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Road vehicles — Brake lining friction materials — Drag mode friction test for hydraulic and pneumatic vehicle brakes

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Foreword

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 33, *Vehicle dynamics, chassis components and driving automation systems testing*.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Assessing friction performance is a primary concern when developing friction materials and conducting quality control. The brake assembly simulation test plays an important role here. However, the dyno test is not adapted to all vehicle models and brakes, and the assembly test is expensive and time-consuming. Therefore, a test method that can simulate real working conditions while only targeting friction materials is needed for the quality control of friction materials.

There are two ways to evaluate the friction performance of vehicle friction materials. One is through constant speed dragging, and the other is deceleration braking. The constant speed dragging braking mode can be used for the small sample test and assembly test. This braking mode is similar to actual driving conditions, brake system characteristics and automotive vehicle dynamics.

This document proposes a constant speed dragging test procedure for vehicle friction materials, which is used to evaluate the consistency of the performance of friction materials. Users assess and report on the test result according to their own specific requirements, such as friction levels or brake lining or rotor wear.

This test procedure has the following characteristics.

— The test data is comparable to the full-size assembly test.

— The test results can be used to compare friction materials.

— The test method is used to test the performance of friction materials. The test can be applied to raw material screening, early product development, process quality control and sample testing. The test is also an important means to test product consistency and quality control.

— The test method is made more efficient by using full-size brake linings, calipers and rotors. It is less expensive than testing on a full-size dynamometer test bench.

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Road vehicles — Brake lining friction materials — Drag mode friction test for hydraulic and pneumatic vehicle brakes

1 Scope

This document specifies a method for the drag mode friction test for hydraulic and pneumatic vehicle brakes.

This document is applicable to the friction performance test of brake linings used in vehicles of categories M, N, O, and L.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 611, *Road vehicles — Braking of automotive vehicles and their trailers — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 611 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
cycle
braking process consisting of several brake applications

Note 1 to entry: Each braking cycle consists of several brake applications or brake manoeuvres.

Note 2 to entry: Each individual braking manoeuvre consists of a 5 s application of the brake followed by a 10 s brake release.

3.2
constant torque mode
control mode for maintaining constant braking torque during braking process

3.3
constant pressure mode
control mode for maintaining constant line pressure during braking process

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