SLOVENSKI STANDARD
SIST EN 302-5:2013

01-maj-2013

Nadomešča:
SIST ENV 302-5:2002

Lepila za nosilne lesene konstrukcije - Preskusne metode - 5. del: Določanje najdaljšega časa za montažo (sestavo) pri referenčnih pogojih

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

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

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

Ta slovenski standard je istoveten z: **EN 302-5:2013**

ICS:

83.180	Lepila	Adhesives
91.080.20	Lesene konstrukcije	Timber structures

SIST EN 302-5:2013 **en,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 302-5

March 2013

ICS 83.180

Supersedes ENV 302-5:2001

English Version

Adhesives for load-bearing 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 5 February 2013.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 302-5:2013: E

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Foreword

This document (EN 302-5:2013) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by AENOR.

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of an identical text or by endorsement, at the latest by September 2013 and conflicting national standards shall be withdrawn at the latest by September 2013.

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

This document supersedes ENV 302-5:2001.

The following modifications have been made:

— The principle for the determination of maximum assembly time has been totally altered;

— The rolling ball method has been exchanged by test pieces similar to EN 302–2.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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 EN 1995, *Eurocode 5: Design of timber structures*. The series consists of three classification and performance requirements for adhesives for load-bearing timber structures; phenolic and aminoplastic adhesives (EN 301), one component polyurethane adhesive (EN 15425) and emulsion polymerized isocyanate adhesive (prEN 16254) and all together eleven test methods (EN 302 Parts 1 to 7 and EN 15416 Parts 2 to 5).

These European Standards have the following titles:

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

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

prEN 16254, *Adhesives — Emulsion polymerized isocyanate (EPI) 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*

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

— *Part 2: Static load test of multiple bondline specimens in compression shear*

— *Part 3: Creep deformation test at cyclic climate conditions with specimens loaded in bending shear*

— *Part 4: Determination of open assembly time for one component polyurethane adhesives*

— *Part 5: Determination of conventional pressing time*

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 user of the standard take care to carry out an appropriate disposal of the wastes, according to local regulations.

1 Scope

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

This European Standard is intended for obtaining a reliable base of comparison of the maximum assembly time between adhesives at referenced conditions.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 302-2:2013, *Adhesives for load-bearing timber structures — Test methods — Part 2: Determination of resistance to delamination*

EN 923:2005+A1:2008, *Adhesives — Terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 923:2005+A1:2008 and the following apply.

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 Principle

Delamination test pieces similar to EN 302-2 are produced with different assembly times for individual bond lines by using 5 mm spacers in the corners. A delamination test is performed to evaluate the maximum assembly time at which the highest allowed delamination value is exceeded.

5 Apparatus

5.1 Autoclave or similar pressure vessel, as described in EN 302-2.

5.2 Vacuum pump or similar device, as described in EN 302-2.

5.3 Pump or similar device, as described in EN 302-2.

5.4 Air-circulating oven(s) or chamber(s), as described in EN 302-2.

5.5 **Balance**, as described in EN 302-2.

5.6 **Wood chisel and hammer**,or similar devices capable of opening the glue lines.

5.7 **Spacers**, made of wood or hard plastic with a thickness of 5 mm.

6 Procedure

6.1 General

NOTE This test method has two stages: screening test (6.2) and final test (6.3).

6.1.1 Selection of timber

Make laminated members out of flat-sawn, straight-grained Norway spruce (*Picea abies* L.), free of reaction wood, with a density of (450 ± 25) kg/m³ at 12 % moisture content. Preferably, knot-free wood should be used, but allowances are made for boards with knots up to a maximum of 15 mm in diameter, but splay (spike) knot is not allowed.

Condition the timber in the standard climate (20 ± 2) °C and a relative humidity of (65 ± 5) %) for at least 7 days prior to bonding, ensuring that the timber has a moisture content of (12 ± 1) %.

6.1.2 Preparation of the bonded members

For each laminated member, prepare six lamellae (150 ± 5) mm wide, (30 ± 1) mm thick and approximately 500 mm long. The desired thickness is achieved by planing 38 mm thick lamellae. Bond the lamellae within 8 h of planing. Within each laminated member assembly, ensure that the six lamellae present the same growth ring orientation. The assembly is produced in climate (20 ± 1) °C and (65 ± 2) % relative humidity. A strict climate control is very important as small changes in air temperature and relative humidity will highly influence the drying tendency of the applied adhesive and thus influence the maximum assembly time. The circulation of air should be as low as possible.

6.1.3 Glue spread level

The assembly time is determined with two levels of glue spread: 250 g/m² and 400 g/m².

6.2 Screening test

6.2.1 General

For each level of glue spread (6.1.3) make one laminated member of six lamellae giving five glue lines with different assembly time for each glue line.

6.2.2 Adhesive application

Apply the adhesive on one side of the lamellae in accordance with the adhesive manufacturer's recommendation, as a glue mix or as separate spread of adhesive and hardener by using a ribbon spreader.

6.2.3 Lay-up

Start to apply the adhesive on the top surface of the lamellae number 2. After 2 min open assembly time, place 5 mm thick spacers in each corner and cover the glue line by placing lamellae number 1 on top of lamellae number 2.