

Adhesives - Emulsion polymerized isocyanate (EPI) for load-bearing timber structures - Classification and performance requirements

## EESTI STANDARDI EESSÕNA

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English Version

## Adhesives - Emulsion polymerized isocyanate (EPI) for load-bearing timber structures - Classification and performance requirements

Adhésifs - Isocyanate polymérisé en émulsion (EPI) pour structures portantes en bois - Classification et exigences de performance

Klebstoffe - Emulsionspolymerisiertes Isocyanat (EPI) für tragende Holzbauteile - Klassifizierung und Leistungsanforderungen

This European Standard was approved by CEN on 22 June 2013 and includes Amendment 1 approved by CEN on 9 February 2016.

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

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## European foreword

This document (EN 16254:2013+A1:2016) 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of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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 includes Amendment 1 approved by CEN on 2016-02-09.

This document supersedes EN 16254:2013.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

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 emulsion polymerised isocyanate (EPI) adhesives for use with timber structures, and is published in support of product standards for bonded load-bearing timber structures.

The series consists of:

- one standard for classification and performance requirements (EN 16254),
- seven test methods (EN 302-1, EN 302-2, EN 302-3, EN 302-4, EN 15416-2, EN 15416-3 and the method given in Annex B of this standard (“Glass house”)) used to assess the performance of adhesives after specified heat and humidity treatments, and
- three test methods (EN 302-7, EN 15416-4 and EN 15416-5) to characterise the working properties of the adhesive.

## 1 Scope

This European Standard establishes a classification for emulsion polymerised isocyanate (EPI) adhesives according to their suitability for use in load-bearing timber structures in defined climatic exposure conditions, and specifies performance requirements for such adhesives for the industrial manufacture of load-bearing timber structures only.

**A1)** The performance requirements of this European Standard apply to the adhesives only, not to the timber structure. This European Standard does not cover the performance of adhesives for on-site gluing (except for factory-like conditions) nor the production of wood-based panels, except solid wood panels, or modified and stabilized wood with considerably reduced swelling and shrinkage properties, e.g. such as acetylated wood, heat treated wood and polymer impregnated wood. **A1)**

This European Standard is primarily intended for the use of adhesive manufacturers and for the use in timber structures bonded with adhesives, to assess or control the quality of adhesives. This European Standard only specifies the performance of an adhesive for use in an environment corresponding to the defined conditions.

Such an adhesive meeting the requirements of this European Standard for its type is adequate for use in a load-bearing timber structure, provided that the bonding process has been carried out according to an appropriate product standard.

## 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 302-1, *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, *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*

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

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

EN 15416-2, *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*

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 for one component polyurethane adhesives*

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

### 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 emulsion polymerised isocyanate (EPI) adhesive**  
water based emulsion polymer or a mixture of water based emulsion polymers cross-linked with an isocyanate as hardener

**3.2 service class 1**  
climatic conditions characterised by a moisture content in the materials corresponding to a temperature of 20 °C and the relative humidity of the surrounding air only exceeding 65 % for a few weeks per year

[SOURCE: EN 1995-1-1:2004, 2.3.1.3]

Note 1 to entry: In service class 1, which comprises typical indoor conditions, the average moisture content in most soft-woods will not exceed 12 %.

**3.3 service class 2**  
climatic conditions characterised by a moisture content in the materials corresponding to a temperature of 20 °C and the relative humidity of the surrounding air only exceeding 85 % for a few weeks per year

[SOURCE: EN 1995-1-1:2004, 2.3.1.3]

Note 1 to entry: In service class 2, to which most covered exterior conditions belong, the average moisture content in most soft-woods will not exceed 20 %.

**3.4 service class 3**  
climatic conditions leading to higher moisture contents than in service class 2

[SOURCE: EN 1995-1-1:2004, 2.3.1.3]

Note 1 to entry: Exterior conditions typically belong to service class 3.

**3.5 glue line**  
adhesive layer between the wood members

**3.6 close contact glue line (cc)**  
glue line of thickness maximum 0,1 mm