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Glass in building - Laminated glass and laminated safety glass - Determination of interlayer viscoelastic properties

Táto norma obsahuje anglickú verziu európskej normy.

This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/25

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EUROPEAN STANDARD

EN 16613

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English Version

Glass in building - Laminated glass and laminated safety glass - Determination of interlayer viscoelastic properties

Verre dans la construction - Verre feuilleté et verre feuilleté de sécurité - Détermination des propriétés viscoélastiques des intercalaires

Glas im Bauwesen - Verbundglas und Verbundsicherheitsglas - Bestimmung der viskoelastischen Eigenschaften von Zwischenschichten

This European Standard was approved by CEN on 7 April 2025.

This European Standard was corrected and reissued by the CEN-CENELEC Management Centre on 9 July 2025.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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EN 16613:2025 (E)

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European foreword

This document (EN 16613:2025) has been prepared by Technical Committee CEN/TC 129 “Glass in building”, the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2025, and conflicting national standards shall be withdrawn at the latest by November 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 16613:2019.

EN 16613:2025 includes the following significant technical changes with respect to EN 16613:2019:

- a) The test procedure has been changed from tensile vibration to parallel-plate oscillation.
- b) A more detailed description of the test procedure is provided comprising four subsequent steps.
- c) Annex A has been reviewed and is used for non-isotropic and multilayer interlayer materials as well as Step 4 in the main test procedure. It provides the methods to calculate the effective thickness, shear transfer coefficient ω , the coupling factor η and the interlayer shear modulus G_{int} .
- d) Annex C details the procedure to obtain the master curve and the Prony parameters.
- e) The new Annex D will help determine mechanical properties used for calculation of noise reduction.
- f) Annex E provides guidance for a precise geometrical assessment of a deflected specimen.
- g) Interlayer stiffness family classification criteria have been removed.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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EN 16613:2025 (E)**Introduction**

The purpose of this document is to provide viscoelastic properties of interlayer materials for structural design of laminated glass.

In addition, it provides a method to calculate interlayer mechanical properties at different frequencies that can be used for calculation of sound reduction indices.

1 Scope

This document specifies a test method for determining the mechanical viscoelastic properties of interlayer materials. The interlayers under examination are those used in the production of laminated glass or laminated safety glass. The shear characteristics of interlayers are needed to design laminated glass in accordance with EN 16612:2019 and EN 19100 (all parts).

Parameters of the Prony series, widely used in numerical simulation, can be derived from the measurements in Annex C.

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.

EN 1288-3, *Glass in building — Determination of the bending strength of glass — Part 3: Test with specimen supported at two points (four point bending)*

EN ISO 6721-1:2019, *Plastics — Determination of dynamic mechanical properties — Part 1: General principles (ISO 6721-1:2019)*

ISO 6721-10, *Plastics — Determination of dynamic mechanical properties — Part 10: Complex shear viscosity using a parallel-plate oscillatory rheometer*

ISO 6721-11, *Plastics — Determination of dynamic mechanical properties — Part 11: Glass transition temperature*

EN 16612:2019, *Glass in building — Determination of the lateral load resistance of glass panes by calculation*

ISO 18437-6, *Mechanical vibration and shock — Characterization of the dynamic mechanical properties of visco-elastic materials — Part 6: Time-temperature superposition*

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