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Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

Working Party on Noise and Tyres

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Item 2 of the provisional agenda

UN Regulation No. 51 (Noise of M and N categories of vehicles)**Proposal for Supplement 8 to the 03 series of amendments to
UN Regulation No. 51****Submitted by the by the International Organization for
Standardization***

The text reproduced below was prepared by the experts from the International Organization for Standardization (ISO) to bring the latest ISO 10844 standard test surface into the Regulation. This document is identical to Informal document GRBP-75-02-Rev.1 for the 03 series of amendments to UN Regulation No. 51 presented at the seventy-fifth session of GRBP, where GRBP invited ISO to submit a working document on this subject. The proposed changes are based on the 03 series of amendment to UN Regulation No. 51 up to Supplement 6. The modifications 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

Paragraph 11, add a new subparagraph 11.13. to read:

11.13. From the entry into force of Supplement 8, ISO 10844:2021 shall be accepted for all approvals granted under this Regulation. Until five years from the entry into force of Supplement 8, ISO 10844:2014 shall be accepted for all approvals granted under this Regulation.

Annex 3, paragraph 2.1.1., replace "ISO 10844:2014" by "ISO 10844:2021".

II. Justification

ISO has updated the 10844 standard to improve clarity. The primary objective is to reduce track-to-track variability caused by differing interpretations and implementations of the technical requirements. The following table includes other improvements that have been made.

| <i>Third edition ISO 10844:2014 technical method</i> | <i>Improvements in ISO 10844:2021</i> | <i>Effect of improvements</i> |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement of irregularity | Permit more modern and accurate methods of measurement (e.g. laser methods) in addition to straightedge | Improved practicality and accuracy of irregularity measurement |
| Periodic check criteria for irregularity of tracks exclusively for testing heavy vehicles | Irregularity requirement changed to 10 mm in consideration of permanent deformation caused by heavy vehicles, and through acoustical analysis of potential shielding found negligible impact | Improved durability of tracks used exclusively for heavy vehicles without impacting acoustical measurement |
| Step requirement | Implement a step requirement that includes allowance for a step-up of maximum 5 mm to harmonize with irregularity requirement | Improved constructability while maintaining same surface geometric tolerances |
| Sieving curve | Replace sieving curve figure with equivalent tabulation of sieve values defining an aggregate grading envelope | Reduced track-to-track variability caused by subjective interpretation of sieving curve figure |
| Expected Noise Due to Texture (ENDt) method | Replace optional calculation of ENDt with optional calculation of texture skewness, shape factor (g-factor), and texture spectrum | Skewness, shape factor (g-factor), and texture spectrum reported to correlate with measured pass-by noise, and are proposed for track correlation methods |
| Sampling for aggregate grading | Sampling of loose asphalt mixture as alternative to coring for evaluating aggregate grading | Sampling of loose asphalt mixture is more practical and representative compared to the small sample extracted from four cores |
| Examples of track construction | Examples have been removed | Avoided conflicts and confusion in interpretation of the technical requirements in the standard |