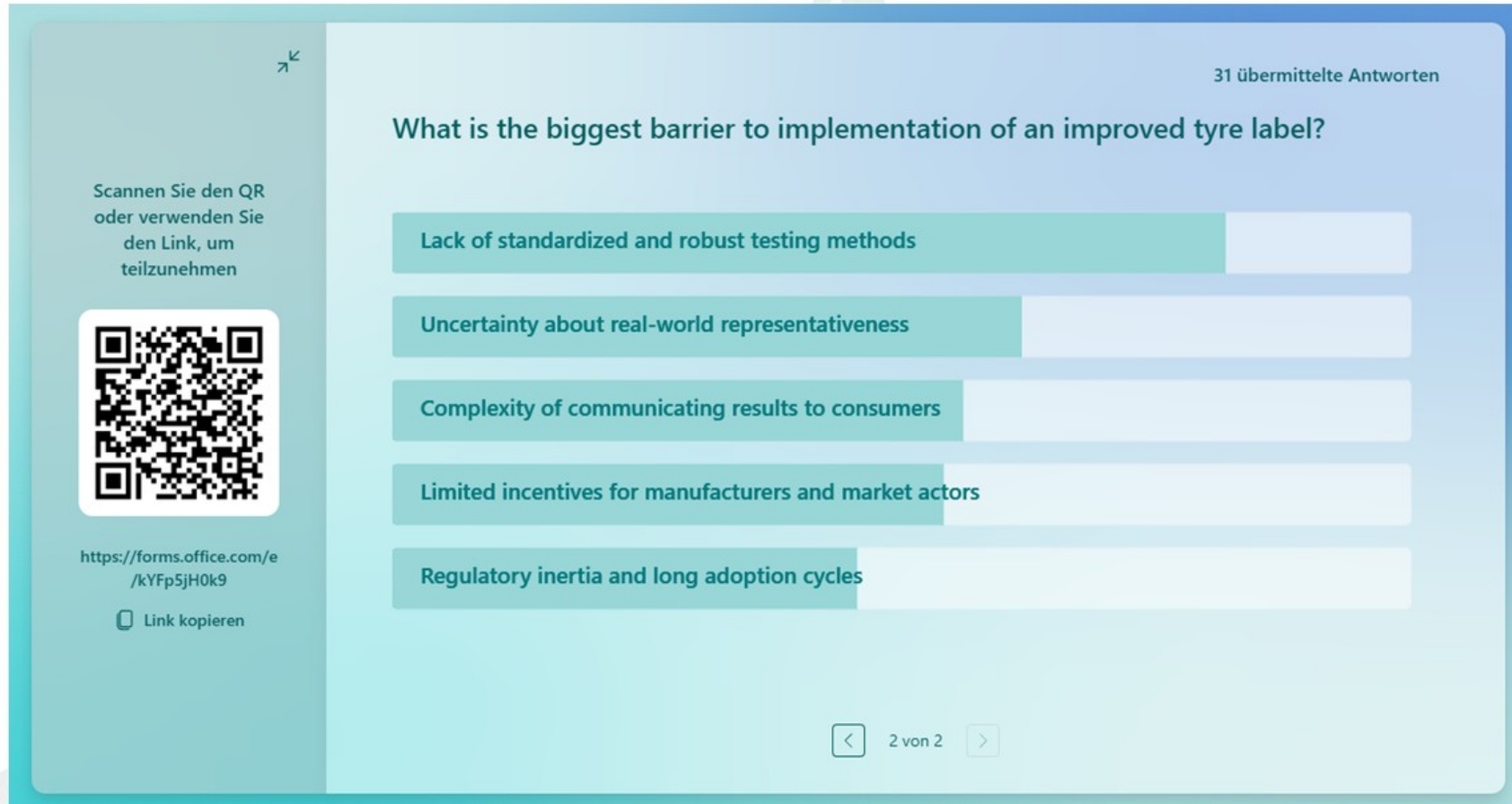
## Chapter 7

**From research to implementation:  
stakeholder priorities – live polling**

# Polling results: answers to question 1



# Polling results: answers to question 2





# Chapter 8

## Discussion and Q&A session

# Discussion and Q&A session

- 1) What would make an improved tyre label useful for your work or decisions?
- 2) What should we prioritise most: real-world accuracy, consumer clarity, testing costs or regulatory feasibility?
- 3) What concerns or requirements should the project consider from your stakeholder perspective?





# Chapter 9

## Closing remarks



# Thank you!

Contact us for further  
input and discussion  
[ecolabel-project.eu](http://ecolabel-project.eu)



# Chapter 10 – Final

## Aperitif and networking

# Welcome to Aperitif & Networking





**SWISS-POLISH**  
Cooperation Programme



Swiss-Polish Cooperation Programme  
Research and Innovation - Applied Research  
*Second edition: 2024 – 2029*

Contract No. SPPW/ECOLABEL/0004/2025-00

**NCBR**  
National Centre for Research  
and Development