

Adhesives for load-bearing timber structures - Test methods - Part 5: Determination of maximum assembly time under referenced conditions

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

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|---|--|
| See Eesti standard EVS-EN 302-5:2023 sisaldab Euroopa standardi EN 302-5:2023 ingliskeelset teksti.                 | This Estonian standard EVS-EN 302-5:2023 consists of the English text of the European standard EN 302-5:2023.  |
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| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.02.2023. | Date of Availability of the European standard is 15.02.2023.   |
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English Version

## Adhesives for load-bearing timber structures - Test methods - Part 5: Determination of maximum assembly time under referenced conditions

Adhésifs pour structures portantes en bois - Méthodes d'essai - Partie 5 : Détermination du temps d'assemblage maximal dans des conditions de référence

Klebstoffe für tragende Holzbauteile - Prüfverfahren - Teil 5: Bestimmung der maximalen Wartezeit bei Referenzbedingungen

This European Standard was approved by CEN on 18 December 2022.

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## European foreword

This document (EN 302-5:2023) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by UNE.

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of an identical text or by endorsement, at the latest by August 2023, and conflicting national standards shall be withdrawn at the latest by August 2023.

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 302-5:2013.

The main changes compared to the previous edition are listed below:

- a) the list of standards in the Introduction has been updated;
- b) one new clause (Symbols) has been introduced;
- c) Clause 10 has been changed.

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.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

## Introduction

This document is one of a series dealing with adhesives for use with timber structures, and is published in support of the EN 1995 series, *Eurocode 5: Design of timber structures*. The series consists of five classification and performance requirements for adhesives for load-bearing timber structures, phenolic and aminoplastic adhesives (EN 301), one component polyurethane adhesives (EN 15425), emulsion polymer isocyanate adhesives (EN 16254), two component epoxy and polyurethane adhesives for glued in rods (EN 17334) and for on-site repair of cracked timber structures (EN 17418) and all together twelve test methods (EN 302-1, EN 302-2, EN 302-3, EN 302-4, EN 302-5, EN 302-6, EN 302-7, EN 302-8, EN 15416-1, EN 15416-3, EN 15416-4 and EN 15416-5).

These European Standards have the following titles:

EN 301, *Adhesives, phenolic and aminoplastic, for load-bearing timber structures — Classification and performance requirements*

EN 302, *Adhesives for load-bearing timber structures — Test methods:*

- *Part 1: Determination of longitudinal tensile shear strength*
- *Part 2: Determination of resistance to delamination*
- *Part 3: Determination of the effect of acid damage to wood fibres by temperature and humidity cycling on the transverse tensile strength*
- *Part 4: Determination of the effects of wood shrinkage on the shear strength*
- *Part 5: Determination of maximum assembly time under referenced conditions*
- *Part 6: Determination of the minimum pressing time under referenced conditions*
- *Part 7: Determination of the working life under referenced conditions*
- *Part 8: Static load test of multiple bond line specimens in compression shear*

EN 15416, *Adhesives for load bearing timber structures other than phenolic and aminoplastic — Test methods:*

- *Part 1: Long-term tension load test perpendicular to the bond line at varying climate conditions with specimens perpendicular to the glue line (Glass house test)*
- *Part 3: Creep deformation test at cyclic climate conditions with specimens loaded in bending shear*
- *Part 4: Determination of open assembly time under referenced conditions*
- *Part 5: Determination of minimum pressing time under referenced conditions*

EN 15425, *Adhesives — One component polyurethane (PUR) for load-bearing timber structures — Classification and performance requirements*

EN 16254, *Adhesives — Emulsion polymer isocyanate (EPI) for load-bearing timber structures — Classification and performance requirements*

EN 17334, *Glued-in rods in glued structural timber products — Testing, requirements and bond shear strength classification*

EN 17418, *Two-component epoxy and polyurethane adhesives for on-site repair of cracked timber structures — Testing, requirements and repair strength verification*

### **Safety statement**

Persons using this document should be familiar with the normal laboratory practice, if applicable. This document cannot address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any regulatory conditions.

### **Environmental statement**

It is understood that some of the material permitted in this standard can have a negative environmental impact. As technological advantages lead to better alternatives for these materials, they will be eliminated from this standard to the greatest extent possible.

At the end of the test, it is recommended that the users of the standard take care to carry out an appropriate disposal of the wastes, according to local regulations.

## 1 Scope

This document specifies a laboratory method of determining the maximum assembly time at two spread rate levels in standard atmosphere [20/65].

This document is applicable to obtaining a reliable base of comparison of the maximum assembly time between adhesives at referenced conditions.

## 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 301, *Adhesives, phenolic and aminoplastic, for load-bearing timber structures - Classification and performance requirements*

EN 302-2:2023, *Adhesives for load-bearing timber structures - Test methods - Part 2: Determination of resistance to delamination*

EN 384:2016+A2:2022, *Structural timber - Determination of characteristic values of mechanical properties and density*

EN 923, *Adhesives - Terms and definitions*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 923 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

#### **assembly time**

time interval under specified conditions from spread of adhesive on the lamellae until the cramping pressure is applied

### 3.2

#### **maximum assembly time**

time interval after which an adhesive coat loses its bonding ability

## 4 Symbols

- |       |   |
|-------|---|
| $D$   | delamination  |
| $l_1$ | total delamination length on both end-grain surfaces      |
| $l_2$ | total length of the glue lines on both end-grain surfaces |