

ISO 10844 Test Track Revision

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Introduction

- ISO TC43/SC1/WG42 has revised the ISO 10844 test track standard used in ECE regulations.
- The goal of this revision was to improve the confidence in the results obtained when using the ISO 10844 track, with the following technical principles:
 1. To maintain the same nominal noise behavior as the current ISO 10844 International Standard when built as intended.
 2. To reduce the track to track variation.
 1. The expected reduction in track to track variation is 50% from the existing variation under the ISO 10844:1994 International Standard.

Contributing Experts

- Significant input was received from many countries and technical organizations:

Road Builders, Research laboratories, and Technical Services

- **Autostrade /Italy ; Road constructor ; involved in S.I.R.U.U.S**
- **BRRC /Belgium : Road Research Belgium ; Surface characteristics**
- **COLAS /France: Road Builder**
- **LPCP / France**
- **M+P /NL**
- **Nies Consulting /Germany, ISO Test tracks consultant.**
- **National Center for Asphalt Technology (NCAT)/USA**
- **Transtec /USA – Road construction and noise control.**
- **Bruel & Kjaer /Denmark**
- **TRL /UK**
- **RW-TUV /Germany**
- **UTAC / France**
- **JARI / Japan**
- **JASIC / Japan**
- **Swedish Road Research Institute / Prof. Sandberg**
- **SINTEF / Norway**
- **Nippon Road Co., Ltd/Japan**

Tyre experts serving in national delegations:

- **Bridgestone; Acoustics and testing dept.**
- **Continental: NVH Engineering Dept.**
- **Pirelli : Testing department-Noise Vibration.**
- **Michelin Acoustics Dept.**
- **Goodyear Acoustics department**

Vehicle experts serving in national delegations.

- **Nissan**
- **PSA Acoustics**
- **GM -Noise & Vibration Center - Chairman of ISO TC43/WG 42**
- **Porsche- Acoustics dept.**
- **Scania – Acoustics dept**
- **MAN – Acoustics**

Project Leader: G. Dimitri, France

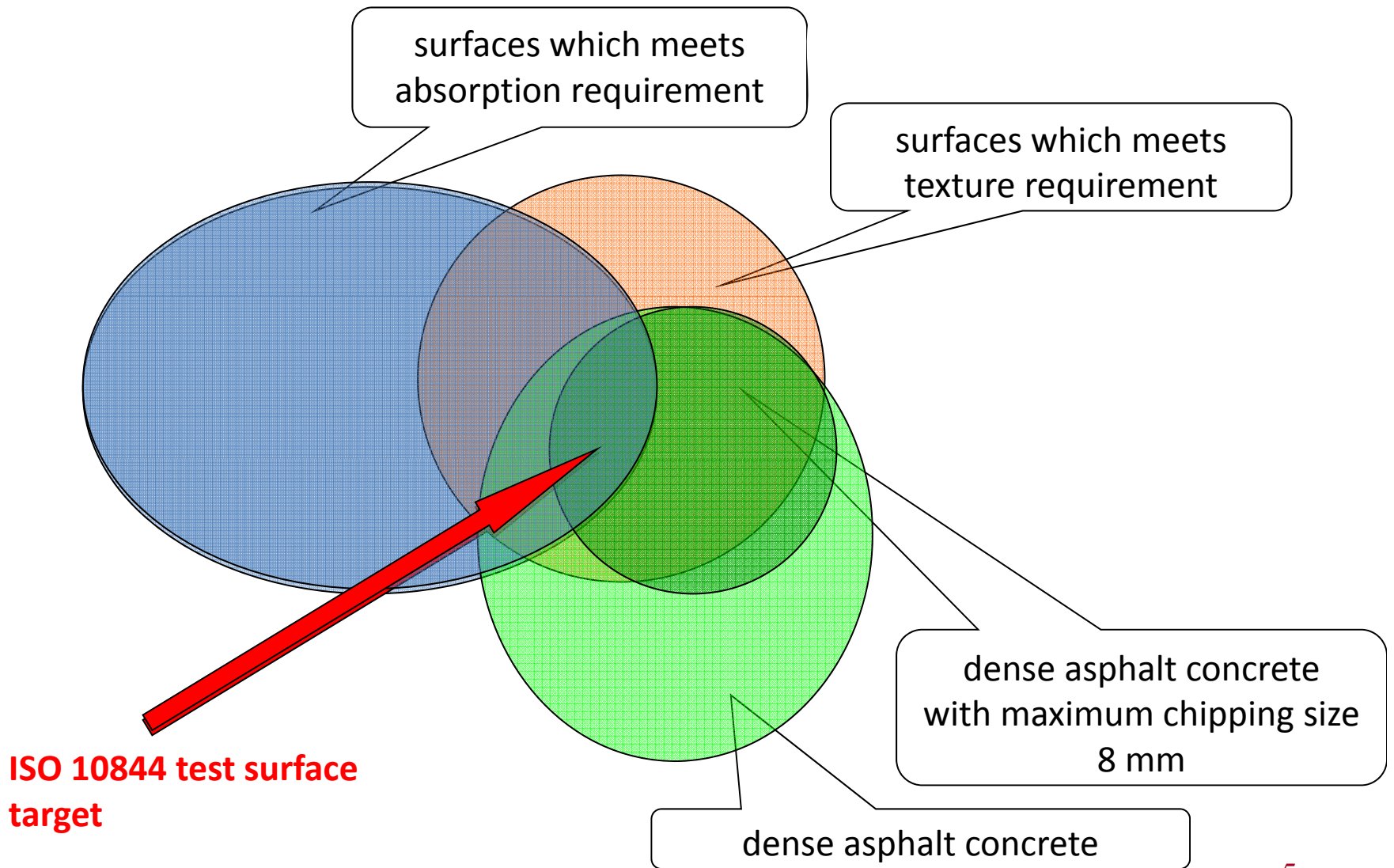
Secretary: P. Legrand, France

Scientific Officer: G. VanBlokland, Netherlands

Supporting work

- As part of the development of the ISO/DIS 10844 specification, four test tracks were built and evaluated (France, Japan, US₍₂₎). The following were considered:
 - Is the specification globally achievable by road builders?
 - Does the specification do the job of reducing variation?
 - Are there any unintended consequences?
 - What other lessons can be learned?

A visual way to think of requirements for an ISO 10844 test surface



Technical Changes

- Use of nondestructive certification methods
 - Eliminate the practice of coring the track to prove compliance. This will improve track durability as destructive testing contributes to cracking of test surfaces.
- Bitumen
 - Allowance for bitumen types other than “straight penetration” grade to provide better wear and climatic durability properties.
- Flatness and Smoothness
 - Numerical specifications in place of subjective statement.
- Texture Specification
 - Change in measurement method from human sand patch to machine based method.
 - Eliminates variation due to human error. Measurement metric based on ISO standard.
- Texture Limits
 - Limit now given as a target with a tolerance based on construction practice. Old limit was “one sided” which allowed track texture to be effectively uncontrolled in one direction.
- Sieving Curve
 - Sieving curve is now a requirement instead of given for information only.
- Acoustic Absorption
 - Acoustic absorption tolerance reduced from 10% to 8% and tolerance applied to all 1/3 octave band frequencies specified in standard. This strongly reduces the ability of tracks to be “designed” for acoustic absorption in a manner not intended in the original standard.

ISO Status

- ISO/DIS 10844 has been approved.
- Expect final publication in 2011
- WG42 will remain active in working on 10844 to:
 - Evaluate lessons learned from practical experience
 - Continue to evaluate alternative compliance metrics for surface texture and for possible direct measurement of ISO 10844 noise performance.
- ISO intends to propose to GRB the amendment of ECE regulations using ISO 10844 to be replaced by the updated version. ISO 10844 will be ready in time to support the revised ECE R41, R51 and other standards now under consideration by GRB.

Regulatory considerations for GRB

- While not strictly a matter for ISO, GRB will need to consider what is the time period where new tracks *may* be used, and when they *shall* be used. This is generally known as ‘grandfathering’ to prevent the immediate requirement to rebuild ISO 10844 tracks.

Thank You

- Questions?