This is a free page sample. Access the full version online.

NSAI Standards

Irish Standard
I.S. EN 15416-1:2017

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)

© CEN 2017 No copying without NSAI permission except as permitted by copyright law.

This is a free page sample. Access the full version online.

I.S. EN 15416-1:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:	*Published:*
EN 15416-1:2017	2017-01-25

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
2017-02-12	83.180
	NOTE: If blank see CEN/CENELEC cover page

NSAI	T +353 1 807 3800	Sales:
1 Swift Square,	F +353 1 807 3838	T +353 1 857 6730
Northwood, Santry	E standards@nsai.ie	F +353 1 857 6729
Dublin 9	W NSAI.ie	W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

This is a free page sample. Access the full version online.

National Foreword

I.S. EN 15416-1:2017 is the adopted Irish version of the European Document EN 15416-1:2017, 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)

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This is a free page sample. Access the full version online.

This page is intentionally left blank

This is a free page sample. Access the full version online.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15416-1

January 2017

ICS 83.180

English Version

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)

Adhésifs pour structures portantes en bois de type autre que phénolique et aminoplaste - Méthodes d"essais - Partie 1 : Essai de charge soutenue à long terme dans des conditions climatiques cycliques avec des éprouvettes chargées perpendiculairement au joint de colle (essai de la serre)

Klebstoffe für tragende Holzbauteile ausgenommen Phenolharzklebstoffe und Aminoplaste - Prüfverfahren - Teil 1: Langzeit-Zugprüfung senkrecht zur Klebfuge bei verschiedenen Klimabedingungen mit Prüfkörpern senkrecht zur Klebstofffuge (Glashaus-Prüfung)

This European Standard was approved by CEN on 30 October 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

© 2017 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN 15416-1:2017 E

This is a free page sample. Access the full version online.

Contents

Page

European foreword ... 3

Introduction ... 5

1 Scope ... 6

2 Normative references ... 6

3 Principle ... 6

4 Apparatus ... 6
4.1 House for weather exposure ... 6
4.2 Test jig ... 6
4.3 Testing machine ... 8

5 Method ... 9
5.1 General ... 9
5.2 Selection of timber ... 9
5.3 Production of the test sticks ... 9
5.4 Cutting of the test pieces and build-up of the test batches ... 11
5.5 Test procedures ... 11
5.5.1 General ... 11
5.5.2 Climate for duration of load tests ... 12
5.5.3 Tensile test procedure ... 12

6 Expression of results ... 12

7 Requirements ... 12

8 Test report ... 13

Bibliography ... 14

This is a free page sample. Access the full version online.

European foreword

This document (EN 15416-1:2017) 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 July 2017, and conflicting national standards shall be withdrawn at the latest by July 2017.

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 is intended to harmonize the provisions in EN 14080:2013, B.2, EN 15497:2014 and EN 16254:2013+A1:2016, Annex B and EN 16351. It differs with respect to the following:

a) consistent specification of the test method for the determination of the long-term performance at varying climate conditions in one standard;

b) reference to EN 16254 for EPI adhesives added in the scope;

c) Figure 1 and Figure 2 for connection device added;

d) alternative cutting scheme of the components of the test sticks presented in Figure 4.

This document is one of a series dealing with adhesives for use with timber structures, and is published in support of product standards for bonded load-bearing 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 adhesives (EN 15425) and emulsion polymerized isocyanate adhesives (EN 16254), together with 12 test methods (EN 302 Parts 1 to 8 and EN 15416 Parts 1 and 3 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 (PUR) for load-bearing timber structures - Classification and performance requirements*

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

EN 302-1, *Adhesives for load-bearing timber structures — Test methods — Part 1: Determination of longitudinal tensile shear strength*

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

EN 302-3, A*dhesives for load-bearing timber structures — Test methods — Part 3: Determination of the effect of acid damage to wood fibres by temperature and humidity cycling on the transverse tensile strength*

This is a free page sample. Access the full version online.

EN 302-4, *Adhesives for load-bearing timber structures — Test methods — Part 4: Determination of the effects of wood shrinkage on the shear strength*

EN 302-5, *Adhesives for load-bearing timber structures — Test methods — Part 5: Determination of maximum assembly time under referenced conditions*

EN 302-6, *Adhesives for load-bearing timber structures — Test methods — Part 6: Determination of the minimum pressing time under referenced conditions*

EN 302-7, *Adhesives for load-bearing timber structures — Test methods — Part 7: Determination of the working life under referenced conditions*

EN 302-8, *Adhesives for load-bearing timber structures — Test methods — Part 8: Static load test of multiple bond line specimens in compression shea*r

EN 15416-1, A*dhesives 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)*

EN 15416-3, *Adhesives for load bearing timber structures other than phenolic and aminoplastic — Test methods — Part 3: Creep deformation test at cyclic climate conditions with specimens loaded in bending shear*

EN 15416-4, *Adhesives for load bearing timber structures other than phenolic and aminoplastic — Test methods — Part 4: Determination of open assembly time under referenced conditions*

EN 15416-5, *Adhesives for load bearing timber structures other than phenolic and aminoplastic — Test methods — Part 5: Determination of minimum pressing time under referenced conditions*

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

This is a free page sample. Access the full version online.

Introduction

Safety statement

Persons using this European Standard should be familiar with the normal laboratory practice, if applicable. This European Standard 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 European Standard may have negative environmental impact. As technological advantages lead to better alternatives for these materials, they will be eliminated from this European Standard to the extent possible.

At the end of the test, it is recommended that the user of this European Standard take care to carry out an appropriate disposal of the wastes, according to local regulation.

This is a free page sample. Access the full version online.

1 Scope

This European Standard specifies a method of determining the ability of adhesive bonds to resist long-term sustained load applied vertical to the glue lines. It is applicable to adhesives used in load-bearing timber structures.

It is suitable for the following applications:

a) for assessing the compliance of adhesives according to EN 15425 and EN 16254;

b) for assessing the suitability and quality of adhesives for load-bearing timber structures;

c) for assessing the effect on the bond strength resulting from long-term sustained load at cyclic climate conditions.

This method is intended primarily to obtain performance data for the classification of adhesives for load bearing timber structures according to their suitability for use in defined climatic environments.

This method is not intended to provide data for structural design, and does not necessarily represent the performance of the bonded member in service.

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 302-3:2013, *Adhesives for load-bearing timber structures — Test methods — Part 3: Determination of the effect of acid damage to wood fibres by temperature and humidity cycling on the transverse tensile strength*

3 Principle

Bonded test pieces are subjected to long-term sustained load applied vertical to the glue lines at cyclic climate conditions. The test climate is at natural outdoor conditions in Europe between latitude 45° and 60°. The loaded samples are protected with light penetrable covering (“Glass house”).

4 Apparatus

4.1 House for weather exposure

The weather exposure shall take place in a natural ventilated house covered with a light penetrating material where the air can circulate through openings along the floor and the roof.

4.2 Test jig

The 10 samples, making a test set for each of the 3 duration of load times, shall be placed in a suitable test jig and loaded with a transverse tensile load according to 5.5.1. The test jigs shall enable a smooth loading of the test pieces. The individual samples shall be free to rotate to secure that the load will be applied 90° to the glue lines.

NOTE Test jigs with a hanging dead load for the load application in combination with a vertical loading of the individual specimens using a principle as visualized in Figure 1 and Figure 2, has shown to be a suitable method.

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation